











## Years 7 and 8



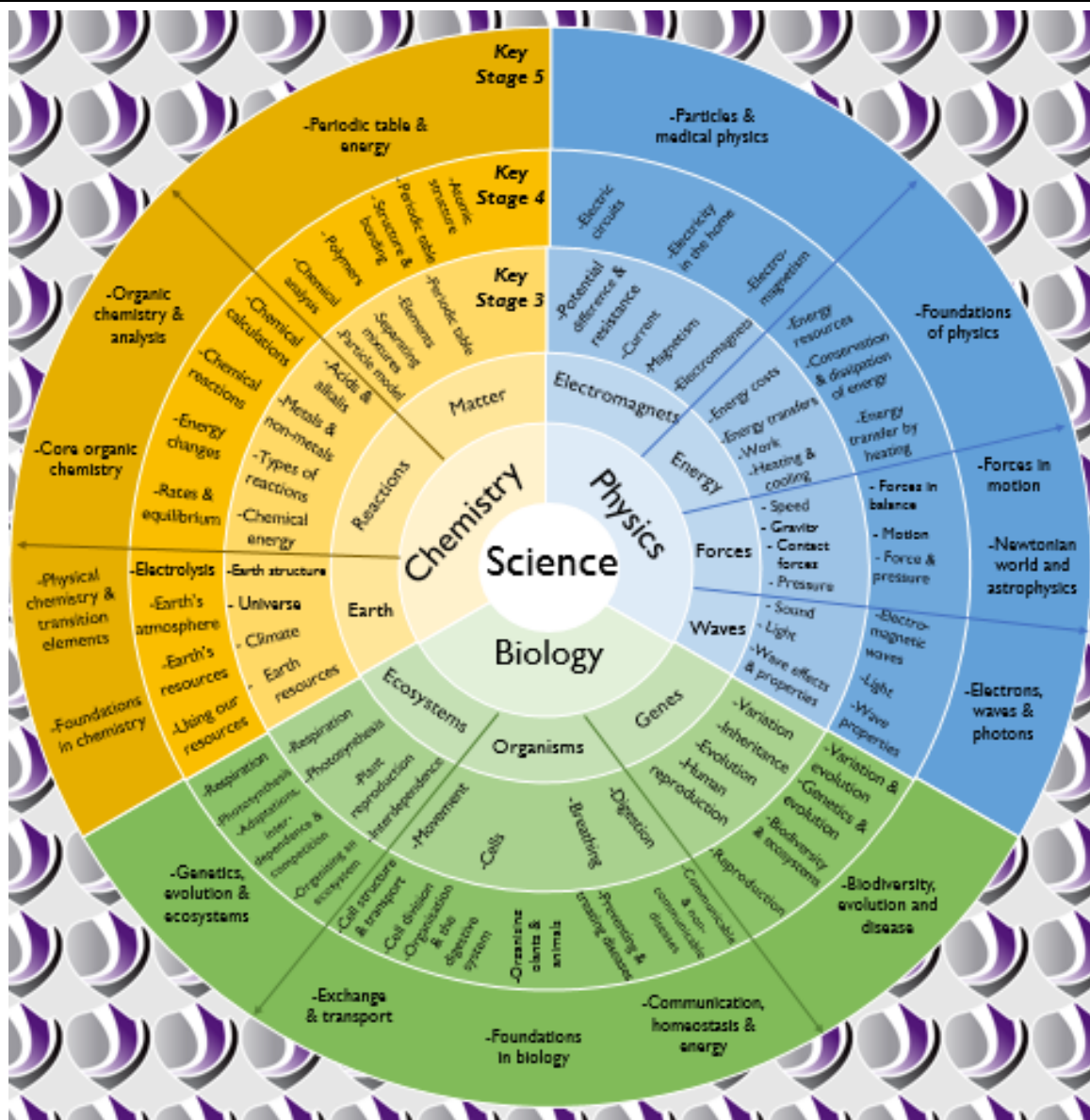
During year's 7 and 8, students will learn the key scientific principles through the use of the Activate scheme of work published by Collins.

At the Skegness Academy, we have adapted the scheme of work to blend with our Curriculum intent and the concept of the 'Big Ideas'. The table below summarises the layout of the ten big ideas, which are the foundations of biology chemistry and physics:

Discipline	Big idea	
Biology	Organisms	
	Ecosystems	
	Genes	
Chemistry	Matter	
	Reactions	
	Earth	
Physics	Forces	
	Electromagnets	
	Energy	
	Waves	

The Big Ideas feature in years 7 and 8 but also link to the teaching of science in years 9, 10, 11 and into Sixth Form.

This is illustrated in the diagram below:



In year 9, students move into the key concepts covered in the GCSE. These are the fundamental concepts covered within the GCSE that are essential to fully understand the detailed information within the GCSE. These key concepts continue to develop the Big Ideas from years seven and eight.

In year 10, the students build on the content and skills of the GCSE's. At the Skegness Academy, all students start following the AQA Combined Science: Trilogy specification or the AQA Separate Sciences. This will allow every student to gain two GCSE's in Science by completing elements of Biology, Chemistry and Physics; or One GCSE in each of the sciences respectively. The Trilogy course is comprised of six examinations, each with an equal weighting of 16.7%. Each separate science GCSE is comprised of two exams with an equal weighting of 50% and students will be entered for all three sciences, therefore producing six exams in total.

Progress of the students within year 9 will determine whether they can move onto the separate sciences in year 10 or remain completing the double award.

More information for the AQA Combined: Trilogy can be found here:  
<http://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464>

More information for the AQA separate sciences can be found here:  
<https://www.aqa.org.uk/subjects/science/gcse/biology-8461>  
<https://www.aqa.org.uk/subjects/science/gcse/chemistry-8462>  
<https://www.aqa.org.uk/subjects/science/gcse/physics-8463>

In year 11, the students are completing either the three separate sciences (GCSE Biology, GCSE Chemistry and GCSE Physics) or the Combined Science: Trilogy award following the AQA syllabus. Students complete the content and skills up to Easter and then focus on reviewing the material in preparation for their exams in May to June.

### **Sixth Form Science**

We offer the three main sciences at Key Stage 5. Year 12 and 13 AS and A2 Level courses are modular - OCR Biology, OCR Chemistry and OCR Physics.

Links for the three A-level science can be found below:

<https://www.ocr.org.uk/qualifications/as-and-a-level/biology-a-h020-h420-from-2015/>

<https://www.ocr.org.uk/qualifications/as-and-a-level/chemistry-a-h032-h432-from-2015/>

<https://www.ocr.org.uk/qualifications/as-and-a-level/physics-a-h156-h556-from-2015/>

### **STEM (Science, Technology, Engineering and Mathematics)**

For more information regarding STEM, please contact Mr Freeman

STEM is more than a just a weekly club. At the Skegness Academy we are working on developing long term and sustainable projects focussing on Science, Technology, Engineering and Mathematics (STEM). This is part of the wider strategy at the Skegness Academy to provide students with experiences and contacts to show them what possible careers are out there and to allow students to realise their potential.

### **Achievements in the 2019-2020 Academic year**

During STEM week in 2019 every student in year 7 were given the opportunity to take part in a STEM project they were tasked to work in teams to design, build and test a device for communicating messages over distances. They were given a budget, design brief and had to produce designs for their project including alternate designs, keep a track of their budget; a shop was provided for the teams to buy their materials from. People in the teams had different roles such as engineer, project manager, accountant to give students an introduction to what project design is. Students who took part and achieved the standard expected also qualified for the Crest Discovery award.

In year 8 a team was put together to compete in the IET Faraday League. After winning our local league day the students were looking forward to the next round. Sadly COVID 19 meant the season was suspended. Sadly, we were first in the UK on points at that time.

**STEM Club** – A STEM club was started and opened to all students looking at different projects each month that students had to design, build and test to overcome.

### **2020-2021 Academic Year**

Year 7 – In March 2021 students will be offered the opportunity to undertake the IET Faraday Virtual Challenge. This will allow students to attempt the crest discovery award. We are being supported by the British Science Association to achieve this.

Year 8 – The Skegness Academy are currently being sponsored by Tomorrows Engineers and Raving Robots to teach students coding using scratch. This is a programming system widely used in industry to code and program devices. Students must build and program their spike robots to achieve certain challenges and work as a group on a presentation. We are competing against 300 other schools.

When we can, there will also be a weekly STEM club for students to attend open to all groups. Also, we are forming links with STEM ambassadors to give students access to people in local and national industries to help guide and support students when making decisions about their choices after their secondary education.

### **In summary:**

- The 'big ideas' are key concepts in Science which under-pin the content of the curriculum.
- Literacy and numeracy skills are developed throughout the Science curriculum as proficiency in both fields is required for pupils to excel in Science learning.
- The Science curriculum is completed by the contextualisation of scientific concepts in order to improve pupil engagement, widen pupils' awareness of the applications of science throughout society and to provide opportunities for pupils to begin exploring their ability to apply concepts to unfamiliar contexts; embracing the creative nature of science.
- Students will be inspired by the Science curriculum and their aspirations for the future will be elevated through the promotion of Science-related careers and science skills, which are beneficial to employment in a wide-range of fields including; observational skills, data presentation and data analysis.