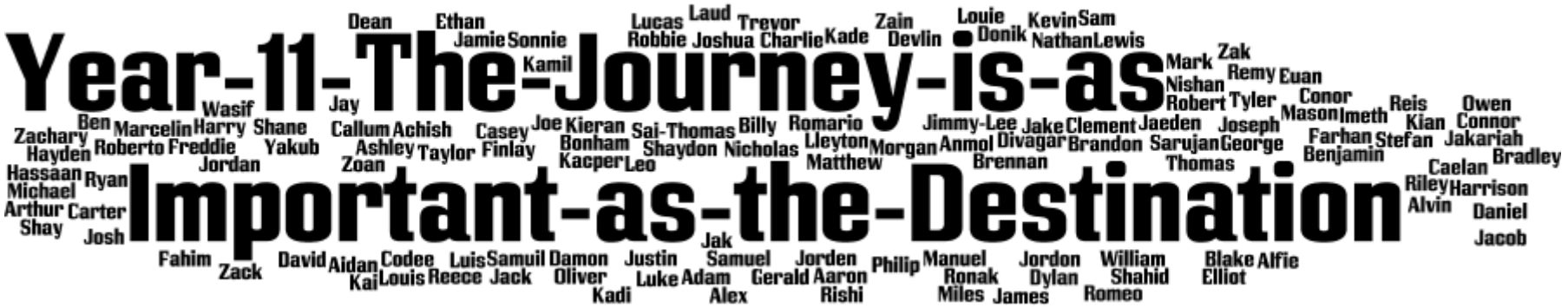
Carshalton Boys Sports College

Year 11



Outstanding outcomes for all

ART

Expressive Portraits

Week #	Key Concept Question	Individual Lessons (with #) – *click on the link for lesson resources.*	Shared Outcomes – *what must be produced by the end of the conceptual focus.*	Homework (suggested)
To be taught during term 1 (September – December)				
1	Drawing a self- portrait using a mirror Mark making	Expressive Portraiture File 1. Recap on how to sketch the proportions of the face and looking at the direction of light before applying tone and mark making. Pupils use mirrors to draw their face. A3 using charcoal 2. Copy a portrait using marks and scribbles. A4 in pencil. Teacher demo. Teacher takes photos of each student to print for next lesson	☑ *A3 Self-portrait in charcoal* ☑ *A4 Scribble portrait*	**HW1:** Self-portrait scribble drawing
2 & 3	Expressive mark making techniques Using a grid Watercolour painting techniques	3. Re-cap on skills learnt in previous lesson. Pupils working over a black and white photo of themselves in black pen using marks and scribbles 4. Working on plain paper, copying the marks used in the last drawing but using different colour pastel pencils to show tone around the features. Teachers shows examples 5. Discussion on expressive mark making using oil pastels. How does the mood of the portrait differ to a realistic portrait? 6. Pupils copy image using oil pastels drawing using expressive marks and colours 7. Pupils copy an expressive watercolour portrait looking at the application of paint and colour. Instructions on using a grid technique to get the size and proportions correct	☑ *A4 Pastel pencil drawing* ☑ *A4 Oil pastel portrait* ☑ *A4 watercolour portrait*	**Collect HW** **HW2:** Copy enlarged section of colour pencil drawing
4 - 6	Annotating work Analysing an artwork Pastel drawing techniques Acrylic painting techniques: colour mixing, blending, mark making	8. Annotate work so far 9. Analysis of Peter Howson portrait 10. Pupils copy a Howson portrait in chalk or oil pastel 11. Pupils copy an expressive painting in acrylic paint. Choose from a variety of artists, copy in pencil using either the grid or freehand. Discussion and demo on the application of paint and marks using a brush or pallet knife	☑ *All black pages annotated* ☑ *A3 Pastel copy* ☑ *A4 acrylic portrait*	**HW3:** Type up analysis in full **Collect HW** **HW4:** Analyse the chosen artist using the analysis guide

7 & 8	Design and produce a final portrait considering composition, subject, materials, artistic style	12. Teacher shows a variety of expressive portraits using different materials and mixed media. Discussion about the models - their pose, clothing, facial expression etc. 13. Explain how they are now going to <u>develop their own expressive portrait</u> taking inspiration from the work they have done so far 14. Pupils copy the HW image they chose A3 size in their choice of appropriate material (canvas/card/paper/watercolour paper/mixed media)	☑ *A3 portrait/own choice of subject and materials*	**HW5:** Take a photo of either themselves or a friend, parent to draw for final piece. Think about the angle of the photo, clothing etc. If it is not possible to take a photo then find a photo on the internet.
9 & 10	Mixed media materials and processes Collage techniques Annotating and evaluating own work	15. Pupils use pencil to <u>draw over the photocopied</u> photo chosen from HW. Pupils work over sections, drawing with 3 different materials (used previously in the SOW) 16. Teacher introduces <u>collage materials and techniques</u> to use on this portrait. Pupils use the style of their chosen artist to relate to 17. Annotate work to explain the materials and decide which one or combination of materials will be used in their final piece	☑ *A4 mixed media portrait* ☑ *Evaluate mixed media picture*	**Collect HW** **HW6:**
11 & 12	Contour drawing Creating a personal response: Final portrait piece Annotating and evaluating own work	<u>Final Piece Lessons 13-16</u> 18. Teacher instructions on executing a <u>final piece</u> 19. Pupils to decide on size, materials and style 20. Pupils draw out an outline of their portrait from their previous photo 21. Pupils produce their picture by applying colour and mark making techniques in their chosen materials and artistic style 22. <u>Evaluation of final piece</u>	☑ *Final portrait A3 or larger* ☑ *All black sheet annotated and final piece evaluated*	**Collect HW** **HW7:** Complete any unfinished work

Expressive Portraits

Week #	Key Concept Question	Individual Lessons (with #) – *click on the link for lesson resources.*	Shared Outcomes – *what must be produced by the end of the conceptual focus.*	Homework (suggested)
To be taught during term 1 (September – December)				
1	Brief history of portraiture Drawing the proportions of a face accurately Drawing facial features	23. Introduction to portraiture: Examples of portraits from different centuries 24. Students copy a drawing of a woman's head shown facing forward and in profile view focusing on the main head proportions in both views. Start with the forward facing head and finish in this lesson. Teacher explains how to measure different sections and find exactly where all facial features are positioned. A3 paper 25. Copy the profile view from the proportions sheet. Students are reminded about the proportions and the importance of measuring 26. Facial Features discussion – What makes us unique? 27. Students practice drawing the facial features from the sheet, making sure they finish at least a shaded drawing of an eye, nose and mouth. Drawing the ear as extension task. In sketchbook	☑ *Female portrait A3 pencil drawing* ☑ *Profile drawing* ☑ *Facial features drawings*	**HW1:** Proportions of the head **Collect HW** **HW2:** Facial Features & Female portrait pencil copy
2	Drawing a self portrait	28. Introduction to drawing a self-portrait. Students draw a self-portrait by looking in a mirror. During this lesson they focus on accurate proportions by measuring. They learn the difference between the traditional and individual proportions by checking if their face follows the traditional guidelines. 29. Teacher takes photos of each pupil in the position that his self-portrait has been drawn and prints them out ready for next lesson 30. Students are given the option to draw from their photograph or keep using the mirror. Teacher does a 5 min demonstration on how to shade the face using variety of tones and showing detail	☑ *A3 shaded self portrait*	**Collect HW** **HW3:** Drawing a head in different positions. Pictures provided by teacher **http://www.ingetang.com/praxis/kompendium/hvordan-tegne-hoder-fra-ulike-vinkler/**

3 & 4	Re-producing an artists' portrait Colour pencil techniques	<u>John Lennon pencil portraits:</u> Discussion on how the artist has realistically drawn Lennon's face from the B&W photo 31. Drawing a portrait from a photograph – variety of styles, mediums and interpretations but keeping the proportions accurate 32. <u>How do shade a portrait using colour pencils</u>. Learn how to blend, layer colours and apply marks using colour pencils	☑ *A4 copy of Lennon* ☑ *A4 colour pencil portrait*	**Collect HW** **HW4:** Choose a colour photo of a person or a portrait drawing to copy. Shade using colour pencils.
5	Watercolour painting techniques	33. <u>Watercolour portraits:</u> Choice of 3 portraits to copy on A4 paper. Pupils learn how to mix skin tones and build layers of tone across the face	☑ *Watercolour swatches* ☑ *A4 watercolour painting*	**Collect HW**
6 & 7	Analysing an artwork Gridding an image Acrylic painting techniques	34. <u>Painting a portrait in acrylic</u>: Discussion on Edward Hopper's self-portrait. Pupils take notes to continue researching and write up in paragraph format for HW 35. Demonstration on how to grid and scale up an image. Pupils <u>draw the grid and copy the Hopper portrait</u> A4 size. Pupils draw the portrait 36. Demonstration on mixing skin tones in acrylic and techniques of application and layering across a face. Pupils paint the portrait 37. Instructions an discussion on HW and <u>planning for final piece</u> in own choice of painting style	☑ *A4 acrylic Hopper painting*	**HW5:** <u>Write up Hopper analysis</u> **Collect HW** **HW6:** Create a PP presentation explaining the artistic style you want to develop your portrait work in. 1 paragraph plus colour examples
8 & 9	Acrylic painting techniques	38. <u>Pupils produce a portrait from their HW image A4</u> 39. <u>Introduction to final piece</u>: Teacher talks through how pupils will develop their own portrait final piece in the artistic style of their choice. Who the subject will be; how can props/clothing/jewellery and the background show the sitter's personality, mood and interests and tell a story. Discussion on how a portrait can tell a story and pass a message to the viewer	☑ *A4 acrylic portrait*	**HW7:** Analyse 1 artwork in this style **HW8:** Choose a photo to paint (in class) in a material of your choice. Say how this work will inspire your own portrait

10-12	Designing and Producing a personal response Annotation and evaluation of work	40. Students are shown a selection of different portrait artists and their interpretation of portraiture focusing on the personality of the person being portrayed – Salvador Dali, Frida Kahlo etc. Discuss the use of different backgrounds to support the mood, meaning, idea and message to the viewer – letters, newspaper, objects, landscapes etc. Teacher explains how adding more texture, detail and meaning can improve the quality of their work 41. Pupils design a portrait in their own style inspired by the artist they have chosen. Students choose the material they feel more comfortable with and follow the composition of their preparatory shaded drawing. A4 - A3 size/paper/card/canvas. 42. Pupils annotate all black pages and evaluate their final piece. Must use key terminology and refer to the formal elements	☑ *Final portrait piece* ☑ *All black pages annotated* ☑ *Final piece evaluated*	**HW9:** A4 shaded drawing of their final portrait image for planning page **Collect HW** Complete any unfinished work

Business Studies

week	Key Concept Question	Individual Lessons (with #) – *click on the link for lesson resources.*	Shared Outcomes – *what must be produced by the end of the conceptual focus.*	Homework (suggested)
1	**AC3.1 Design research tools-Mystery Shopper-Store**	1. Introduction to Unit 2. Mystery Shopper – Mary Portas 3. Designing Mystery Shopper Forms	☑ Class create their own mystery shopper form for fictitious retail business. Create using google docs on google classroom. ☑ **Teacher assessed on google classroom**	
2	**AC3.1 Design research tools-Mystery Shopper-Store**	4. Designing Questionnaires 5. Designing Questionnaires 6. Designing Questionnaires	☑ Class create their own Questionnaires form for fictitious retail business. Create using google docs on google classroom. ☑ **Teacher assessed on google classroom**	
3	**AC3.2 Process information**	7. How to process information captured by research. Show examples of research. Show how to 'tell' what the data is telling you. 8. Process Data Supplied by teacher 9. Analyse processed data and write up	☑ Students see processed data and make statements about what the data is 'telling' them. ☑ Students process data and produce graphs from the data	

4	**AC3.4 Draw conclusions from research**	10. Lesson – How to draw conclusions from data. How to report it. 11. In–class work. Sample Data Given. Process, analyse, report 12. In–class work. Sample Data Given. Process, analyse, report	☑ Students spend two supervised lessons, processing, analysing and drawing conclusions from the data supplied. ☑ Students produce a report of this work on google docs in google classroom. ☑ **Work is Paths Assessed**	
5	**AC1.1 Describe principles of customer service**	13. Customer Service Standards for Bus-A are shared (ASDA Video) 14. <u>The Eight Principles of Customer Service. Research John Lewis</u> 15. The Eight Principles of Customer Service.	☑ 8 Principles of customer service applied to John Lewis. ☑ Work to be completed on google classroom. ☑ Homework to complete John Lewis work on google classroom.	
6	**AC1.2 Describe situations when customers interact with retail businesses**	16. Situations when customers interact with retail employees. In –class group work. Presentations by groups. 17. Presentations presented. Teacher led discussion on situations. 18. <u>State WJEC situations.</u> Apply situations to John Lewis. Class write up the situations.	☑ **John Lewis work PATHS Assessed** ☑ Homework – complete John Lewis situations write-up on google classroom.	

Citizenship

Topic 1 Role of the media and free press

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	What is the importance of a free press within a democracy?	1/ A free press: legal rights and responsibilities 2/ Role and importance of media in a democracy 3/ Assessment: Media rights/responsibilities; role/importance of media	☑	1.
2	Are there limits to free speech within in the media?	4/ Media regulation and censorship I 5/ Media regulation and censorship I 6/ Assessment: Media rights/responsibilities; role/importance of media; media regulation and censorship.	☑	2.
3	How does the media influence public opinion?	7/ Media and public opinion I 8/ Media and public opinion II 9/ Assessment: Media rights/responsibilities; role/importance of media; media regulation and censorship; media and public opinion	☑	3.
4	How can I revise? What knowledge have I acquired?	10/ Revision and consolidation (whole unit) 11/ Assessment (whole unit) 12/ Feeding forward (whole unit)	☑	4.

Topic 2 Citizenship participation in the UK

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	How can citizens participate in democracy and society	1/ Active Citizenship and opportunities for participation 2/ Barriers to and importance of participation in democracy. 3/ Assessment: Active citizenship / participation; barriers / importance of participation	☑	5.
2	How can participation be increased?	4/ Participation and social media/digital democracy 5/ Increasing participation and voter engagement 6/ Assessment: Active citizenship / participation; barriers / importance of participation; social media / digital democracy; increasing participation	☑	6.
3	What can we learn from specific examples / case studies of participation?	7/ Assessing ways of participating: examples (see spec) 8/ Assessing ways of participating: case studies 9/ Assessment: Active citizenship / participation; barriers / importance of participation; social media / digital democracy; increasing participation; assessing ways of participating	☑	7.
4	How can I revise? What knowledge have I acquired?	10/ Revision and consolidation (whole unit) 11/ Assessment (whole unit) 12/ Feeding forward (whole unit)	☑	8.

Topic 3 Identity and Diversity

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	What are British values? Why is British identity so complex?	1/ Britishness and British values 2/ UK identity: complex and multiple 3/ Assessment: Britishness/British values; UK identity	☑	p.162-166

2	Why have people come to or left the UK?	4/ Why people migrate (including asylum) 5/ Migration to and from the UK 6/ Assessment: Britishness/British values; UK identity; migration;	☑	p.167-175
3	What are the benefits and costs of immigration?	7/ Immigration debate I 8/ Immigration debate II 9/ Assessment: Britishness/British values; UK identity; migration; immigration debate	☑	p.175-176
4	How can community cohesion be improved?	10/ Community cohesion – what is it and why is it important 11/ Promoting community cohesion 12/ Assessment: Britishness/British values; UK identity; migration; immigration debate	☑	p.177-179
5	How can revise? What knowledge have I gained?	13/ Revision and consolidation (whole unit) 14/ Assessment (whole unit) 15/ Feeding forward (whole unit)	☑	p.28-47

Computer Science

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these key statements at the end of each lesson)*	PLC tests / Exam Questions / PATHS	OCR Learning Outcomes (9-1 pathways)
Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs				
Set classwork homework to test pupils' understandings and knowledge				
Computational Thinking				
1	**Data Representation** At the end of this Unit **all** students should be able to: Explain why all data needs to be converted to binary before the computer can process it Convert positive denary whole numbers (0-255) into 8-bit binary numbers and vice versa Convert between binary and hexadecimal Explain the use of binary codes to represent characters	1. Data Representation Lesson 2. Data Representation Lesson 3. Data Representation Lesson PLC14		•

	Understand the term 'character set' Explain the relationship between the number of bits per character and the number of characters which can be represented Perform a binary shift **Most** students will be able to: Add two binary integers and explain overflow errors Explain why hexadecimal numbers are used to represent binary data Explain the effects of a binary shift Explain the purpose of a check digit **Some** students will be able to: Explain how the computer distinguishes between instructions and data Calculate a check digit			
2	**Images, Sounds & Compression.** At the end of this Unit **all** students should be able to: Explain the representation of an image as a series of pixels represented in binary Explain how sound can be sampled and stored in digital form Explain the need for compression **Most** students will be able to: Discuss the effect of colour depth and resolution on the size of an image file Explain how sampling intervals and other considerations affect the size of a sound file Explain the effect of different types of compression **Some** students will be able to: Explain how instructions are coded as bit patterns	4. Data Representation Revision session 5. Data Representation PLC Skills Test 6. Issue Images, sound & compression PLC - Lesson 7. Images, sounds and compression lesson	PLC 14 Test	•
3	Explain how sampling intervals affect quality of the playback of a sound file	8. Images, sounds and compression lesson. Exercises 9. Images, sounds and compression revision 10. Images, sounds and compression PLC test	Exam Question PATHS marked PLC 15 Skills Test Data Representation Online HWK Test	•

4	**Translators** Characteristics and purpose of different levels of programming language, including low level languages The purpose of **translators** The characteristics of an **assembler**, a **compiler** and an **interpreter** ➢ common tools and facilities available in an integrated development environment (IDE): ➢ editors ➢ error diagnostics ➢ run-time environment translators.	11. NEA Session 1 (Introduce & explain-Ideas) 12. Issue Translators PLC - Lesson 13. Translators Lesson 2 14. Translators extended answer's lesson	Extended question Homework	•
5		15. Translators extended answer's practise 16. Translator's extended answer test 17. Issue robust programming PLC –Lesson 1	Translator Extended Exam Question – PATHS marked PLC 13 Test	•
6	1.defensive design considerations: ➢ input sanitisation/validation ➢ planning for contingencies ➢ anticipating misuse ➢ authentication 2. maintainability: ➢ comments ➢ indentation 3. the purpose of testing 4. types of testing: ➢ iterative ➢ final/terminal 5. How to identify syntax and logic errors 6. Selecting and using suitable test data.	18. NEA Session 2 (Build Files to support NEA) 19. Robust programming– Lesson 2 20. Robust programming– Lesson 3 21. Robust programming PLC test	Translators Online HWK Test PLC 11 Test	•
7	At the end of this Unit **all** students should be able to: • Recognise standard symbols used to represent NOT, AND OR, NAND, NOR and XOR logic gates • Draw truth tables for the above logic gates • Describe some simple validation checks that can be applied to data • Select test data that covers normal (typical), boundary (extreme) and erroneous data • Complete a trace table to trace through a simple algorithm • Give examples of high-level and low-level languages • Give advantages of high-level languages over low-level languages • Explain the differences between a compiler, interpreter and assembler **Most** students will be able to:	22. Issue Computational Logic PLC Lesson 1 23. Computational Logic Lesson 2 24. Computational Logic exercises/Lesson 3	Revise Comp Logic over Half Term. Also revise Computer Systems by answering Exam Questions (set prior)	•

	• Recognise a logic gate from its truth table • Draw a logic circuit to solve a given problem • Detect and correct errors in simple algorithms • Use a trace table to find errors or determine the purpose of an algorithm • Be able to justify the choice of test data • Give examples and reasons of when it might be appropriate to use a low-level language • Give examples of when it would be appropriate to use a compiler and interpreter **Some** students will be able to: • Draw a logic circuit to implement a given written logic statement • Write more complex authentication routines • Write robust programs that apply checks to data entered by the user		Images, sounds and compression Online HWK Test	
8	At the end of this Unit **all** students should be able to: • identify and use variable types integer, real, Boolean, character and string • identify variables and constants in a program • use meaningful identifier names and know why it is important to use them • use arithmetic operations including mod and div • use Boolean operators in pseudocode solutions • show the results of basic string manipulation functions • use random number generation • follow through pseudocode solutions to simple problems involving sequence, selection and iteration • explain why functions and procedures are used in creating solutions to problems • use simple functions and procedures that return values to the calling program **Most** students will be able to: • write pseudocode solutions to simple problems involving sequence, selection and iteration • use nested selection and iteration statements • use Boolean operations NOT, AND and OR within conditions for iterative and selection structures • use basic string manipulation functions in pseudocode solutions • give examples of data structures: arrays and records • use one-dimensional arrays in the design of solutions to simple problems • write simple functions and procedures using parameters • read from and write to a text file **Some** students will be able to: • explain what is meant by a data structure and why these are used • use two-dimensional arrays in the design of solutions to simple problems • explain why it is good practice to use local variables	25. NEA Session 3 (File Handling using Python) 26. Computational Logic PLC test 27. Issue Programming Techniques PLC. Lesson 1 28. Prog Tech Lesson 2	PLC 12 Test	•

9		29. Prog Tech Lesson 3 30. Prog Tech Lesson 4 31. Prog Tech PLC Test	PLC 10 Test	•
10	At the end of this Unit **ALL** students should be able to: state what is meant by an algorithm state what is meant by abstraction state what is meant by decomposition state the sequence in which items in a sorted list will be examined in a linear and binary search state the advantages and disadvantages of a linear and binary search state an advantage of the merge sort and insertion sort over the bubble sort show the state of a list after the first pass in a bubble sort use a flowchart to define the steps in a simple algorithm trace through a simple flow diagram or algorithm to determine the output **MOST** students will be able to: explain how abstraction is used in a given scenario explain how decomposition may be used in an algorithm for a given problem explain how a binary search works explain how a bubble sort works show the state of a list at a given point in a bubble sort, merge sort or insertion sort interpret, correct or complete a short algorithm **SOME** students will be able to: use pseudocode to define the steps in a complex algorithm explain how a merge sort and an insertion sort work correct or complete a complex algorithm	32. NEA Session 4 (Design Solution – 1) 33. Algorithms – Revision – Issue PLC. Recap of content. Set date for PLC test. Lesson 1. 34. Recap Lesson 2 35. Recap Lesson 3		•
11	At the end of this Unit **ALL** students should be able to: use pseudocode to define the steps in a simple algorithm trace through a simple pseudocode algorithm to determine the output **MOST** students will be able to: interpret, correct or complete a short algorithm written in pseudocode **SOME** students will be able to: use pseudocode to define the steps in a complex algorithm	36. Algorithms PLC test 37. Pseudo code Lesson 1 38. Psuedo code Lesson 2	PLC 9 Test	•
12	At the end of this Unit all students should be able to: • Understand the purpose of the CPU • Explain the role and operation of the following CPU registers used in Von Neumann architecture:MAR (Memory Address Register),MDR (Memory Data Register),Program Counter,Accumulator	39. NEA Session 5 (Design Solution 2) 40. Pseudo code test	Pseudo code Test	•

	• Describe common CPU components and their function: ALU (Arithmetic Logic Unit), CU (Control Unit), Cache • Explain the function of the CPU as fetch and execute instructions stored in memory • Describe how common characteristics of CPUs affect their performance: clock speed, cache size, number of cores • Explain the purpose and give examples of embedded systems	41. Systems Architecture and Memory <u>revisited</u>. PLC 1 issued 42. Systems Architecture <u>revisited</u>		
13	• Describe the difference between RAM and ROM • Describe the purpose RAM and ROM in a computer system • Explain the need for virtual memory • Describe flash memory • Discuss the need for secondary storage including optical, magnetic and solid state storage • Discuss data capacity of storage devices and • Calculate data capacity requirements • Evaluate suitable storage devices and storage media for a given application using the following characteristics: capacity, speed, portability, durability, reliability, cost • Describe what a computer is. • Describe what the inputs and outputs to a computer system are, and give examples.	43. Systems Architecture <u>revisited</u> 44. Storage <u>Revisited</u>. PLC 2 issued 45. Storage <u>Revisited</u>	PLC 1 Test	•
14		46. NEA Session 6 47. NEA Session 7 48. NEA Session 8 & 9	PLC 2 Test Xmas Homework – Exam Papers. Use OCR Examples	• **X mas**
15	At the end of this Unit **all** students should be able to: • Explain the advantages of networking stand-alone computers into a local area network • Explain the difference between a client-server and a peer-to-peer network • Describe the differences between a local area network and a wide area network such as the Internet • Describe the nature of the Internet as a worldwide collection of computer networks • Identify different transmission media **Most** students will be able to: • Explain the different roles of computers in a client-server and a peer-to-peer network • Explain the terms IP addressing, MAC addressing, packet and protocols • Describe network policies such as acceptable use, disaster recovery, backup and archiving • Describe the hardware needed to connect to the Internet including routers and switches • Explain the need for IP addressing of resources on the Internet and how this can be facilitated by the role of DNS servers • Describe the concept of hosting and Cloud services • State the advantages of different transmission media	49. Wired & Wireless Networks Revisited-PLC 3 50. 51.	PLC 3 Test	•

	Some students will be able to: • Describe the different layers in the TCP/IP protocol stack and the protocols used at each stage • Explain the advantages of layering in this context • Explain how Wi-Fi frequencies and channels affect connectivity and transmission			
16	At the end of this Unit **all** students should be able to: • Explain the advantages of networking stand-alone computers into a local area network • Explain the difference between a client-server and a peer-to-peer network • Describe, using diagrams or otherwise, the star and mesh network topologies • Describe the differences between a local area network and a wide area network such as the Internet • Describe the nature of the Internet as a worldwide collection of computer networks • Identify different transmission media **Most** students will be able to: • Explain the different roles of computers in a client-server and a peer-to-peer network • Explain the terms IP addressing, MAC addressing, packet and protocols • Describe network policies such as acceptable use, disaster recovery, backup and archiving • Describe the hardware needed to connect to the Internet including routers and switches • Explain the need for IP addressing of resources on the Internet and how this can be facilitated by the role of DNS servers • Describe the advantages and disadvantages of star and mesh network topologies • Explain the concept of encryption, giving examples • Describe the concept of hosting and Cloud services • State the advantages of different transmission media **Some** students will be able to: • Describe the different layers in the TCP/IP protocol stack and the protocols used at each stage • Explain the advantages of layering in this context • Explain how Wi-Fi frequencies and channels affect connectivity and transmission	52. NEA Session 9 & 10 53. Networks Revisited-PLC 4 54. 55.	PLC 4 Test	•
17	At the end of this Unit **all** students should be able to: • list some of the threats posed to networks, including malware and phishing • explain briefly what is meant by phishing and how to keep data safe from phishing attacks • list precautions which can be taken to keep data safe from hackers including anti-malware software, firewalls, user access levels, passwords and encryption • list the functions of an operating system: user interface, memory management, multi-tasking, peripheral management, user and file management • explain briefly what is meant by memory management and multi-tasking • describe briefly the purpose of encryption, defragmentation and data compression software • describe different types of user interface **Most** students will be able to:	56. System Security Revisited-PLC 5 57. 58.	PLC 5 Test	•

	• describe briefly threats posed to networks including brute force attacks, denial of service attacks, data interception and theft, poor network policy • describe ways of identifying and preventing network vulnerabilities, including the use of passwords, encryption, penetration testing, network forensics and network policies • explain what is meant by a social engineering attack and give examples • explain what is meant by a Denial of Service attack and brute force attack **Some** students will be able to: • explain the concept of SQL injection • explain briefly why increasing the length of an encryption key increases the strength of encryption			
18	**Most** students will be able to: • describe the basic functions of an operating system: user interface, memory management, multi-tasking, peripheral management, user and file management • describe utility system software: encryption software, defragmentation, data compression • describe methods of backup (full and incremental) **Some** students will be able to: • explain the need for the following functions of an operating system: memory management, peripheral management, multi-tasking and user management	59. System Software Revisited-PLC 6 60. 61. 62.	PLC 6 Test	•
19	At the end of this Unit **all** students should be able to: • List some ethical, legal, cultural or environmental issues in relation to a given scenario • List some privacy issues in relation to a given scenario • Choose from a given list, which Act is relevant to a particular scenario • List one attribute and advantage of open source software and proprietary software **Most** students will be able to: • Describe some ethical, legal, cultural and/or environmental issues in relation to a given scenario • Describe some privacy issues in relation to a given scenario • Describe the differences between open source and proprietary software and give advantages of each **Some** students will be able to: • List the clauses of the Data Protection Act and Computer Misuse Act and give examples of situations in which they are relevant • Evaluate the impact of and issues related to the use of computers in society	63. Ethical, Legal, Cultural and Environmental Concerns-PLC 7 64. 65.	**NEA Completion** PLC 7 Test	•
20	At the end of this Unit **all** students should be able to: • List some ethical, legal, cultural or environmental issues in relation to a given scenario • List some privacy issues in relation to a given scenario • Choose from a given list, which Act is relevant to a particular scenario • List one attribute and advantage of open source software and proprietary software **Most** students will be able to: • Describe some ethical, legal, cultural and/or environmental issues in relation to a given scenario • Describe some privacy issues in relation to a given scenario • Describe the differences between open source and proprietary software and give advantages of each	66. Legislation Relevant To Computer Science-PLC 8 67. 68. 69.	NEA Assessment PLC 8 Test	• **Feb HT**

	Some students will be able to: • List the clauses of the Data Protection Act and Computer Misuse Act and give examples of situations in which they are relevant • Evaluate the impact of and issues related to the use of computers in society			
21	**Revision**		NEA Final Assessment	
25	**Revision**		**NEA Sample Sent**	
26	**Revision**	• **Easter** **+2 weeks revision**		
31	**Computer Science** **J276/1 Computer systems 1 h 30 min Mon 14 May am** **J276/2 Computational thinking, algorithms and programming 1 h 30 min Thu 17 May pm**			

Design & Technology

Construction

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Homework
1	Welcome back. Remind content in Unit 2 brief	1. Welcome. Start google slides Unit 2 Carpentry task. Write in task for doors from the brief Unit 2 brief Create google slides and share. Task in document	☑ Task outlined for door(s) in google slides document.	
2	Revision of tools and techniques	2. Carpentry refresh – Hinges cut into door and frame 3. Review tools and equipment for carpentry 4. Finish hinge cut. PATHS	☑ Complete test piece of marking and cutting hinges.	
3	Plan a good outcome.	5. Success criteria into plan. Detail task 6. Sequence of operations into the plan. 7. Describe processes	☑ Document with task, success criteria, plan and descriptions complete.	
4	Practical and plan	8. Start practical for first 8. Tools and times onto plan. 9. Practical 2 of 3. Materials listed. 10. Practical 3 of 3. Calculations of materials	☑ Half practical complete ☑ Half tools times and materials in plan	
5	Complete practical.	11. Swap over.	☑ Other half to complete as above.	

6	Evaluate outcome	12. Complete evaluation of task. PATHS	☑ Evaluate task. PATHS on plan.	
7	Feedback. Regulations regarding doors.	13. Complete feedback. Add improvements from PATHS. 14. Building regulations on doors. 15. Unit 2 carpentry complete	☑ Plan redrafted to improve ☑ Additional content on building regulations.	
HALF TERM				
8	Introduce unit 3	16. Introduce Unit 3 assignment Unit 3 introduction 17. Recap notes on activities in building - Activities, responsibilities and outputs. 18. Recap notes on different trades involved in building projects. Carpenter, bricklayer, groundworks.	☑ Notes for completion of tasks within assignment	
9	Run through tasks	19. Recap notes on outputs of trades. 20. Run through the 3 tasks required in unit 3 brief. Unit 3 brief and share Unit 3 guidance 21. Create google sheets document and start task 1 – the budget.	☑ Understand what is required ☑ Sheets document started	
10		22. Complete budget for PATHS 23. 24. PATHS feedback	☑ **PATHS on budget**	
11		25. **Task 2 email.** Choose 3 trades and say why they are important. 26. List the activities for each trade 27. Describe the responsibilities for each trade	☑	

12		28. Describe the outputs for each trade. 29. Share textbook to read. Project planning textbook. 30. Task 3 planning the construction. Create google sheets file and share. Start planning the stages for production	☑	
13		31. Complete stages. 32. Describe each stage. 33. Add planning permission and building control roles for merit/ distinction.	☑	
14		34. Add 'potential effects'. 35. Create GANTT chart for this project and add times for reach stage. 36. Add tolerances form potential factors.	☑	
Christmas break				
		37. PATHS feedback. 38. Review Unit 3 and resubmit if necessary. 39.	☑	
		40. Review unit 2 feedback and resubmit if necessary. Complete	☑	

Engineering

Sustainable engineered products				
W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
To begin at the start of Term 2 and be completed by....				
Questions are to be completed in timed conditions, peer marked and recorded on tracker				
8 Mark questions to be completed in timed conditions and PATHS marked				
Practical work, using secondary machining techniques to be assessed and Paths marked				
Students are to respond and feed forward in the next Paths lesson				
Knowledge tests are to be completed as h/w and recorded in books. Students must take three times to get 100%(whichever comes first)				
1	**Topic A2: Work-holding devices**	• Work-holding devices for drilling – simple work-holding device, e.g. machine vice; more complex work-holding devices, e.g. clamping direct to machine table, angle plate, vee block and clamps	☑ LCA ☑ Practical component ☑ Test(knowledge)	9.
2	**Topic A2 cont.** Work-holding devices	41. Work-holding devices for turning – simple work-holding device, e.g. three jaw chuck with hard jaws; more complex work-holding devices, e.g. four jaw chuck with hard jaws, centres (live or dead), faceplate, fixed steady or travelling steady	☑ LCA ☑ Practical component ☑ Test(knowledge)	10.
3	**Topic A2 cont.** Work-holding devices	1. Work-holding devices for milling – simple work-holding device, e.g. machine vice; more complex work-holding devices, e.g. clamping direct to machine table, angle plate, vee block and clamps, indexing head/device, rotary table	☑ LCA ☑ Practical component ☑ Test(knowledge)	11.
4	**Topic A1/A2 cont.** Tools/Work-holding devices	Tools for specific techniques: drilling – simple tools, e.g. centre drill, drill bit; more complex tools, e.g. flat-bottomed drill, counterboring tool, countersinking tool, reamer, tap 1. Work-holding devices for drilling – simple work-holding device, e.g. machine vice; more complex work-holding devices, e.g. clamping direct to machine table, angle plate, vee block and clamps	☑ <u>Controlled assessment tasks for P1, M1</u> ☑ <u>PATHS feedback</u>	12.

5	**Topic A1/A2 cont.** Tools/Work-holding devices	Tools for specific techniques: turning – simple tools, e.g. turning tools, facing tools; more complex tools, e.g. form tools, parting off tools, single point threading, boring bar, recessing tool, centre drill, twist drill, reamer, tap, die, knurling tool 1. Work-holding devices for turning – simple work-holding device, e.g. three jaw chuck with hard jaws; more complex work-holding devices, e.g. four jaw chuck with hard jaws, centres (live or dead), faceplate, fixed steady or travelling steady	☑ LCA ☑ Practical component ☑ Test(knowledge)	13.
6	**Topic A1/A2 cont.** Tools/Work-holding devices	Tools for specific techniques: milling – simple tools, e.g. face mills, end mills; more complex tools, e.g. slot drills, slotting cutters, slitting saws, profile cutters, twist drills, reamer, boring tools 1. Work-holding devices for milling – simple work-holding device, e.g. machine vice; more complex work-holding devices, e.g. clamping direct to machine table, angle plate, vee block and clamps, indexing head/device, rotary table	☑ LCA ☑ Practical component ☑ Test(knowledge)	14.
7	**Assignment 1** Tasks for 2A.P1, 2A. P2, 2A.P3, 2A.M1 and 2A.D1	Use centre-devised assignment. Alternatively, use the authorised assignment from http://www.edexcel.com/quals/firsts2012/engineering 1. **Work-holding Devices and the Use/Types of Machining Tools**.	☑ Controlled assessment tasks for P1, M1 ☑ PATHS feedback	15.
8		2.	☑	16.
	Unit 7 assignment 2			
9	**Topic B1: Features of the workpiece**	Use of techniques for producing features in a workpiece: drilling – simple features, e.g. through holes, blind holes; more complex features, e.g. flat-bottomed holes, counterbored holes, countersinking, reaming, tapping	☑ Technical spec analysis ☑ Practical component ☑ Test(knowledge)	17.

10	**Topic B1 cont.** **Features of the workpiece**	1. Use of techniques for producing features in a workpiece: turning – simple features, e.g. flat faces, parallel diameters; more complex features, e.g. stepped diameters, tapered diameters, drilled holes, bored holes, reamed holes, profile forms, internal threads, external threads, parting off, chamfers, knurls, grooves, undercuts	☑ Controlled assessment tasks for P1, M1 ☑ PATHS feedback	18.
11	**Topic B1 cont.** **Features of the workpiece**	2. Use of techniques for producing features in a workpiece: milling – simple features, e.g. flat faces, square faces; more complex features, e.g. parallel faces, angular faces, steps/shoulders, open-ended slots, enclosed slots, recesses, tee slots, drilled holes, bored holes, profile forms, serrations, indexed or rotated forms	☑ Selecting materials ☑ Practical component ☑ Test(knowledge)	19.
12	**Topic B2: Machining parameters**	3. Parameters for drilling techniques – positional, e.g. position of workpiece, position of tool in relationship to workpiece; dynamic, e.g. tooling revolutions per minute (speed), linear feed rate (feed), swarf clearance	☑ Environmental impact ☑ Practical component ☑ Test(knowledge)	20.
13	**Topic B2 cont.** **Machining parameters**	4. Parameters for drilling techniques – positional, e.g. position of workpiece, position of tool in relationship to workpiece; dynamic, e.g. tooling revolutions per minute (speed), linear feed rate (feed), swarf clearance	☑ Alternative materials ☑ Practical component ☑ Test(knowledge)	21.
14	**Topic B2 cont.** **Machining parameters**	1. Parameters for turning techniques – positional, e.g. position of workpiece, position of tools in relationship to workpiece; dynamic, e.g. workpiece revolutions per minute (speed), linear feed rate (feed), depth of cut for roughing and finishing, swarf clearance	☑ Controlled assessment tasks for P2,M2 and D1 ☑ PATHS feedback	22.
15	**Catch up**	2.	☑	23.

Drama

Ms Walker

Phase	Learning Outcomes	Individual Lessons	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
To begin at the start of Term 1 and be completed by Christmas				
Students will complete past papers for Section B and be awarded a mark out of 44. Section B: four questions on a given extract from the set play chosen (44 marks).				
2 past papers will be PATHS marked				
1	**REVISING ACT 1**	REVISING ACT 1 Homework: Stage Configurations Approximately 10 lessons	☑ Students will understand the structure of the Component 1 Exam and how section B fits into it ☑ Students will explore the historical, social and political context of Blood Brothers ☑ Students will learn the basic plot of the play text ☑ Students will learn about the key themes and sub themes of the play text	GCSE Bitesize http://www.bbc.co.uk/schools/gcsebitesize/english_literature/dramabloodbrothers/ pp5-pp58
2	**REVISING ACT 2**	REVISING ACT 2 Approximately 10 lessons	☑ Students will study Act 1 of Blood Brothers practically and complete a past paper	Pp59-pp108

Exam Unit

Lesson	Learning Outcomes	Individual Lessons	Shared Outcomes.	Play text BOUNCERS Page number(s)
To Begin Second Half of Autumn Term 2017 – EXAM February / March 2018				
Students will select two extracts from the play text to perform for visiting examiner.				
1-6		42. <u>Introduction to Bouncers</u> <u>Lessons 1-6</u>	☑ Students will be given an overview of the demands of the component ☑ Students will be introduced to the play text 'Bouncers' ☑ Students will explore and interpret specific sections of the text	Embedded in SOW
7-19		43. <u>Development of Work</u>	☑ Students select two sections of text to perform for their exam ☑ Students will hone their use of theatrical skills	
		44. <u>EXAM</u>	Students will perform for visiting examiner	

English

Christmas Carol

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
ASSESSMENT WEEKS ARE HIGHLIGHTED YELLOW. THIS WORK MUST BE PATHS MARKED				
1	Explain what life was life during Victorian Times and who Charles Dickens was.	45. Life in Victorian Times 46. Dickens and Christmas	☑ Notes on the key aspects of context ☑ A piece of informative writing explaining the context ☑ An overview of Dickens and his views on Christmas	24.
2	Identify the methods used by Dickens to introduce us to the character of Scrooge in Stave 1	Read stave 1 of the novella whilst working through the lessons below. 1. How is the character of Scrooge introduced? Pages 1-3 2. The treatment of the poor and atmosphere pages 3-10 3. Marley and his chains pages 10-20	☑ PEAL paragraphs on Scrooge ☑ Annotated extracts of the text with methods identified ☑ PEAL paragraphs on Marley's ghost	25.
3	Explain how Scrooge is introduced to the reader by Dickens	1. Students should complete the assessment essay on Scrooge. 2. Mini essay on Scrooge	☑ Essay on Scrooge's characterisation in stave 1	26.
4	Explain how Dickens introduces the reader to the ghost of Christmas past.	Read stave 2 of the novella and work through the following lessons 1.The Ghost of Christmas past 2.The Fezziwigs and Little Fan 3.Belle and the Engagement	☑ Annotated description of the ghost of Christmas past ☑ Sympathy chart ☑ Answers to questions on the Fezziwigs and Little Fan ☑ PEAL paragraphs on Belle	27.

5	Explain how Dickens introduces us to the Ghost of Christmas Present	Read through stave 3 of the novella and work through the following lessons 1.The ghost of Christmas past and christmas 2.The Cratchit Family 3.The lighthouse 4.Ignorance and want	☑	28.
6	Explain how Dickens presents the Ghost of Christmas Yet To Come	Read through stave 4 of the novella and work through the following lessons 1.How does Dickens create mood and atmosphere? 2.Scrooge's debtors 3. Scrooge faces the truth	☑	29.
7	Explain how Scrooge has transformed by the end of the novella	Read through stave 5 of the novella and work through the following activities. 1. Scrooge's transformation	☑	30.
8	Explain the main themes of the novella	1. What are the main themes and how are they presented in the novella?	☑ Notes on the main themes with key quotes to support ☑ Students could complete this as presentations to the class	31.
9	Assessment week	2. How is the importance of family presented within the novella?	☑ A timed essay to the question based on an extract of the novella	32.
10	Revision	3.	☑	33.

Exam Unit

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Understand the format of the 2 exams To be able to write a description/ narrative	47. What do the exams look like? Overview of paper 1 48. Focus on question5- what is a description 49. Focus on question 5- perfecting descriptions 50. Focus on question5- approaching an exam question	☑ A completed exam overview sheet ☑ A description of a sweet ☑ A plan to a question 5 ☑ A response to a question 5	34.
2	To respond to questions 1-4 of paper 1 in the appropriate way.	51. Focus on question 1 –reading for inference 52. Focus on Question 3- structure 53. Focus on Question 4- evaluation of language and structure	☑ Annotated versions of the relevant passages ☑ Answers to questions 1-4	35.
3	To be able to write for Purpose, audience and form and use AFOREST techniques to present a viewpoint.	54. What does paper 2 looks like? Exam overview 55. Focus on question 5- using AFOREST and text types 56. Focus on question 5- how are AFOREST techniques used for effect? 57. Focus on question 5- responding to a question	☑ A complete paper 2 exam overview sheet ☑ Annotated Obama's speech ☑ Response to a language analysis question ☑ Timed question 5 response	36.
4	To respond to questions 1-4 of paper 2 in the appropriate way.	58. Focus on question 2- comparative summary 59. Focus on question 3- language analysis 60. Focus on question 4- comparing how writers create effects 2 lessons	☑ Response to question 2 ☑ Response to question 3 ☑ Response to question 4	37.

Food Technology

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	**1.1 Explain what is meant be a balanced diet.**	**1.1 Explain what is meant be a balanced diet.** Balanced diet: to include portion control, water intake and dietary fibre, RI/GDAs etc T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS.pptx	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
2	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet**	**1.2 Describe the nutrients that make up a balanced diet** Nutrients: macro (carbohydrates, fats, proteins), micro (vitamins A, B group, C and D), minerals (iron and calcium), source, function, deficiency T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS.pptx	☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

3	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet**	Make revision card/revise/test T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS.pptx T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS BLANK for TEST.pptx	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
4	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet**	PLC lesson - PATHS marking	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

5	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet**	Consolidate/Recap/Extension lesson to include exam question	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
6	**1.3 Explain nutrient requirements for different groups of people**	**1.3 Explain nutrient requirements for different groups of people** *Groups of people: age (babies and toddlers, pre-schoolers, children, teenagers, adults, older) gender, activity leve*l, health conditions (lactose intolerance, nut allergy, coronary heart disease, vegans)	☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
7	**1.3 Explain nutrient requirements for different groups of people**	**1.3 Explain nutrient requirements for different groups of people** Groups of people: age (babies and toddlers, pre-schoolers, children, teenagers, adults, older) gender, activity level, *health conditions (lactose intolerance, nut allergy, coronary heart disease, vegans)*	☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

8	**1.3 Explain nutrient requirements for different groups of people**	Make revision card/revise T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS.pptx T:\Food Studies\Documents\2017\NCFE classroom\Unit 3\VCERT Food and Cookery Knowledge Organiser Unit 3 PLCS BLANK for TEST.pptx	☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
9	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people**	PLC lesson - PATHS marking	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese,	

			this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained.	
10	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people**	Consolidate/Recap/Extension lesson to include exam question	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

11	**1.4 Explain healthy eating advice**	**1.4 Explain healthy eating advice** Healthy eating advice: current UK government guidelines on eg fat, sugar, salt, fibre, and fruit and vegetables.	☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
12	**1.4 Explain healthy eating advice** **1.5 Explain how nutritional information on food labels can inform healthy eating**	**1.5 Explain how nutritional information on food labels can inform healthy eating** Nutritional information: eg fat content, calories content, serving size	☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
13	**1.4 Explain healthy eating advice** **1.5 Explain how nutritional information on food labels can inform healthy eating**	Make revision card/revise	☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide. ☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
14	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people** **1.4 Explain healthy eating advice** **1.5 Explain how nutritional information on food labels can inform healthy eating**	PLC lesson - PATHS marking	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

			☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide. ☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities.	

15	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people** **1.4 Explain healthy eating advice** **1.5 Explain how nutritional information on food labels can inform healthy eating**	Consolidate/Recap/Extension lesson to include exam question	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

			☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities.	
14	**1.6 Assess a food diary and make recommendations**	**1.6 Assess a food diary and make recommendations** Recommendations: including current healthy eating advice, individual requirements for a balanced diet, RI/GDA	☑ Recommend changes to the diet (3-5 recommendations is the suggested amount) giving reasons. E.g. I recommend that Jon reduces his sugar consumption by removing it from his tea and replacing it with a low calorie sweetener, this will reduce his calorie intake and limit his risk of developing diabetes. Jon can also reduce his sugar intake by replacing his chocolate based snacks with fruit and his regular cola with sugar free cola.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
15	**1.6 Assess a food diary and make recommendations** **2.1 Assess a recipe in terms of its contribution to healthy eating**	**2.1 Assess a recipe in terms of its contribution to healthy eating** Recipe: eg, cooking method, ingredients, portion size, serving suggestion, cost	☑ Ingredients, cooking methods, portion sizes and serving suggestions (both negative and positive) ☑ The effects of the ingredients, cooking methods, portion sizes and serving suggestions on the health of the person eating it (both positive and negative)	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
16	**1.6 Assess a food diary and make recommendations** **2.1 Assess a recipe in terms of its contribution to healthy eating**	Make revision card/revise	☑ Recommend changes to the diet (3-5 recommendations is the suggested amount) giving reasons. E.g. I recommend that Jon reduces his sugar consumption by removing it from his tea and replacing it with a low calorie sweetener, this will reduce his calorie intake and limit his risk of developing diabetes. Jon can also reduce his sugar intake by replacing his chocolate based snacks with fruit and his regular cola with sugar free cola. ☑ Ingredients, cooking methods, portion sizes and serving suggestions (both negative and positive) ☑ The effects of the ingredients, cooking methods, portion sizes and serving suggestions on the health of the person eating it (both positive and negative)	

17	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people** **1.4 Explain healthy eating advice** **1.5 Explain how nutritional information on food labels can inform healthy eating** **1.6 Assess a food diary and make recommendations** **2.1 Assess a recipe in terms of its contribution to healthy eating**	PLC lesson - PATHS marking	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide. ☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

			green foods can be consumed regularly and in higher quantities. ☑ Recommend changes to the diet (3-5 recommendations is the suggested amount) giving reasons. E.g. I recommend that Jon reduces his sugar consumption by removing it from his tea and replacing it with a low calorie sweetener, this will reduce his calorie intake and limit his risk of developing diabetes. Jon can also reduce his sugar intake by replacing his chocolate based snacks with fruit and his regular cola with sugar free cola. ☑ Ingredients, cooking methods, portion sizes and serving suggestions (both negative and positive) ☑ The effects of the ingredients, cooking methods, portion sizes and serving suggestions on the health of the person eating it (both positive and negative)	
18	**2.2 Explain how the recipe could be changed to make the finished dish healthier** **2.3 Describe other factors that could affect the finished dish**	**2.2 Explain how the recipe could be changed to make the finished dish healthier** **2.3 Describe other factors that could affect the finished dish** Other factors: eg taste, texture, moisture, appeal, appearance	☑ Adaptations that could be made to the recipe and how this could improve the nutrition and health benefits. This could include reducing fat, sugar, salt. Increasing the fruit/vegetable or fibre content and swapping cooking methods such as deep frying for healthier methods such as grilling or baking. ☑ How your adaptations to the recipe could affect the end result e.g. taste, texture, appearance, appeal and moisture. ☑ For example: swapping to a low fat cheese will remove some of the fat from the dish causing it to be drier however it may look more appealing and have a more appealing texture as a result because of the lack of grease.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.
19	**2.2 Explain how the recipe could be changed to make the finished dish healthier** **2.3 Describe other factors that could affect the finished dish**	Make revision card/revise	☑ Adaptations that could be made to the recipe and how this could improve the nutrition and health benefits. This could include reducing fat, sugar, salt. Increasing the fruit/vegetable or fibre content and swapping cooking methods such as deep frying for healthier methods such as grilling or baking. ☑ How your adaptations to the recipe could affect the end result e.g. taste, texture, appearance, appeal and moisture. ☑ For example: swapping to a low fat cheese will remove some of the fat from the dish causing it to be drier	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

			however it may look more appealing and have a more appealing texture as a result because of the lack of grease.	
20	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people** **1.4 Explain healthy eating advice 1.5 Explain how nutritional information on food labels can inform healthy eating** **1.6 Assess a food diary and make recommendations** **2.1 Assess a recipe in terms of its contribution to healthy eating** **2.2 Explain how the recipe could be changed to make the finished dish healthier** **2.3 Describe other factors that could affect the finished dish**	Mock Exam – First hour	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat ☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide.	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

			☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities. ☑ Recommend changes to the diet (3-5 recommendations is the suggested amount) giving reasons. E.g. I recommend that Jon reduces his sugar consumption by removing it from his tea and replacing it with a low calorie sweetener, this will reduce his calorie intake and limit his risk of developing diabetes. Jon can also reduce his sugar intake by replacing his chocolate based snacks with fruit and his regular cola with sugar free cola. ☑ Ingredients, cooking methods, portion sizes and serving suggestions (both negative and positive) ☑ The effects of the ingredients, cooking methods, portion sizes and serving suggestions on the health of the person eating it (both positive and negative)	
21	**1.1 Explain what is meant be a balanced diet.** **1.2 Describe the nutrients that make up a balanced diet** **1.3 Explain nutrient requirements for different groups of people** **1.4 Explain healthy eating advice 1.5 Explain how nutritional information on food labels can inform healthy eating** **1.6 Assess a food diary and make recommendations** **2.1 Assess a recipe in terms of its contribution to healthy eating**	Mock Exam – Second hour	☑ Food groups ☑ The eat well guide ☑ RDI's ☑ The need for the correct amounts of nutrients (%) with reasons why ☑ Specific nutrients e.g. calcium, vitamin c, protein, carbohydrates ☑ Talking about "dairy" wouldn't get a pass unless calcium is mentioned. ☑ The way the specific nutrients are used by our bodies e.g. calcium is used by our bodies to help strengthen and repair bones and teeth. ☑ Sources of ingredients (foods we might get them from) e.g. Calcium is gained from dairy products such as milk or cheese. ☑ Specific nutrients that the person might be lacking or over consuming and the source of this nutrient. E.g. a vegetarian might be lacking in iron from red meat	All documents on google classroom and SMHW and pupils to receive hard copy. Refer to assessment criteria/outcome for summary info.

	2.2 Explain how the recipe could be changed to make the finished dish healthier **2.3 Describe other factors that could affect the finished dish**		☑ Ways to solve the excess or deficiency e.g. the vegetarian could consume more green vegetables such as cabbage or spinach to increase their iron. ☑ The effects on the person's long term and short term health e.g. someone who eats too much fat will begin to store the extra on their body and could become obese, this could lead to problems such as high cholesterol and heart disease. ☑ The benefits of meal planning to ensure a nutritional balance is maintained. ☑ The links between the foods on the diary and the health of the individual ☑ Identify potential excesses and deficiencies in nutrients from the diary linking these to the health of the individual ☑ Comment on portion size and general nutrition e.g. compare the meal to the eat well guide. ☑ The "traffic light" system of labelling food. E.g. Each nutrient on the label is given a colour (red , amber or green). Red means that this food should be consumed in moderation and a little at a time, amber means that a food can be consumed often as part of a balanced diet and green foods can be consumed regularly and in higher quantities. ☑ Recommend changes to the diet (3-5 recommendations is the suggested amount) giving reasons. E.g. I recommend that Jon reduces his sugar consumption by removing it from his tea and replacing it with a low calorie sweetener, this will reduce his calorie intake and limit his risk of developing diabetes. Jon can also reduce his sugar intake by replacing his chocolate based snacks with fruit and his regular cola with sugar free cola. ☑ Ingredients, cooking methods, portion sizes and serving suggestions (both negative and positive) ☑ The effects of the ingredients, cooking methods, portion sizes and serving suggestions on the health of the person eating it (both positive and negative)	

French

Week #	**Learning outcomes** *(Students must be able to…)*	**Individual Lessons –** *click on the link for lesson resources.*	**Shared Outcomes** *(These must be evident in student's work by the end of the key topic)*	**Homework**
To be taught during term 1 (September – December)				
1	-Describe using the past -Understand how and when to use indirect object pronouns appropriately -Improve writing skills by re-writing previous task	1. Tes vacances étaient comment? 50 word Vocab test 2. Indirect object pronouns 3. Exam writing re-write	☑ *At least 5 sentences written in the about the summer holidays* ☑ *50 word vocab test* ☑ *At least 5 sentences using indirect object pronouns*	-Finish G & T book p34-35 -Revise direct/indirect pronouns for test
2	-Describe using at least 3 different tenses	4. Qu'est-ce qu'on peut faire à la maison pour améliorer l'environnement? 5. Hier j'ai éteint les lumières 6. Je vais faire plus de recyclage	☑ *Grammar test 1* ☑ *At least 5 sentences describing what they do to help the environment at home – using at least 3 tenses, different personal pronouns* ☑ *Translation from French to English*	-Vocab test - vocab 1 - Vocab Express task P164-165

3	-Recognise and use the present subjunctive -Give opinion on global issues	7. Les problèmes mondiaux 8. Les problèmes mondiaux 9. Les problèmes mondiaux	☑ *Vocab test 1* ☑ *At least 5 sentences from English to French* ☑ *At least 2 sentences using the present subjunctive describing what we need to do to help the environment* ☑ *At least 3 sentences describing the global issues which are most important.*	-Vocab test - vocab 2 -G & T book p80-81 P162-163
4	-Present an argument in an essay	10. Les catastrophes naturelles 11. Comment est-ce que je peux aider dans mon quartier? 12. Comment est-ce que je peux aider dans mon quartier?	☑ *Vocab test 2* ☑ *At least 5 sentences describing what people can do locally to help the environment* ☑ *A translation from French to English* ☑ *An essay of at least 150 words against the statement "On ne peut pas sauver la planète"*	-Vocab test - vocab 3 -Vocab Express task P168-169 P170-171
5	-Ask and answer a range of questions about the environment using complex structures with little support	13. L'importance d'être volontaire 14. Speaking assessment preparation 15. Speaking assessment preparation	☑ *Vocab test 3* ☑ *At least 5 sentences translated from English to French* ☑ *Detailed responses written for each question of speaking assessment*	Practise for speaking assessment P168-169
6	Confidently and accurately answer a range of questions on environmental issues using complex structures	16. Speaking assessment 17. Speaking assessment 18. Translation, 50 words vocab test	☑ *Detailed responses written for each question of speaking assessment* ☑ *50 word vocabulary test*	Practise for speaking assessment Vocab test – vocab 4 -G & T book p58-59

7	-Improve speaking assessment by responding to personal feedback -Recognise, form and avoid the passive	19. Response to PATHs feedback. 50 word vocabulary test 20. The passive tenses, avoiding the passive 21. Les fêtes	☑ *Detailed green pen response to PATHS marking* ☑ *Vocab test 4* ☑ *50 word vocabulary test* ☑ *5 sentences: 3 using the passive, 2 avoiding it*	Learn past participles for grammar test -G & T book p78-79
8	-Describe effectively using the 3rd person, avoiding the passive -Describe in detail an event in the past	22. Les fêtes 23. Une journée spéciale 24. Une journée spéciale	☑ *Grammar vocab test* ☑ *A description of at least 2 festivals/ holidays which take place in Francophone countries, including avoiding the passive (one they would like to attend)* ☑ *A short description of a special day they have experienced in the past including food eaten and any traditions.* ☑ *At least 5 translations from English to French*	-Vocab test – Vocab 5 -Vocab Express task P62-65
9	-Use the structure *avoir mal à* -Create and confidently perform a role play in a pharmacy scenario	25. J'ai mal à la tête 26. Je suis enrhumé 27. Il faut que je me repose	☑ *Vocab test 5* ☑ *A list of body parts* ☑ *At least 5 translations from English to French* ☑ *The transcript for a pharmacy role-play, including 3rd person*	-Vocab test – Vocab 6 -G & T book P88 P118 - 119
10	-Understand and give basic directions -Describe what can be bought in different shops using *On peut*	28. Il y a un centre sportif 29. Continuez tout droit 30. Qu'est-ce qu'on peut acheter à la boulangerie?	☑ *Vocab test 6* ☑ *A list of directions* ☑ *A list of shops and items one can buy* ☑ *A translation from French to English*	Vocab test – Vocab 7 -Vocab Express task P76-77

11	-Create and confidently perform a role play in a shop scenario	31. Les heures d'ouverture 32. Ça coûte combien? 33. Je voudrais un remboursement	☑ *Vocab test 7* ☑ *At least 5 translations from English to French* ☑ *Transcript for a shop dialogue returning an item*	-Vocab test – Vocab 8 -G & T book p82 P78-81 P152-55
12	- List the pros and cons of shopping centres Vs. internet shopping and offer justified reasons	34. Role-play practice 35. Aimes –tu les centres commerciaux? 36. Speaking preparation	☑ *Vocab test 8* ☑ *A translation from French to French* ☑ *A list of at least 3 pros/cons of shopping on line Vs shopping centres*	Practice for speaking assessment P54-55
13	- Confidently and accurately answer a range of questions on shopping habits using complex structures	37. Speaking assessment 38. Speaking assessment 39. 50 word Vocab	☑ *Detailed responses written for each question of speaking assessment* ☑ *50 word vocabulary test*	G & T book p102-103 p33 p124 Vocab Express task P54-55

Geography

Topic 5 Global Development

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
Formal Assessments to be printed on yellow paper				
Knowledge Tests are to be completed as h/w online and recorded in books using stickers. Students must take three times & score average of 80%				
1	**Key Idea 5.1** **Definitions of development vary as do attempts to measure it**	61. <u>What is development?</u> 62. <u>How do we measure development?</u>	☑ Definition of different types of development ☑ Measures of development ☑ Completed Pearson worksheet on measures ☑ Starter test 1	151-152
2	**Key Idea 5.2** **The level of development varies globally**	63. <u>How does development vary globally?</u> 64. <u>Why does development vary?</u>	☑ Starter test 2 ☑ Starter test 3 ☑ Choropleth map of HDI scores ☑ PQE description of choropleth map ☑ Diamond 10 ranking for reasons for variation in development ☑ Justification for ranking	153-156
3	**Key Idea 5.3** **Uneven global development has had a range of consequences**	65. <u>What are the consequences of uneven development?</u>	☑ Starter test 4 ☑ Starter test 5 ☑ Completed gap fill for different consequences ☑ Pie charts for sectors of employment for UK & Brazil ☑ Description of pie charts	157-158

4	**Key Idea 5.4** **A range of strategies has been used to try to address uneven development**	66. What strategies have been used to try to address uneven development? 67. Comparison of different strategies 68. Consolidation 69. Knowledge Assessment 70. Exam Style Assessment 71. Feedback	☑ Match up definitions of types of aid ☑ Table of advantages & disadvantages of top down projects ☑ Table of advantages & disadvantages of bottom up projects ☑ Comparison of top down/bottom up projects ☑ Describe **two** ways in which the scale of global inequality can be reduced (4 marks) ☑ Starter test 6 ☑ Formal knowledge assessment ☑ Exam style assessment ☑ Green pen feedback	159-162
5	**Key Idea 5.5** **The level of development of India is influenced by its location and context in the world**	72. Case Study of an emerging country: India 73. How & why does the rate of development vary in India?	☑ Fact file ☑ Sketch map ☑ Compare Mumbai & Bihar ☑ Comprehension questions: Reasons for varying levels of development in India ☑ Starter test India 1	Revision Guide P.
6	**Key Idea 5.6** **The interactions of economic, social and demographic processes influence the development of India**	74. What are the changes in economic sectors & what impact has this had? 75. What are the characteristics of India's trade & aid? 76. How has India's population structure changed in the last 30 years? 77. Consolidation	☑ Definitions of different sectors ☑ Starter test India 2 ☑ Comparative bar graphs ☑ Map to show main importers & exporters ☑ Starter test India 3 ☑ Drawn Population pyramids ☑ Annotate/compare population pyramids ☑ Explain why the population structure of an emerging country you have studied has changed (4 marks) ☑ Starter test India 4	Revision Guide P.
7	**Key Idea 5.7** **Changing geopolitics and technology impact on India**	78. Do technology & geopolitics help India develop? 79. What are the positive & negative impacts of rapid development in India?	☑ Starter test India 5 ☑ Completed comprehension task	Revision Guide P.

8	**Key Idea 5.8** **There are positive and negative impacts of rapid development for the people and environment of India**	80. Consolidation 81. Knowledge Assessment 82. Exam Style Assessment 83. Feedback	☑ Starter test India 6 ☑ Plenary facts test ☑ Green pen feedback ☑ Exam style assessment	Revision Guide P.

Paper 3 Challenges

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
Formal Assessments to be printed on yellow paper				
Knowledge Tests are to be completed as h/w online and recorded in books using stickers. Students must take three times & score average of 80%				
1	**7A River Landscapes**	Trip to Juniper Hall: 1. Create questions 2. Create methodologies 3. Collect fieldwork 4. Analyse, conclude & evaluate methods & data	☑ Data collection tables & work from Juniper Hall	224-227
2	**7A River Landscapes**	5. Sampling Strategies 6. Secondary data 7. Data Presentation Techniques	☑ Practice exam questions from Section A	224-227
3	**7A River Landscapes**	8. Accuracy & reliability 9. Evaluation 10. Maths in Geography 11. WTM Section A	☑ Practice exam questions from Section A	224-227

4	**7B – Changing City Environments**	12. Human Fieldwork secondary data 13. EQA & Land Use - Methods 14. Human Fieldwork Data Collection	☑ Practice exam questions from Section B	232-234
5	**7B – Changing City Environments**	15. Human Fieldwork Consolidation 16. WTM Section B 17. Assessment 18. Feeding Forward	☑ WTM Section B ☑ Assessment ☑ Green Pen feeding forward	238-241
6	**8.1 The UK's resource consumption and environmental sustainability challenge**	19. UK: consumption vs. environment 20. WTM 12 (+4 SPAG) 21. Examined question	☑ WTM 12 (+4 SPAG) ☑ Examined question	242-244
7	**8.2 The UK settlement, population and economic challenges**	22. UK: them vs. us 23. WTM 12 (+4 SPAG) 24. Examined question	☑ WTM 12 (+4 SPAG) ☑ Examined question	245-248

History

The Cold War c.1941 – c.1991. Paper 2 (20% of GCSE)				
W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
To begin at after the end of the Germany SOW before May HT(Y10) and completed before Oct HT (Y11)				
4-mark questions are to be completed in timed conditions, peer marked and recorded on the tracker.				
8+Mark questions to be completed in timed conditions and PATHS marked.				
Students are to respond and feed-forward in the next PATHS lesson.				
Knowledge Tests are to be completed as h/w online and recorded in books using stickers. Students must take three times or get 100% (whichever comes first).				
1	**Key topic 1.1** Explain the long and short term reasons why there were tensions between the East and West by 1946.	1. Had the Grand Alliance always been Allies? 2. What agreements were made a Tehran, Yalta and Potsdam? 3. How and why did a 'war of words' occur between the Grand Alliance in 1946?	☑ At least one written paragraph on reasons why the Grand Alliance formed. ☑ **Peer/Student Marked Question 1 (completed in lesson2):** Explain two key consequences of the decisions made at Yalta in Feb 1945**.** ☑ Completed sheet on the three war time conferences.	1. 8 – 11 2. 11 - 13 3. 14 - 17
2	**Key topic 1.2** Explain how the early tensions developed into the Cold War by 1950.	4. How did the Communists take control of Eastern Europe? 5. What were the effects of the Truman Doctrine and the Marshall Plan on Superpower relations? 6. How did Stalin ensure the Eastern Bloc remained in line with the USSR?	☑ Completed story board sheet of the Berlin Crisis. ☑ Completed Truman thought bubble and Marshall Aid diagram. ☑ Completed Stalin's thoughts diagram on Cominform and Comecon. ☑ **Stuck in Knowledge Test sticker: TCW1 (c.1941 – 1947). Set after lesson 6.**	4. 17 – 18 5. 20 – 23 6. 23 – 24
3	**Baseline Assessment.** Students to comprehend the demands of each question.	7. **Walking Talking Mock** 8. **PATHS**	☑ **PATHS Marked WTM completed in lesson 7.** ☑ **PATHS Lesson 8: Students to feed forward on an 8 mark question from WTM in lesson 7.**	7. 8.

4	**Key topic 1.3** Explain how the Cold War intensified in the 1950s.	9. What happened when the anti-German alliance, broke down over Germany? 10. How did the Superpowers divide the World in the 1950s? 11. How did the Cold War intensify in the early 1950s?	☑ Completed key causes – events- consequences sheet of the Berlin Crisis. ☑ **Peer/Student Marked Question 1 (completed in lesson10):** Explain two key consequences of the First Berlin Crisis.	9. 24 – 26 10. 26 – 28 11. 29 – 32
5		12. Why did the Hungarians revolt in 1956? 13. How did the Hungarian Uprising affect East-West relations?	☑ **Stuck in Knowledge Test sticker: TCW2 (c.1947 – 1957). Set after lesson 13.** ☑ Annotated sheet showing links between key events of the Uprising. ☑ **PATHS Marked Exam question (8 marks) completed in lesson 13:** Write a narrative account analysing the Hungarian Uprising. - The Secret Speech - Kadar's appointment in Hungary	12. 32 – 33 13. 34 – 35
6	**Key topic 2.1** Explain the key causes, events and consequences of the Second Berlin Crisis.	14. What was Khrushchev's problem with West Berlin? 15. How did the Superpowers try to solve the Second Berlin Crisis? 16. How did Khrushchev resolve the Second Berlin Crisis?	☑ Spider diagram of the Second Berlin Crisis. ☑ Completed 'Summit Diplomacy' Sheet. ☑ Annotated diagram of the Berlin Wall.	14. 40 – 42 15. 43 – 44 16. 45 – 48
7	**Key topic 2.2** Explain the key causes, events and consequences of the Cuban Missile Crisis.	17. Why did Cuba ask the USSR for protection from the USA in 1961? 18. What happened when the USA discovered Soviet missiles in Cuba in 1962? 19. How did the Nuclear Missile Crisis change Superpower relations from 1963 onwards?	☑ **PATHS Marked Exam question (16 marks) completed in lessons 16-17.** Explain two of the following: - The importance of the U2 Spy Plane Incident for Superpower Relations (8) [after lesson 16] - The importance of the Cuban Missile Crisis in changing Superpower Relations. (8) [after lesson 19]	17. 49 – 51 18. 52 – 54 19. 55 – 56
8	**Key topics 2.3** Explain the key causes, events and consequences of the Prague Spring	20. What happened when the Czechs had had enough of the Soviet Union? 21. **PATHS**	☑ **Stuck in Knowledge Test sticker: TCW3 (c.1958 – 1969). Set after lesson 20.** ☑ Completed 'Analytical Narrative' Sheet on Prague Spring. ☑ **PATHS Lesson 21: Students to feed forward on 8 mark questions from lessons 13, 16 and 17.**	20. 58 – 61 21.
9	**Key topic 3.1**	22. What was Détente? 23. What was achieved during the period of Détente?	☑ Completed Détente Achievements Sheet.	22. 66 - 69 23. 69 – 71 24. 72

	Explain why relations improved as a result of Détente.	24. How did Détente end?	☑ **PATHS Marked Exam question (8 marks) completed in lesson 24:** Write a narrative account analysing the achievements of Détente. - Nuclear Non-Proliferation Treaty. - SALT I.	
10	**Key topic 3. 2** Explain why relations worsened as a result of the Soviet Invasion of Afghanistan.	25. How and why did the Soviet Union invade Afghanistan? 26. Why was there a Second Cold War between 1980 and 1985?	☑ Completed 'Analytical Narrative' Soviet Invasion of Afghanistan. ☑ **Peer/Student Marked Question 1 (completed in lesson 26):** Explain two key consequences of the Soviet Invasion of Afghanistan on Superpower Relations**.**	25. 74 – 76 26. 77 – 78
11 – 12	**Key topic 3.3** Explain how the Cold War ended following the collapse of communism in Eastern Europe.	27. How did Gorbachev's 'New Thinking' change relations? 28. How did the Cold War end? 29. Why did the Cold War end? 30. **PATHS**	☑ Completed 'New Thinking' Sheet on Superpower Summits. ☑ Completed 'End of the Cold War Dominos' Sheet. ☑ **PATHS Marked Exam question (16 marks) completed in lesson 29.** Explain two of the following: - The importance of the Soviet invasion of Afghanistan for relations between the Superpowers (8) - The importance of Reagan's election in ending Détente. (8) - The significance of Gorbachev's New Thinking in ending the Cold War. (8) ☑ **Stuck in Knowledge Test sticker: TCW4 (c.1970 – 1991). Set after lesson 28.** ☑ **PATHS Lesson 31: Students to feed forward on 8 mark questions from lessons 24 and 30.**	27. 80 – 82 28. 83 – 86 29. 30.

Warfare and British Society c.1250 – Present Day. Paper 1 (30% of GCSE)				
W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
To begin as soon as the Cold War unit is finished (before Oct HT in Y11) and complete by Easter.				
4-mark questions are to be completed in timed conditions, peer marked and recorded on the tracker.				
8+Mark questions to be completed in timed conditions and PATHS marked.				
Students are to respond and feed-forward in the next PATHS lesson.				
Knowledge Tests are to be completed as h/w online and recorded in books using stickers. Students must take three times or get 100% (whichever comes first).				
1	**Introduction: Warfare in 1250.**	1. <u>How did medieval armies fight?</u> 2. <u>How were medieval armies recruited?</u>	☒ Completed Cavalry vs Infantry sheet.	1. 11 – 14 2. 15 – 17
1 – 2	**Key topic 1.3** *Explain the key features of these Medieval Battles.*	3. <u>What was the Battle of Falkirk?</u> 4. <u>What was the Battle of Agincourt?</u>	☒ Completed timeline of Battle of Falkirk. ☒ Completed timeline of Battle of Agincourt. ☒ Student to complete key examples change and continuity sheet (Falkirk and Agincourt columns only).	3. 34 – 36 4. 37 – 40
2 – 3	**Key topic 1.1** *Explain how Medieval wars were fought.*	5. <u>How far did warfare change as a result of new strategies c.1250 – c.1500?</u> 6. <u>How far did Gunpowder change the nature of warfare c.1250 – c.1500?</u> 7. <u>Why were there changes to warfare in Britain c.1250 – c.1500?</u>	☒ Completed card sort of change and continuity in medieval warfare. ☒ **Peer/Teacher marked Question 3 (4 marks), Set after Lesson 6:** Explain one way that weapons were different by c.1500 than they had been in c.1250. ☒ Annotated images of early gunpowder weapons. ☒ Completed change/continuity table on medieval warfare.	5. 18 – 21 6. 22 – 23 7. 24 – 25
2 – 3	**Key topic 1.2** *Explain how Medieval wars affected civilians and the militaries involved.*	8. <u>How far did recruitment and training change in Britain c.1250 – c.1500?</u> 9. <u>How far did provisioning and requisitioning for the military change in Britain c.1250 – c.1500?</u> 10. <u>What were the key effects of war on civilian lives in Medieval England?</u>	☒ **Completed Knowledge Test Sticker: Knowledge Test 1: Medieval Warfare c.1250 – c.1500. Set after lesson 10.** ☒ **Peer/Teacher marked Question 3 (4 marks), Set after Lesson 6:** Explain one way that recruitment was different by c.1500 than they had been in c.1250. Must be redrafted and attempted a second time in one lesson.	8. 27 – 29 9. 29 – 30 10. 30 – 33

			☒ Completed requisitioning and provisioning 'baggage train' sheet. ☒ Completed 'impact on civilians' sheet.	
4	**Key topic 1.3** *Explain the key features of these Medieval Battles.*	11. **<u>WTM 1 (questions 3, 4 and 5 only).</u>** 12. **<u>PATHS</u>**	☒ **A complete baseline assessment for questions 3, 4 and 5/6.** ☒ **Students to feed forward on one question from the WTM in PATHS lesson using model answers and teacher feedback.**	11. 12.
5	**Key topic 2.3** *Explain how these battles were examples of warfare 1500-1050.*	13. <u>What was the Battle of Naseby?</u> 14. <u>How significant was Oliver Cromwell's leadership of the NMA?</u>	☒ Student to complete key examples change and continuity sheet (Battle of Naseby only). ☒ Completed table analysing arguments for/against Cromwell's leadership being significant at Naseby.	13. 63 – 65 14. 66
5 – 6	**Key topic 2.1** *Explain how wars were fought 1500- 1700.*	15. <u>How far did warfare change in Britain c.1500 – c.1700?</u> 16. <u>How far did warfare change in Britain c.1500 – c.1700 as a result of weapons?</u> 17. <u>How far did warfare change in Britain c.1500 – c.1700 as a result of new strategies?</u>	☒ **PATHS Marked Question 4 (12 Marks), set after Lesson 15:** Explain why the flintlock and the bayonet replaced the pike and matchlock between 1600 and 1700.	15. 44 – 45 16. 46 – 50 17. 51 – 54
6 – 7	**Key topic 2.2** *Explain how wars affected civilians and the militaries involved 1500-1700.*	18. <u>How far did recruitment and training change in Britain c. 1500 – c.1700?</u> 19. <u>Was the New Model Army, Britain's first Standing Army?</u> 20. <u>What were the key effects of war on civilian lives in Early Modern England?</u> 21. **<u>PATHS</u>**	☒ **Peer/Teacher marked Question 3 (4 marks), Set after Lesson 17:** ☒ Explain one way that the New Model Army was different to other English armies before it? ☒ **Completed Knowledge Test Sticker: Knowledge Test 2: Warfare c.1500 – c.1700. Set after lesson 20.** ☒ **Students to feed forward on the question from Lesson 15.**	18. 55 – 57 19. 58 – 60 20. 61 – 62 21.
8	**Key topic 3.5 & 3.6** *Explain how these battles were examples of warfare in the 18th & 19th CENTURY.*	22. <u>What was the Battle of Waterloo?</u> 23. <u>What was the Battle of Balaclava?</u>	☒ Student to complete key examples change and continuity sheet (Waterloo and Balaclava only).	22. 89 – 91 23. 93 – 94

8	**Key topic 3.1** *Explain how wars were fought 1700 – 1850.*	24. How far did warfare change between c.1700 and c.1850 (Army and Weapons)?	☒ **Peer/Teacher marked Question 3 (4 marks), Set after Lesson 24:** Explain one way in which recruitment to the army was similar in the 1300s to the 1700s?	24. 70 – 72
9	**Key topic 3.2** *Explain how wars affected civilians and the militaries involved 1700 – 1850.*	25. How far did new tactics and strategies change British Warfare c.1700 and c.1850? 26. How far did recruitment and the effects of war on civilian life change in Britain c.1700 and c.1850?	☒	25. 72 – 73 26. 74 – 76
9	**Key topic 3.3** *Explain how wars were fought 1850 – 1900.*	27. Why did British weapons, tactics and the army itself, change so much between c.1850 and c.1900?	☒ **PATHS Marked Question 5/6 (20 marks), set after Lesson 27:** 'Cardwell's army reforms were the most significant reason for the changing nature of warfare in the 18th and 19th centuries.' Explain how far you agree using the following and other information: - The Army Act (1870) and the Regularisations of the Forces Act (1871). - William Howard Russell's coverage of the Crimean War (1854 – 1856).	27. 77 – 81
10	**Key topic 3.4** *The experience of warfare, 1850 – 1900.*	28. How did developments in communication change the effects of war on civilian lives in Britain, c.1850 – c.1900? 29. How far did Cardwell's army reforms change recruitment, training and requisitioning in the British Army c.1850 – c.1900? 30. **PATHS**	☒ **Completed Knowledge Test Sticker: Knowledge Test 3: Warfare c.1700 – c.1900. Set after lesson 29.** ☒ **Students to feed forward on the question from Lesson 27.**	28. 82 – 83+86 29. 84 – 85 30.
11	**Key topics 4.3 & 4.4.** *Explain how these battles were examples of warfare in the Modern Era.*	31. What was the Battle of the Somme? 32. What was the Iraq War of 2003?	☒ Student to complete key examples change and continuity sheet (Somme and Iraq only).	31. 119 – 121 32. 122 – 124
11	**Key topic 4.1**	33. How far did the idea of using specialist troops, change the British Army in the Modern Era?	☒ **PATHS Marked Question 5/6 (20 marks), set after Lesson 34:** 'The impact of new weapons and military equipment since 1900 has been to strengthen attacking forces'.	33. 98 – 101 34. 102 – 105 35. 106 – 107

12	*Explain how wars were fought in the Modern Era.*	34. How far did new weaponry, transport and surveillance change the British Military between 1900 and 1945? 35. What kind of warfare did Britain take part in between 1900 and 1945? 36. How far did new weaponry, transport and surveillance change the British Military after 1945?	Explain how far you agree using the following and other information: - Light Field Artillery. - Radar.	36. 108 – 110
13	**Key topic 4.2** *Explain how the involved civilians and the militaries were effect by war in the Modern Era.*	37. How did you become a soldier in the modern era? 38. What were the key effects of war on civilian lives during the modern era? 39. **PATHS**	☒ **Peer/Teacher marked Question 3 (4 marks), Set after Lesson 24:** Explain one way in which wars affected civilians differently after c.1900 compared to before. ☒ **Completed Knowledge Test Sticker: Knowledge Test 4: Warfare c.1900 – present day. Set after lesson 38.** ☒ **Students to feed forward on the question from Lesson 34.**	37. 112 – 113 38. 114 – 118 39.
14	**Key topic 5.1** *Explain how and why London prepared for the Second World War.*	40. Why was London a target during the Second World War? 41. How did London prepare for the Second World War?	☒ **PATHS Marked Question 4 (12 marks), set after Lesson 40:** Explain why there has been so much change since 1900 in the way that warfare is reported in the media. - Attitudes towards censorship - Embedded journalists in the Iraq War	40. 140 – 141 41. 142 – 146
15	**Key topic 5.2** *Explain how London was affected during the Second World War.*	42. How was London attacked during the Second World War? 43. How did the attacks on London during the Second World War change between 1940 and 1945? 44. How do you analyse a source?	☒ **PATHS Marked Question 2a (8 marks), set after Lesson 44:** How useful are sources J and K [p. 151] for an enquiry into the South Hallsville School disaster?	42. 147 – 150 43. 151 – 153 44. 136 – 139
16	**Key topic 5.3** *Explain how far London changed as a result of the Second World War 1939-41.*	45. How far did the attacks change the lives of Londoners? 46. How do you follow up an enquiry from a source about London during the Second World War?	☒ **Peer/Teacher marked Question 2b (4 marks), Set after Lesson 46:** How could you follow up an enquiry into Source K [p.151] for an enquiry into the South Hallsville School disaster?	45. 154 -157 46. 158 – 159 47. 160 – 161

		47. How did the attacks on London change after 1941?		
17	**Key topic 5.4** *Explain how far London changed as a result of the Second World War following the V1 and V2 rocket attacks.*	48. What happened when the Nazis began to use V1 and V2 rockets? 49. How useful are local newspapers for enquires?	☒ **Peer/Teacher marked Question 1 (4 marks), Set after Lesson 46:** Describe two key features of the Baby Blitz (1944). ☒ **PATHS Marked Question 2a (8 marks), set after Lesson 48:** How useful are sources J and K [p. 151] for an enquiry into the South Hallsville School disaster?	48. 162 – 165 49. 166 – 168
18	**Key topic 5.5** *Explain the extent to which London changed as a result of the Second World War.*	50. How far did London change as a result of the Second World War? 51. **PATHS** 52. **End of Unit Assessment Part A.**	☒ **Completed Knowledge Test Sticker: Knowledge Test 5: London and the Second World War. Set after lesson 29.** ☒ **Students to feed forward on the question from Lesson 43 and 47.**	50. 169 – 171 51. 52.

Maths

Higher Tier

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	18.1 Vectors and vector notation 18.2 Vector arithmetic	Understand and use vector notation. Work out the magnitude of a vector. Calculate using vectors and represent the solutions graphically. Calculate the resultant of two vectors.	☑	18.1. P558-560 18.2 P.560-563

2	18.3 More vector arithmetic 18.4 Parallel vectors and collinear points	Solve problems using vectors. Use the resultant of two vectors to solve vector problems. Express points as position vectors. Prove lines are parallel. Prove points are collinear.	☑	18.3. P563-565 18.2 P.566-568
3	18.5 Solving geometric problems	Solve geometric problems in two dimensions using vector methods. Apply vector methods for simple geometric proofs.	☑	18.1. P568-571

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	19.1 Direct proportion 19.2 More direct proportion	Write and use equations to solve problems involving direct proportion. Write and use equations to solve problems involving direct proportion. Solve problems involving square and cubic proportionality.	☑	19.1 P.589 -590 19.2 P.590 -592
2	19.3 Inverse proportion 19.4 Exponential functions	• Write and use equations to solve problems involving inverse proportion. • Use and recognise graphs showing inverse proportion. • Recognise graphs of exponential functions. • Sketch graphs of exponential functions.	☑	19.3 P.592-595 19.4 P595-598
3	19.5 Non-linear graphs 19.6 Translating graphs of functions	• Calculate the gradient of a tangent at a point. • Estimate the area under a non-linear graph. • Understand the relationship between translating a graph and the change in its function notation.	☑	19.5 P.598 – 601 19.6 P.602-604
4	19.7 Reflecting and stretching graphs of functions	• Understand the effect stretching a curve parallel to one of the axes has on its function form. • Understand the effect reflecting a curve in one of the axes has on its function form.	☑	19.7 P.605 - 609

Foundation Tier

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	18.1 Multiplying and dividing with Fractions	Multiply and divide mixed numbers and fractions.	☑	539 - 541
2	18.2 Index Laws	To know and use the laws of indices.	☑	542-543
3	**18.3 Standard form large numbers**	Write large numbers in standard form. Convert large numbers from standard form into ordinary numbers.	☑	544-546
4	**18.4 Standard from small numbers**	Write small numbers in standard form. Convert numbers from standard form with negative powers of ordinary numbers	☑	547-548
5	18.5 Calculating in standard form	Calculating with Standard form	☑	549-552

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	19.1 Similarity	Similarity and Enlargement To be able to identify the Scale factor of similar shapes	☑	562-565

2	19.2 More Similarity proof and problem solving	Use similarity to find unknown lengths.	☑	566-570
3	19.4 Congruence	Recognise congruent shapes. Use congruence to work out unknown angles.	☑	571-575
4	19.6 Vectors	Add and subtract vectors. Find the resultant of two vectors.	☑	576-580

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
1	20.4 Simultaneous Equations Graphically	Solve simultaneous equations by drawing a graph.	☑	604-605
2	20.5 Rearranging Formulae	Change the subject of a formula.	☑	606-608

Media Studies

W#	Learning Outcomes *(Key concepts to be covered)*	Individual Lessons	Shared Outcomes. (These must be evident in student's work by the end of the key topic)
1	Research skills Genre	84. Introduction to magazine coursework	☑ Research into rival magazines ☑ Initial ideas mind-map
2-3	Media language Audience Representation	85. Analysing magazine front covers 86. Analysing articles 87. Analysing contents pages	☑ Front cover analysis x 2 ☑ Contents page analysis ☑ Magazine article analysis
4	Industries Audiences	88. The Magazine Industry 89. Audience theories	☑ Institutions – The Magazine Industry ☑ Applying Audience Theories
5	Audience research Industries Media language	90. Designing a questionnaire 91. Magazine funding and support	☑ Questionnaire (Google Forms) ☑ Minimum of 15 responses ☑ Proposal letter
6	Audiences Representation	92. Analysis of questionnaire 93. Sketches of front cover designs	☑ Questionnaire results analysis ☑ 4 x front cover sketches
7-12	Apply all key concepts to own production work Photoshop skills	94. Photoshop work 95. Complete photoshoot of original images 96. Developing house style 97. Use of colour and typography	☑ Magazine front cover ☑ Contents page ☑ Double-page article
13	Evaluate their work, applying all four key concepts	98. Write an evaluation of own magazine	☑ 300 word evaluation

Music

Appraising

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
	Planning the structure	99. What will the structure of my piece be and what will the different sections contain?	☑ Detailed structural overview of composition	38.
	Composing melodic ideas	100. What makes a good melody?	☑ Composition of a number of melodic ideas and recorded on Noteflight	39.
	Harmonising melodic material	101. How can we add harmony for different effects?	☑ Variety of chords added for varying effects	40.
	Compositional techniques	102. Wide range of compositional techniques covered and listening examples shown.	☑ Examples produced of each technique using Noteflight or other	41.
	Finalising of composition based on feedback and targets provided	103. All compositions finalised and submitted	☑ Final composition shared and downloaded for assessment	42.
	Log Book development	104. Compositional log book developed during the unit to reflect revisions and improvements throughout the creative process	☑ Log book submitted for assessment	43.

Composing to a set brief

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
	Planning the structure	105. What will the structure of my piece be and what will the different sections contain?	☑ Detailed structural overview of composition	44.
	Composing melodic ideas	106. What makes a good melody?	☑ Composition of a number of melodic ideas and recorded on Noteflight	45.
	Harmonising melodic material	107. How can we add harmony for different effects?	☑ Variety of chords added for varying effects	46.
	Compositional techniques	108. Wide range of compositional techniques covered and listening examples shown.	☑ Examples produced of each technique using Noteflight or other	47.
	Finalising of composition based on feedback and targets provided	109. All compositions finalised and submitted	☑ <u>Final composition shared and downloaded for assessment</u>	48.
	Log Book development	110. Compositional log book developed during the unit to reflect revisions and improvements throughout the creative process	☑ Log book submitted for assessment	49.

Performing Skills

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
	What makes a good performance?	1. Looking at characteristics of good performances and how we can emulate	☑ Video examples and brainstorm activities ☑ Performance tasks solo and ensemble incorporating information learned	50.
	How do we select repertoire for performance?	2. How to choose pieces appropriate to level and which enable students to access higher grades	☑ Selection of a number of potential pieces followed by final selection and approval by teacher	51.
	How do we plan a practise schedule?	3. Ways of organising practise to suit individual needs and level	☑ Personal practise schedule shared with teacher and updated regularly as part of homework tasks	52.
	What are effective warm ups and technical exercises?	4. Looking at the purpose and benefits of warm ups and technical exercises	☑ Compilation of exercises ☑ Practise and show correct execution of these	53.
	How do we assess our own and others' progress against the GCSE criteria?	5. Looking at how work is marked against GCSE specification	☑ Examples assessed. ☑ Peer assessment using level descriptors from specification	54.
	How can we add expression to our performance?	6. Dynamic levels and creating contrast in performance	☑ Video examples ☑ Students annotate scores with expression for their own performances	55.
	What is involved in planning a concert?	7. Planning of concert to showcase performance pieces	☑ Concert to parents and staff in school organised by students	56.

	What makes a good ensemble performance?	8. Looking at ensemble technique and how it differs from performing solo	☑ Audio visual examples ☑ Students put this into practise in their own ensemble performances.	57.
	What makes a good performance?	9. Looking at characteristics of good performances and how we can emulate	☑ Video examples and brainstorm activities ☑ Performance tasks solo and ensemble incorporating information learned	58.
	How do we select repertoire for performance?	10. How to choose pieces appropriate to level and which enable students to access higher grades	☑ Selection of a number of potential pieces followed by final selection and approval by teacher	59.
	How do we plan a practise schedule?	11. Ways of organising practise to suit individual needs and level	☑ Personal practise schedule shared with teacher and updated regularly as part of homework tasks	60.
	What are effective warm ups and technical exercises?	12. Looking at the purpose and benefits of warm ups and technical exercises	☑ Compilation of exercises ☑ Practise and show correct execution of these	61.
	How do we assess our own and others' progress against the GCSE criteria?	13. Looking at how work is marked against GCSE specification	☑ Examples assessed. ☑ Peer assessment using level descriptors from specification	62.
	How can we add expression to our performance?	14. Dynamic levels and creating contrast in performance	☑ Video examples ☑ Students annotate scores with expression for their own performances	63.
	What is involved in planning a concert?	15. Planning of concert to showcase performance pieces	☑ Concert to parents and staff in school organised by students	64.

	What makes a good ensemble performance?	16. Looking at ensemble technique and how it differs from performing solo	☑ <u>Audio visual examples</u> ☑ Students put this into practise in their own ensemble performances.	65.
	What makes a good performance?	17. Looking at characteristics of good performances and how we can emulate	☑ <u>Video examples and brainstorm activities</u> ☑ Performance tasks solo and ensemble incorporating information learned	66.

Physical Education

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Student Book Pages
To be taught throughout Year 11				
Knowledge (PLC) exams to be completed in exam conditions				
Students respond to PATHS marking during consolidation lesson				
1	Recap lesson 1.1.b structure and function of the Respiratory system			
1	Recap lesson 1.1.e Effects of short term exercise on the body systems			
2.1 Socio-cultural influences				
2-4	2.1.a Engagement patterns of different social groups in PA and Sport	18. Physical activity and sport in the UK 19. Participation in physical activity and sport 20. Strategies used to improve participation 21. Model answer revision lesson 22. Knowledge (PLC) exam 23. Consolidation lesson	☑ Evidence of linking data to participation rates in sport and the long term effects on health. ☑ Action plan to improve participation levels ☑ Discussion into how influences can effect social groups. ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC

5-7	2.1.b Commercialisation of physical activity and sport	1. Commercialisation of sport pt 1 2. commercialisation of sport pt 2 3. Model answer revision lesson 4. Knowledge (PLC) exam 5. Consolidation lesson	☑ Description of how the media can promote sport ☑ Explanation of how sponsorship can influence sport ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC
7	Recap lesson 2.1.a Engagement patterns of different social groups in PA and Sport			
8-10	2.1.c Ethical and socio-cultural issues in physical activity and sport.	1. Ethics in sport 2. Drugs in sport 3. Violence in sport 4. Model answer revision lesson 5. Knowledge (PLC) exam 6. Consolidation lesson	☑ Explanation of sportsmanship/gamesmanship ☑ Practical application linking athletes to drugs ☑ Explanation of why people become violent in sport ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC
11	Recap lesson 2.1.b Commercialisation of physical activity and sport			
11	Revision lesson			
12	2.1 Exam			
12	2.1 Exam Review			
2.2 Sports Psychology				
13-15	2.2 Sports psychology pt 1	1. Characteristics of skilful movement 2.Classification of skills 3. Goal setting 4. Model answer revision lesson 5. Knowledge (PLC) exam 6. Consolidation lesson	☑ Identification of motor skills ☑ Description of motor skill characteristics ☑ Application of goal setting to raise performance ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC
16	Recap lesson 2.1.c Ethical and socio-cultural issues in physical activity and sport.			
16	Recap lesson 2.1.a Engagement patterns of different social groups in PA and Sport			

17- 19	2.2 Sports psychology pt 2	1. Mental Preparation 2. Types of guidance 3. types of feedback 4. Model answer revision lesson 5. Knowledge (PLC) exam 6. Consolidation lesson	☑ Identification of the types of feedback ☑ Explanation of imagery and positive thinking ☑ Analysis of types of guidance ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC
20	Recap lesson 2.2 Sports psychology pt 1			
20	Recap lesson 2.1.b Commercialisation of physical activity and sport			
2.3 Health fitness and Well being				
21 - 23	2.3 Health fitness and Well being	1. Health fitness and Well being 2. Diet and Nutrition 3. Model answer revision lesson 4. Knowledge (PLC) exam 5. Consolidation lesson	☑ Identification of health benefits as P/M/S ☑ Explanation of nutrients role in exercise/performance ☑ Examples of how exercise can increase well being ☑ Completed Knowledge test- PATHS MARKED ☑ Exam questions – self marked.	TBC
23	Recap lesson 2.2 Sports psychology pt 2			
24	Recap lesson 2.1.c Ethical and socio-cultural issues in physical activity and sport.			
25	Revision lesson			
25	2.2 -2.3 Exam			
26	2.2-2.3 Exam Review			
26	Revision lesson 2.1.a Engagement patterns of different social groups in PA and Sport			
27	Revision lesson 2.1.b Commercialisation of physical activity and sport			
27	Revision lesson 2.1.c Ethical and socio-cultural issues in physical activity and sport.			
28	Revision lesson 2.2 Sports psychology pt 1			
28	Revision lesson 2.2 Sports psychology pt 2			
29	Revision lesson 2.3 Health fitness and Well being			
29	Unit 2 exam			

Photography

Week #	**Key Skills**	**Individual Lessons (with #) –** *click on the link for lesson resources.*	**Shared Outcomes –** *what must be produced by the end of the conceptual focus.*	**Homework (suggested)**
To be taught during term 1 (September – December)				
1 - 4	Research and Analysis skills Annotation skills Studio lighting Camera techniques Key elements	Rembrandt Lighting ☑ Students complete a series which includes: - Analysis of Rembrandt's 'Self Portrait 1660' ☑ A series of photos taken in studio copying Rembrandt's lighting and composition ☑ Series of images exploring this technique demonstrating camera and editing skills ☑ Own images annotated ☑ Detailed plan for final image ☑ Final image and evaluation of final image (using Photoshop) ☑ GCSE Photography Formula Booklet ☑ End of topic assessment	☑ *Analysis of Rembrandt painting* ☑ *Own set of images annotated* ☑ *Plan for final portrait* ☑ *Final image evaluated*	Personalised list provided to each pupil
5 - 8	Research and Analysis skills Annotation skills Studio lighting Camera techniques Key elements	Low Key Portraits ☑ Students complete a series which includes: ☑ Analysis of professional photo ☑ Series of images exploring lighting ☑ Series of images exploring the technique ☑ Own images annotated ☑ Plan for final image ☑ Final image and evaluation of final image (using Photoshop) ☑ End of topic assessment	☑ *Analysis of research image* ☑ *Own set of images annotated* ☑ *Plan for final portrait* ☑ *Final image evaluated*	Personalised list provided to each pupil

9 - 11	Research and Analysis skills Annotation skills Studio lighting Camera techniques Key elements	'Rainy' Studio Portraits ☑ Students complete a series which includes: ☑ Analysis of professional photo ☑ Series of images exploring lighting ☑ Series of images exploring the technique ☑ Own images annotated ☑ Plan for final image ☑ Final image and evaluation of final image (using Photoshop) ☑ End of topic assessment	☑ *Analysis of research image* ☑ *Own set of images annotated* ☑ *Plan for final portrait* ☑ *Final image evaluated*	Personalised list provided to each pupil

12 - 14	Research and Analysis skills Annotation skills Studio lighting Camera techniques Key elements	Front Bokeh Portraits ☑ Students complete a set which includes: - Analysis of professional photo - Series of images exploring lighting - Series of images exploring the technique - Own images annotated - Plan for final image - Final image and evaluation of final image (using Photoshop) ☑ End of topic assessment	☑ *Analysis of research image* ☑ *Own set of images annotated* ☑ *Plan for final portrait* ☑ *Final image evaluated*	Personalised list provided to each pupil

PRE

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes.	Text Book Pages *(Students have their own copy)*
Start Summer 2 and aim to complete by Spring 2				
Knowledge tests each week and built around wider reading				
PATHS essays to have student response in lessons				
1	Explain the Christian attitude towards the role of the family, marriage, different sexual relationships, the role of men and women and the Christian understanding of equality.	24. Relationships and families a. Relationships b. Men and women c. Christian understandings of equality	☑ To be determined	67. Page 155 68. Page 180 69. Page 186
2	Explain the Christian response to the 'question of God', the nature of reality and ways in which God might be experienced.	25. The existence of God a. The question of God b. The nature of reality c. Experiencing God	☑ To be determined	a. Page 195 b. Page 209 c. Page 218
3	Explain the Christian understanding of violence in relation to war, peace and the concept of forgiveness.	26. Religion, peace and conflict a. Violence and conflict b. Peace and peace making c. Forgiveness and reconciliation	☑ To be determined	a. Page 243 b. Page 261 c. Page 268
4	Explain the challenges Christianity faces in modern British society, how Christians view religious and non-religious groups.	27. Dialogue within and between religious and non-religious beliefs and attitudes a. Challenges for religion b. Dialogue within and between religious groups c. Dialogue within and between religious and non-religious groups	☑ To be determined	a. Page 243 b. Page 261 c. Page 268

Psychology

All Students Have 2 revision work booklets:

Revision Booklet Unit 1: Making sense of other people:

1. Memory
2. Stereotyping, prejudice and discrimination
3. Non verbal communication
4. Personality
5. Research Methods

Revision Booklet Unit 2: Understanding other people

1. Learning
2. Social Influence
3. Sex and Gender
4. Aggression
5. Research Methods

Science

Biology
4.1 Cell Biology

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	☑ Label diagrams of animal and plant cells. Describe the function of the main organelles. Describe the order of size of: cell, nucleus, chromosome and gene. ☑ Prepare slides of plant and animal cells and describe the procedure. Correctly use a microscope to observe cells under different magnifications. **Required practical: Microscopy.** Use a light microscope to observe, draw and label a selection of plant and animal cells. A magnification scale must be included. ☑ Explain the need for differentiation in a multicellular organism. Describe the differences between differentiation in plants and in animals. Explain how specialised cells are adapted for their function.	**4.1.1 Cell structure** 1. 4.1.1.2 Animal and plant cells 1 2. 4.1.1.2 Animal and plant cells 2. **Required practical 1: Microscopy** 3. 4.1.1.3 Cell specialisation & 4.1.1.4 Cell differentiation	☑ Label diagrams of animal and plant cells and describe the function of the main organelles. Describe the order of size of: cell, nucleus, chromosome and gene. ☑ **Complete Required practical 1: Microscopy.** Use a light microscope to observe, draw and label a selection of plant and animal cells. Include a magnification scale. ☑ Explain the need for differentiation in a multicellular organism, highlighting the differences between differentiation in plants and in animals. Explain how specialised cells (red blood cells, nerve cells, root hair cells, palisade cells) are adapted for their function.	Knowledge test – Cell structure
2	☑ Define the term 'stem cell'. Describe where stem cells can be found in animals and plants. Describe in simple terms how nerve cells genetically identical to a patient could be obtained. Describe how stem cells could be used to help treat some medical conditions. Evaluate risks and benefits, as well as the social and ethical issues concerning the use of	4. 4.1.2.3 Stem cells 5. 4.1.1.1 Identify plant, animal and bacterial cells 6. 4.1.1.5 Microscopy	☑ Define the term 'stem cell' and describe where stem cells can be found in animals and plants. Describe how stem cells could be used to help treat some medical conditions. Evaluate risks and benefits, as well as the social and ethical issues concerning the use of stem cells from embryos in medical research and treatments.	Knowledge test – Stem cells and cell identifiation

	stem cells from embryos in medical research and treatments. Stem cells in plants – see 4.6.2.5 Cloning. Identify plant, animal and bacterial cells and classify them as eukaryotic or prokaryotic cells. Label diagrams of bacterial cells. ☑ Describe the differences between eukaryotic and prokaryotic cells in terms of structure and size. Describe the differences in magnification and resolution of light and electron microscopes. Explain how electron microscopy has increased understanding of organelles. Calculate the magnification of a light microscope. Carry out calculations using the formula: $$real\ size = \frac{image\ size}{magnification}$$ Rearrange the equation to calculate image size or magnification. Convert values for the units: cm, mm, µm and nm.		☑ Describe the differences between eukaryotic and prokaryotic cells in terms of structure and size. ☑ Describe the differences in magnification and resolution of light and electron microscopes. Calculate the magnification of a light microscope. Carry out calculations using the formula: $$real\ size = \frac{image\ size}{magnification}$$ Rearrange the equation to calculate image size or magnification. Convert values for the units: cm, mm, µm and nm.	
3	☑ Know that bacteria multiply by simple cell division. Know how bacteria can be grown. Know procedure to prepare an uncontaminated culture. Explain why cultures are incubated at a maximum temperature of 25°C. Describe why uncontaminated cultures are necessary in research. ☑ Describe what a chromosome is and where chromosomes are found in the cell. Describe what a chromosome is and where chromosomes are found in the cell. Describe simply how and	**<u>7. 4.1.1.6 Culturing microorganisms</u> (Biology only)** **4.1.2 Cell division** <u>8. 4.1.2.1 Chromosomes & 4.1.2.2 Mitosis and the cell cycle</u> **4.1.3 Transport in cells** <u>9. 4.1.3.1 Diffusion</u>	☑ State that bacteria multiply by simple cell division and describe how bacteria can be grown. Know how bacteria can be grown. Know procedure to prepare an uncontaminated culture. Explain why cultures are incubated at a maximum temperature of 25°C. Describe why uncontaminated cultures are necessary in research. ☑ Describe what a chromosome is and where chromosomes are found in the cell. Describe simply how and why body cells divide by. Draw simple diagrams to describe mitosis and the cell cycle.	Knowledge test – Cell division

	why body cells divide by. Knowledge and understanding of the stages in mitosis are not required. Draw simple diagrams to describe mitosis. Draw a simple diagram to describe the cell cycle in terms of: -cell growth, when the number of organelles increases -replication of chromosomes, so the genetic material is doubled -separation of the chromosomes: division of the nucleus -division of the cell to form two identical cells. ☑ Define the term 'diffusion'. Explain how temperature, concentration gradient and surface area affect the rate of diffusion. Give examples of substances that diffuse into and out of cells. Calculate and compare surface area: volume ratios. Explain how the small intestine and lungs in mammals, and roots and leaves in plants, are adapted for exchange of substances. Describe and explain how an exchange surface is made more effective.		☑ Define the term 'diffusion'. Explain how temperature, concentration gradient and surface area affect the rate of diffusion. Give examples of substances that diffuse into and out of cells (e.g. oxygen, carbon dioxide, glucose). Explain how the small intestine and lungs in mammals, and roots and leaves in plants, are adapted for exchange of substances.	
4	☑ Define the term 'osmosis'. Apply knowledge of osmosis to unfamiliar situations and make predictions. Active transport recap: This topic is covered in section 4.2.3.2 Plant organs and referred to when teaching digestion and absorption. There are links with 4.3.3.1 Plant diseases. Set up a simple osmometer at the start of the lesson and measure how far the liquid in the capillary tube rises during the lesson.	10. 4.1.3.2 Osmosis 11. **Required Practical 3: Osmosis** 12. End of topic test. 13. Feedback lesson	☑ Define the term 'osmosis'. Apply knowledge of osmosis to unfamiliar situations and make predictions. Describe what Active transport is. Define the term 'active transport' and explain why active transport requires energy. Describe where active transport occurs in humans and plants and what is transported. Explain how active transport enables cells to absorb ions from very dilute solutions.	Knowledge test – Osmosis EOTT revision

	☑ **Required Practical: Osmosis** Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.		Explain the relationship between active transport and oxygen supply and numbers of mitochondria in cells. Write down the similarities and differences between diffusion, osmosis and active transport. ☑ **Complete Required Practical 3: Osmosis:** Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.	

4.2 Organisation

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Explain the terms cell, tissue, organ, organ system and organism, and be able to give examples of each. Have an understanding of the size and scale of cells, tissues, organs, organ systems and organisms. Describe the main systems in the human body and their functions. Describe the functions of the digestive system to digest and absorb foods. Identify the positions of the main organs on a diagram of the digestive system. Know that food molecules must be small and soluble in order to be absorbed into the blood.	**4.2.1 Principles of organisation** 1. Organisational hierarchy. **4.2.2 Animal tissues, organs and organ systems** 2. The human digestive system. 3. Properties of enzymes.	☑ Explain the terms cell, tissue, organ, organ system and organism, and be able to give examples of each. Describe the main systems in the human body and their functions. ☑ Describe the functions of the digestive system to digest and absorb foods. Identify the positions and functions of the main organs on a diagram of the digestive system. Explain how the small intestine is adapted for its function. ☑ Define the terms 'catalyst' and 'enzyme'. Explain why enzymes are specific and are denatured by high temperatures and extremes of pH. Use the lock and key theory and collision theory to explain enzyme action.	Knowledge test – Organisation

	Describe the functions of the organs in the system. Explain how the small intestine is adapted for its function. Define the terms 'catalyst' and 'enzyme'. Describe the properties of enzymes. Explain why enzymes are specific and are denatured by high temperatures and extremes of pH. Use the lock and key theory and collision theory to explain enzyme action.			
2	Carry out a safe, controlled investigation to measure the rate of the catalase under different conditions. Draw a diagram of the apparatus and write a method. Identify variables. Present and analyse the results: calculate rates of reaction using raw data and graphs. Draw conclusions and give explanations for the results. Explain why foods need to be digested into small, soluble molecules. Describe the three types of enzymes involved in digestion, including the names of the substrates, products and where the enzymes are produced. Explain how bile helps in the digestion of fats. Interpret graphs to determine the optimum temperature or pH for an enzyme. Carry out other enzyme controlled investigations as appropriate. Calculate the rate of enzyme controlled reactions. Interpret the results from enzyme controlled reactions.	**4. <u>Required practical 5: Investigate the effect of pH on the rate of reaction of amylase enzyme.</u>** 5<u>. Human digestive enzymes</u> 6. **<u>Required practical activity 4: use qualitative reagents to test for a range of carbohydrates, lipids and proteins</u>**	☑ Carry out **Required practical 5: Investigate the effect of pH on the rate of reaction of amylase enzyme.** ☑ Explain why foods need to be digested into small, soluble molecules. Describe the three types of enzymes involved in digestion, including the names of the substrates, products and where the enzymes are produced. Explain how bile helps in the digestion of fats. Using a graph, describe what the optimum temperature and pH for an enzyme. ☑ Carry out **Required practical activity 4: use qualitative reagents to test for a range of carbohydrates, lipids and proteins.**	Knowledge test – Enzymes

3	Describe the functions of the heart and circulatory system. Describe and label a diagram of the heart showing four chambers, vena cava, pulmonary artery, pulmonary vein and aorta. Describe the flow of blood from the body, through the heart and lungs and back to the body. Explain how the heart is adapted for its function. Describe the heart as a double pump and explain why this is efficient. Describe the function of the pacemaker cells and coronary arteries. Label the main structures in the gas exchange system – trachea, bronchi, alveoli and capillary network around alveoli. Explain how the alveoli are adapted for efficient gas exchange. Explain how the blood vessels are adapted for their function.	<u>7. The heart and blood vessels.</u> <u>8. Structure and function of arteries, veins and capillaries.</u> <u>9. Lungs</u>	☑ Describe the functions of the heart and circulatory system. Describe and label a diagram of the heart showing four chambers, vena cava, pulmonary artery, pulmonary vein and aorta. Explain how the heart is adapted for its function. Describe the heart as a double pump and explain why this is efficient. Describe the function of the pacemaker cells and coronary arteries. ☑ Describe the flow of blood from the body, through the heart and lungs and back to the body. Explain how the blood vessels are adapted for their function. ☑ Label the main structures in the gas exchange system – trachea, bronchi, alveoli and capillary network around alveoli. Explain how the alveoli are adapted for efficient gas exchange.	Knowledge test – Heart and Lungs
4	Describe problems associated with the heart and explain how they can be treated. Evaluate the use of drugs, mechanical devices and transplants to treat heart problems, including religious and ethical issues. Describe the four main components of blood. Explain how each component is adapted for its function. Identify pictures of the different blood cells. Explain how diet, stress and life situations can affect physical and mental health. Give examples of communicable and non-communicable diseases. Describe examples of how diseases may interact. Describe the effects of diet, smoking, alcohol and exercise on health.	<u>10. Coronary heart disease.</u> <u>11. Blood.</u> <u>12. Health issues and effect of lifestyle on non-communicable diseases</u>	☑ Describe problems associated with the heart and explain how they can be treated. Describe the use of drugs, mechanical devices and transplants to treat heart problems, including religious and ethical issues. ☑ Describe the four main components of blood. Explain how each component is adapted for its function. ☑ Explain how diet, stress and life situations can affect physical and mental health. Give examples of communicable and non-communicable diseases. Describe the effects of diet, smoking, alcohol and exercise on health. Explain how and why the Government encourages people to lead a healthy lifestyle. Give risk factors associated with cardiovascular disease, Type 2 diabetes, lung diseases and cancers.	Knowledge test – Health issues

	Explain how and why the Government encourages people to lead a healthy lifestyle. Give risk factors associated with cardiovascular disease, Type 2 diabetes, lung diseases and cancers.			
4	Describe some causes of cancer, eg viruses, smoking, alcohol, carcinogens and ionising radiation. Describe the difference between benign and malignant tumours. Explain how cancer may spread from one site in the body to form a secondary tumour in another part of the body. Label the main organs of a plant and describe their functions. Identify the tissues in a leaf and describe their functions. Relate the structure of each tissue to its function in photosynthesis. Explain why there are more stomata on the lower surface of a leaf. Describe the role of stomata and guard cells to control water loss and gas exchange. Calculate stomatal density Describe the organs that make up the plant transport system. Describe the role of xylem, phloem and root hair cells and explain how they are adapted for their functions. Define the terms 'transpiration' and 'translocation'.	13. Cancer **4.2.3 Plant tissues, organs and systems** 14. Plant organs and Plant tissues. 15. Plant transport systems.	☑ Describe some causes of cancer, e.g. viruses, smoking, alcohol, carcinogens and ionising radiation. Describe the difference between benign and malignant tumours. Explain how cancer may spread from one site in the body to form a secondary tumour in another part of the body. ☑ Label the main organs of a plant and describe their functions. Identify the tissues in a leaf and describe their functions. Relate the structure of each tissue to its function in photosynthesis. Explain why there are more stomata on the lower surface of a leaf. Describe the role of stomata and guard cells to control water loss and gas exchange. ☑ Describe the organs that make up the plant transport system. Describe the role of xylem, phloem and root hair cells and explain how they are adapted for their functions. Define the terms 'transpiration' and 'translocation'.	Knowledge test – Plant organs EOTT revision
5		16. End of Topic Test. 17. Feedback lesson		

4.3 Infection and Response

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Define the term pathogen and state the four main groups of pathogen. Explain how pathogens can be spread to plants or animals and cause infection. Describe the main differences between bacteria and viruses. Explain how the spread of disease can be reduced or prevented. Describe how microorganisms can be safely grown on agar plates. Explain the safety precautions you must take when growing microorganisms. Explain why cultures are incubated at a maximum temperature of 25ºC in schools. Recognise bacterial and fungal colonies growing on agar plates. Describe safety precautions for microbial investigations. Describe the optimum conditions for bacterial growth. Calculate the number of bacteria in a population after a given time, when given the mean division time.	4.3.1 Communicable diseases <u>1. Communicable diseases</u> <u>2. Culturing microorganisms 1</u> <u>3. Culturing microorganisms 2</u>	☑ Define the term pathogen and state the four main groups of pathogen. Explain how pathogens can be spread to plants or animals and cause infection. Describe the main differences between bacteria and viruses. Explain how the spread of disease can be reduced or prevented. *Order experiment for Culturing microorganisms 1 at least 48 hours in advance* ☑ Describe how microorganisms can be safely grown on agar plates. Explain the safety precautions you must take when growing microorganisms, including why cultures are incubated at a maximum temperature of 25ºC in schools. ☑ Describe safety precautions for microbial investigations. Describe the optimum conditions for bacterial growth.	Knowledge test – Diseases and culturing organisms

			Calculate the number of bacteria in a population after a given time, when given the mean division time.	
2	Describe the symptoms, mode of transmission, prevention and treatment for measles, HIV and AIDS, salmonella and gonorrhoea. Describe colds and flu as viral diseases. Describe athlete's foot as a fungal disease. Describe the life cycle of the malarial protist. Describe the symptoms, mode of transmission, prevention and treatment for malaria. Describe the body's first line defences. Explain how microbes make us feel ill and how viruses damage cells. Explain how the immune system defends against disease. Describe what white blood cells do. Explain why antibodies are specific for one pathogen/ antigen. Describe what a vaccine contains. Explain how vaccines prevent disease. Explain the idea of 'herd immunity'.	<u>4. Viral, bacterial and fungal diseases in humans, and Protist diseases – malaria</u> <u>5. Human defence systems</u> <u>6. Vaccination</u>	☑ Describe the symptoms, mode of transmission, prevention and treatment for measles, HIV and AIDS, salmonella and gonorrhoea. Describe colds and flu as viral diseases. Describe athlete's foot as a fungal disease. Describe the life cycle of the malarial protist. Describe the symptoms, mode of transmission, prevention and treatment for malaria. ☑ Describe the body's first line defences. Explain how microbes make us feel ill and how viruses damage cells. Explain how the immune system defends against disease. Describe what white blood cells do. Explain why antibodies are specific for one pathogen/ antigen. ☑ Describe what a vaccine contains. Explain how vaccines prevent disease. Explain the idea of 'herd immunity'.	Knowledge test – Defence Systems

3	Explain how antibiotics treat only bacterial diseases and how this has saved lives. Describe the problems associated with antibiotic resistance. See 4.6.3.7 Explain the difficulty in developing drugs that kill viruses without damaging body tissues. Plan and carry out a safe investigation into the effect of disinfectants or antibiotics on bacterial growth. Calculate the cross-sectional areas of clear zones around disinfectant/ antibiotic discs using πr^2. Present and analyse the results.	7. Antibiotics 8. Required practical: Investigate the effect of disinfectants or antibiotics on bacterial growth. 9. Required practical: Investigate the effect of disinfectants or antibiotics on bacterial growth.	☑ Explain how antibiotics treat only bacterial diseases and how this has saved lives. Describe the problems associated with antibiotic resistance. Explain the difficulty in developing drugs that kill viruses without damaging body tissues. ☑ **Required practical: Investigate the effect of disinfectants or antibiotics on bacterial growth.** Plan and carry out a safe investigation into the effect of disinfectants or antibiotics on bacterial growth. ☑ **Required practical: Investigate the effect of disinfectants or antibiotics on bacterial growth.** Calculate the cross-sectional areas of clear zones around disinfectant/ antibiotic discs using πr^2. Present and analyse the results.	Knowledge test – Vaccinations and Antibiotics
4	Give examples of painkillers and other medicines used to treat symptoms. Interpret data about painkillers and other medicines. Describe Fleming's discovery and explain its importance. State which drugs come from plants and microorganisms. Explain why drugs need to be tested before they can be prescribed. Describe the main steps in the development and testing of a new drug. Give reasons for the different stages in drug testing. Explain the terms placebo and double-blind trial.	10. Painkillers and other medicines 11. Discovery and development of drugs 4.3.2 Monoclonal antibodies 12. Describe what MABs are, & How they are produced(Higher Tier only)	☑ Give examples of painkillers and other medicines used to treat symptoms. Interpret data about painkillers and other medicines. Describe Fleming's discovery and explain its importance. ☑ State which drugs come from plants and microorganisms. Explain why drugs need to be tested before they can be prescribed. Describe the main steps in the development and testing of a new drug.	Knowledge test – Drugs

	Describe what MABs are, and how they are produced. Describe the uses of MABs and explain how these work when given appropriate information: Explain why MABs are not yet widely used in the body. Evaluate the advantages and disadvantages of MABs.		Give reasons for the different stages in drug testing. Explain the terms placebo and double-blind trial. ☑ Describe what MABs are, and how they are produced. Describe the uses of MABs and explain how these work when given appropriate information: Explain why MABs are not yet widely used in the body. (Higher Tier only) Evaluate the advantages and disadvantages of MABs. (Higher Tier only)	
5	Describe the symptoms and effects of Tobacco mosaic virus and its effects. Describe the symptoms and effects of Rose black spot fungal infection Explain how aphids affect plant growth. Describe visual indications of plant disease, as described in the specification.(Higher only) Describe methods that gardeners and scientists can use to identify the disease causing pathogen. (Higher only). Carry out a controlled investigation into the effects of nitrate and magnesium ion deficiencies and link to active transport (4.1.3.3 and see alternative ivestigations in 4.2.3.2). Describe the physical and chemical ways plants can resist microorganisms. Describe mechanical adaptations to deter animals.	4.3.3 Plant disease <u>13. Plant disease and Detection and identification of plant diseases (Higher only)</u> <u>14. Plant defence responses</u> <u>15.End of Topic Test</u> 16. Feedback lesson	☑ Describe the symptoms and effects of Tobacco mosaic virus and its effects. Describe the symptoms and effects of Rose black spot fungal infection Explain how aphids affect plant growth. ☑ Describe visual indications of plant disease, as described in the specification.(Higher only) Describe methods that gardeners and scientists can use to identify the disease causing pathogen. (Higher only). Carry out a controlled investigation into the effects of nitrate and magnesium ion deficiencies and link to active transport. ☑ Describe the physical and chemical ways plants can resist microorganisms. Describe mechanical adaptations to deter animals.	Knowledge test – Plant Defences EOTT revision

4.4 Bioenergetics

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Write the word and symbol equation for photosynthesis. Explain why photosynthesis is important for the survival of other organisms. Investigate the need for light, carbon dioxide and chlorophyll to make glucose. Explain why plants should be de-starched before photosynthesis experiments and describe how this is done. Describe experiments to show that plants produce oxygen in the light. Test to see if a leaf contains starch. Explain why the leaves are tested for starch and not for sugar. Describe the test for oxygen. Interpret results and relate to photosynthesis equation. State factors that can limit the rate of photosynthesis. Interpret data showing how factors affect the rate of photosynthesis. Required practical: plan a method.	**4.4.1 Photosynthesis** 1. Photosynthetic reaction 1 2. Photosynthetic reaction 2 3. **Required practical activity 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed. Planning**	☑ Write the word and symbol equation for photosynthesis. Explain why photosynthesis is important for the survival of other organisms. Explain why plants should be de-starched before photosynthesis experiments and describe how this is done. Describe experiments to show that plants produce oxygen in the light. ☑ Test to see if a leaf contains starch. Explain why the leaves are tested for starch and not for sugar. Describe the test for oxygen. State factors that can limit the rate of photosynthesis. Interpret data showing how factors affect the rate of photosynthesis. ☑ Plan **Required practical activity 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.**	Knowledge test – Photosynthesis 1
2	Interpret graphs to decide which factor is limiting the rate. Explain how conditions in greenhouses can be controlled to optimise the growth of plants. Relate limiting factors to the cost effectiveness of adding heat, light or carbon dioxide to greenhouses, Evaluate the benefits of artificially manipulating the environment in which plants are grown.	4. **Required practical activity 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.**	☑ **Required practical activity 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed.** ☑ Interpret graphs to decide which factor is limiting the rate. Explain how conditions in greenhouses can be controlled to optimise the growth of plants. Relate limiting factors to the cost effectiveness of adding heat, light or carbon dioxide to greenhouses. Evaluate the	Knowledge test – Photosynthesis 2

	List ways in which glucose is used by a plant. Describe functions of fats, oils, cellulose, starch and proteins in a plant. Explain how plants obtain nitrate ions and what they are needed for. Interpret data from the results of bicarbonate indicator experiment.	<u>5. Limiting factors</u> <u>6. Use of glucose</u>	benefits of artificially manipulating the environment in which plants are grown. (HT only) Students should be able to explain graphs of photosynthesis rate involving two or three factors and decide which is the limiting factor. ☑ List ways in which glucose is used by a plant. Describe functions of fats, oils, cellulose, starch and proteins in a plant. Explain how plants obtain nitrate ions and what they are needed for. Interpret data from the results of bicarbonate indicator experiment.	
3	State that all animals and plants produce carbon dioxide and water all the time as a by-product of aerobic respiration. Write the word equation for aerobic respiration. Define the term 'aerobic'. Describe what organisms need energy for. Describe tests for carbon dioxide and water. State the site of aerobic respiration and be able to give examples of cells that contain a lot of mitochondria (links with 4.1.1.2). Define the term 'anaerobic'. Explain why anaerobic respiration is less efficient than aerobic respiration. Write the word equation for anaerobic respiration in animal cells. Write the word and symbol equation for anaerobic respiration in yeast cells. State that anaerobic respiration in yeast is called fermentation. Explain why yeast is used to make bread and alcoholic drinks. Interpret data from yeast investigation.	**4.4.2 Respiration** <u>7. Aerobic respiration</u> <u>8. Anaerobic respiration</u> <u>9. Response to exercise</u>	☑ State that all animals and plants produce carbon dioxide and water all the time as a by-product of aerobic respiration. Write the word equation for aerobic respiration. Define the term 'aerobic'. Describe what organisms need energy for. Describe tests for carbon dioxide and water. State the site of aerobic respiration and be able to give examples of cells that contain a lot of mitochondria (links with 4.1.1.2). ☑ Define the term 'anaerobic'. Explain why anaerobic respiration is less efficient than aerobic respiration. Write the word equation for anaerobic respiration in animal cells and in yeast cells, stating that this is called fermentation. Explain why yeast is used to make bread and alcoholic drinks. ☑ Describe and explain the changes that occur in the body during exercise. Design and carry out an investigation about the effects of exercise on the body. Interpret data relating to the effects of exercise on the body, e.g. spirometer tracings. Describe the effects of long periods of vigorous exercise on the body.	Knowledge test – Respiration

			Define the term ‘oxygen debt’. Explain what happens to lactic acid once exercise stops.	
4	Describe and explain the changes that occur in the body during exercise. Design and carry out an investigation about the effects of exercise on the body. Present and interpret data about heart rate, breathing rate and breath volume. Interpret data relating to the effects of exercise on the body, eg spirometer tracings. Describe the effects of long periods of vigorous exercise on the body. Define the term ‘oxygen debt’. Explain what happens to lactic acid once exercise stops. Define the term ‘metabolism’. Give examples of reactions in metabolism. Name some chemicals formed from glucose molecules Describe lipid formation from a molecule of glycerol and three molecules of fatty acids. Describe the use of glucose and nitrate ions to form amino acids, which form proteins. Describe the formation of urea.	10. Metabolism 11. End of Unit Test 12. Feedback lesson	☑ Define the term ‘metabolism’. Give examples of reactions in metabolism. Name some chemicals formed from glucose molecules. Describe lipid formation from a molecule of glycerol and three molecules of fatty acids. Describe the use of glucose and nitrate ions to form amino acids, which form proteins. Describe the formation of urea.	EOTT revision

4.5 Homeostasis & Response

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Explain what homeostasis is and why it is important. Describe examples of conditions that need to be controlled. Describe the roles of the nervous system and the endocrine system in homeostasis. Describe the main components of a control system and their functions. Explain the importance of being able to respond to environmental changes and coordinate behaviour. Explain how the nervous system is adapted for its functions. Describe the functions of the main structures in the nervous system. Explain the role of chemicals at synapses. Describe and use different methods to measure reaction time. **Required practical** **Make a plan to investigate a factor on human reaction time.**	**4.5.1 Homeostasis** **4.5.2 The human nervous system** 1. 4.5.1 Introduction to homeostasis and 4.5.2.1 Structure and function of the nervous system 1 2. 4.5.2.1 Structure and function of the nervous system 2 3. **Required practical the effect of a factor on human reaction time.**	☑ Explain what homeostasis is and why it is important. Describe examples of conditions that need to be controlled. Describe the roles of the nervous system and the endocrine system in homeostasis. Describe the main components of a control system and their functions. Explain the importance of being able to respond to environmental changes and coordinate behaviour. ☑ Explain how the nervous system is adapted for its functions. Describe the functions of the main structures in the nervous system. Explain the role of chemicals at synapses. Describe and use different methods to measure reaction time. ☑ **Required practical** **Make a plan to investigate a factor on human reaction time.**	Knowledge test – Nerves
2	Explain the importance of reflex actions and give examples. Describe the differences between voluntary and reflex actions. Describe the stages of a reflex action.	4. 4.5.2.1 Reflex Actions 5. 4.5.2.2 The Brain 6. 4.5.2.3 The Eye	☑ Explain the importance of reflex actions and give examples and describe the differences between voluntary and reflex actions. Describe the stages of a reflex action.	Knowledge test – The Brain and Eye

	Identify the cerebral cortex, cerebellum and medulla on a diagram and describe the function of each. HT: Describe the techniques used to map areas of the brain to their functions. Evaluate the benefits and risks of procedures carried out on the brain and nervous system. Label a diagram of the eye and describe the function of each structure. Define the term 'accommodation'. Describe how the eye changes to focus on near and distant objects. Complete simple ray diagrams to show normal vision, long-sightedness and short-sightedness.		☑ Identify the cerebral cortex, cerebellum and medulla on a diagram and describe the function of each. HT: Describe the techniques used to map areas of the brain to their functions. Evaluate the benefits and risks of procedures carried out on the brain and nervous system. ☑ Label a diagram of the eye and describe the function of each structure. Define the term 'accommodation' and describe how the eye changes to focus on near and distant objects. Complete simple ray diagrams to show normal vision, long-sightedness and short-sightedness.	
3	Describe different methods to measure body temperature. Explain how body temperature is monitored and controlled. Describe and explain the changes that happen when body temperature is too high or too low. Explain why we drink more fluid during hot weather. Plot cooling curves. Describe the endocrine system and define the term hormone. Relate hormone release and hormone action to the control system model introduced in 4.5.1.1.	7. 4.5.2.4 Control of body temperature **4.5.3 Hormonal coordination in humans** 8. 4.5.3.1 Human endocrine system & 4.5.3.2 Control of blood glucose concentration 9. 4.5.3.3 Water and nitrogen balance	Describe different methods to measure body temperature and how body temperature is monitored and controlled. Describe and explain the changes that happen when body temperature is too high or too low. Explain why we drink more fluid during hot weather. Plot cooling curves. ☑ Describe the endocrine system and define the term hormone. Relate hormone release and hormone action to the control system model introduced in L1. Label a diagram of the organs in the endocrine system. Explain why the pituitary gland is often called the master gland. Compare the actions of the nervous and endocrine systems.	Knowledge test – Controlling levels

	Label a diagram of the organs in the endocrine system. Explain why the pituitary gland is often called the master gland. Compare the actions of the nervous and endocrine systems. Describe how blood glucose concentration is monitored and controlled. Explain when insulin is produced and how it helps to control blood glucose levels. Describe glycogen as a stored carbohydrate. HT: Explain when glucagon is produced by the pancreas and its effect on blood glucose levels. Explain how insulin and glucagon work together to control blood glucose levels. Explain the cause, effects, treatment and problems associated with Type 1 diabetes. Interpret glucose tolerance test results. Evaluate modern methods of treating diabetes. Explain the cause, treatment and problems associated with Type 2 diabetes. Compare the causes, and treatments of Type 1 and Type 2 diabetes. Describe where water, ions and urea are lost from the body. Explain why there is no control over water, ion and urea loss by the lungs and skin. Explain when cells might gain or lose too much water, in terms of osmosis (links with 4.1.3.2).		Describe how blood glucose concentration is monitored and controlled. Explain when insulin is produced and how it helps to control blood glucose levels. Describe glycogen as a stored carbohydrate. HT: Explain when glucagon is produced by the pancreas and its effect on blood glucose levels. Explain how insulin and glucagon work together to control blood glucose levels. Explain the cause, effects, treatment and problems associated with Type 1 and 2 diabetes. Evaluate modern methods of treating diabetes. Compare the causes, and treatments of Type 1 and Type 2 diabetes. ☑ Describe where water, ions and urea are lost from the body. Explain why there is no control over water, ion and urea loss by the lungs and skin. Explain when cells might gain or lose too much water, in terms of osmosis. Describe the effect of too much or too little water on cells. Explain how the body responds to different temperature and osmotic challenges in terms of sweat and urine release. HT: Describe how amino acids are deaminated in the liver to form ammonia, which is converted to urea for excretion.	

	Describe the effect of too much or too little water on cells. Explain how the body responds to different temperature and osmotic challenges in terms of sweat and urine release. HT: Describe how amino acids are deaminated in the liver to form ammonia, which is converted to urea for excretion.			
4	Label a diagram of the excretory system. Describe how urine is produced. Describe the absorption of glucose and ions by diffusion and active transport. HT: Identify the site of production and target organs for ADH. Describe the effects of ADH on kidney tubules. Explain, with the aid of a diagram, how ADH controls the concentration of the blood using a negative feedback mechanism (links with 4.5.3.7). Describe the advantages and disadvantages of a kidney transplant. Explain how a kidney machine works. Explain why dialysis fluid contains sugar and ions at the same concentration as normal blood, but no urea. Evaluate the use of kidney transplants and dialysis to treat kidney failure.	<u>10. 4.5.3.3 Kidney function & 4.5.3.3 ADH (HT)</u> <u>11. 4.5.3.3 Kidney failure</u> <u>12. 4.5.3.4 Hormones in human reproduction</u>	☑ Label a diagram of the excretory system. Describe how urine is produced. Describe the absorption of glucose and ions by diffusion and active transport. HT: Identify the site of production and target organs for ADH. Describe the effects of ADH on kidney tubules. Explain, with the aid of a diagram, how ADH controls the concentration of the blood using a negative feedback mechanism. ☑ Describe the advantages and disadvantages of a kidney transplant. Explain how a kidney machine works. Explain why dialysis fluid contains sugar and ions at the same concentration as normal blood, but no urea. Evaluate the use of kidney transplants and dialysis to treat kidney failure. ☑ Describe secondary sexual characteristics of boys and girls. Explain the cause of these changes in boys and girls and their relevance in reproduction. Describe the menstrual cycle and fertility including the role of the hormones oestrogen and progesterone. HT: explain the interaction between these hormones in the control of the menstrual cycle.	Knowledge test – Kidneys

	Describe secondary sexual characteristics of boys and girls. Explain the cause of these changes in boys and girls and their relevance in reproduction. Describe the menstrual cycle and fertility including the role of hormones Oestrogen is secreted by the ovaries. It inhibits production of FSH and stimulates release of LH. It makes the uterus lining grow again after menstruation. Progesterone is secreted by the empty follicle in the ovary after ovulation. It inhibits FSH and LH production and maintains the lining of the uterus during the second half of the cycle. HT: explain the interaction between these hormones in the control of the menstrual cycle.			
5	Describe hormonal and non-hormonal methods of contraception. Explain how hormonal and non-hormonal contraceptives work. Evaluate their use. HT: Describe the use of fertility drugs in women with low FSH levels. Use a model, eg a flow diagram to explain the process of In Vitro Fertilisation (IVF). Evaluate the use of fertility treatments. HT: Describe where and when adrenaline is released and its target organs. Describe the effects of adrenaline on the body. Draw a diagram to explain how levels of adrenaline are controlled by a negative feedback system.	13. 4.5.3.5 Contraception 14. 4.5.3.6 HT: The use of hormones to treat infertility & 4.5.3.7 HT: Negative feedback. **4.5.4 Plant hormones** **15. 4.5.4.1 Control and coordination: Required practical: plan and carry out an investigation into the effect of light on plant shoots.**	☑ Describe hormonal and non-hormonal methods of contraception. Explain how hormonal and non-hormonal contraceptives work and evaluate their use. ☑ HT: Describe the use of fertility drugs in women with low FSH levels. Use a model, eg a flow diagram to explain the process of In Vitro Fertilisation (IVF) and evaluate their use. HT: Describe where and when adrenaline is released and its target organs. Describe the effects of adrenaline on the body. Draw a diagram to explain how levels of adrenaline are controlled by a negative feedback system. Describe where thyroxine is produced and its effects on the body.	Knowledge test – Reproductive hormones

	Describe where thyroxine is produced and its effects on the body. Draw a diagram to explain how its release is stimulated by thyroid stimulating hormone and the levels of these two hormones are controlled by a negative feedback system. Describe how plant shoots and roots respond to light and gravity. Draw diagrams to explain the role of auxin in plant responses in terms of unequal distribution in shoots and roots. **Required practical: plan and carry out an investigation into the effect of light on plant shoots.** Observe, present and analyse the results in a later lesson. Interpret results of plant hormone experiments using secondary sources. HT: Describe the functions of gibberellins and ethene in plants.		Draw a diagram to explain how its release is stimulated by thyroid stimulating hormone and the levels of these two hormones are controlled by a negative feedback system. ☑ Describe how plant shoots and roots respond to light and gravity. Draw diagrams to explain the role of auxin in plant responses in terms of unequal distribution in shoots and roots. **Required practical: plan and carry out an investigation into the effect of light on plant shoots.** HT: Describe the functions of gibberellins and ethene in plants.	
6.	Describe how auxins are used as weedkillers and rooting powders, and to promote growth in tissue culture. Describe the use of ethene to control the ripening of fruit during storage and transport. Describe the use of gibberellins to end seed dormancy, promote flowering and to increase fruit size.	<u>16. 4.5.4.2 HT: Use of plant hormones.</u> <u>17. End of Topic Test</u> 18. Feedback lesson	☑ Describe how auxins are used as weedkillers and rooting powders, and to promote growth in tissue culture. Describe the use of ethene to control the ripening of fruit during storage and transport. Describe the use of gibberellins to end seed dormancy, promote flowering and to increase fruit size.	Knowledge test – Plant Hormones EOTT revision

Science

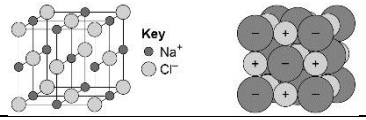
Chemistry

4.1 Atomic structure and the periodic table

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Homework and Text Book Pages *(Students have their own copy)*
1	Use the names and symbols of the first 20 elements in the periodic table, the elements in Groups 1 and 7, and other elements in this specification. Name compounds of these elements from given formulae or symbol equations Describe how and why the atomic model has changed over time. Describe the difference between the plum-pudding model of the atom and the nuclear model of the atom. Describe why the new evidence from the scattering experiment led to a change in the atomic model.	**4.1.1 A simple model of the atom, symbol, relative atomic mass, electronic charge and isotopes** 28. Atoms, Elements and Compounds 29. Models of the atom 30. Structure of the atom	☑ Explain the difference between an atom, element and compound using a coloured diagram. ☑ Research task- Produce a timeline using your books and the internet of how the models of the atom have changed over time. Include the experiments and a diagram to show each model of the atom. ☑ Recall a table that shows the relative charges, masses and positions of the parts of the atom.	Complete knowledge test- The model of the atom Knowledge mat issued
2	Recall the different charges of the particles that make up an atom. Describe why atoms have no overall charge. Recall what atomic number represents. Use the periodic table to identify the number of protons in different elements. Students should be able to represent the electronic structures of the first twenty elements of the periodic table in both forms.	31. Electronic structure **4.1.2 The periodic table** 32. Alkali metals **RPA+RA- Demo** *https://www.youtube.com/watch?v=m55kgyApYrY – Brainiac alkali metals* 33. Trends in Group 7	☑ Draw the electronic configurations for 9 of the first twenty elements in the periodic table, using the periodic table to help. ☑ Describe the reactions between the alkali metals and water with reference to the Alkali metals demonstration. **RPA- Alkali metals and water** ☑ Design an experiment to test the relative reactivity of group 7 elements in a displacement reaction. Include the method and results table. -PATHS	Complete knowledge test- The periodic table Video clip: BBC Bitesize – Alkali metals and their reactions to air and water

	Describe the difference compared with Group 1 in melting points, densities, strength, hardness and reactivity with oxygen, water and halogens.	**RPA-Displacement reactions of Group 7 elements -PATHS**		Knowledge mat issued
3	Explain how properties of the elements in Group 7 depend on the outer shell of electrons of the atoms. Explain the differences between metals and non-metals on the basis of their characteristic physical and chemical properties. Explain how the atomic structure of metals and non-metals relates to their position in the periodic table. Many transition elements have ions with different charges form coloured compounds and are useful as catalysts.	34. Trends in the periodic table **4.1.3 Properties of the transition metals** 35. Transition metals YouTube: The Transition Metals Song 36. Metal and metal ions	☑ Describe the trends in reactivity of metals and the reactivity of non-metals. Make judgements on three metals and three non-metals reactivity and explain why they are more or less reactive than eachother. ☑ Recall uses for transition metals and link it to their properties in a table. ☑ Describe how metals form ions in terms of electrons. Include an electronic diagram with three examples.	Complete knowledge test-Transition metals Knowledge mat issued
4	Suggest suitable separation and purification techniques for mixtures when given appropriate information Explain how properties of the elements in Group 0 depend on the outer shell of electrons of the atoms.	37. Mixtures 38. Noble gases YouTube: Noble gases – the gases in group 18 39. EOTT	☑ Suggest appropriate separation techniques for separating different kinds of mixtures. ☑ Describe the trends in properties in Group 0. Explain how properties of the elements in Group 0 depend on the outer shell of electrons of the atoms.	Knowledge mat issued

4.2 Bonding

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Homework and Text Book Pages *(Students have their own copy)*
1	Students should be able to: • draw dot and cross diagrams for ionic compounds formed by metals in Groups 1 and 2 with non-metals in Groups 6 and 7 • work out the charge on the ions of metals and non-metals from the group number of the element, limited to the metals in Groups 1 and 2, and non-metals in Groups 6 and 7. 	**4.2.1 Chemical bonds, ionic and metallic** 40. Chemical bonding 41. Ionic bonding and properties of Ionic compounds 42. Covalent bonding	☑ Produce a summary table of the types of bonding between two metals, a metal and a non-metal and two non-metals. ☑ Draw the electronic configuration for bonding in NaCl and $MgCl_2$. ☑ Produce a summary table for the properties of ionic compounds. ☑ Draw the dot and cross configurations for CO_2 and CH_4	Complete knowledge test- Chemical bonding Revision mat issued
2	Students should be able to: • recognise substances as small molecules, polymers or giant structures from diagrams showing their bonding • draw dot and cross diagrams for the molecules of hydrogen, chlorine, oxygen, nitrogen, hydrogen chloride, water, ammonia and methane • represent the covalent bonds in small molecules, in the repeating units of polymers and in part of giant covalent structures, using a line to represent Explain the properties of diamond and graphite in terms of its structure and bonding.	**4.2.2 How bonding and structure are related to the properties of substances** 43. Properties of simple covalent structures **4.2.3 Structure and bonding of carbon** 44. Properties of giant covalent structures Youtube- Structure of diamond and graphite **4.2.4 Bulk and surface properties of matter including nanoparticles** 45. (Chem only) Nanoscience Video clip YouTube: Bucky Balls, Graphene and Nano Tubes	☑ Describe the properties of simple covalent substances and explain them in relation to the intermolecular forces. ☑ Describe the difference between diamond and graphite in relation to their properties. Use the diamond and graphite diagram sheet. ☑ (Chem only) Produce a summary sheet using research on the uses of nanochemicals.	Complete knowledge test- Properties of giant structures Video clip YouTube: What is nanoscience? Revision mat issued

3	Students should be able to: • predict the states of substances at different temperatures given appropriate data • explain the different temperatures at which changes of state occur in terms of energy transfers and types of bonding • (Higher Tier only) explain the limitations of the particle theory in relation to changes of state when particles are represented by solid spheres which have no forces between them. Explain why alloys are harder than pure metals in terms of distortion of the layers of atoms in the structure of a pure metal.	46. Metallic bonding and alloys 47. Making polymers **Carbon Molymods** to be ordered 48. States of matter Animation	☑ Draw a diagram of metallic bonding and explain why it links to the properties of metals. ☑ Produce a table comparing types of polymers and how their properties link to their function. ☑ Draw particle arrangements in solids, liquids and gases and link this with a description to the strength of the bonding between the particles. ☑ Recall the changes of state	Complete knowledge test- Metallic and Ionic bonding Revision mat issued
4		49. EOTT	☑	70.

4.3 Quantitative Chemistry

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Use relative atomic masses in the calculations specified in the subject content. Be able to calculate the relative formula mass (M_r) of a compound from its formula, given the relative atomic masses Understand that the measurement of amounts in moles can apply to atoms, molecules, ions, electrons, formulae and equations, for example that in one mole of carbon (C) the number of atoms is the same as the number of molecules in one mole of carbon dioxide (CO_2).	**4.3.1 Conservation of mass and the quantitative interpretation of chemical equations** 50. Mass conservation and balancing equations- Demo **RPA- Magnesium reaction with oxygen** 51. Relative formula mass and (Higher only) Moles YouTube: What is a mole?	☑ Explain the conservation of mass using results from a reaction between magnesium and oxygen. -PATHS ☑ Complete questions on balancing equations, including the general rules to go by. ☑ Prove that equations are balanced using the relative formula masses of each reactant and product. ☑ (Higher) Calculate the number of moles of named particles using the mass by using the RFM.	Complete knowledge test- Relative formula mass Revision mat issued

	Be able to use the relative formula mass of a substance to calculate the number of moles in a given mass of that substance and vice versa.	52. (Higher) Amount of substances in equations		
2	Calculate the masses of reactants and products from the balanced symbol equation and the mass of a given reactant or product. Calculate the mass of solute in a given volume of solution of known concentration in terms of mass per given volume of solution. Calculate the volume of a gas at room temperature and pressure from its mass and relative formula mass	53. (Higher) Masses to balanced equations and limiting reactants **4.3.4 Using concentrations of solutions** 54. Concentration of solution 55. (Chem only) Titrations and molar concentration calculations YouTube: Concentration formula and calculations **Chem RPA2- Neutralisation titration of an unknown solution of an alkali**	☑ (Higher) Calculate the mass of substances produced using the conservation of mass law. ☑ (Higher) Use the molar calculations and the conservation of mass law to make assumptions for the limiting reactants in a reaction. ☑ Calculate concentration of solutions using mass in a given solution and (Higher only) moles in a given solution.	Complete knowledge test- Equation calculations Revision mat issued
3	Explain how the concentration of a solution in mol/dm^3 is related to the mass of the solute and the volume of the solution. Calculate the percentage yield of a product from the actual yield of a reaction. Calculate the theoretical amount of a product from a given amount of reactant and the balanced equation for the reaction. Calculate the atom economy of a reaction to form a desired product from the balanced equation. Explain why a particular reaction pathway is chosen to produce a specified product given appropriate data such as atom economy (if not calculated), yield, rate, equilibrium position and usefulness of by-products.	**4.3.3 Yield and atom economy of chemical reactions** 56. (Chem only) Percentage yield and (Higher only) Atom Economy YouTube: What is the Atom Economy? 57. EOTT	☑ (Chem only) Write up a titration experiment and include the calculations to find the unknown of an acid. ☑ (Chem only) Calculate the percentage yield of reactions using the actual yield and theoretical yield. ☑ (Chem only) Provide five reasons for why very few reactions have a yield of 100%. ☑ (Higher) Extended writing: write instructions to another student how to calculate the atom economy giving explained examples.	Complete knowledge test- Titrations Revision mat issued

4.4 Chemical Changes

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Explain reduction and oxidation in terms of loss or gain of oxygen. Recall and describe the reactions, if any, of potassium, sodium, lithium, calcium, magnesium, zinc, iron and copper with water or dilute acids, where appropriate, to place these metals in order of reactivity. Explain how the reactivity of metals with water or dilute acids is related to the tendency of the metal to form its positive ion. Deduce an order of reactivity of metals based on experimental results. Write ionic equations for displacement reactions.	**4.4.1 Reactivity of metals** 58. <u>The reactivity series</u> YouTube: <u>What are Reduction and Oxidation?</u> 59. <u>Extraction of metals (reduction)</u> 60. <u>Displacement Reactions</u>	☑ Using a reference to their reactivity, explain the uses of gold and why we store alkali metals in oil. ☑ Recognise when a metal or compound is being reduced or oxidised. Explain the processes as to how to extract gold, copper, iron and aluminium from their ores. ☑ Recognise when a displacement reaction will occur between two reactants using a reactivity series. (Higher) Recognise whether an element is being oxidised or reduced based on ionic half equations.	Complete knowledge test- Extraction of metals Revision mat issued
2	Knowledge of reactions limited to those of magnesium, zinc and iron with hydrochloric and sulfuric acids. Describe the use of universal indicator or a wide range indicator to measure the approximate pH of a solution. Use the pH scale to identify acidic or alkaline solutions.	**4.4.2 Reactions of acids** 61. <u>Reactions of acids with metals</u> 62. <u>Making salts</u> (required practical 1) **RPA+ RA** **Required practical 1**- page 116- Preparation of a pure dry sample of a sodium salt from an insoluble oxide or carbonate 63. <u>The pH scale and neutralisation</u> <u>(link to 4.3 lesson RPA2)</u>	☑ Complete equation task of reactions between metals and acids (FT and HT differentiated) ☑ Write up a step by step method for required practical 1 with observations. Take a picture of the crystals formed and upload into the practical document. ☑ Recall the outcomes of acid reactions with alkalis, metals, metal oxides, metal hydroxides and metal carbonates with example equations completed with each.	Complete knowledge test- Reactions of acids Revision mat issued

3	Use and explain the terms dilute and concentrated (in terms of amount of substance), and weak and strong (in terms of the degree of ionisation) in relation to acids. Students should be able to predict the products of the electrolysis of binary ionic compounds in the molten state. Explain why a mixture is used as the electrolyte. Explain why the positive electrode must be continually replaced.	64. Strong and weak acids **4.4.3 Electrolysis** **65.** What is electrolysis? **Demo-** RSC Electrolysis of solutions 66. Using electrolysis to extract metals Video clip: YouTube: Electrolysis of Molten Compounds	☑ (HT) Explain the difference between a strong and weak acid with reference to hydrogen ions in solution. ☑ Label a diagram of the electrolysis of sodium chloride solution. Use it to write a description of what happens at each electrode. ☑ Label a diagram for the electrolysis of aluminium oxide and include a description of the use for cryolite.	BBC Bitesize Electrolysis and electroplating Complete knowledge test- Electrolysis Revision mat issued
4	Be able to predict the products of the electrolysis of aqueous solutions containing a single ionic compound.	67. Investigating electrolysis (required practical 3) **RPA+ RA** **Required practical 3-** page 121- Investigation into what happens when aqueous solutions are electrolysed using inert electrodes 68. EOTT	☑ Complete the required practical 3. Show a results table with the completed gas tests at each electrode accomplished.	71.

4.5 Energy Changes

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Energy is conserved in chemical reactions. The amount of energy in the universe at the end of a chemical reaction is the same as before the reaction takes place. If a reaction transfers energy to the surroundings the product molecules must have less energy than the reactants, by the amount transferred. An exothermic reaction is one that transfers energy to the surroundings so the temperature of the surroundings increases. An endothermic reaction is one	**4.5.1 Exothermic and endothermic reactions** 69. Exothermic and endothermic reactions (**Chromebooks needed)** 70. Required practical 4 **RPA+RA**	☑ Write a definition for an exothermic and endothermic reaction with reference to energy change and temperature change of the surroundings. ☑ Complete research task- Using energy transfers from reaction- PATHS (**Chromebooks needed)** ☑ Full practical write up on required practical 4. Answer questions on page 132.	Complete knowledge test- Exothermic and endothermic reactions

	that takes in energy from the surroundings so the temperature of the surroundings decreases Chemical reactions can occur only when reacting particles collide with each other with sufficient energy. The minimum amount of energy that particles must have to react is called the activation energy. Reaction profiles can be used to show the relative energies of reactants and products, the activation energy and the overall energy change of a reaction. During a chemical reaction: • energy must be supplied to break bonds in the reactants • energy is released when bonds in the products are formed. The energy needed to break bonds and the energy released when bonds are formed can be calculated from bond energies. The difference between the sum of the energy needed to break bonds in the reactants and the sum of the energy released when bonds in the products are formed is the overall energy change of the reaction.	**Required practical 4**- page 132- Investigating the variables that affect temperature change in reacting solutions- the temperature change in a neutralisation reaction. 71. Reaction profiles and **(HT)** Bond energy Video clip YouTube: Introduction to bond energies	☑ From data, draw an exothermic and an endothermic reaction profile. Explain what the positive and negative energy change in each refers to. ☑ (**HT**) Calculate the enthalpy change of the combustion of methane using bond energies supplied.	Revision mat issued
2	Cells contain chemicals which react to produce electricity. The voltage produced by a cell is dependent upon a number of factors including the type of electrode and electrolyte. A simple cell can be made by connecting two different metals in contact with an electrolyte. Batteries consist of two or more cells connected together in series to provide a greater voltage. In non-rechargeable cells and batteries the chemical reactions stop when one of the reactants has been used up. Alkaline batteries are non-rechargeable.	**4.5.2 Chemical and fuel cells** 72. (**Chem only**) Cells and batteries (To investigate the voltage produced by different metals paired with magnesium ribbon) **RA- demo** Video clip YouTube: How do Batteries Work? 73. (**Chem only**) Fuel cells **Chromebooks required** 74. EOTT	☑ (**Chem only**) Draw and label of diagram of a typical electrical cell, and include how to test for the voltage between copper and zinc. ☑ (**Chem only**) Design an experiment to test the voltages produced by different metals paired with magnesium ribbon. ☑ (**Chem only**) **Chromebooks required-** Research task: Suggest advantages and disadvantages of a hydrogen fuel cell. Find a diagram of a Hydrogen fuel cell. Write two half equations for oxygen and hydrogen in a hydrogen fuel cell.	Instructables – How to Make A Simple Hydrogen Fuel Cell Complete knowledge test- Chemical and fuel cells Revision mat issued

	Rechargeable cells and batteries can be recharged because the chemical reactions are reversed when an external electrical current is supplied. Fuel cells are supplied by an external source of fuel (eg hydrogen) and oxygen or air. The fuel is oxidised electrochemically within the fuel cell to produce a potential difference. The overall reaction in a hydrogen fuel cell involves the oxidation of hydrogen to produce water. Hydrogen fuel cells offer a potential alternative to rechargeable cells and batteries.			

4.6 Rate and extent of chemical changes

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Calculate the mean rate of a reaction from given information about the quantity of a reactant used or the quantity of a product formed and the time taken. Draw and interpret graphs showing the quantity of product formed or quantity of reactant used up against time. Draw tangents to the curves on these graphs and use the slope of the tangent as a measure of the rate of reaction. (HT only) Calculate the gradient of a tangent to the curve on these graphs as a measure of rate of reaction at a specific time. MS 1a, 1c, 1d, 4a, 4b, 4c, 4d, 4e	75. <u>Rates of reaction</u> 76. <u>Collision theory and factors that affect rate of reaction</u> 77. <u>Investigating concentration on rate of reaction</u>- **Required practical 5a RPA+RA** **AQA required practical 5a Activity 1: Observing colour change**	☑ Draw a graph from data and show how to interpret the rate of reaction from this graph, with full calculations. ☑ Draw particle diagrams to show how changing pressure, concentration, temperature and surface area change the rate of reaction. Under each diagram a small description should be added about how changing these conditions changes the rate. ☑ Complete a write up for required practical 5a.	Complete knowledge test- Rates of reactions Revision mat issued

	Be able to recall how changing these factors affects the rate of chemical reactions.			
2	Predict and explain using collision theory the effects of changing conditions of concentration, pressure and temperature on the rate of a reaction. Predict and explain the effects of changes in the size of pieces of a reacting solid in terms of surface area to volume ratio. Use simple ideas about proportionality when using collision theory to explain the effect of a factor on the rate of a reaction. Be able to identify catalysts in reactions from their effect on the rate of reaction and because they are not included in the chemical equation for the reaction	78. <u>The effect of catalysts</u> 79. <u>Reversible reactions and energy</u> 80. <u>Investigating concentration on rate of reaction</u>- **Required practical 5b RPA+RA** **AQA required practical 5b Activity 2: Measuring the volume of gas produced**	☑ Define a catalyst in terms of rate of reaction, activation energy and how they work. Include three examples of different reactions in industry that are catalysed by transition metals. ☑ Describe how a reaction is classified as reversible using the example of anhydrous copper sulphate and water. Include reference to energy in the reaction both ways. ☑ Complete write up for required practical 5b.	Complete knowledge test- Factors affecting rates Revision mat issued
3	Be able to make qualitative predictions about the effect of changes on systems at equilibrium when given appropriate information. Be able to interpret appropriate given data to predict the effect of a change in concentration of a reactant or product on given reactions at equilibrium. Be able to interpret appropriate given data to predict the effect of a change in temperature on given reactions at equilibrium. Be able to interpret appropriate given data to predict the effect of pressure changes on given reactions at equilibrium.	81. <u>Equilibrium</u> 82. **(HT)** <u>Changing conditions and the effect on equilibrium</u> 83. EOTT	☑ Explain the term equilibrium and give suitable examples of when it can occur. ☑ (**HT**) Describe Le Chatelier's principle. Explain the effects of changing temperature, pressure and concentration on the positions of the equilibrium. ☑ (**HT**) Use data to predict the effect of concentration on equilibrium. Justify the answers.	Complete knowledge test- Equilibrium Revision mat issued

4.7 Organic chemistry

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Be able to recognise substances as alkanes given their formulae in these forms. Students do **not** need to know the names of specific alkanes other than methane, ethane, propane and butane. Explain how fractional distillation works in terms of evaporation and condensation. Knowledge of the names of other specific fractions or fuels is **not** required. Knowledge of trends in properties of hydrocarbons is limited to: • boiling points • viscosity • flammability. Describe in general terms the conditions used for catalytic cracking and steam cracking. Recall the colour change when bromine water reacts with an alkene.	84. Crude oil, hydrocarbons and alkanes 85. Fractional distillation and petrochemicals 86. Cracking and alkanes	☑ Recall the definition of a hydrocarbon and crude oil from memory. ☑ Draw the first five alkanes molecular and structural formula and name them. ☑ Complete six mark question on fractional distillation and green pen assess any incorrect marks. ☑ Draw and label an apparatus diagram on how to crack paraffin and include explanations of what is produced and why. Include a test for the alkene collected.	Complete knowledge test- Fractional distillation Revision mat issued
2	Describe in general terms the conditions used for catalytic cracking and steam cracking Balance chemical equations as examples of cracking given the formulae of the reactants and products. Draw fully displayed structural formulae of the first four members of the alkenes and the products of their addition reactions with hydrogen, water, chlorine, bromine and iodine.	87. (**Chem only**) Structure, formulae and reactions of alkenes 88. (**Chem only**) Alcohols 89. (**Chem only**) Carboxylic acids	☑ (**Chem only**) Draw the covalent bonding in: ethene, propene, butene and pentene. Use this to define the term unsaturated. ☑ (**Chem only**) Produce a summary sheet of the reactions of alkenes with water and hydrogen. Include products, reactants and conditions. ☑ (**Chem only**) Describe what happens to one of the first four alcohols during the reactions: • dissolving in water to form a neutral solution	Complete knowledge test- Structure and functional groups Revision mat issued

	Recall the main uses of these alcohols. Know the conditions used for fermentation of sugar using yeast. Be able to recognise alcohols from their names or from given formulae. Describe what happens when any of the first four carboxylic acids react with carbonates, dissolve in water, react with alcohols (HT only) Explain why carboxylic acids are weak acids in terms of ionisation and pH. Recognise carboxylic acids from their names or from given formulae.		• reacting with sodium to produce hydrogen • burning in air • oxidising to produce carboxylic acids use as fuels and solvents. ☑ (**Chem only**) Describe what happens to one of the first four acids during the reactions: • dissolving in water to produce acidic solutions • reacting with carbonates to produce carbon dioxide • not ionising completely when dissolved in water (they are weak acids)	
3	Recognise addition polymers and monomers from diagrams in the forms shown and from the presence of the functional group -C=C- in the monomers. Draw diagrams to represent the formation of a polymer from a given alkene monomer Explain the basic principles of condensation polymerisation by reference to the functional groups in the monomers and the repeating units in the polymers.	90. (**Chem only**) <u>Esters</u> 91. (**Chem only**) <u>Addition/Polymerisation</u> 92. (**Chem only**) <u>Condensation polymerisation</u> – **Chromebooks needed** **Demo- Nylon polymerisation**	☑ (**Chem only**) Draw diagrams of carboxylic acids reacting with alcohols in the presence of an acid catalyst to produce esters, for example ethanoic acid reacts with ethanol to produce ethyl ethanoate and water. Include named examples of three word equations. ☑ (**Chem only**) Define: • monomer • polymer • polymerisation • repeating unit. Describe the process of polymerisation. ☑ (**Chem only**) Research task- Research common polyesters and their uses. Include representations of the polymerisation used to make the polymers you have mentioned. Showing the monomers that were used to form them.	Complete knowledge test- Organic polymers Revision mat issued
4	Be able to name the types of monomers from which these naturally occurring polymers are made. Explain the basic principles of condensation polymerisation by reference to the functional groups in the monomers and the repeating units in the polymers.	93. (**Chem only**) <u>Amino acids</u> 94. (**Chem only**) <u>DNA</u> (**Chromebooks required)**	☑ (**Chem only**) Describe the polymerisation of amino acids to produce polypeptides. Include diagrams of the process ☑ (**Chem only**) Carry out some research and produce a revision sheet on DNA	Complete knowledge test- DNA structure Revision mat issued

4.8 Chemical analysis

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Be able to use melting point data to distinguish pure from impure substances. Explain how paper chromatography separates mixtures. Suggest how chromatographic methods can be used for distinguishing pure substances from impure substances. Interpret chromatograms and determine R_f values from chromatograms. Provide answers to an appropriate number of significant figures.	95. Purity 96. Gas tests **RPA+RA** 97. Required practical 7 **GCSE Chemistry Required Practical activity7: Identifying Ions**	☑ Describe why impure substances have different boiling and melting points to pure substances, making reference to how the temperature by time graph will look for both. ☑ Fill in a table showing the tests for hydrogen, oxygen, carbon dioxide and chlorine. ☑ Write up the required practical 7 in full. -PATHS	Complete knowledge test- Chemical analysis Revision mat issued
2	Identify species from the results of the tests in 8.3a to 8.3e. Be able to write balanced equations for the reactions to produce the insoluble hydroxides. Interpret an instrumental result given appropriate data in chart or tabular form, when accompanied by a reference set in the same form, limited to flame emission spectroscopy.	98. Required practical 7 analysis and EOTT	☑ Describe how to test for sulphate and halogen ions with the results of their tests.	Revision mat issued

4.9 Chemistry of the atmosphere

1	Given appropriate information, interpret evidence and evaluate different theories about the Earth's early atmosphere. Describe the main changes in the atmosphere over time and some of the likely causes of these changes. Describe and explain the formation of deposits of limestone, coal, crude oil and natural gas. Describe the greenhouse effect in terms of the interaction of short and long wavelength radiation with matter. Recall two human activities that increase the amounts of each of the greenhouse gases carbon dioxide and methane. Describe briefly four potential effects of global climate change Discuss the scale, risk and environmental implications of global climate change. Describe actions to reduce emissions of carbon dioxide and methane.	99. Earth's early atmosphere 100. Greenhouse gases and global warming **CHROMEBOOKS** 101. The problems with global warming and reducing carbon footprints **CHROMEBOOKS**	☑ Produce a table comparing Earth's early atmosphere to the present day atmosphere. ☑ Produce a storyboard of each of the main stages in the development of the present day atmosphere.- PATHS ☑ Label a diagram of global warming, and explain what produces greenhouse gases. ☑ Identify the effects of global warming on the Earth and produce a plan to reduce the overall carbon footprint of the UK.	Complete knowledge test- Earth's atmosphere Revision mat issued
2	Describe how carbon monoxide, soot (carbon particles), sulfur dioxide and oxides of nitrogen are produced by burning fuels Predict the products of combustion of a fuel given appropriate information about the composition of the fuel and the conditions in which it is used.	102. Complete and incomplete combustion 103. EOTT	☑ Write word equations for complete and incomplete combustion. ☑ Explain why the following can be produced in combustion: • carbon dioxide • carbon monoxide • soot • water vapour • sulfur dioxide • oxides of nitrogen.	Complete knowledge test- Combustion Revision mat issued

Science

Physics

4.5 Forces

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1		**4.5.1 Forces and their interactions** 104. Scalar and vector quantities GCSE Physics exampro ref QCJ97F3.07 Q14W.IP.01 Q13S.2F.07 105. Contact and non-contact forces. 106. Weight and gravitational fields (introduce free body diagrams). BBC Bitesize – Relationship between planet size and gravitational field strength Questions on weight and mass	☑ Describe the difference between scalar and vector quantities and give examples of each. Draw vector diagrams for vectors where the size and direction of the arrow represents the size and direction of the vector Mechanics Tutorial 1 – Vectors and Scalars ☑ Describe the effect of forces in terms of changing the shape and /or motion of objects. Give examples of contact and non-contact forces. ☑ Calculate the weight of an object using the equation: weight = mass × gravitational field strength. Students must be able to recall and apply this equation with the correct units. https://www.mathswatchvle.com/video/mw-clip.php (rearrange equations) ☑ Use a Newtonmeter to measure weight and plot a graph to show the relationship between weight and mass of an object.	Knowledge test – Contact and non-contact forces.
2		107. Free body diagrams (HT) resolving forces **4.5.2 Work done and energy transfer** 108. Work done and the Joule 109. Work done and energy transfers https://www.mathswatchvle.com/video/mw-clip.php	☑ Calculate the resultant forces of a number of forces acting parallel to each other, both in the same direction and opposite. ☑ Draw free body diagrams to represent the magnitude and direction of a number of forces acting on an object. ☑ HT only – use vector diagrams to illustrate resolution of forces, equilibrium situations and determine the resultant of two forces, to include both magnitude and direction (scale drawings only). Scalars and vectors ☑ Calculate the work done by a force on an object when given the magnitude of the force and the displacement of the object. Rearrange the equation to find any unknown value: work done = force x distance (moved along the line of action of the force)	Knowledge test – Resultant force

			☑ For various situations where work is done on an object analyse the effect of the work done, eg an increase in the GPE store or an increase in thermal energy store.	
3		**4.5.3 Forces and elasticity** 110. Elasticity and change in shape 111. Springs and Hooke's Law Practical: Hooke's Law – Stretching Springs Past paper questions Exampro Ref. 1. Q12S2F07 2. Q14S.IP2.06 3. QCJ95P3.03 112. (Physics only) Moments, levers & gears	☑ Give examples of objects being stretched, bent or compressed by forces. Draw force diagrams to show how the forces are acting on the object and how the stretching, bending or compressing occurs. ☑ Investigate the effect of loading and unloading springs stretched too and beyond their limit of proportionality. Plot the results on a graph and analyse the curve. ☑ Learn, use and rearrange the equation: force = spring constant x extension ☑ **Required practical 6: Investigate the relationship between force and extension for a spring. (8.2.6) Complete a full write up.**	Knowledge test – Work done Knowledge test –Elasticity
4		113. (Physics only) Pressure in a fluid 114. (Physics only) Pressure in a fluid 2 115. (Physics only) Atmospheric pressure Fluid Pressure Measurement	☑ Give examples of situations where forces applied cause objects to rotate, eg steering wheels and levers. Recall and rearrange the equation: $$moment\ of\ a\ force\ =$$ $$force\ x\ distance$$ $$[M\ =\ F\ d]$$ ☑ Describe how simple gears work. Research to find example of where turning forces are used and ways of getting a larger turning force. ☑ Calculate the pressure at the surface of a fluid when given the applied force and the surface area that the force is applied to. Rearrange the equation to find the two other unknowns. pressure = force (normal to a surface)/ area (of that surface) $$[p\ =\ \frac{F}{A}]$$ ☑ Why does your head feel like it is being crushed if you go too deep in a swimming pool? ☑ Calculate the pressure in a liquid using the equation: $p\ =\ h\ \rho\ g$. Use the equation $p\ =\ h\ \rho\ g$ to explain why the pressure in a liquid increases with	Knowledge test – Pressure

			depth and density of liquid. Compare the pressure in different liquids at different depths and with different densities. ☑ Describe and explain how atmospheric pressure changes with height. Link this to an example e.g. the changes to a helium balloon as it rises Practical demos – Collapsing cans or Magdeburg hemispheres.	
4		**4.5.6 Forces and motion** 116. Distance and displacement 117. Speed (= distance / time) Past exam questions Exampro ref: 1. Q12SY2F06 part b only. 2. QM99H2.10 118. Speed of sound and calculating distance from speed and time.	☑ Define distance and displacement and explain the difference between them. ☑ Analyse both a 100m race and a 400m (one round an oval track) race. Look at how the distance and displacement changes for each race. ☑ Define speed and calculate it by using speed = distance/time. ☑ Investigate the speed of vehicles on roads – this can also be done with trolleys in a lab using data loggers and light gates ☑ The speed at which a person can walk, run or cycle depends on many factors including: age, terrain, fitness and distance travelled. Typical values may be taken as: walking ~ 1.5 m/s running ~ 3 m/s cycling ~ 6 m/s.	Knowledge test – Speed
5		119. Definition of velocity (vs speed) Speed and Velocity 120. Distance-time graphs 121. Definition of acceleration and deceleration (and constant acceleration equations)	☑ Analyse data about vehicle/animals travelling with different speeds, distances and times to find which object is travelling the fastest or will travel the greatest distance in a given time. ☑ Define velocity and explain why it is a vector quantity. Show that the average velocity of an object around a circular track is 0 m/s. ☑ Draw and interpret distance – time graphs and calculate the speed of objects from the graph. ☑ Calculate the speed of an object that is accelerating from a distance – time graph by finding the tangent to the curve at a given point then finding the gradient of the tangent. ☑ Draw a velocity – time graph for your journey into school. Compare this with a distance – time graph for the same journey. What are the differences in the line shapes?	Knowledge test – Velocity
		122. Velocity-time graphs 123. Falling under gravity (drag) 124. Newton's first law	☑ Use the equation to calculate the final velocity of an object at constant acceleration. (Learn and rearrange) (final velocity)^2 – (initial velocity)^2 = 2 x acceleration x distance $v^2 - u^2 = 2\,a\,s$	Knowledge test – Newton's laws

			☑ Investigate factor/factors that affect the terminal velocity of a falling object. E.g. Describe how the forces acting on skydiver change throughout a sky dive – from jumping out of the plane to landing on the ground ☑ Investigate how the shape of a plasticine object affects how quickly it falls through a column of liquid. This can be changed to look at a given shape through different liquids, eg water, oil, wallpaper paste ☑ Describe the effect of having a zero resultant force on: 1. a stationary object 2. an object moving at a constant velocity	
6		125. Newton's second law, F = ma 126. Newton's third law 127. Thinking and braking distance (reaction time)	☑ Calculate the resultant force acting on an object using the equation $F = m\,a.$ Rearrange the equation to find any other unknown quantity. ☑ Analyse data on vehicles to determine the acceleration when given the driving force and mass of the vehicle. E.g. cars with different loads. ☑ **Required practical 7** ☑ Investigate the effect of varying the force on the acceleration of an object of constant mass, and the effect of varying the mass of an object on the acceleration produced by a constant force. (8.2.7) ☑ Draw force diagrams to show Newton's third law, eg a falling object being pulled down by gravity and the Earth being pulled by the falling object. Forces need to be equal in size and opposite in direction ☑ Define thinking distance, braking distance and stopping distance. Describe the factors that will affect the braking distance of a vehicle. Include: Ice on the road, drugs and alcohol, mobile phone use, tiredness.	Knowledge test – Reaction time
7		128. Energy transfers when stopping **4.5.7 Momentum (HT only)** 129. Momentum and its conservation 130. (Physics only) Momentum and force	☑ Describe and explain the energy transfers involved in stopping a vehicle. ☑ Discover why vehicles skid on the road and explain why this is linked to the level of friction between the tyre and the road and the braking force applied ☑ Calculate the momentum of an object. Rearrange the equation to find any unknown quantity $momentum = mass\ x\ velocity$ $[\,p = m\,v\,]$ ☑ Explain why the direction of a vehicle matters in a collision. ☑ Carry out conservation of momentum calculations for systems involving two objects, including collisions and explosions. Use the equation $F = \frac{m\,\Delta\,v}{\Delta t}$	Knowledge test –Momentum

			☑ How are cars tested to make them safer for the occupant and other road users in the case of a crash? Extend this to describe and explain why motorcyclists are at greater risk in collisions than car drivers	
8		131. EOTT 132. Feedback	☑ Complete the EOTT and green pen feedback of improvements.	Revision cards of the topics worst performed on in the test.

4.1 Energy

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	A system is an object or group of objects. Describe, for common situations, the changes involved in the way energy is stored when a system changes. For example: • an object projected upwards • a moving object hitting an obstacle • an object accelerated by a constant force • a vehicle slowing down • an electric kettle boiling water. Calculate how energy is redistributed in a system when it changes. Equations for kinetic energy and gravitational potential energy should be known. $K.E. =$ $0.5\ x\ mass\ x\ (speed)^2$ $[EK\ = \frac{1}{2}\ m\ v^2]$	**4.1.1 Energy Changes** 133. Energy Forms and Transfers 134. Work Done and Power 135. Energy Calculations (Demo)	☑ Describe the changes involved in the way energy is stored in simple systems. ☑ Discuss energy wasted by the machines and ways to reduce it. ☑ Carry out calculations to determine power, using energy transferred divided by time and work done divided by time. ☑ Evaluate the benefits and drawbacks of using lower power devices such as compact fluorescent lamps (CFLs). S-cool, the revision website – Work and Energy ☑ Calculate the kinetic energy of a moving body. ☑ Calculate an object's speed given the kinetic energy of the object. ☑ Calculate the amount of energy stored by objects raised above the ground.	KT on Energy and Power Share weblinks and Knowledge mats for revision

	The distribution of energy in a system can change. This change can be calculated. Power is defined as the rate at which energy is transferred or the rate at which work is done. $$Power = \frac{energy\ transferred}{time}$$ $$[P = E / t]$$ $$Power = \frac{work\ done}{time}$$ $$[P = W / t]$$ Energy can be transferred usefully, stored or dissipated, but cannot be created or destroyed. Where energy transfers in a closed system occur there is no net change to the total energy. Whenever there are energy transfers in a system only part of the energy is usefully transferred. The rest of the energy is dissipated so that it is stored in less useful ways. This energy is often described as being wasted.		☑ Calculate the amount of energy stored by stretched springs. <u>Pass My Exams – Kinetic Energy</u> ☑ Explain the effect of increasing the spring constant of a spring on the ease that it stretches and on the amount of energy stored in the spring.	
2	Unwanted energy transfers can be reduced in a number of ways, for example, through lubrication and the use of thermal insulation. The rate of cooling of a building is affected by the thickness and thermal conductivity of its walls. The higher the thermal conductivity of a material; the higher the rate of energy transfer by conduction across the material. The energy efficiency for any energy transfer can be calculated using the equation: $$efficiency = \frac{useful\ output\ energy\ transfer}{total\ input\ energy\ transfer}$$ Efficiency may also be calculated using the equation: $$efficiency = \frac{useful\ power\ output}{total\ power\ input}$$	**4.1.2 Conservation and dissipation of energy** 136. <u>Insulation and Heat Transfers</u> 137. <u>Calculating Efficiency (PATHS assessment)</u> **4.1.3 National and global energy resources** 138. <u>Renewable and non-renewable energy resources</u>	☑ <u>How to insulate Your Home: Types of Loft Insulation</u> Annotate a house diagram to illustrate the reasons why insulating the home is beneficial for both the homeowner and the environment. ☑ Evaluate the use of various types of insulation in the home. Look in particular at the effectiveness of loft insulation and cavity wall insulation. ☑ Required practical: (Physics only) Investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material. ☑ Determine whether energy saving light bulbs will save money over incandescent light bulbs. ☑ Use Sankey diagrams to determine the useful energy output if the energy input and the amount of wasted energy data is given.	KT on Conservation of Energy and Energy Resources Share weblinks and Knowledge mats for revision

	Describe ways to increase the efficiency of an intended energy transfer. (HT only) Describe the main energy resources available for use on Earth. These include: • fossil fuels (coal, oil and gas) • nuclear fuel • bio-fuel • wind • hydro-electricity • geothermal • the tides • the Sun • water waves. Distinguish between energy resources that are renewable and energy resources that are non-renewable. Compare the ways that different energy resources are used. The uses to include transport, electricity generation and heating. Understand why some energy resources are more reliable than others.		☑ Define renewable and non-renewable resources ☑ Describe the way in which different energy resources are used and for each type of energy resource find the environmental impacts. <u>Pass My Exams – Electricity Generation</u> ☑ Identify the political, social, ethical and economic considerations that may arise from the use of different energy resources.	

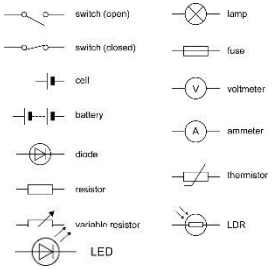
4.6 Waves

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	Transverse and longitudinal waves. In a transverse wave the oscillations are perpendicular to the direction of energy transfer. The ripples on a water surface are an example of a transverse wave. In a longitudinal wave the oscillations are parallel to the direction of energy transfer. Longitudinal waves show areas of compression and rarefaction. Sound waves travelling through air are longitudinal.	139. Properties of waves BBC Bitesize: General properties of waves 140. Sound waves in fluids and solids 141. Sound waves (Physics only, HT) BBC Bitesize: Human hearing and the speed of sound	☑ Draw diagrams to show the features of transverse and longitudinal waves. Annotate the diagram with wavelength, frequency, amplitude, peak and trough. ☑ Calculate the wavelength of a wave from a labelled diagram of a wave; the frequency of a wave given the number of waves (possibly from interpreting a diagram) and the time; the speed of a wave. Rearrange the equations to find any unknown given the other two values. ☑ Explain how sound travels in different mediums including solids liquids and gases. Demonstrate an alarm clock in a bell jar connected to a vacuum pump. Ask students what is scientifically wrong about this clip of Star Wars. ☑ Describe how sound waves travel from a source to the ear and the effect that this has inside the ear. What happens to the wave to change the pitch/frequency? ☑ What factors change the speed of sound? ☑ Demo: Oscilloscope; ripple tank. RPA8 Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid and take appropriate measurements. If a ripple tank isn't available, show the following two clips from Open University.	4.6 Waves Knowledge Mat revision KT – KS4 Waves
2	Sound waves can travel through solids causing vibrations in the solid. Within the ear, sound waves cause the ear drum and other parts to vibrate which causes the sensation of sound. The conversion of sound waves to vibrations of solids works over a limited	142. Waves for detection and exploration (Physics only, HT) YouTube clip on how ultrasound builds up a picture of a foetus How a blind boy uses echolocation 143. Electromagnetic Waves 1 (Types)	☑ Compare sound and ultrasound waves. State the uses of ultrasound including the advantages and disadvantages. ☑ Describe and explain movement of P and S waves and how they can be detected. ☑ Names the types of EM wave in order of increasing frequency and describe their properties.	KT – KS4 Light KT – KS4 Sound

	frequency range. This restricts the limits of human hearing. Name the seven types of electromagnetic wave, in the correct order from longest to shortest wavelength. State the range of wavelengths is approximately 10^{-15}m – 10^{4}m	The electromagnetic spectrum: the family of light 144. Electromagnetic waves 2 (Properties) Practical - P1.7 Electromagnetic waves circus	☑ Describe and explain the effects that gamma, X-rays and ultraviolet radiation have on the body. What precautions would a doctor working with these forms of radiation take and why? ☑ Why are some types of electromagnetic waves used when they are dangerous? Research the various uses of electromagnetic waves and how they are suitable for that application.	
3	State that electromagnetic waves transfer energy from one place to an absorber of that energy. State that the only part of the electromagnetic spectrum that our eyes can detect is visible light. A lens forms an image by refracting light. In a convex lens, parallel rays of light are brought to a focus at the principal focus. The distance from the lens to the principal focus is called the focal length. Ray diagrams are used to show the formation of images by convex and concave lenses. The magnification produced by a lens can be calculated using the equation: $magnification = \frac{image\ height}{object\ height}$ Magnification is a ratio and so has no units.	145. Wave reflection and refraction Refraction of light using a straw in a glass of water demo Least time principle RPA 10 (Practical and RA) 146. Refraction of light practical 147. Lenses and ray diagrams(Physics only) RPA9(Physics only-spec) investigate the reflection of light	☑ Investigate the law of reflection using mirrors. Is the angle of incidence equal to the angle of reflection? ☑ Describe the wavelengths and frequencies of the seven colours and how the wavelength, speed and frequency changes when the light passes from air into glass or Perspex. Required practical : (physics only) ☑ Investigate the reflection of light by different types of surface and the refraction of light by different substances. (8.2.9) Required practical : ☑ Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface. (8.2.10) ☑ Describe the key features of a ray diagram where light passes through a lens. Students should be able to identify the: Principal axis; Principal focus; Focal length ☑ Explain the difference between real and virtual images ☑ Use the equation to calculate magnification	KT – KS4 EM Spectrum

4	Student investigate the effect of convex and concave lenses on rays of light from a ray box	148. Visible light and colour (Physics only) Practical and RA – Ray boxes, mirrors, filters. 149. Black body radiation (Physics only) 150. IR radiation experiment (Leslie Cubes)	Specular vs. diffuse reflection ☑ Investigate how the colour of an object varies according to the colour of light incident upon it using filters to help Mixing coloured light TED talk on how we see colour Reducing heat transfers – the human body ☑ Define what is meant by a black body in terms of radiation. ☑ Describe and explain the factors that affect the rate of cooling of an object. (this could be investigated by measuring the cooling rate of water). Use a Lesley cube to investigate the emission of infra-red radiation by objects of different colour. ☑ Explain how the colour of an object is linked to the temperature of that object in terms of intensity of wavelengths emitted Reducing heat transfers – the human body ☑ Define what is meant by a black body in terms of radiation.	KT – KS4 Black body radiation KT – KS4 Light
4		151. Emission and absorption of IR radiation Past paper exam questions – Exampro ref: 1. Q12S1F07 part a only 2. Q12SY1F03 3. Q11WY1F04 4. Q07S.1F.07 152. EOTT 153. Feedback lesson	Perfect black body and its spectrum ☑ Describe and explain why black would be a good colour for a central heating radiator and suggest why most radiators are painted white What is the second law of thermodynamics? ☑ Research how the Earth's atmosphere absorbs emits and reflects radiation. Find out how different gases in the atmosphere affect the rate of absorption, emission and reflection of radiation. Video: The greenhouse effect	All KT and 4.6 Waves Knowledge Mat revision

4.2 Electricity

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Homework Text Book Pages *(Students have their own copy)*
1	Circuit diagrams use standard symbols:  For electrical charge to flow through a closed circuit the circuit must include a source of potential difference. Electric current is a flow of electrical charge. The size of the electric current is the rate of flow of electrical charge. Charge flow, current and time are linked by the equation: $charge\ flow =$ $current\ x\ time$ $[\ Q\ =\ I\ t\ ]$ charge flow, *Q*, in coulombs, C current*, I*, in ampere, A time*, t*, in seconds, s The current at any point in a series circuit has the same value as the current at any other point in the same circuit.	**4.2.1 Current, potential difference and resistance** 154. Circuit Diagrams (Practical and RA) 155. Electrical Charge and Current (Practical and RA) 156. Current, Resistance and PD Nuffield Foundation | Measuring resistance with a voltmeter and an ammeter	☑ Draw and interpret circuit diagrams. ☑ Define electric current. Describe and explain why an electric current will flow in a circuit. ☑ Recall and apply the equation $Q = I \times t$. Calculate the charge flow, current or time when given the other two values. ☑ Recall and apply the equation $V = I \times R$. Calculate the potential difference, current or resistance when given the other two values. ☑ Describe different models of electricity e.g. marbles moving down a ramp with masses placed on the ramp to represent atoms or students modelling the electrons taking energy (sweets) from the battery (teacher) to a component (cup held by a pupil).	Share weblinks and Knowledge mats for revision KT Current and PD BBC Bitesize – Circuit symbols Pass My Exams – Ohm's Law

2	The current through a component depends on both the resistance of the component and the potential difference across the component. The greater the resistance of the component the smaller the current for a given potential difference (p.d.) across the component. Current, potential difference or resistance can be calculated using the equation: $$potential\ difference = current\ x\ resistance$$ $$[V = I R]$$ potential difference, V, in volts, V current, I, in amperes, A resistance, R, in ohms, Ω The current through an ohmic conductor (at a constant temperature) is directly proportional to the potential difference across the resistor. This means that the resistance remains constant as the current changes.	157. Resistance of a Wire RP3 (Practical and RA) 158. Ohm's Law (Practical and RA) https://www.mathswatchvle.com/video/mw-clip.php *(Clip 114: Finding the equation of a straight line)* 159. I-V Characteristics RP4 (Practical and RA) Pass My Exams - Diodes, LDRs and Thermistors	☑ RP3: Use circuit diagrams to set up and check appropriate circuits to investigate how the length of a wire at constant temperature affects the resistance of electrical circuits. ☑ Analyse the results of the investigation to describe and explain how the resistance is affected. ☑ Define what is meant by an ohmic conductor and describe the conditions for which Ohm's law is valid. ☑ Draw the I-V graph for an ohmic conductor and explain the shape of the I-V graph of the ohmic conductor. ☑ RP4: Explain the design and use of a circuit to measure the resistance of a component by measuring the current through, and potential difference across, the component. ☑ Draw the I-V graphs for a filament lamp and a diode and compare the shape to that of the ohmic conductor.	Share weblinks and Knowledge mats for revision KT Resistance BBC Bitesize - Measuring resistance Thy Physics Classroom – Ohm's Law
3	There are two ways of joining electrical components, in series and in parallel. Some circuits include both series and parallel parts. For components connected in series: • there is the same current through each component • the total potential difference of the power supply is shared between the components. • the total resistance of two components is the sum of the resistance of each component. $$R_{total} = R_1 + R_2$$ resistance, R, in ohms, Ω For components connected in parallel: • the potential difference across each component is the same • the total current through the whole circuit is the sum of the currents through the separate components	**4.2.2 Series and parallel circuits** 160. Series circuits (Practical and RA) 161. Parallel circuits (Practical and RA) **4.2.3 Domestic uses and safety** 162. Mains Electricity (Practical and RA)	☑ Use circuit diagrams to construct and check series circuits that include a variety of common circuit components. ☑ Explain qualitatively why adding resistors in series increases the total resistance. ☑ Calculate the currents, potential differences and resistances in dc series circuits. ☑ Solve problems for circuits which include resistors in series using the concept of equivalent resistance. ☑ Use circuit diagrams to construct and check parallel circuits that include a variety of common circuit components. ☑ Explain qualitatively why adding resistors in parallel decreases the total resistance. ☑ Calculate the currents, potential differences and resistances in dc parallel circuits.	Share weblinks and Knowledge mats for revision KT Series and parallel Pass My Exams - Conventional Current & Electron Flow Pass My Exams – Direct Current (dc) and Alternating Current (ac)

	• the total resistance of two resistors is less than the resistance of the smallest individual resistor.		☑ Describe the differences between series and parallel circuits. ☑ Explain the difference between direct and alternating potential difference. ☑ Describe the construction of a three core electric cable (Live, Neutral and Earth) and explain the role each has in a plug. ☑ Explain that a live wire may be dangerous even when a switch in the mains circuit is open.	Pass My Exams – The Three Pin Plug Colours and functions of each wire in a three core cable – BBC Bitesize Wiring a plug
4	Equations for electrical power should be known The power of a device is related to the potential difference across it and the current through it by the equation: $power =$ $potential\ difference\ x\ current$ $[P = V I]$ $power =$ $current\ squared\ x\ resistance$ $[P = I^2 R]$ power, P, in watts, W potential difference, V, in volts, V current, I, in amperes, A resistance, R, in ohms, Ω The amount of energy transferred by electrical work can be calculated using the equation: $energy\ transferred =$ $power\ x\ time$ $[E = P t]$ $energy\ transferred =$ $charge\ flow\ x$	**4.2.4 Energy transfers** 163. Energy Transfers 164. Power 165. The National Grid	☑ Describe how different domestic appliances transfer energy from batteries or ac mains to other forms of energy. ☑ Describe the relationship between the power ratings for electrical appliances and the changes in stored energy when they are in use. ☑ Calculate the energy transferred by electrical work. ☑ Calculate the power of an electrical appliance given the potential difference and the current. ☑ Recall and apply the equation $P = I^2R$ to find any missing value given the other two. ☑ Explain how the power transfer in any circuit device is related to the potential difference across it and the current through it, and to resistance across the device. ☑ Describe how electrical power is transferred from the power stations to the consumers via the National Grid. ☑ Explain why the National Grid system is an efficient way to transfer energy.	Share weblinks and Knowledge mats for revision KT - Energy transfers Pass My Exams – Electricity Generation, The National Grid Cyberphysics – National Grid – Electricity Distribution

	$potential\ difference$ $[E = QV]$			
4	When certain insulating materials are rubbed against each other they become electrically charged. Negatively charged electrons are rubbed off one material and onto the other. The material that gains electrons becomes negatively charged. The material that loses electrons is left with an equal positive charge. When two electrically charged objects are brought close together they exert a force on each other. Two objects that carry the same type of charge repel. Two objects that carry different types of charge attract. Attraction and repulsion between two charged objects are examples of non-contact force. A charged object creates an electric field around itself. The electric field is strongest close to the charged object. The further away from the charged object, the weaker the field. A second charged object placed in the field experiences a force. The force gets stronger as the distance between the objects decreases. The concept of an electric field can be used to explain the non-contact force between charged objects as well as other electrostatic phenomena such as sparking.	**4.2.5 Static electricity (physics only)** 166. Static Electricity (**Physics only**) 167. Electric Fields (**Physics only**) 168. EOTT	☑ Explain how the transfer of electrons between objects can explain the phenomena of static electricity. ☑ Describe the production of static electricity, and sparking, by rubbing surfaces. ☑ Describe evidence that charged objects exert forces of attraction or repulsion on one another when not in contact. ☑ Draw the electric field pattern for an isolated charged sphere. ☑ Explain the concept of an electric field. ☑ Explain how the concept of an electric field helps to explain the noncontact force between charged objects.	Share weblinks and Knowledge mats for revision KT – Static electricity How Static Electricity Works – Stuff to Blow Your Kids' Mind #3 Cyberphysics – Static Electricity EOTT test revision
5		169. Test Feedback lesson	☑	

4.3 Particle Model

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	The density of a material is defined by the equation: $$density = \frac{mass}{volume}$$ $$\left[\rho = \frac{m}{V}\right]$$ density, ρ, in kilograms per metre cubed, kg/m^3 1. mass, m, in kilograms, kg volume, V, in metre cubed, m^3 The particle model can be used to explain the different states of matter. The differences in density between the different states of matter to be explained in terms of the arrangements of the particles (atoms or molecules).	**4.3.1 Changes of state and the particle model** 170. Determining density (RP5 practical and RA) 171. Particle Model 172. Explaining Density	☑ Recall and apply the equation $\rho = \frac{m}{V}$. Calculate the density, mass or volume of an object given any two other values. ☑ RP5: Use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids. Volume should be determined from the dimensions of regularly shaped objects and by a displacement technique for irregularly shaped objects. Dimensions to be measured using appropriate apparatus such as a ruler, micrometer or Vernier callipers. ☑ Recognise/draw diagrams to show the particle arrangement in solids, liquids and gases. ☑ Describe the motion of particles in solids, liquids and gases. ☑ Describe and explain the different particle arrangements in solids, liquids and gases due to the forces between the atoms. ☑ Explain the differences in density between the different states of matter in terms of the arrangement of atoms or molecules.	KT Particle model and density Set Knowledge mat Cyberphysics – Density BBC Bitesize – Kinetic theory Cyberphysics – The Particle Theory – states of matter
2	When substances change state (melt, freeze, boil, evaporate, condense or sublimate), mass is conserved. Changes of state are physical changes; the change does not produce a new substance. If the change is reversed the substance recovers its original properties. Energy is stored inside a system by the particles (atoms and molecules) that make up the system. This is called internal energy.	173. Changing State of a Substance 174. Internal Energy	☑ Describe the changes of state in terms of solids, liquids and gases. ☑ Describe how, when substances change state, mass is conserved. ☑ Describe the difference between a chemical and a physical change and provide examples for both types. ☑ Define internal energy.	KT Changes of state S-cool, the revision website | States of Matter S-cool, the revision website | States of Matter

	Internal energy is the total kinetic energy and potential energy of all the particles (atoms and molecules) that make up a system. Heating changes the energy stored within the system by increasing the energy of the particles that make up the system. And, either the temperature of the system increases, or changes of state happen.	**4.3.2 Internal energy and energy transfers** 175. Specific Heat Capacity (demos)	☑ Explain how heating changes the energy stored within the system by increasing the energy of the particles that make up the system. ☑ Apply the equation $\Delta E = m\, c\, \Delta\theta$ to calculate the energy change involved when the temperature of a material changes. ☑ Describe the factors that affect how quickly the temperature of a substance increases.	Antonine Education – Thermal Physics Tutorial 1 – Heat Flow (HT)
3	If the temperature of the system increases: the increase in temperature depends on the mass of the substance heated, what the substance is and the energy input to the system. The following equation applies: 2. $change\ in\ thermal\ energy =$ 3. $mass\ x$ 4. $specific\ heat\ capacity\ x$ 5. $temperature\ change$ $[\Delta E = m\, c\, \Delta\theta\,]$ 6. change in thermal energy, *ΔE*, in joules, J 7. mass, *m*, in kilograms, kg 8. specific heat capacity, *c*, in joules per kilogram per degree Celsius, J/kg °C 9. temperature change, *Δϑ*, in degrees Celsius, °C The specific heat capacity of a substance is the amount of energy required to raise the temperature of one kilogram of the substance by one degree Celsius. If a change of state happens: The energy needed for a substance to change state is called latent heat. When a change of state occurs, the energy supplied changes the energy stored (internal energy), but not the temperature.	176. Specific Latent Heat (practical and RA) 177. Heating and Cooling Curves (practical and RA) **4.3.3 Particle model and pressure** 178. Motion in Gases (practical and RA)	☑ Apply the equation $E = m\, L$ to calculate the change in thermal energy, mass, specific heat capacity or the temperature change of a substance that is heated or cooled. ☑ Practical: Plan and carry out an investigation to find the specific latent heat of fusion of water. (Institute of Physics investigation from Episode 608-2: The specific latent heat of fusion of ice) ☑ Explain why the specific latent heat of vaporisation is greater than the specific latent heat of fusion for a given material in terms of the increase in separation of the particles. ☑ Practical: Investigate the heating curve for water by heating some ice in a beaker until the water evaporates. ☑ Explain what is happening at each stage of the heating curve. ☑ Evaluate data on the melting points and boiling points of different substances linked to the strength of the forces between the particles. ☑ Explain how the motion of the molecules in a gas is related to its temperature. ☑ Practical: How does the temperature of a gas affect the movement of the particles within it? (Institute of Physics' Episode 601-1: Brownian motion in a smoke cell.)	KT Internal energy Cyberphysics – Specific Heat Capacity BBC Bitesize – Heating ice to observe changes in state YouTube: States of Matter

	The specific latent heat of a substance is the amount of energy required to change the state of one kilogram of the substance with no change in temperature: $energy\ for\ a\ change\ of\ state = mass\ x\ specific\ latent\ heat$ $[E = mL]$ 10. energy, *E*, in joules , J 11. mass, *m*, in kilograms, kg 12. specific latent heat, *L*, in joules per kilogram, J/kg Specific latent heat of fusion – change of state from solid to liquid. Specific latent heat of vaporisation – change of state from liquid to vapour.			
4	Changing the temperature of a gas, held at constant volume, changes the pressure exerted by the gas (known as the Pressure law).	179. Pressure in Gases (demos) 180. Effect of Temperature on Pressure (demos) 181. Boyle's Law (Physics only)	☑ Explain how the motion of the molecules in a gas is related to its pressure. ☑ Describe why gases exert a force on a container. ☑ Use PhET interactive simulations to model gas pressure (Gas Properties – Gas, Pressure, Volume). ☑ Explain qualitatively the relation between the temperature of a gas and its pressure at constant volume (pressure – temperature law). ☑ Explain why gas cylinders should not be placed near heat sources. ☑ Apply the equation $pV = constant$ ☑ Calculate the change in the pressure of a gas or the volume of a gas (a fixed mass held at constant temperature) when either the pressure or volume is increased or decreased. (Boyle's law) ☑ Describe the effect of taking objects underwater. (BBC Short Circuit – Physics – 01 – Pressure (18'47'') 1 of 2 (Physics of Diving))	KT Pressure in gases Pass My Exams – Pressure and volume relationship of a gas BBC Bitesize – The Gas Laws

4	Increasing the volume in which a gas is contained, at constant temperature, can lead to a decrease in pressure (known as Boyle's law). For a fixed mass of gas held at a constant temperature: $pressure\ x\ volume\ = constant$ $[\ p\ V\ =\ constant\ ]$ 13. pressure, *p*, in Pascals, Pa volume, *V*, in metres cubed, m^3	182. Boyle's Law Investigation (Physics only) (practical and RA) 183. Work done on a gas (HT) 184. EOTT	☑ Practical: Use Boyle's law apparatus - take readings of pressure and volume and then plotting a graph of *p* against *V* and *p* against *1/V*. (If the equipment isn't available, use readings on this animation to plot a graph: Pass My Exams – Pressure and volume relationship of a gas) ☑ Explain how, in a given situation e.g. a bicycle pump, doing work on an enclosed gas leads to an increase in the temperature of the gas. ☑ Find out why the CO_2 cartridges used by cyclists to inflate their tyres have an insulating material placed around the cartridge.	KT Pressure in gases (Physics only) Gas thermal expansion 1 – physics experiment
5		185. Feedback lesson	☑ Green pen onto the A5 feedback sheet and stick it into books.	

4.4 Atomic Structure

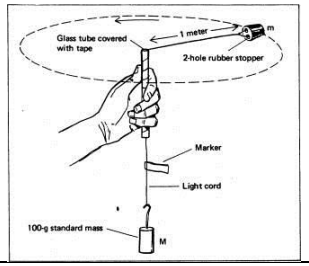
W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1		4.4.1 Atoms and Isotopes 186. The size and structure of an atom. 187. Isotopes 188. Scientific models of the atom Past Exam Questions – Exampro ref: 1. QCJ98H3.13 2. Q13W.Y2H.08 3. Q12WY2H05 4. Q09W.2H.07 5. QB04.F.16	☑ Describe the composition of an atom and draw a fully labelled diagram of an atom showing protons and neutrons in the nucleus with electrons outside the nucleus. BBC Bitesize – Structure of the atom ☑ Use Standard form in calculations of atom size. Additionally calculate the mass number for any particular element given the number of protons and neutrons in the atom. Rearrange the equation to find number of protons or number of neutrons and the mass number. Powers of Ten™ (1977) (Very old school but clear and visual ideas of scale and stand form) ☑ Create a table showing the comparison of subatomic particles ☑ What are isotopes? Why do some elements have isotopes and how can you define and identify isotopes?	72.

			☑ Describe the changes in the scientific model of an atom since ancient Greek times. Draw a timeline of the scientists involved and explain the evidence each presented with their model. In particular compare the plum pudding and nuclear models. Early Atomic Models – Science ☑ Model the alpha scattering experiment using coins. What conclusion can be drawn about the arrangement of atomic nuclei in a material and the amount of free space between nuclei? Rutherford Gold Foil Experiment – Backstage Science	
2		189. Radioactive decay and types of radiation (Practical and RA) 190. Hazards of radioactive backgrounds Past Exam Questions – Exampro ref: 1. Q12SY1F06 2. Q12SY1H07 3. Q07S.1F.06 191. Uses of radioactive sources Past Exam Questions – Exampro ref: 1. Q13W.Y1F.07 2. Q11WY1F03 3. Q11WY1H07	☑ Describe radioactive decay as a process by which an unstable atom releases radiation. Describe how the emission of radiation from a radioactive atom is a random process, but over time the amount of decay can be predicted. How does activity change with time? Explain what is meant by count rate. ☑ Describe the **composition** and **properties** of each type of radiation (alpha, beta and gamma) and where relevant, give the particle that the type of radiation is identical to, eg an alpha particle is a helium nucleus. ChemTeam – Writing Alpha and Beta Equations ☑ Explain how the nucleus of an atom changes when it undergoes alpha or beta decay. Define the term half life and calculate the half life of a radioactive substance. Calculate the mass of a substance using the half life and initial mass supplied. Cyberphysics – Alpha Particle Emission Cyberphysics – Beta Particle Emission Cyberphysics – Decay Animations ☑ Where does background radiation come from and why is it not the same across the whole planet? ☑ Explain the difference between irradiation and contamination. Compare the precautions taken by a teacher or those working in a nuclear power station. Cyberphysics – Radioactivity – safety BBC Bitesize – Hazards from radioactive materials ☑ Describe and evaluate the uses of nuclear radiation. Food irradiation: Is it safe? Radioactive tracers in medicine Cyberphysics – Uses of Nuclear Radiation Pass My Exams – Uses of Radioactivity, Alpha particles in smoke detectors ☑ Radioactive waste – how it nuclear waste sorted and disposed of. What are the main problems associated with disposal and why can't is be dumped in space, landfill or deep sea?	73.

3		192. Nuclear Fission 193. Nuclear Fusion 194. EOTT Exam Questions – Exampro ref: 1. QSP.2F.10 2. Q10WY2F07 3. Q12WY2F07 4. Q13S.IP1.07	☑ Draw diagrams illustrating a fission chain reaction. Annotate the diagram with explanations of each stage and explaining how it releases energy. ☑ Describe how a nuclear power station works including the safety system to prevent uncontrolled chain reactions. Nuclear Reactor – Understanding how it works/Physics Elearning BBC News | EUROPE | The Chernobyl accident: What happened ☑ What are the conditions needed for nuclear fusion, give an example and state the products. Explain the differences between nuclear fission and nuclear fusion S-cool, the revision website – Fusion and Fission ☑ Use a balanced nuclear equation to illustrate radioactive decay.	74.

4.8 Space

W#	Learning Outcomes *(Students must be able to…)*	Individual Lessons *(In order to achieve the weekly outcomes students must be able to answer these questions at the end of each lesson)*	Shared Outcomes. (These must be evident in student's work by the end of the key topic)	Text Book Pages *(Students have their own copy)*
1	How satellites stay in orbit. The light from distant stars and galaxies shows red-shift.	195. Solar System YouTube: The Real Perspective on the Solar System YouTube: Stephen Hawking – Formation of the Solar System 196. Formation of a Star and lifecycle 197. The Sun NASA – Stellar Evolution - The Birth, Life, and Death of a Star BBC Bitesize – Formation of a Star	☑ Describe the different objects in our solar system and their location within our solar system. ☑ Describe why it is not possible to explore the centre of our galaxy, the Milky Way, using manned or unmanned rockets. Evaluate the benefits and drawbacks of using manned rockets to explore the Milky Way or people to colonise Mars. ☑ Produce a flow chart to show the lifecycle of large and small stars. Describe the similarities and differences between the lifecycles of small and large stars. Explain how the length of a star's life cycle is affected by the size of the star ☑ Explain how the Sun's size is kept in balance while two opposing forces are trying to make it bigger and smaller simultaneously.	KT – Solar system

2	How the speed of a satellite affects its radius. HT only. The circular motion of satellites. HT only	198. Fusion processes YouTube: Supernovas: When Stars Die Cyberphysics – Life Cycle of a Star 199. Satellites in orbit YouTube: How Do Satellites Get and Stay in Orbit? 200. Circular motion of satellites The Physics Classroom – Circular Motion Principles for Satellites Cyberphysics – Circular Motion (be selective, this page isn't restricted to satellites)	☑ Describe the conditions required for nuclear fusion. Link this to how a supernova has the conditions that allow heavy elements to form. ☑ What are satellites? Describe how they get into space. Wat are their used for? Explain why satellites stay in orbit in terms of the force of gravity. ☑ Describe and explain how satellites can orbit the Earth in a (near) circular orbit at a steady speed even though they have a force at right angles accelerating them towards the Earth. ☑ Explain how changing the speed of a satellite affects the orbital radius of the satellite. ☑ Evaluate data on the orbital speeds of planets and use this to predict the orbital radius, assuming a circular orbit ☑ Investigate circular motion of an object. 	KT – Stars and satellites KT – Circular motion
3	The red shift of light provides evidence for the Big Bang model (theory) for the creation of the universe. How the universe began according to the Big Bang theory.	201. Red-Shift Cyberphysics - Doppler Effect and Red Shift 202. Big Bang Theory and Evidence BBC Universe | Hubble Space Telescope 203. EOTT	☑ What is red-shift and what does it show? ☑ Explain how the absorption or emission spectrum of light from a similar star to the Sun differs from that of the Sun ☑ How does red-shift provide evidence of the Big Bang? Research theories on the creation of the universe and outline the evidence that supports and disproves these theories ☑ How have observations of space improved over the last one hundred years?	KT – Big Bang Theory
4		204. Feedback from EOTT and PATHS	☑	

Spanish

Lesson 1 set vocabulary homework, to be tested lesson 1 of the following week, in addition either a grammar exercise to be set from G & T booklet or a Vocab Express task. Grammar work to be checked, Vocab Express marks to be monitored. Weekly vocabulary and 25 word vocabulary scores and assessment marks to be inputted into shared tracker promptly. Intervention when required. AFTER CHRISTMAS – vocabulary test EVERY LESSON

Week #	**Learning outcomes** *(Students must be able to…)*	**Individual Lessons –** *click on the link for lesson resources.*	**Shared Outcomes** *(These must be evident in student's work by the end of the key topic)*	**Homework**	**Text book**
To be taught during term 1 (September – December)					
1	-Describe using the past -Understand the difference between *Ser* and *Estar* and use appropriately -improve writing skills by re-writing previous task	1. ¿Cómo fueron las vacaciones? 50 word Vocab test 2. Ser Vs Estar 3. Exam writing re-write	☑ *At least 5 sentences written in the about the summer holidays* ☑ *50 word vocab test* ☑ *Definitions for the different uses of Ser and Estar* ☑ *At least 5 sentences using Ser and Estar.*	-Finish G & T book p42-43 -G & T book P48 -49 -Learn *poder, querer, soler* for a grammar test	N/a
2	-Describe using at least 3 different tenses	4. ¿Cómo debo cuidar el medioambiente en casa? 5. Ayer apagué las luces 6. Voy a reciclar más	☑ *Grammar test 1* ☑ *At least 5 sentences describing what they do to help the environment at home – using at least 3 tenses, different personal pronouns* ☑ *Translation from Spanish to English*	-Vocab test - vocab 1 -Vocab Express task -Study Stack input	P161

3	-Recognise and use the present subjunctive -Give opinion on global issues	7. Los problemas globales 8. Los problemas globales 9. Los problemas globales	☑ *Vocab test 1* ☑ *At least 5 sentences from English to Spanish* ☑ *The present subjunctive section completed in the Grammar workbook* ☑ *At least 2 sentences using the present subjunctive describing what we need to do to help the environment* ☑ *At least 3 sentences describing the global issues which are most important.*	-Vocab test - vocab 2 -G & T book p76-77	P164 - 165
4	-Present an argument in an essay	10. Los desastres naturales 11. Actúa localmente 12. Actúa localmente	☑ *Vocab test 2* ☑ *At least 5 sentences describing what people can do locally to help the environment* ☑ *A translation from Spanish to English* ☑ *An essay of at least 150 words against the statement "No se puede salvar el planeta"*	-Vocab test - vocab 3 -Vocab Express task -Study Stack input	P172 P166 - 167
5	-Ask and answer a range of questions about the environment using complex structures with little support	13. Debería ser voluntario 14. Speaking assessment preparation 15. Speaking assessment preparation	☑ *Vocab test 3* ☑ *At least 5 sentences translated from English to Spanish* ☑ *Detailed responses written for each question of speaking assessment*	-Practise for speaking assessment	P199

6	Confidently and accurately answer a range of questions on environmental issues using complex structures	16. Speaking assessment 17. Speaking assessment 18. Translation, 50 words vocab test	☑ *Detailed responses written for each question of speaking assessment* ☑ *50 word vocabulary test*	-Practise for speaking assessment -Vocab test – vocab 4 -G & T book p58-59 -Study Stack input -Speaking conversation prep	
HALF TERM					
7	-Improve speaking assessment by responding to personal feedback -Recognise, form and avoid the passive	19. Response to PATHs feedback. 50 word vocabulary test 20. The passive tenses, avoiding the passive 21. Las fiestas	☑ *Detailed green pen response to PATHS marking* ☑ *Vocab test 4* ☑ *50 word vocabulary test* ☑ *5 sentences: 3 using the passive, 2 avoiding it*	-Learn past participles for grammar test -G & T book p74-75	
8	-Describe effectively using the 3rd person, avoiding the passive -Describe in detail an event in the past	22. Las fiestas 23. Un día especial 24. Un día especial	☑ *Grammar vocab test* ☑ *A description of at least 2 festivals/ holidays which take place in Hispanic countries, including avoiding the passive (one they would like to attend, one they wouldn't)* ☑ *A short description of a special day they have experienced in the past including food eaten and any traditions.* ☑ *At least 5 translations from English to Spanish*	-Vocab test – Vocab 5 -Vocab Express task -Study Stack input	P122 - 125

9	-Use the reflexive verb *doler* -Create and confidently perform a role play in a pharmacy scenario	25. Me duele la cabeza 26. Tengo catarro 27. Hay que descansar	☑ *Vocab test 5* ☑ *A list of body parts* ☑ *At least 5 translations from English to Spanish* ☑ *The transcript for a pharmacy role-play, including 3rd person*	-Vocab test – Vocab 6 -G & T book p86	P118 - 119
10	-Understand and give basic directions -Describe what can be bought in different shops using *Se puede*	28. Hay un polideportivo 29. Sigue todo recto 30. ¿Qué se compra en la panadería?	☑ *Vocab test 6* ☑ *A list of directions* ☑ *A list of shops and items one can buy* ☑ *A translation from Spanish to English*	Vocab test – Vocab 7 -Vocab Express task	P94 - 95
11	-Create and confidently perform a role play in a shop scenario	31. Horas de apertura 32. ¿Cuánto cuesta? 33. Quiero un reembolso	☑ *Vocab test 7* ☑ *At least 5 translations from English to Spanish* ☑ *Transcript for a shop dialogue returning an item*	-Vocab test – Vocab 8 -G & T book p12	P96 – 97 P102
12	- List the pros and cons of shopping centres Vs. internet shopping and offer justified reasons	34. Role-play practice 35. ¿Te gustan los centros comerciales? 36. Speaking preparation	☑ *Vocab test 8* ☑ *A translation from Spanish to English* ☑ *A list of at least 3 pros/cons of shopping on line Vs shopping centres*	Practice for speaking assessment	P102 - 103

13	- Confidently and accurately answer a range of questions on shopping habits using complex structures	37. Speaking assessment 38. Speaking assessment 39. 50 word Vocab	☑ *Detailed responses written for each question of speaking assessment* ☑ *50 word vocabulary test*	G & T book p102-103 p31 p98-99 Vocab Express task -Study Stack input Speaking conversation prep	P103
ENDEND OF TERM					

The beginning and end of the school day

The beginning of the school day can be a rush for everyone. Your son will need to be far more organized now they are in year 10, they will need to be in school on time have all of their school books. Establishing a routine in the morning and evening will help the day start smoothly and with minimum stress.

Tips for a positive start to the school day:

- Encourage your son to pack their school bag each evening, at this point check they have completed homework and revision cards from the day's lessons.
- Try to make sure your child eats breakfast (at home or school), this provides essential energy and will help him perform better at school, encourage your son not to buy energy drinks before the school day.
- Attendance and punctuality are crucial. Are you aware of your son's assembly days? Pupils need to be in their tutor bases or assembly for 8.25 for an 8.30 start.
- Check each evening for letters home, permission forms or the Show My Homework Website, this will help avoid early morning panic and items being forgotten.

Helping with homework

See individual subject web links and expectations for student's homework this term.

Check www.showmyhomework.com daily, and check their books to see if it is completed – **THERE IS NO SUCH THING AS NO HOMEWORK IN YEAR 11** – even if they say they have completed work at school they should be reading over their lesson notes again and making revision cards from these notes or preparing for recall test.

Ask your son if there's anything you can do to help with homework. Discuss the organisation of the work. If your son has several assignments due in on the same day, suggest they space the work out and create a homework plan which can be stuck on the fridge or bedroom wall. If they start the work early and get stuck they will have time to speak to the class teacher to discuss support.

The following is a rough guide to how long your son should be spending on homework at secondary school:

	Years 10 and 11 = 90 to 150 minutes a day

Developing your son's communication skills

If we can teach children to communicate effectively, then we are not only helping them in examinations, we are preparing them for life. Key communication skills include literacy, presenting ideas, listening skills, numeracy and self-awareness. Pupils will be taught communication skills in subject lessons, tutor time, the PSHCE programme and through inter-tutor competition. By parents working alongside the school, these skills will be reinforced and consolidated.

Ways to support your child's learning

You may not be reading with your son as you did at primary school but you can still support positive reading habits. Talk to your son about the books you are both reading.

Keeping up-to-date with the news helps with schoolwork. Try to encourage your son to read a newspaper at least once or twice a week. Find news stories that connect to lesson topics. If your son is researching a subject, suggest the online archives of a good newspaper or the BBC website (see links in curriculum area notes)

If you're planning a day out, visit a museum or gallery that will tie in with the work your son is doing in subjects such as Art, English, History, Geography or Science - this can be a fun way to add depth and interest to your child's learning.

Revision for exam's next summer start's now:

- Work out a revision timetable for each subject
- Start to create revision cards for tests and exams
- Make sure your son has all the essential texts, books and materials
- Buy new stationery, highlighters and pens to make revision more interesting
- Go through school notes with your child or listen while they revise a topic
- Time your son's attempts at practice papers

EXAMS – STUDENTS' RESPONSIBILITIES

- **The exam timetable is displayed** outside the exam office, school hall and on the school website. **Ensure you know when and where your exam is.**

- Arrive at **LEAST 15 MINUTES** before the start of your exam and **wait quietly outside the venue**.

- Empty your pockets ensuring you have no paperwork left in there. Make sure your hands have no writing on them. Turn off your phone and get ready to hand it in alongside any watches, headphones and electronic devices. These are kept securely and are handed back to you at the end of the exam when leaving. Should you chose to keep your devices in your bag and a sound is heard, please be aware there are very strict penalties. IT IS UNFAIR TO DISTURB OTHER STUDENTS.

- You may bring **a clear bottle of water, (but no other drinks)**, the label must be removed beforehand.

- Pencil cases, calculators and all equipment (including tissues) are provided by the exam team. You may use your equipment stored in a clear pencil case, but remember you need to write in black ink.

- Follow the instructions of the staff at all times. DO NOT speak to or communicate with any pupil once you have entered the exam room.

- You MUST sit in silence and face the front. DO NOT open or read any booklets that are on your desk until you are instructed to do so. Please remember that we cannot help you with your exam so don't ask questions about the exam. If you have any other query please raise your hand.

- Listen to staff instructions. You will be told when to start and end the exam. Start and end times, plus clocks are visible at the front.

- Remain seated, follow staff instructions and leave the exam room in silence.

GOOD LUCK FOR ALL YOUR EXAMS.

10 techniques to help with revision

Little and often

The real solution, to this massive problem of forgetfulness, is spaced practice, little and often, the regular rehearsal and practice of the knowledge/skill over a period of time to elaborate and allow deep processing to fix long-term memories. If we get this right, increases on the productivity of learning can be enormous. We are not talking small increase in knowledge and retention but increases of 200-700%.

1. Self- rehearsal – This is very powerful, but needs self-discipline. You sit quietly, and recall the learning on a regular, spaced practice basis. The hour/day/week/month model is one, but a more regular pattern of reinforcement will be more successful. Research suggests that the spacing different for individuals and that it is good to rehearse when you have a quiet moment and feel you are in the mood to reflect. Recent research has shown that rehearsal just prior to sleep is a powerful technique.

2. Take notes – write up your learning experience, in your own words, diagrams, analogies. This can result in dramatic increases in learning (20-30%). Then re-read a few times afterwards or type up as a more coherent piece. It is important to summarise and re-read your notes as soon as possible after the learning experience.

3. Blogging – if the learner blogs his/her learning experience after the course, then responds to the tutors', and others' comments for a few weeks afterwards, we have repeated consolidation, and the content has a much higher chance of being retained.

4. Repetition – within the course, but also at the start of every subsequent period, lesson or lecture, repeat (not in parrot fashion) the ground that was covered previously. Take five or ten minutes at the start to ask key questions about the previous content.

5. Delayed assessment – give learners exercises to do after the course and explain that you will assess them a few weeks, months after the course has finished. This prevents reliance on short-term memory and gives them a chance to consolidate their knowledge/skills.

6. Record – it is education and training' great act of stupidity, not to record talks, lectures and presentations. They give the learner subsequent access to the content and therefore spaced practice.

7. Games pedagogy – Games have powerful pedagogies. They have to as they are hard. It works through repeated attempts and failure. You only progress as your acquired competence allows. Most games involve huge amounts of repetition and failure with levels of attainment that take days, weeks and months to complete.

8. Spaced e-learning – schedule a pattern in your online learning, so that learners do less in one sitting and spread their learning over a longer period of time, with shorter episodes. Free your learners from the tyranny of time and location, allowing them to do little and often. In education this is homework and assignments, in training subsequent talks that need to be emailed back to the trainer/tutor.

9. Mobile technology – the drip feed of assessment over a number of weeks after the course or redesign the whole course as a drip-feed experience. We have the ideal device in our pockets – mobiles. They're powerful, portable and personal. Push out small chunks or banks of questions, structured so that repetition and consolidation happens. This usually involves the repeated testing of the individual until you feel that the learning has succeeded.

10. Less long holidays – it terms of public policy, increasing school results would be betters served by avoiding the long summer holiday and restructuring the school, college and University years around more regular terms and less long vacations.

Benefits

The retention benefit works like compound interest as you're building on previous learning, deepening the processing and consolidating long-term memory. It is, in my opinion, the single most effective strategic change we could make to our learning interventions.

Support Videos:

Learning to Learn
https://www.youtube.com/watch?v=SA2cvyIwqkE

Revising for Exams:
https://www.youtube.com/watch?v=wjh10kj9Y64

Key Dates:

Currently running Applications for Carshalton Boys 6th Form

9th Oct Drama Trip

17th October 5pm to 7pm Main Hall – 6th Form Open Evening

23rd to 27th Oct Half Term

1st Nov Interim Reports

23rd Nov Parents Evening

24th Nov 9.45am start

6/7th Dec Little Shop of Horrors

15th Dec Closing date for Carshalton Boys 6th Form Applications

15th Dec End of term 1pm finish

3rd Jan start of term 9.45am start

19th Jan start of term 9.45am start

12th to 16th Feb Half Term

21st Feb Full Report

12th to 16th Feb Half Term

23rd Feb 9.45am start

9th Mar Directions and Destinations Day

28th Mar Interim Report

29th Mar End of term 1pm finish

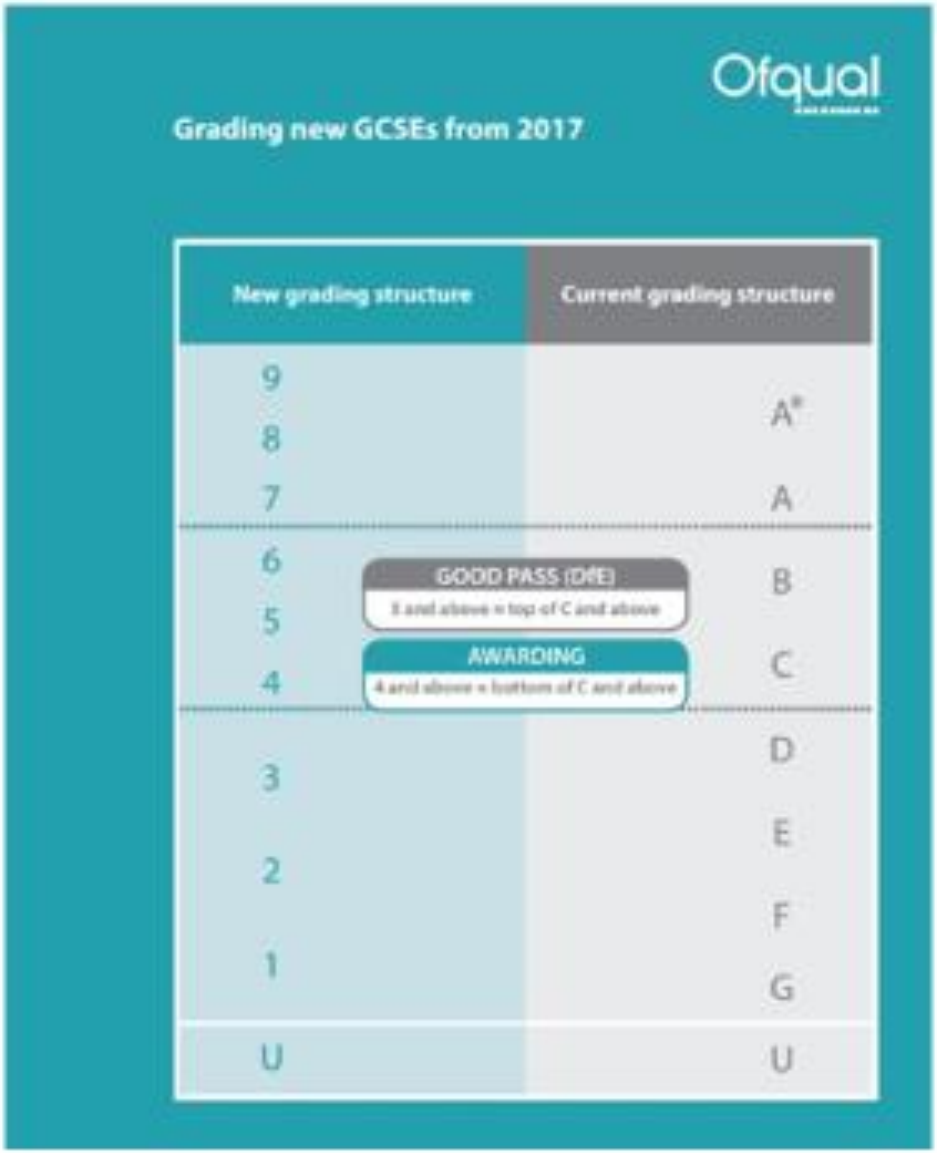
16th Apr start of term 9.45am start

20th Apr 9.45am start

28th Apr to 1st Jun Half Term

8th Jun 9.45am start

Assessment and Reporting



Key Websites

http://www.carshaltonboys.org/ -
School home page – go to 'Your Child' then 'Resources and support for parents' for websites and links to help
School home page – go to 'Curriculum' then 'Parent termly information packs' and you will find relevant curriculum information and support. This will be updated ½ termly.

https://www.showmyhomework.co.uk – student website for homework

School home page – go to 'Help' we have a number of support sites for parents and students including;
http://www.familylives.org.uk/advice/teenagers/school-learning/
http://www.bullying.co.uk/
https://www.getsafeonline.org/

Exam Boards Parental Guidance

AQA - http://www.aqa.org.uk/student-support/for-parents
OCR - http://www.ocr.org.uk/
Pearson - https://qualifications.pearson.com/en/home.html

Key Email Addresses:

Matt Robinson – MRobinson@carshaltonboys.org
Deputy Principal

Will Harrison – WHarrison@carshaltonboys.org
Learning Coordinator Year 11

Sue Barker – SBarker@carshaltonboys.org
Senior Pastoral Support Officer Year 11/12/13