CAMBOURNE VILLAGE COLLEGE CURRICULUM POLICY	
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Curriculum Policy 2023/24

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Guiding principles

Cambourne Village College is firmly committed to offering our students a broad and balanced curriculum, one which equips every child with powerful knowledge. We see the curriculum as our most fundamental tool in ensuring that students are able to learn those concepts and access that body of knowledge that will see them succeed throughout their lives, including - but by no means limited to - at examination points. We endeavour to use our curriculum to address knowledge gaps, thereby removing the barriers that some students face, whether as a result of SEND, social disadvantage or prior learning.

Our curriculum is central to our commitment to enable children to succeed. We therefore offer a range of meaningful courses and qualifications to suit all learners, which is under continuing review. We believe fundamentally that children deserve to study a wide range of disciplines throughout a full Key Stage 3, so this is not curtailed: Options choices are made in Spring of Year 9, for study during a two-year Key Stage 4. We wholeheartedly embrace, for all students, the study of the arts (Music, Art and Drama), as well as humanities (including RPE), the sciences (including Computer Science), Modern Foreign Languages, Design Technology, PE and PSHE, alongside an appropriate allocation of time to Maths and English fully to teach these subjects in an academically rigorous way. We embrace the strong academic challenge presented by the disciplines we teach, and sew this through our curriculum in a wide range of subject areas, alongside what is traditionally understood by a strong academic core.

Subject leaders are asked to take as their principles of curriculum design the following:

- The curriculum should build coherently from students' knowledge and capabilities at the end of Year 6 towards what is required of them in external examinations in Key Stage 4, and, beyond this, to what they would need to access further study of the subject or to succeed in the world outside the classroom.

- Where possible, curriculum-based liaison with primary school subject leaders should help to ensure this is as coherent and systematic as it can be.

- The curriculum should take account of what is considered 'powerful knowledge' [1]in that discipline, ensuring that students from all backgrounds are given the opportunity to succeed.
- The curriculum should take account of the knowledge gaps displayed by students with low prior attainment or from disadvantaged backgrounds, and should provide opportunities to redress these.
- The curriculum should challenge our most able students, and offer opportunities to learn beyond any prescribed knowledge.
- The curriculum should, where appropriate, give students cultural capital [2]– in particular, to students who might not encounter such knowledge or concepts elsewhere.
- The curriculum should create opportunities for all students to feel included, recognised and acknowledged; we should seek actively to decolonise and diversify the curriculum; the curriculum itself, as well as the way in which it is encountered, should challenge the holding of prejudiced beliefs.

[1] At Cambourne Village College, we have taken the term 'powerful knowledge' from Michael Young, and use it to mean knowledge that is central to a subject discipline, widely accepted as the truth of that discipline. We put it at the heart of our curriculum design because we consider it the knowledge most likely to enable social mobility.

[2] At Cambourne Village College we use cultural capital to mean that knowledge of culture, politics, place and history that is often associated with a middle-class demographic. We therefore see the acquisition of cultural capital through the curriculum as supportive of social mobility.

Curricular approach to 'Recovery'

We recognise that school closures, and staff and student absence, as a consequence of the Covid-19 pandemic had an impact on student learning that is still felt. We recognise that this affected all students, that it affected particular students in individual ways, but also, and significantly, that it had a heightened impact on disadvantaged and vulnerable students.

Our curriculum initially had to adapt to address particular gaps in knowledge and capabilities, as well as to accommodate safe ways of working, and changes to KS4 assessment. Now that we are no longer in the immediate aftermath, in many areas we have been able to return to a previous intended curriculum; however, we continue to have to accommodate gaps in learning that emerged earlier in students' education, and to focus attention on underpinning skills such as extended writing.

Curriculum allocation

Following a review of curriculum allocation, in September 2021 our timetable will be as follows (50-minute periods per fortnight):

	English	Maths	MFL	Science	CS	History	Geography	RPE	PE	DT	Drama	Music	Art	PSHE
Year 7	9	9	6	8	2	3	3	3	4	4	2	3	3	1
Year 8	8	8	6	8	3	3	3	3	5	4	2	3	3	1
Year 9	8	8	6/7*	8	2	3	3	3	4	4	3	3	3	1/2**
					Option 1	Option 2	Option 3							
Year 10	9	10	6	12	6	6	6		4					1
Year 11	10	9	6	12	6	6	6		4					1

* 6 for single linguists; 7 for dual linguists

** 1 for dual linguists; 2 for single linguists

Rationale

This model reflects our commitment to an academic, broad, balanced, diverse and engaging curriculum:

- A strong academic core sits at the heart of our curriculum. Core subjects are allocated an appropriate amount of time to ensure that all students are thoroughly taught essential capabilities and knowledge. This acknowledges their weighting in progress and attainment measures, their importance to students in external exams, and their lifelong significance.
- Except in such cases as necessitated by particular SEND, all students are taught MFL. For single linguists, this is Spanish. For dual linguists, this is Spanish and either German or French.
- Arts and Humanities subjects, and DT, are given due weight.
- Time for Physical Education reflects not only the importance of the discipline in and of itself, but also its role in securing students' physical and mental wellbeing.
- PSHE is taught as a timetabled subject, as well as through special calendared events where the timetable is collapsed.
- We welcome the academic challenge posed by the EBacc measure, and our ethos and guidance processes mean that, whilst we do not insist that all students opt for History or Geography, a greater proportion of our students fulfil the EBacc measure than the national average. The EBacc entry for 2022 was 57%. This compares to a national average of 39.9% in 2019/20, the last year for which data is available.

Key Stage 4 offer

Our KS4 offer reflects our commitment to give students access to meaningful, appropriate and challenging qualifications that will serve them well throughout their lives, enabling them to access opportunities.

Core subjects:

All students are entered for English Language and English Literature GCSE, and for Mathematics GCSE. Students are entered for Double Award Science, unless they opt for Separate Science. The significant majority of students take a GCSE in a Modern Foreign Language (Spanish, French or German), with a number of students for whom this is judged by the school not to be appropriate (due to SEND and/or significantly low literacy levels) following a tailored pathway. This can be either an FCSE in Spanish, GCSE Media Studies (new for 2023), or additional English and Maths support.

All students are taught PSHE as a timetabled subject, with additional events calendared; likewise all students participate in Core PE. Core RE content is delivered through collapsed days in Years 10 and 11, and additional afternoons, including tasks set for remote learning.

Students opt for three subjects in addition to their MFL choice.

Options subjects:

GCSE Languages – students may opt for a second MFL

GCSE Computer Science

GCSE Separate Science

GCSE Geography

GCSE History

GCSE Religious Studies

GCSE Business Studies

GCSE Physical Education

GCSE Art and Design

GCSE Photography

GCSE Drama

GCSE Music

BTEC Music Technology Level 1/2*

GCSE Design and Technology

GCSE Food Preparation and Nutrition

Cambridge National Engineering Level 1/2

BTEC Home Cooking Skills Level 1

BTEC Child Development Level 1/2

Cambridge National iMedia Level 1/2

Entry Level History

BTEC Dance Level 1/2*

GCSE Media Studies (non-MFL option)

<u>After School Options</u>

GCSE Art and Design (after school)

GCSE Film Studies

GCSE Statistics

GCSE Ancient History

(denotes a subject that was offered but that isn't currently running due to lack of uptake)*

Approach to reading and vocabulary acquisition

In line with our guiding principle of removing barriers for students from disadvantaged backgrounds, we have identified vocabulary acquisition as crucial, and as such have developed a whole-school approach. The phenomenon of a 'vocabulary gap' between advantaged and disadvantaged children is thoroughly researched and documented; as well as being an indicator of disadvantage, an impoverished vocabulary is also in itself a significant barrier to learning.

Whole-school approach

Departments set reading homework – usually once per unit or half term. The texts are selected both to supplement and enhance study of the curriculum topic, and to introduce students to Tier 2 and Tier 3 vocabulary, with the intention of repeated exposure to these words (in directive contexts) over time. Departments are encouraged to include tasks to clarify understanding of key concepts and vocabulary, and to offer audio recordings of the text, because of the value of the additional contextual clues of hearing the words spoken. In some cases, departments and student champions select reading materials to be shared with the whole year group in tutor time. Further to this, we use a Teams channel for all students with links to articles designed to advance vocabulary, supplement study and spark interest in topics linked to curriculum areas.

Increasing reading challenge

We recognise that reading texts of increasing challenge is vital in securing students' continuing acquisition of Tier 2 vocabulary, their critical faculties, their ability to communicate – and often their pleasure in the act of reading itself. We have therefore taken a number of steps to bring this about:

All students are expected to read independently. They have timetabled access to the library once per fortnight. Tutor time is also used for independent reading, once each week. English teachers monitor their reading and encourage them, in a structured way, to progress to more challenging, or a more diverse range of, texts. We have constructed reading grids to this end, which map texts across multiple genres and increase in complexity, with diverse suggestions at each level of challenge. These are accessible to pupils and parents via the school website and print versions. We share these as part of a presentation to parents at the start of their education here, when we emphasise the importance of parents' roles in encouraging good reading practices, and refer to them in our Reading for Pleasure lessons.

As well as providing these for our students, we have mapped in similar ways texts that are appropriate for primary students, from Early Years to KS2, and shared these with our partner primary schools and across our Trust primaries. We firmly believe that a consistent and structured approach to reading is best embedded in these formative years, so that we can build on and develop students' reading from an appropriate level when they arrive with us in Year 7. As part of this, we run a transition programme – a 'reading passport' – that begins in the summer term of Year 6, and involves students reading or listening to a number of appropriately challenging novels, as well as poems and non-fiction texts, and completing activities; these are reviewed and discussed when students arrive with us in Year 7, in order to make clear that reading is an activity that we value and that their accomplishments at primary school need to be sustained.

Monitoring reading development

We use the Accelerated Reader programme to assess students' reading fluency and comprehension. Students are tested when they arrive to the school, and then termly thereafter during KS3 (and also, but less frequently, at KS4), so that we can monitor the progress they are making and tailor our book

recommendations to them. Readers with the lowest reading ages relative to their chronological age are targeted in one of two ways, primarily: those with identified SEND and the very lowest reading ages are part of our Breakfast Literacy programme, and read with an adult for two tutor time sessions each week, as well as having sessions with a Primary-trained teacher in place of MFL lessons; those who sit just outside this cohort are removed from English lessons for half a term of intensive reading intervention, for 8-10 periods per fortnight, receiving specific homework tasks, with a dedicated member of staff, our Reading TA. These students work in groups of about five, meaning that across an academic year, approximately 150 students can be targeted for this intervention: 60 in each of Years 7 and 8, and 30 in Year 9. Thus, our weakest 20% of readers at Key Stage 3, across a year, benefit from targeted reading intervention.

Explicit teaching of vocabulary

The approach to vocabulary acquisition incorporates the explicit teaching of words. We recognise the value of introducing students to etymology in making them word-conscious and able to deconstruct academic vocabulary. Each week, in tutor time, all students are taught a Greek or Latin root word and complete activities related to it. These are reinforced in library lesson activities, and in spelling lists set in English lessons. Teachers have been given CPD on vocabulary teaching within lessons, with self-appointed vocabulary champions for each department tailoring this for each curriculum area. We have led a project with literacy leads at a partner network of 23 primary schools to encourage the adoption of a similar approach, with the intention of building a coherent approach to making students word-conscious and overcoming the disadvantage that both leads to and results from an impoverished vocabulary.

Appendix 1: Principles upon which subject curricular are constructed

Heads of Department have articulated their responses to the following questions:

- What are the underpinning principles? What knowledge and capabilities are being built and developed?
- Why that order of learning? How does learning become increasingly challenging / complex?
- In what sense is Key Stage 2 built upon? How does the curriculum build towards Key Stage 4 / 5?
- Which are the authoritative voices / publications against which to test curriculum principles?

English

The curriculum aims to introduce students to a diverse range of literature, including works that will give our students cultural capital and broaden their knowledge of the world and of lived experiences. Careful attention has been given to the knowledge gaps with which some students arrive, and units are designed to address these, such as the initial 'Journey to the Underworld' unit, which introduces Greek and Roman mythology as well as Christian stories, all of which are required for detailed analysis of complex literary texts. At KS3, students encounter a range of novels (both 'young adult' texts and 20th century classic literature), plays (including Shakespeare plays and Sophocles' *Antigone*), poetry (including global texts, poems in performance and narrative poetry stretching from Anglo-Saxon to the Romantics) and non-fiction writing (including travel writing, autobiography, and speeches).

Students are taught to articulate themselves creatively in spoken and written language, in a range of forms and with accuracy. Emphasis has to be placed on grammatical accuracy as it cannot be assumed, despite intensive work at KS2. Thoughtful work is being undertaken to capitalise on the SPAG knowledge taught at KS2 in students' writing at KS3.

Challenge increases through the complexity of the texts taught and the tasks undertaken. Students' vocabulary is developed, and they are taught to engage in increasingly complex ways with the texts they encounter. The curriculum is designed to cover texts from a range of centuries, preparing students for the demands of the GCSE English Language and Literature courses. Emphasis is also placed on developing students as independent readers.

Authoritative voices include NATE.

RPE

The curriculum aims to equip students with knowledge of 6 major world faiths, and the different ways of studying them – phenomenalism (phenomena of religion: stuff and practices), textual (theological), sociological/anthropological study (what is growing/decreasing; diversity/variety within a religion).

It teaches knowledge of worldviews and their response to philosophical questions, which has typically been the way the curriculum has been structured.

It enables students to develop understanding and respect for other viewpoints, and to help them develop the ability to make reasoned and informed judgements about religious issues and philosophical questions.

The curriculum increases in challenge by studying in greater depth in Year 8, and asking bigger questions in Year 9, integrating research at home. Student are also expected to transfer ideas from earlier in their RPE study to new topics, adding to the challenge. Assessments look at both knowledge of the topics, and the ability to express an argument or viewpoint, and expectations of what students are expected to include are progressive over the course of study.

We need to talk about RE and Reforming RE – these are two recent texts exploring the recent developments within the subject, contributors include Dr Richard Kueh, a former Head of our RPE department.

The work of Culham St Gabriel Trust, along with the Lincolnshire Diocese Education department, and Norfolk Agreed Syllabus have helped shape the multi-disciplinary approach to the structure of the curriculum

In addition, the Church of England sets out its principles of a balanced curriculum in the first document linked to below; Kathryn Wright in the second document outlines a multidisciplinary approach; in the third, Gillian Georgiou engages with both of these ideas.

https://www.churchofengland.org/sites/default/files/2018-03/Key%20principles%20of%20a%20balanced%20curriculum%20in%20RE_0.pdf

https://www.theosthinktank.co.uk/comment/2018/06/28/we-need-to-transform-re-through-a-multidisciplinary-approach

https://impact.chartered.college/article/balanced-re-thoughts-re-curriculum-design/

History

The curriculum intends to teach a strong underpinning sense of chronology, and a broad sense of period. Key historical concepts have been established and are returned to over the years of study, such as:

- A sense of the past and respect for the people in the past.
- Disciplinary approaches – the idea that history is a construct and that people are trying to represent it.

The Key Stage 3 curriculum looks more broadly than purely to equip students for KS4 study, but units at KS4 have been chosen because they build coherently from KS3 topics and provide our students with a breadth of study. We review our curriculum regularly and often plan new enquiries based on both our growing subject knowledge and in response to CPD.

At KS4, there is a significant amount of content to be taught, but department leaders recognise it as important to maintain those conversations that sit around the curriculum. They look, in lessons, to elevate from the content itself– to think in the widest sense about History and its concepts – from the abstract/philosophical to the disciplinary.

The department intends that students come expecting to read substantial amounts of text and welcome it, and that they recognise History as a textual process, a construction of text. Students are encouraged to read widely and our classroom libraries model this.

Informal assessment happens constantly in lessons through teachers questioning, quick conversations around and looking at students' work. While this informal assessment may involve giving feedback but

it also helps teachers make judgements about the progress of students' conceptual and substantive understanding. This may not be evident in students' books or recorded in a markbook.

While acknowledging the many challenges that providing extra-curricular opportunities can present, we view them as an essential way to give expression to our core departmental values and to serve our curriculum. By actively seeking out a range of enrichment opportunities that extend pupils' knowledge beyond our taught curriculum, we hope to make our pupils aware that our curriculum is a *choice* made by our department and is by no means the only history that exists.

In terms of authoritative voices, the department subscribes to the 'Teaching History' journal and has a corporate membership of the *Historical Association*. Attendance at conferences such as SHP and subject specific CPD is valued.

MFL

The curriculum is undergoing modification at KS3 to place the emphasis more on spoken language than on explicit grammar teaching, in order to increase student engagement and confidence, and allow them to discover language – the focus will be on communication. At the end of KS3, students will attain an FCSE qualification to reflect their learning (which means that even those selected students who do not continue with a language at GCSE will have a nationally recognised qualification).

The curriculum intends to equip students with the vocabulary and grammatical knowledge, and the confidence, to articulate and understand ideas about a range of topics. There is an overlap between KS3 and 4, as topics are revisited later but with new expressions. Non-negotiable verbs are taught repeatedly.

Challenge is increased through more difficult tenses and grammatical constructions. For instance:

Year 7: present and future.

Year 8: past, present, future, conditional (only as a phrase: "I would like to"). Time frames.

Year 9: revisit past, present, future, conditional tense. In German, taught cases: accusative, dative, nominative, prepositional (change of nouns).

Year 10 and 11: revisit all, and learn the imperfect. Some students will be introduced, in a controlled way, to subjunctive, learned as phrases.

Design Technology

The new DT curriculum places more weight on thought processes and theoretical knowledge, identified in knowledge grids. The curriculum equips students with knowledge of material properties and qualities, and processes. Students are taught how to design, and encouraged to read around designs. They are encouraged to do more of the preparation themselves, rather than to rely on technicians.

The range of DT subjects means that students are given a sound understanding of all areas before becoming expert on two or three.

Authoritative voices include Bill Nicholl at Cambridge University Faculty of Education, and Johnny Edge at OCR.

PSHE

Underpinning principles are linked to statutory requirements, and issues more relevant to our students' context. (Sex, pornography, online behaviour, drugs), as well as the need to think beyond our immediate context to global issues.

The order of teaching is based primarily on the age of students: the demands they are facing, and how emotionally capable they are. There is also a consideration of the point in the academic year: the programme of teaching begins with something stable, then introduces more emotionally taxing subjects once students are settled, then becomes lighter in tone towards the summer.

A range of different bodies provide work / support – but there is no established authority. PSHE Foundation do outline principles to some extent, although it is still more like a tick-list of topics.

Music

The main emphasis of the music curriculum is performing and composing: it is very practical in nature, and principally taught by developing pupils' keyboard skills. The underpinning idea is that children who come in with no music at Year 7 have a viable chance of succeeding at GCSE Music, which is important in our context, and helps to address the challenge faced at KS4 against national performance of students with a more established music background (often from private music tuition). Consequently, teaching of the ukulele in Year 7 has particularly developed – so that the subject is not solely keyboard-driven – which gives a different skill, and supports a transition to guitar playing. Singing is also an important element in the Keystage 3 curriculum, which is another very effective route for pupils pursuing GCSE Music. 'Garage band' is used to introduce layers of sound, and further developing their composition skills. There is an emphasis also on ensemble performances, leading to that component as part of the GCSE performance.

The curriculum is designed based on the notion that the best way of preparing for GCSE is to develop more advanced performance skills as a group; this also maximises student engagement, as it is an enjoyable dynamic. Once students reach GCSE study, challenge is increased as they have to compose as individuals. Students learn to understand layers of sound, and how to make something more complex and sophisticated – supported by computer programs.

The curriculum doesn't emphasise the formal listening elements of the GCSE course, because it tends to be less engaging for students at KS3, and because investing enough time in this element to improve marks in this area of the exam is felt to be to the detriment of the other elements of the course.

Progression comes from the complexity of music students are playing, for instance, introducing the left hand part in keyboard playing. For able players, they manage the sight reading – then they can decorate it. Up to Year 8: more complex, more accidentals, faster pieces. Notes are always written by name also, because emphasis is on students being able to perform. When learning the ukulele, complexity comes from first learning chords in Year 7, then finger picking in Year 8, then both together in Year 9, and then bringing together ukulele and keyboard.

Computer Science

Building up from KS2 is interesting, as students are now showing an increasing awareness of computer programming, but it is not primarily learned from schools (unless from an afterschool club). Students have usually encountered Scratch, but this no longer features in our KS3 curriculum, because students are too focused on the characters properly to focus on the points of learning.

Increasing challenge is carefully built into the Computer Science curriculum:

Year 7:

Computer systems – what a computer is. Students undertake directed research regarding the components of computer.

They are taught Turtle graphics / Spreadsheets / Flowol, in that order. Programming elements: sequencing, selection, loops. Basics introduced.

Year 8:

GeomLab introduces students to a totally different language, fulfilling the need to use two or more languages to comply with the National Curriculum. Students learn to think about decomposition: looking at complex problem and breaking into smaller parts, and have to write functions. Because they are writing algebraically, they can access complex things due to related areas of maths teaching.

micro:bit introduces students to hardware, and "else else if" allows for more complex permutations of decision making than the binary decisions of a flowchart.

Html: students write a website using code. They practise using programming language, which has to be accurate. It is carefully scaffolded: everyone will create a website from code; more able can extend code to own devices. Most use basic template, but can differentiate according to image size, text colour etc.

Minecraft on Raspberry Pi. (Python) Students have to use code relating to 3D geometry and relative positions.

Year 9:

Sense Hat python: raspberry pi with LEDs is still more complex, in that it is similar to micro:bit but students now have to write code rather than drag and drop blocks. It introduces using coordinates to describe 64 LEDs, and indefinite iteration. The concepts are intellectually demanding.

Authoritative voices include the raspberry pi foundation (charity behind current drive in programming, magazines and periodicals.

PE

The KS3 curriculum, as well as developing physical literacy in PE, aims to foster an enjoyment of sport and physical activity, and to encourage lifelong participation in these. This is done by teaching a narrow selection of sports in Year 7 and 8 to develop skills and tactical awareness, before widening the selection of sports in Year 9 to give students a greater range of sports to try. The curriculum at KS3 is designed to build resilience and improve motivation. There is an emphasis on progression, rather than simply playing sports, via explicit teaching of skills. Students are taught to develop communication, empathy, leadership, and tactical thinking.

The increasing demands of examined PE at KS4, in particular relating to the mechanics of movement, the respiratory and cardiovascular systems, and the need to explain and analyse, mean that this theoretical knowledge will now be introduced in KS3 through practical delivery in fitness lessons in the additional time.

KS4 Core PE takes as its underpinning principles participation and engagement, as well as stress relief and the drive towards lifelong participation in sport and physical activity. Students are set in pathways according to what is most beneficial to them in terms of activities, skills and tactics. Explicit links are made between physical health and mental and emotional wellbeing.

Authoritative voices include the Youth Sports Trust.

Drama

The curriculum is constructed on the principle of teaching four key areas: to devise and to use techniques within devising; movement and vocal skills as an actor; how to interpret texts for performance; and how to analyse and evaluate performance work.

Complexity is increased in each of these key areas. For instance, in Year 7, evaluations tend to be more descriptive reflections on performance work, with the focus on the use of drama vocabulary. As the Key Stage progresses, students are taught to become more analytical. Likewise in terms of devising, in Year 7, students are taught essential drama techniques, one at a time which they then employ. These are revisited in Year 8 with more student input as to what to use; in Year 9, students are expected to know the full range and to select, themselves, the most appropriate for their devised piece. Content also increases in terms of complexity: in Year 7, students devise based on familiar stories so that they have a structure to work from, such as Pandora's Box, and content is more accessible or relatable – such as the Oregon Trail work. This progresses in terms of complexity, for instance, a unit on refugees in Year 9. These more challenging social and political issues prepare children for KS4 study.

Building on student knowledge and capability at KS2 draws attention to the disparity between students, because so much depends on school production roles. KS2 also tends to be heavily based on script work; consequently, the emphasis here is on devising in Year 7 to redress this and to encourage creativity; this is then emphasised less in the Year 8 and 9 curriculum, because these knowledge gaps have by then been addressed.

Year 9 units are preparatory for GCSE, but with greater structure. For instance, one stimulus at a time is given (picture / poem / story) rather than the open choice they will have in KS4. The requirement for students to encounter and understand practitioners for their KS4 study means that two are taught in Year 9. Similarly, throughout KS3, students are taught to consider and explain production elements, such that they are well prepared for their exam paper when they have to explain choices as a designer.

Geography

The curriculum is constructed on the principle of equipping students with knowledge about diverse places, people, resources, and natural and human environments, together with a deep understanding of the Earth's key physical and human processes.

Informed by the 2014 National Curriculum and GCSE criteria, organising themes for curriculum design are: locational knowledge; place knowledge; physical processes; human processes; fieldwork and geographical skills.

At KS3, curriculum content is mapped out in relation to these themes as follows:

Theme	Curriculum content
Locational knowledge	Students extend their locational knowledge and deepen their spatial awareness using world maps to focus on Africa, Russia, Asia (including China and India) and the Middle East, studying their environmental regions (including polar and hot deserts), key physical and human characteristics, countries and major cities.
Place knowledge	Students are taught geographical similarities and differences through the study of human and physical geography of a region within Africa and Asia.
Physical processes	Students are taught, through the use of detailed place-based exemplars at a variety of scales, the key processes in physical geography relating to: geological timescales and plate tectonics; rocks; weathering and soils; weather and climate, including climate change from the Ice Age to the present; glaciation; hydrology; coasts.
Human processes	Students understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in human geography relating to: population urbanisation; international development; economic activity in the primary, secondary, tertiary and quarternary sectors; the use of natural resources.
Fieldwork and Skills	Students extend their knowledge of globes, maps and atlases. They interpret Ordnance Survey maps in the classroom and the field, including using grid references and scales, topographical and other thematic mapping, and aerial and satellite photographs. They use Geographical Information Systems (GIS) to view, analyse and interpret places and data. They use fieldwork in contrasting locations to collect, analyse and draw conclusions from geographical data, using multiple sources of increasingly complex information.

Authoritative voices include David Lambert, *Thinking Geographically* (2011) who identifies core, content and procedural knowledge. Core knowledge comprises basic factual knowledge, vocabulary and locational knowledge. Content knowledge focuses on key concepts and relational understanding of how the world works, and how society and the environment interact. Procedural knowledge relates to geographical skills. In a later text (2016), Lambert refers to powerful disciplinary knowledge as: 'the acquisition of deep descriptive "world knowledge"'; 'the development of relational thinking that underpins geographical thought'; 'a propensity to apply the analysis of social, economic and environmental futures to particular place contexts'.

Likewise, Maude (2016) uses a typology to outline what constitutes powerful disciplinary knowledge:

1. Knowledge that provides students with new ways of thinking about the world – meta-concepts (like environment, place, interconnection), as distinct from substantive concepts (like city or climate).
2. Knowledge that provides students with powerful ways of analysing, explaining and understanding.
3. Knowledge that gives students some power over their own knowledge (by teaching them about the ways knowledge has been and continues to be developed and tested in the discipline).
4. Knowledge that enables students to follow and participate in debates on significant local, national and global issues.

5. Knowledge of the world.

Art

The curriculum for Art and Design education at KS3 aims to provide:

- Creative opportunities that have breadth across a range of visual art practices;
- An understanding and appreciation of visual language that is contextualised by study of art from many cultures and historical periods.

The KS3 curriculum aims at balance between being a self-contained, logical passage of study that spirals in technical challenge, and also developing pupils' skills should they opt for Art or Photography at KS4. We frequently revisit key skills, particularly in drawing, and underpinning both homework and classwork schemes is a study in Art history that is broadly chronological. Wherever we can we have tried to break from the traditions of 'high art' that dominate art historical development, and instead to embrace art from diverse cultures rather than just white European men.

From the outset pupils will have opportunity to respond to open briefs and themes to encourage creativity and ideas generation, which is the bedrock of success at GCSE.

Appreciation of the contexts of art production is considered fundamental. The curriculum provides opportunities for students to engage with art and respond in comparative analysis as well as writing in the first person.

The curriculum covers:

- Drawing from observation and imagination and for design;
- Printmaking from poly block, lino and mono-printing;
- Painting in a range of media;
- Sculpture through ceramics, card/paper construction, wire;
- Moving image through animation;
- Photography.

The KS4 curriculum adheres to many aspects of the Eduqas specification for Art, Craft and Design GCSE. This specification values creative making and personalised portfolio and exam units. Pupils spend a term and a half exploring new techniques such as acrylic painting and dry-point printing whilst also learning to respond to themes and a range of stimuli both visual and word based. The curriculum also develops capacities related to evaluation and students' coherent presentation of progress.

Science

National Curriculum programme of study dictates content for KS3 and 4. At KS4, exam board have expectation of unit progression, but this isn't possible due to rotation of equipment.

KS4 study begins after May half term in Year 9, beginning with a repeat encounter of key concepts taught previously – cells, atoms, particles – at KS4 level of complexity and knowledge.

The core principles are taught early, where knowledge is necessary for later understanding. However, because other modules are discrete, there is often no need for knowledge progression. In Physics, progression comes from increasing complexity and mathematical demand (reliant on concepts having

been covered in Maths). In Biology, the unit rotation is on a smaller level within units so that there can be a progression of knowledge – from cellular level to the whole eco-system / biosphere. In Chemistry at KS4, the first two units (structure of atom and bonding) have to be first because understanding these is fundamental for the rest of the learning. Units at the end of Year 10 involve a more practical application of chemistry to avoid an entirely theoretical year of study (and to spread the weighting of exam papers across two academic years; this is also the case with Physics currently, although this is likely to be brought into line more closely with exam board expectation).

At KS3, there is some deviation from the NC programme of study in order more closely to build towards GCSE exams (content has been retained within cover lessons or is taught after assessments have taken place). Following a review of the KS4 examiners' reports, content has been moved into KS3 so that key concepts and vocabulary are encountered in the appropriate and necessary way on first teaching (for example, 'molecule' is taught as a covalently bonded substance ("two non-metals joined together" now in Year 8, rather than as a collection of atoms) so that it doesn't have to be re-defined when it is then encountered at KS4. These changes have been built into the Year 7 and 8 programme of study, and will be embedded into Year 9 in 2020/21. Coherence with PSHE and DT curriculum has also impacted curriculum design, for example teaching plastics and polymers in the same academic year (in Year 8 Summer term, students in DT look at variety of materials; Science study properties of materials; DT then construct product; Science tests product).

KS2 Science teaching is limited. Initially in Year 7, students are taught about a Science lab, conducting experiments, and then key concepts – cells, forces, particles. No prior knowledge is assumed because Science is often encountered in project work and knowledge is not emphasised, particularly where teachers are non-specialists. Efforts are being made with primaries to look at vocabulary and concepts, which could lead to a 30% overlap with KS3 curriculum if it were properly taught.

KS5 is prepared for within the Separate Science curriculum because students are extended beyond the prescribed curriculum.

The Institute of Biology, Institute of Physics, and Royal Society of Chemistry have each created a full curriculum map based on theoretical progression. This is considered and evaluated carefully, but is tempered by what is practicable within school laboratories. Within Chemistry the focus is often on misconceptions made by students, in particular due to a lack of cultural capital within the cohort. The work from the Learning Scientists has heavily informed the curriculum design, in particular a focus on spaced learning, revisiting key concepts over time.

Maths

The curriculum content is almost entirely prescribed by the national specification, which all exam boards work within, with minor changes occurring only at the highest level to reflect developments in the field.

The structure of the curriculum is a five-year GCSE, with different starting points. The key concepts are overlaid year on year, in order to aim for mastery by revisiting each topic with increasing complexity. In each year of study the areas are interwoven – number, ratio, algebra, geometry and data – with a particular area focused on in each term. This structure allows for ample time so that the content can be covered in an exploratory way.

In terms of continuity from KS2, the hope is to develop greater alignment across primaries. Currently, the focus of KS2 teaching is on number and fractions, with some, but less emphasis on, the teaching

of decimals. Of benefit has been the removal of the teaching of algebra, meaning that fewer misconceptions now arise. The department is in a strong position to address misconceptions – for instance, in recognising that often pupils know processes (eg. multiplying fractions, square numbers) but don't have an understanding of why those processes are applied or what they reflect.

The curriculum as it is designed sets out learning objectives: the key areas of knowledge to be covered. The focus on how pupils arrive at an understanding of these will come from the ways the curriculum is taught.

Because of the prescribed nature of the curriculum, current research impacts on pedagogy rather than on curriculum design. Here, the Maths Hub plays a significant role in shaping the department practice. Other sources of authority are NCETM, MIA (Mathematical Institute Association) at national level.

Insofar as students are prepared for further study of Maths, from a curricular perspective they are in a strong position, as the A Level course will pick up from the top end of the GCSE curriculum. The understanding of concepts leads to the ability to engage well with the applied elements of units such as decisions and mechanics.

Appendix 2: Topics of study: Interim Curriculum Map 2021/22

	English	MFL	History	Geography	RPE	CS	Art
11	Re-teaching *Macbeth.* English Language: Narrative; Viewpoint. Examining and creating texts. Revising poetry. If board requires it, 19th century novel:	Home, neighbourhood, social and global issues; Future study and employment; Making the world a better place.	America: Expansion and Consolidation (American West), c1840- 1895. Conflict and Tension in Asia, c1950 - 1975.	**Unit 1 – Living with the Physical Environment**: Coasts and Rivers. **Unit 2 – Challenges in the Human Environment:** Changing Economic World including a study of Nigeria. **Unit 3 – Geographical Applications:** Issue Evaluation which contains a decision making exercise	Islam: Beliefs, Teachings and Practices. 'Dialogue between religious and non-religious views'	4.Computer systems (memory, processing); 5.Fundamentals of computer networks; 6.Fundamentals of cyber security; 7.Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy.	Developing creative, making (eg. acrylic painting, digital art, ceramics and print making – in Photography, Photoshop, digital art, collage and using a DSLR camera and studio), and analytic and contextual ability. Exam project.
10	English Literature: Macbeth; Modern text: (Pigeon English (urban childhood, immigration, knife crime); An Inspector Calls (social responsibility, class); Lord of the Flies (WW2 / Cold War; nature of humanity;	Identity and culture (myself, activities); current study; Social media.	Britain: Power and the People, c1170– Present Day. Norman England, c1066–1100.	**Unit 1 – Living with the Physical Environment** Natural Hazards with a focus on earthquakes and tsunami; Ecosystems including Rainforests and Cold Environments	Christianity: Beliefs, Teachings and Practices. Relationships & Families Religion, Peace & Conflict	1.Fundamentals of algorithms (a set of instructions to complete a task); 2.Programming (implementing algorithms using a computer programming language);	Developing creative, making (eg. acrylic painting, digital art, ceramics and print making – in Photography, Photoshop, digital art, collage and using a DSLR camera and studio), and

	Poetry from the Anthology.			**Unit 2 – Challenges in the Human Environment** Urban Issues and Challenges including a study of London and Rio de Janeiro; Natural Resources. **Unit 3 – Geographical Applications** Fieldwork – Trip to London	The Existence of God and Ultimate Reality	3.Fundamentals of data representation (text, images, sound).	analytic and contextual ability.
9	Novel: *Of Mice and Men; The Girl with the Louding Voice* OR the missed Year 8 short story scheme for this year only Range of Non-Fiction (writing a speech): Black Civil Rights Movement, including intersectionality: Autobiography writing incorporating a focus on LGBTQIA	Introducing ourselves – opinions etc, work, healthy life, social and global issues. From Spring term, start GCSE content (regroup). Holidays, school life.	EQ1: What caused the First World War? EQ2: What do the stories of the 'often forgotten armies' reveal about the Western Front? EQ3: Why did Russia become the world's first communist state? EQ4: How did Hitler come to Power in Germany?	Risky world: plate tectonics and tectonic hazards, managing risks, case study of the volcanic island of Montserrat. Unfair world: inequality. Ways of closing the development gap, case study of Malawi. Oceans on the Edge: importance of the world's	How should I make ethical decisions? (Philosophical enquiry) How should a just society punish crime? (Theological and social study) Climate Justice (a theological and philosophical topic looking at	Pseudocode and Algorithms (Theory and computational thinking) – revised unit. Processing (Java-based programming, on iPads). Python Programming (Programming using replit).	Tonal drawing and Photoshop illustration, mixed media and abstraction in art; printmaking inspired by German Expressionism. Collage, drawing and brush techniques through Surrealist illustration; introduction to digital photography.

	Play: 'Antigone' or 'Romeo and Juliet' GCSE: Poetry Anthology – Power and Conflict and Unseen Poetry Language Paper 1 and 2 skills		EQ5: The Holocaust EQ6: Who 'decolonised' in the twentieth century? Civil Rights Cold War	oceans, ocean ecosystems, threats such as tourism, oil, plastic, and ocean management Extreme Environments: Challenging places on Earth including tropical rainforests. Global Challenges: Population growth; issues and controversies surrounding the use of natural resources including water, energy and food.	varied responses to climate issues) Is the God of classical theism viable post-Holocaust? (Philosophical and theological enquiry about the impact of the Holocaust on Jewish beliefs about God) – moved later to mesh with History teaching of the Holocaust		Wire and card sculpture; designing T-Shirts for Sports day. 20th century art movements of Expressionism, Abstract art, Surrealism, Pop Art and Photography.
8	Short stories (EMC-literary shorts, diverse shorts) Non Fiction writing (news article: race, gender, sexuality) Genre Project	Holidays, all about my life, food, what shall we do? (making plans), revisit holidays with directions and activities: present tense and preterite	EQ1: Why was Charles I executed?EQ2: Why did some people in the seventeenth century want to find witches?EQ3: How Enlightened were the	Cracking Coasts and a Town in Trouble: Walton-on-the-Naze: coastal erosion Population & Migration	How strong is the evidence for life after death? (Philosophical and theological enquiry including case studies and Christ's resurrection)	Data Representation (Theory). Micro:bits (on iPads, drag and drop coding). Web Design (Creative skills,	Portraiture and the figure: self-portraits, fashion designs and comic book cover designs; illustration techniques using Photoshop. 3D: clay.

	Shakespeare (The Tempest; Much Ado About Nothing) Poetry- Global English (moved from year 9). Film-disaster movies		American, French and Haitian revolutions?EQ4: What was the British Empire?EQ5: Why have interpretations of 'who' abolished the slave trade changed over time?EQ6: Did ordinary people's lives get worse during the Industrial Revolution?EQ7: Suffrage- how did women win the vote?	Raving Rivers and Ferocious Floods Changing Cities: opportunities and challenges that urbanisation presents. OS map skills The World at Work: concept of globalisation - a case study of the global fashion industry.	Buddhism (Are actions of specified people following teachings – lived reality of faith) Who is Jesus? (Theological and Social Science topic looking at different perspectives on Jesus and how identity shapes those responses) How effective is charity as a response to poverty? (Theological and social studies enquiry referencing Judaism, Christianity and Islam)	HTML and CSS using replit). Digital Graphics (Creative skills in Photopea). Spreadsheets (2021-22).	Observational drawing and painting: still life project. Renaissance, Baroque, Romantic, Impressionist and Cubist periods
7	Journey to the Underworld: about the afterlife – ancient and current.	Learning song for Spanglovision competition;	EQ1: How much can we know about life in Pompeii?	Earth's Story: the 'Big Bang' to the present day;	Is Britain a religious country? (Social studies look at	Computer Systems (Theory).	Drawing, proportion, observation Lettering / Design

	Novel: Cirque du Freak; Ruby in the Smoke. Non-Fiction (writing a formal letter) Victorian Britain, journals/letters/poetry. Introduction to Poetry Introduction to Shakespeare The Island Project	alphabet, personality, pets Free time Revision of the weather, talking about sports, giving opinions School subjects; opinions; telling the time; timetable; transport; school day Talking about your family (physical description) and animals; My town; talking about what you do and future plans Spanish History unit	EQ2: Did the Roman Empire really 'fall'? EQ3: What was the greatest achievement of the early Islamic civilisations? EQ4: How did William the Conqueror control England? EQ5: Who fought in the Crusades? EQ6: How did Walsham's villagers respond to the Black Death? EQ7: What fuelled the Renaissance? EQ8. What kind of reform was the Reformation?	physical and human geography. The Best of the British Isles: map work, physical and human landscapes, population, tourism OS map skills: points of the compass, map symbols, scale, grid references and describing and explaining distributions on maps. Frozen Planet Glacial environments Climate & Weather Africa: A Land of Contrasts? The differences that exist across the continent.	the religious picture of the country) The problem of evil and suffering (philosophical enquiry; religious and non-religious perspectives) How are key beliefs in Islam expressed in artwork? – a narrow theological focus on Islam, to unpack some core beliefs that will be revisited later in KS3 Philosophy of the soul – philosophical look at beliefs about the self from a range of traditions	Turtle Graphics (Python programming in replit). Spreadsheets (IT skills and formulae). Flowol (Physical computing, computational thinking).	Printing Mixed media – painting water, analysis Printing 3D fish Perspective Ancient Egypt, Greece and Rome; Medieval

				Pupils will also learn about one region in detail - the Horn of Africa.			

	PE	Music	DT	PSHE	Drama	Biology	Chemistry	Physics
11	**GCSE** Fitness & Body Systems: Anatomy & Physiology; Movement Analysis Health & Performance: Cultural Influences. Practical Performance **BTEC** Applying the Principles of Personal Training; Leading Sports Activities. **Core:** Striking & Fielding: Softball, rounders, cricket Outwitting:	i) The Concerto Through Time; ii) Film & Computer Game Music; iii) Popular Song since 1950. iv) Rhythms of the World. Compose a piece of music to a set brief, and produce a final recorded solo and ensemble performance.	Iterative design challenge: Chronological portfolio and final prototype(s). Iterative designing, in particular: the interrelated nature of the processes used to identify requirements; creating solutions; evaluating	UCAS progress Options for 16-18 Personal statement-Interview prep Exam stress and mental health Stress Less C card CPR Money board games Domestic abuse Sex ed questions	Devising Theatre: demonstrating either the techniques of a theatre practitioner or the dramatic characteristics of a genre. Performing from a Text. Interpreting Theatre: Learners study 'The Caucasian Chalk Circle' by Bertolt Brecht, approaching the text practically as an actor, designer and director.	Homeostasis and response Inheritance, variation and evolution Ecology	Chemical changes Energy changes Organic chemistry Rate and extent of Chemical Change	Forces Waves Electromagnetism Space

	Football, futsal, handball, lacrosse, netball, benchball, American football, tchoukball, (touch) rugby, ultimate, basketball Healthy, active lifestyles: Fitness videos, circuit training, HITT, walking, just dance, couch25k Net & Wall games: Volleyball, mini tennis, badminton, table tennis Expressive Skills: Parkour, trampolining, dance,							

	gymnastics.* Much stronger emphasis on expressive skills.							
10	**GCSE** Fitness & Body Systems: Physical Training. Health & Performance: Sport Psychology; Health and Wellbeing. Personal Exercise Programme Practical Performance **BTeC:** Fitness for Sport and Exercise; Practical Performance in Sport.	i) The Concerto Through Time; ii) Film & Computer Game Music; iii) Popular Song since 1950. iv) Rhythms of the World. Compose a piece of music to a set brief, and produce a final recorded solo and ensemble performance.	Principles of design and technology: Analyse existing products; applied mathematical skills; 'core' design and technical knowledge and understanding; technical knowledge of working with materials, ensuring functionality of products or systems and manufacturing processes and techniques.	Work experience CV writing Interview prep Revision Healthy relationships Respect County Lines Drugs Parliament Knife crime Terrorism Managing mental health and stress	Devising Theatre: demonstrating either the techniques of a theatre practitioner or the dramatic characteristics of a genre. Performing from a Text. Interpreting Theatre: Learners study 'The Caucasian Chalk Circle' by Bertolt Brecht, approaching the text practically as an actor, designer and director.	Cell biology Organisation Infection and response Bioenergetics	Atomic structure and the periodic table Bonding, structure, and the properties of matter Quantitative chemistry Chemical analysis Chemistry of the atmosphere Using resources	Particle model of matter Atomic structure Electricity Energy

	Core: (As listed above)							
9	Striking & Fielding: rounders, cricket Outwitting: futsal, handball, netball, benchball, rugby, basketball Healthy, active lifestyles Net & Wall games: mini tennis, badminton Expressive Skills: Parkour, dance, sports acro Performing at Maximal Levels:	Ukulele chords and finger picking. Riffs, base lines. Structure. Syncopation. Notation. Radio show project. Film music. Blues. Jazz. Reggae. Indian music.	Asthma project: University of Cambridge – Designing Our Tomorrow; Fusion Food; The Dexterity project.	CICO families Career development plan Shift happens/ change Business plan Gender, identity and sexuality Forming relationships STIs Family matters FGM and CSE Domestic abuse myths and realities How parliament works in Britain- Commons and laws Political parties	Devising: 'Melodrama' Text and design: 'Twelfth Night' Devising: 'Refugees'; Practitioner: Boal Text: 'Threepenny Opera'; Practitioner: Brecht; Genre – Musical Theatre Devising: 'Bedlam'; Practitioner: Artaud Text and design: 'Sparkleshark'	Food and Digestion DNA Breathing and Respiration	Energy Changes in Chemical Reactions Reactions of acids Materials	Electricity and Magnetism Pressure and Moments

	Athletics							
8	Striking & Fielding: rounders, cricket Outwitting: Football (girls only), futsal, handball, netball, benchball, rugby, Healthy, active lifestyles: Fitness videos, circuit training, HITT, walking, just dance, couch25k Net & Wall games: mini tennis Expressive Skills: dance, gymnastics	Staff notation Sequences Pedal Ornaments 4-bar phrases Rhythmic Q&A Variation Melodic lyricism Harmony Emotional expression Themes and interpretation 'The Tool Box' Baroque, Classical, Romantic, Programmatic Music, Christmas Music Chords II, III, VI Riffs/Bass lines Song form Development of melody writing ICT – development of keyboard use to create backing tracks & basic	Lighting project – polymers Shelving – plywood / manufactured boards; timbers Bunting project – fabric theory Food – Tapas	Introduction to drugs Talk to Frank posters Alcohol Psychoactive substances Cannabis, drugs and young people Dragonsden entrepreneur Personal brand CICO lite He Named Me Malala Documentary Malala/ Anne Frank comparison Puberty Rise Above lesson Dove lesson Privacy and consent Respect The needs of young people CPR kits	Devising and design: Greek Theatre: 'Oedipus Rex'; Devising: 'Titanic'; Text and design: 'Romeo & Juliet'; Devising: 'Ghost Stories' (Monkey's Paw) Physical Theatre: 'Alice in Wonderland' Practitioner: Frantic Assembly; Text: 'Blood Brothers'; Practitioner: Stanislavski	Cell Biology Breathing and Respiration Understanding Health	Reactions of Acids Periodic Table Separating Mixtures	Forces and Motion Matter Waves

	Performing at Maximal Levels: Athletics	recording techniques Riffs 1950s Rock & Roll 1960s Popular music Song writing – Music Mogul Call and response Syncopation Interlocking Rhythms Mini-musical World music: South American, African						
7	Outwitting: Football (girls only), futsal, handball, netball, benchball, rugby Healthy, active lifestyles: Fitness videos, circuit training, HITT, walking, just dance, couch25k	Graphic Score Dynamics, Tempo, Rhythm, Rhythm Grids, Duration, Ostinato, Keyboard navigation/ICT Structure, Pitch Creative vocal/body sound project: Soundscapes 'Stomp'	Communication – drawing, annotation. Metals – pewter casting. Food – basic skills.	Getting the most out of school* Planning for the future Communities and citizenship Tutor group charter PANTS- Parent bulletin message Understanding well-being* Self worth and mental health*	'Fairy tales' Intro to basic drama skills & story telling; Knee High Theatre Company; Devising: 'Evacuees'; 'Pandora's Box'; 'The Oregon Trail'; 'Slapstick Comedy'; Textual study and design: 'A	Being a Scientist Core Biology Living World Reproduction	Core Chemistry Simple Chemical Reactions Atoms	Core Physics Space Light

	Net & Wall games: mini tennis Expressive Skills: dance, gymnastics Performing at Maximal Levels: Athletics	Intro to World Music – Gamelan Introduction to the Keyboard Vocal project – Christmas Pentatonic Scales Pitch notation Timbre Rhythm notation Syncopation Interlocking rhythms Structure – chord sequences and riff patterns Parody Writing Staff notation Lyric Writing Harmony Introduction to Modes World music, eg: Australian music Chinese music Calypso Rap (social issues)		Health leaflet assessment* Menstrual cycles Bullying introduction* Caught in the web and relationships* Cyberbullying* Rise above lesson Personal safety Cotton wool kids Unwritten rules and managing conflict Where am I now? Who am I? Personal drawing Year 7 'noodling' ideas	Midsummer Night's Dream'			

		Folk music (British vocal & instrumental) Melody Primary Triads (I, IV, V) Chords Form (Binary, Ternary, Song) Major/Minor Chords Octaves, 5ths, Modal Renaissance music, Dance music, Canons Ballads, Jingles, Video/radio commercials						

Business Studies:

• Business operations • Marketing • Finance • Human resources

Psychology:

Development: How we change and develop across our lifetimes. Psychologists, such as Jean Piaget, Dweck. Criminal Psychology. Psychological Problems. Research Methods. Social Influence. Memory. Sleep and Dreaming. The Brain and Neuropsychology

Animal Care:

• Unit 1: Animal Health •Unit 2: Animal Handling • Unit 3: Animal Welfare • Unit 4: Principles of Animal Behaviour

Creative iMedia:

Year 10: R081 Pre-production (Theory). R091 Games Design.

Year 11: R091 Games Design improvements. R082 Digital Graphics.

Maths:

NUM	1	2	3
α	Convert words to numbers	Complements	Add fractions that are complementary to 1
	Tables up to 10x10	Tables up to 10x10	Divide a shape into fractions
	Simple divisibility tests	Adding/subtracting using mental and written methods	Identify the fraction of a diagram that has been shaded
	Order integers		Know the vocabulary of fractions
	Multiply and divide by 10,100		Work out very simple fractions of amounts
	Use time		
	Use operations vocabulary		
A	Understand place value	Complements	Percentage is a fraction out of 100
	Use the symbols =, ≠, <, >	Tables up to 12x12	Add fractions with the same denominator
	Use the vocabulary of factors and multiples	Adding/subtracting decimals using mental and written methods	Don't add fractions with different denominators
	Tables up to 12x12	Multiplying 2-digit by 1-digit	Shade fractions of shapes
	Simple divisibility tests	Rounding to the nearest 1, 10, 100	Work out unit fractions of amounts
	Order numbers, including decimals	Estimate answers and check calculations using approximation.	Write simple ratios

	Multiply and divide by 10,100, 1000	**Recognise and use the relationships between operations, including inverse operations, to solve problems (linked to Alg2)**	
	Solve problems, including word problems, involving time and/or money	**Apply systematic listing strategies to solve problems**	
B	**Order decimals**	**Multiplication methods**	**Find equivalent fractions**
	Order of operations (BIDMAS) – include squaring but no harder	**Division methods**	**Simplify fractions**
	Add/subtract and use negative numbers and decimals	**Rounding to decimal places**	**Represent fractions on a number line**
	Factors, multiples, LCM and HCF	**Estimate answers and check calculations using approximation.**	**Add/subtract fractions**
	Use the symbols =, ≠, <, >	**Problem solving including word problems with multiplication and division**	**Order fractions**
		Recognise and use the relationships between operations, including inverse operations, to solve problems (linked to Alg2)	**Find common denominators**
		Apply systematic listing strategies to solve problems	**Convert decimals to fractions**
			Find equivalent ratios
			Divide an amount in a ratio
C	**Multiply and divide by powers of 10, including by 0.1, 0.01 etc**	**Estimate measurements. Estimate answers and check calculations using approximation.**	**Change between improper fractions and mixed numbers**
	Related calculations to multiply decimals.	**Use a calculator correctly**	**Work out a fraction of an amount (unitary method)**
	Use all four operations for negatives and decimals. Further practice of BIDMAS to include squaring and cubing.	**Recognise and use the relationships between operations, including inverse operations, to solve problems (linked to Alg2)**	**Convert between percent and fractions**

	Use the symbols =, ≠, <, >	Solving functional maths problems, including changing freely between related standard units (time, length, mass, rates of pay and prices)	Find a percentage increase/decrease/of
	Prime numbers and prime factor decomposition	Apply systematic listing strategies to solve problems	Compare ratios (unitary method)
			Ratio and direct proportion problems (unitary method)
D	Use positive integer powers and associated real roots (squares, cubes and higher).	Rounding to one significant figure; *rounding to 2 or more sig fig.	Multiply fractions
	Recognise powers of 2, 3, 4, 5 and 10	Giving answers to an appropriate degree of accuracy. Estimate answers and check calculations using approximation.	Calculate fractions of amounts
	Index laws - carry out multiplication/division of indices, and raise a power to another power	Apply and interpret limits of accuracy for rounding and truncation. Use inequality notation to specify simple error intervals. *Identify upper and lower bounds of a measurement.	Divide fractions
	Raise numbers to the power of zero	Use the symbols =, ≠, <, >, ≥, ≤	Reciprocals
	Link laws of indices to product of primes, HCF and LCM, and related calculations		Percentage increase/decrease and *inverse percentages. Simple and compound interest.
			Convert between fractions and terminating decimals
E	Negative powers	Change freely between related standard units including area and volume/capacity	Recurring decimals to fractions
	Standard form	Compound measures, including speed, rates of pay, prices, density and pressure	Set up, solve and interpret answers in growth and decay problems, including compound interest.

	Extend BIDMAS to include reciprocals	Understand the importance of not rounding prematurely.	Work with general iterative processes
F	Fractional powers	Calculations involving upper and lower bounds.	Direct and Inverse proportion
	Estimate powers and roots of any positive number	Product rule for counting	
	Surds		
G	Indices and surds (more complex). Manipulation of surds and use of surds in problem solving.		

ALG	1	2	3
α	Using symbols/letters to represent unknowns in sums. Eg 4+7=□ 2+t=10	Use letters as numbers and carry out basic substitution	Use sequences as a way to practise numeracy
	Do lots of numeracy while beginning to understand the concept of a letter as an unknown.	Use simple function machines	Treat times tables as repeated addition
			Plot and read coordinates in the 1st quadrant
A	Understand that letters can be used to represent unknowns	Use function machines to make algebraic statements	Continue and describe sequences and fill in gaps
	Substitute into simple expressions to evaluate them	Use function machines to create inverse functions	Plot points in all 4 quadrants
	Collect like terms (simple)		
B	Use expressions as shorthand	Play with equations to make new ones	Treat a linear sequence as a shifted times table
	Form expressions	Solve equations using balancing	Create sequences from physical situations
	Collect like terms (harder)		Solve problems by plotting points in 4 quadrants

	Substitute into harder expressions to evaluate them		**Begin to make links between lines on a graph and algebraic rules**
C	**Know the meaning of the vocabulary associated with algebra**	**Solve equations using balancing**	**Create a table of values by substituting into an equation.**
	Form expressions from physical situations	**Form equations for particular situations**	**Draw graphs from tables of values**
	Expand single terms across brackets	**Rearrange simple formulae**	**Generate sequences from the nth term**
	Collect like terms (including x-squared)		**Know what each part of the nth term rule means/does**
	Substitute into formulae		**Make links to y=mx+c**
			Use graphs with direct proportion and for real-life situations, specifically distance-time graph extending to displacement-time graphs
D	**Expand expressions with a single pair of brackets**	**Solve equations with brackets and simple fractions**	**Turn practical problems into algebraic sequences**
	Factorise into single brackets	**Inequalities**	**Explore sequences that are not linear, including quadratic, Fibonacci, triangular numbers, repeated doubling, Pascal's triangle, etc**
	Substitute into expressions, adhering to BIDMAS	**Use trial and improvement**	**Use flow charts to make sequences**
	Simplify expressions by writing terms in index notation		**Find nth term**
	Understand and use function notation: where appropriate, interpret simple expressions as functions with inputs and outputs		**Generate sequences from the nth term**

			Know what each part of the nth term rule means/does
			Solve 2D inequalities graphically
E	Expand pairs of linear brackets	Solve linear simultaneous equations graphically, using elimination and substitution	Extend understanding of proof and justification
	Factorise quadratic expressions where a=1	Solve linear equations involving fractions	Find the equation of straight lines in real situations
	Know when to factorise into one bracket or into a pair of brackets	Rearrange formulae that involve fractions	Find the equation of straight lines given 2 points
	Draw the graph of quadratic function. Identify and interpret roots, intercepts and turning points of quadratic functions.		Calculate or estimate gradients of graphs, introduce tangents of non-linear graphs
	Deduce roots algebraically/solve quadratic equations using factorising where a=1		Know about the link between two graphs that are perpendicular to each other
	Recognise the difference of two squares and perfect squares		Learn 3D coordinates
F	Factorise quadratic expressions where a does not equal 1	Solve linear and non-linear simultaneous equations, algebraically and graphically	Draw and interpret real-life graphs and interpret results in cases such as
	Solve quadratic equations using: factorising, completing the square and the quadratic formula. Memorise the quadratic formula!	Draw and recognise important mathematical graphs, including the equation of a circle with centre at the origin.	distance-time graphs, velocity-time graphs and graphs in financial contexts
	Set up and solve quadratic equations from a physical problem (eg an L-shape made of two rectangles)	Find the equation of a tangent to a circle at a given point.	Kinematics

	Use factorisation to simplify algebraic fractions	**Find approximate solutions to equations numerically using iteration**	**Transform the graphs, and the graph of y=f(x)**
	Carry out calculations with algebraic fractions		**calculate or estimate areas under graphs (including quadratic and other non-linear graphs)**

GEOM	**1**	**2**	**3**
α	Vocab of types of angles, triangles, quadrilaterals.	Area and perimeter of rectilinear shapes by counting squares.	Reflection Symmetry
		Estimating area of unusual shapes using a square grid.	
A	Estimate, draw and measure angles accurately. Construct shapes (including nets) using a ruler and protractor.	Area and perimeter of rectangles and composite shapes. **Introduce area of right-angled triangles**.	Reflection and rotation symmetry.
			Investigate properties of special shapes (triangles, quadrilaterals, regular polygons) including angle facts, parallel sides, equal sides, symmetry, diagonals etc
B	**Understand and use standard convention for labelling sides and angles.**	Area of triangles, parallelograms and **trapezia**	**2D representations of 3D shapes – nets, isometric drawing, plans and elevations**
	Angle facts – in triangles, quadrilaterals, around a point, along a straight line, base angles of an isosceles triangle, along a straight line, around a point. **Introduce tessellation**	Composite shapes	
	Continue to practice constructing shapes with ruler and protractor including SAS and ASA triangles **and other polygons**	Multi-step problems	

		Use mixed metric units of length	
C	Corresponding and alternate angles **including solving problems with bearings**	Area and circumference of circles.	**Similar shapes**
	Angles in polygons	Label parts of a circle	- **use similarity to find missing lengths**
	Solving angle problems including recalling special properties of quadrilaterals.	Fractions of circles (half, quarter)	- **understand what changes and what stays the same with enlargements with positive scale factor (including fractions).**
		Work backwards to find the radius, given area or circumference	**Scale drawings**
D	Pythagoras	**Vocab – faces, vertices, edges**	**Transformations – enlargements with centre of enlargement (positive scale factor), reflection, rotation and translations**
		Volume and surface area of cuboids	
	Standard constructions (with ruler and compasses) and Loci	Volume and surface area of prisms, **including cylinders.** Link surface area to nets.	**Vectors – addition and subtraction of vectors, multiplying vectors by a scalar, diagrammatic and column representation**
		Density	
	Develop understanding of congruency criteria for triangles (SAS, SSS, ASA, RHS)		
E	Trigonometry **- LEARN** and use trig formulae for right-angled triangles	Area of sectors and arc lengths	Enlargements with negative scale factors
	Solve problems including **bearings**	**Use formulae to solve problems involving surface area or volume of spheres, pyramids, cones and composite shapes**	**Vector proofs and simple geometrical problems**
	Know exact value of sinθ, cosθ and tan θ for 0°, 30°, 45°, 60°, 90°	Density	

F	Trigonometry - **LEARN** and use trig formulae for right and non-right angled triangles in 2D and 3D	More complex problems involving area and volume, linking to Pythagoras and trigonometry in 2D and 3D	Vectors and matrices (FM only)
		Area of segments, linking sectors to cones etc	
	Learn and use circle theorems to find missing angles	Scale factor of area and volume	
G	Prove circle theorems	Coordinate geometry	
	Trig identities and solving trig equations	Calculus (**gradients of tangents for GCSE**)	
	Use of sine, cosine and tangent graphs	**Interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of average and instantaneous rate of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts.**	
	Recall sign of sinθ, cosθ and tan θ for angles between 0° and 360°		

DATA	**1**	**2**	**3**
α	Tally Charts and pictograms	Mode and range	Vocab of probability
A	Tally Charts and bar charts	Mode, median and range	Vocab of probability
B	Line graphs – specifically time series	MMM to solve problems	Numerical probabilities
	Interpreting bar charts, dual bar charts, composite bar charts etc		Using experimental probabilities, commenting on reliability
C	From a data set, deciding which graph to draw, including bar charts, dual bar charts and pie charts	MMM from ungrouped frequency tables, pie charts and bar charts	**Simple Venn diagrams** and sample space
D	Scatter graphs	MMM from grouped frequency tables	Relative frequency
			Tree diagrams, frequency trees

E	Sampling, two way tables	**MMM from a variety of representations including frequency tables, pie charts, bar charts, stem and leaf**	AND/OR rules
			Tree diagrams
			Independent and conditional probability
F	**Cumulative frequency and box plots**	Histograms	**Venn diagrams**
G			