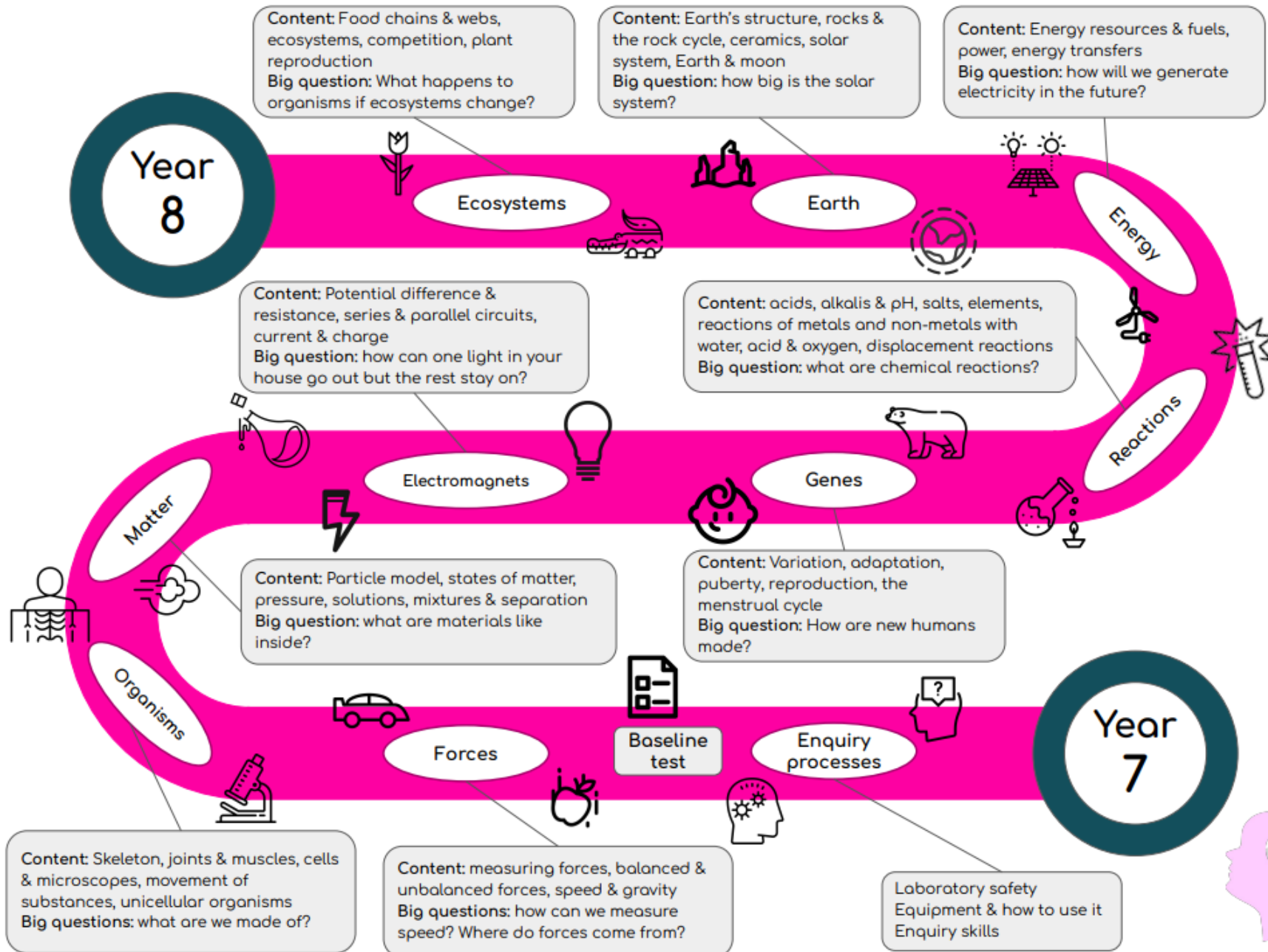


What is your learning journey for Year 7 Science?



Applications
 How do humans affect the ecosystems and organisms on the planet?
 How does understanding the menstrual cycle mean that we can use contraception and fertility treatments?
 How can chemical reactions be used to make everyday products?
 What are different materials made from?
 Where does our energy come from? How can we be more energy efficient?

Assessment & tests

- End of unit tests
- Exam practice for each unit
- Extended writing opportunities

Useful websites

- BBC KS3 Bitesize
- Oak Academy KS3 science
- Educake

Independent learning
 Tasks may include:

- Consolidation work
- Educake quizzes
- 6 mark exam questions
- Research tasks
- Interleaved tasks
- Revision for assessments



The Big Picture

This year will be a combination of grounding pupils in the key concepts that underpin the three sciences and ensuring they have a firm grasp of these to then extend them into Year 8 along with developing their practical and investigative skills. Furthermore, their data handling, application and literacy skills will be developed and assessed throughout.

Year Group:
7 Science

Intent

Enquiry skills – introduces safety in the lab and covers practical skills. Forces – make the links between mass, weight & gravity and how objects can affect each other, linking to work on gravity & friction from KS2. Organisms – look at the way that the human body works, from cells through to organ systems, and describe the way that microscopes can be used to investigate different cells and unicellular organisms. Matter – investigate the properties of solids, liquids and gases and the way that particles behave when changing state. Electromagnets – building on simple circuits work covered in KS2, investigate current, resistance and potential difference in series and parallel circuits. Genes – review the idea of variation and look at the reproductive cycle in more detail to build on KS2 theory. Reactions – carry out a series of experiments to show the way that different chemicals react to make new substances. Energy – this unit introduces the concept of energy and how it fits into everyday life. Earth – builds on KS2 to look at the structure of the Earth and the way that it affects us. Ecosystems – investigate food chains, food webs and the relationships between organisms.

Implementation

- Students receive 3 hours of Science per week which is taught by one or two subject specialists.
- Over the academic year they will study 10 units (Forces, Electromagnetism, Energy, Waves, Matter, Reactions, Earth, Organisms, Ecosystems & Genes) and continue to develop their understanding of the Big Ideas in Science.
- The units throughout KS3 are built with the Big Ideas and Powerful knowledge at the forefront of decision making
- TLAC strategies are at the heart of our implementation – cold calling, everybody writes, turn and talk and the use of whiteboards feature regularly throughout our delivery.
- Independent learning is often literacy/retrieval based with knowledge organisers used to support student retrieval.
- Expected and greater depth statements are clearly shared with students; alongside regular opportunities for students to demonstrate their understanding – chapter checks occur throughout the academic year (see right)

KS3 Assessment Principles (how are you checking against Expected and Greater depth?)

- Regular progress checks throughout – checks for understanding and live marking used to assess this
- Homework is used to consolidate and check whether students are making expected progress or reaching greater depth in their scientific understanding
- Opportunities are built into lessons to allow students to demonstrate learning

Prior Learning

- All units link to prior learning in the KS2 Science curriculum.

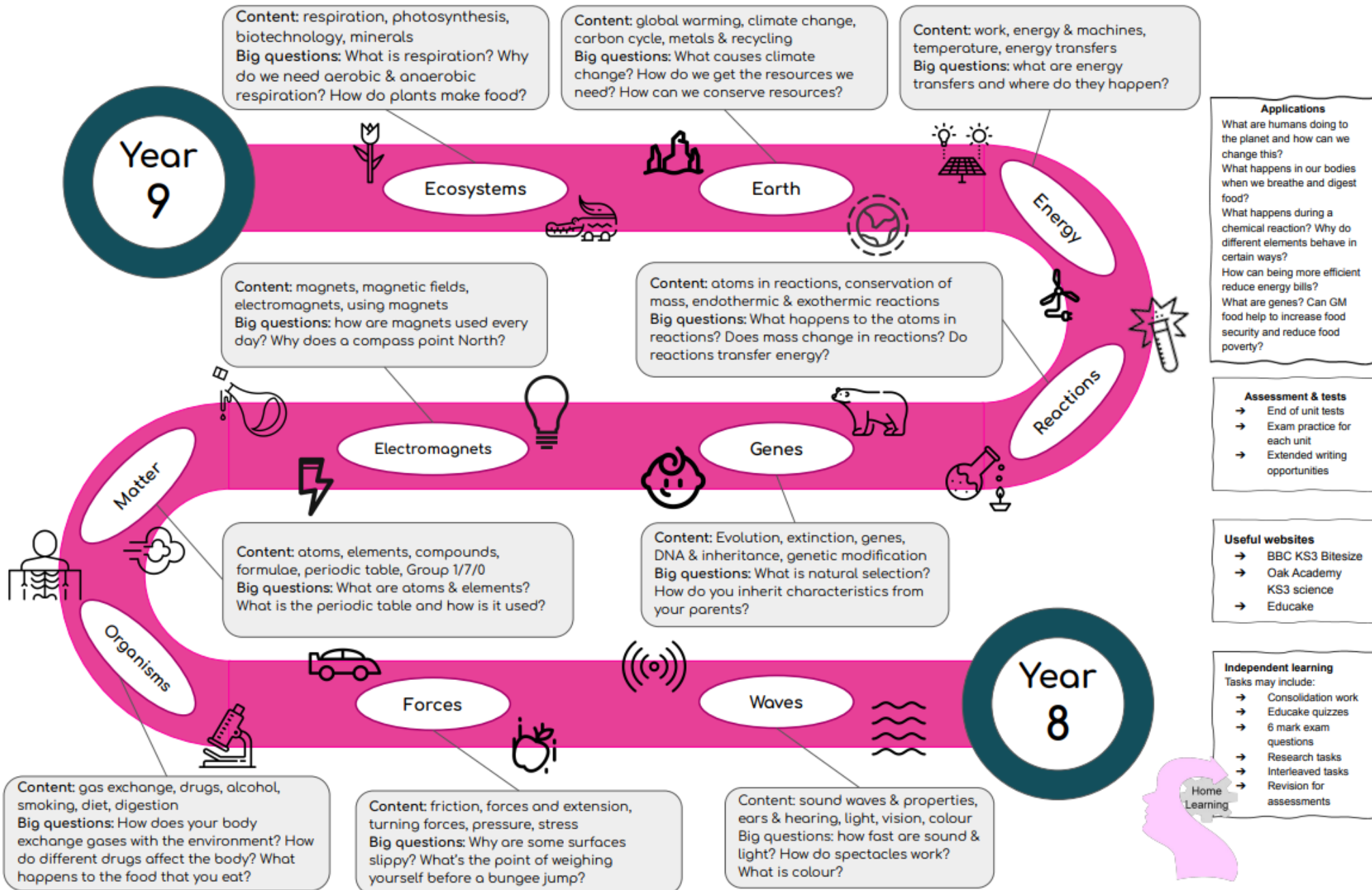
Future Learning (GCSE)

- All units make explicit links to the GCSE content that will be covered in Science (both Trilogy and Triple awards)
- Units match to Biology, Chemistry and Physics disciplines

Impact

We want to pupils to feel they are real scientists by the end of Year 7; competent and comfortable in their practical skills e.g. handling glassware, using lab equipment, making accurate observations as well as having a sound understanding of some of the key concepts across the sciences: forces, particle models, chemical reactions, body systems, animals within habitats and space. We need them to be able to take a piece of knowledge and not just see this as a fact but understand it and be able to apply it to unknown situations. As they head into Year 8 they will develop both their knowledge and skills in all of these areas build upon these key concepts to help prepare for the step up to GCSE in Year 9. We don't want them to see science as Biology, Chemistry and Physics but rather as a subject that explains the phenomena they see in the world around them encouraging them to want to find out more

What is your learning journey for Year 8 Science?



The Big Picture

This year will be an extension of the work covered in Year 7, with the units building on those early concepts. Enquiry process are delivered throughout the units taught, with a focus on developing the skills needed for students to consider the implications of experiments on the content covered.

Year Group:
8 Science

Intent

Forces – building on speed and gravity to contact and non-contact forces and pressure. Organisms – how we breathe and the mechanisms of digestion, linked to the ideas of movement and cell biology. Matter – the way that the elements are arranged in the periodic table and how different groups of elements behave. Electromagnets – working with the ideas of how circuits work to develop explanations for how electricity and magnetism are linked together. Genes – taking the ideas of variation and reproduction from Year 7 and expanding these to explain how inheritance and evolution work. Reactions – carry out a series of experiments to show the energy transfers in different types of chemical reactions. Energy – building on the concept of energy and energy transfer to explain ‘work’ as a concept. How heating and cooling are linked to energy and the particle model. Earth – Looking at human impacts on the Earth and how materials are cycled in nature. Ecosystems – linking the idea of energy in living things to the biological processes of respiration and photosynthesis

Implementation

- Students receive 3 hours of Science per week which is taught by one or two subject specialists.
- Over the academic year they will study 10 units (Forces, Electromagnetism, Energy, Waves, Matter, Reactions, Earth, Organisms, Ecosystems & Genes) and continue to develop their understanding of the Big Ideas in Science, building on content covered in year 7.
- The units throughout KS3 are built with the Big Ideas and Powerful knowledge at the forefront of decision making
- TLAC strategies are at the heart of our implementation – cold calling, everybody writes, turn and talk and the use of whiteboards feature regularly throughout our delivery.
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KS3 Assessment Principles (how are you checking against Expected and Greater depth?)

- Regular progress checks throughout – checks for understanding and live marking used to assess this
- Homework is used to consolidate and check whether students are making expected progress or reaching greater depth in their scientific understanding
- Opportunities are built into lessons to allow students to demonstrate learning

Prior Learning

- All units link to prior learning in the KS2 Science curriculum.
- Each unit follows one of the Big Ideas and leads on from the corresponding unit in year 7.

Future Learning (GCSE)

- All units make explicit links to the GCSE content that will be covered in Science (both Trilogy and Triple awards)
- Units match to Biology, Chemistry and Physics disciplines

Impact

We want to pupils to feel they are confident scientists by the end of Year 8; competent and comfortable in their practical skills as well as those linked to interpreting experimental results e.g. analysis, conclusion and evaluation skills. Students will also show an interest in the implications of Science to the wider world, the effects of human activities and the ways in which we are aiming to use Science to improve the lives of many people. In developing this, students will start to become lifelong learners with a desire to improve knowledge for the sake of it.