

### CURRICULUM INTENT

**We aim to develop a sense of awe and wonder at the world around us and explore the way everything interconnects.**

The science curriculum at Avanti Fields provides students with the foundations for understanding the biological and physical aspects of the world, and the processes through which they develop this knowledge and understanding. Students will be taught scientific literacy, concepts and processes, working scientifically skills, methodologies of scientific enquiry, and application of science.

The curriculum also aims to foster positive and ambitious attitudes toward science, develop inquiring minds and encourage students to examine and appreciate how science and technology affect their lives, environment and the natural world.

### THE AVANTI WAY

#### EDUCATIONAL EXCELLENCE



Teachers and students are inspired, motivated and joyful. A challenging science curriculum with high academic standards and a culture of intellectual curiosity cultivates independently thoughtful and reflective students, working towards mastery in key concepts, processes and working scientifically skills.

#### CHARACTER FORMATION



A challenging and supportive learning environment in science allows students to embody the Avanti's virtues of respect, self-discipline, courage, integrity, empathy and gratitude, and develop the key Avanti Fields learner skills and qualities. Students are encouraged to make conscientious choices and display a reverence for all life, nature and the earth's resources.

#### SPIRITUAL INSIGHT



Science will build on students' natural sense of wonder, curiosity, their intuition and inspiration to offer an experience of knowledge and wisdom through experiments, enquiry and evidence.

### PROGRAMME OF STUDY

Students will develop the following knowledge, skills and understanding in science:

- Appreciation of how to work safely and the importance of following instructions
- Practical skills
- Teamwork
- Scientific literacy
- Numerical skills
- Graphical skills
- Accurate analysis and interpretation of results
- Evaluation of experimental methods

TERM	YEAR 7	YEAR 8	YEAR 9
<b>AUTUMN 1</b>	<b>Working scientifically (WS) skills</b> [Baseline assessment: variables, planning, numeracy, tables, graphs, patterns, analysis, H&S]	<b>Working scientifically (WS) skills</b>  <b>Matter:</b> Periodic table & elements [WS skill: Models]	<b>Working scientifically (WS) skills</b>  <b>Forces:</b> Contact forces & pressure [WS skill: Numeracy]

	<b>Ecosystems:</b> Interdependence & plant reproduction		
<b>AUTUMN 2</b>	<b>Energy:</b> Energy costs & energy transfer [WS skill: Numeracy] <b>Organisms:</b> Movement & cells [WS skill: Theories]	<b>Organisms:</b> Breathing & digestion [WS skills: Graphs] <b>Energy:</b> Work & Heating and cooling [WS skill: Planning]	<b>Genes:</b> Evolution & variation [WS skill: Theories] <b>Reactions:</b> Chemical energy & types of reactions [WS skill: Planning]
<b>SPRING 1</b>	<b>Matter:</b> Particle model & separating mixtures [WS skill: Models] <b>Genes:</b> Variation and human reproduction [WS skill: Patterns]	<b>Ecosystem:</b> Respiration & photosynthesis [WS skill: Graphs]	<b>Electromagnets:</b> magnetism and electromagnetism [WS skill: Reliability]
<b>SPRING 2</b>	<b>Electromagnets:</b> Current, voltage & resistance [WS skill: Reliability] <b>Reactions:</b> Metal and non-metals & acids and alkalis [WS skill: Planning]	<b>Waves:</b> Sound & light [WS skill: Numeracy] <b>Earth:</b> Earth structure & universe [WS skill: Theories]	<b>Waves:</b> Wave effects & wave properties
<b>SUMMER 1</b>	<b>Forces:</b> Speed and gravity [WS skill: Graphs]	<b>Earth:</b> Climate change & Earth resources	<b>Cells (GCSE)</b> [WS skill: Required practicals – microscopy and osmosis]
<b>SUMMER 2</b>	<b>Bronze CREST Award (STEM)</b> or Working Scientifically projects [Externally assessed: Project submission and presentation]	<b>Silver CREST Award (STEM)</b> or Working Scientifically projects [Externally assessed: Project submission and presentation]	<b>Atoms (GCSE)</b> [WS skill: Interpretation of data]  <b>Maths in science skills</b>

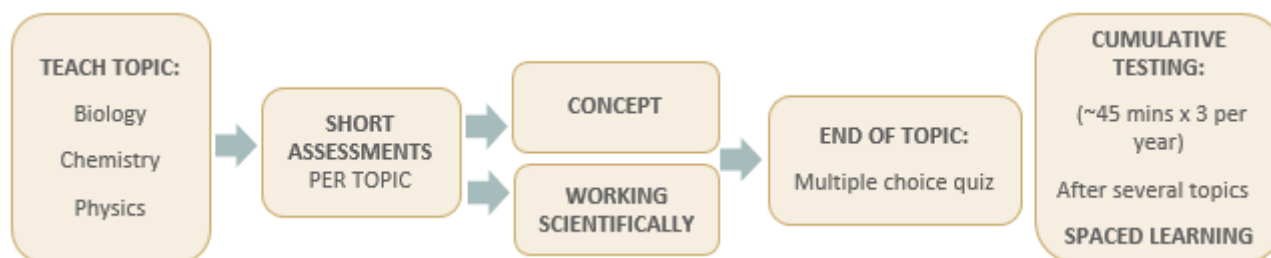
### ASSESSMENT AND FEEDBACK

Students are assessed regularly in science through a combination of formative and summative assessments. Students receive timely written and verbal feedback after each assessment, following the whole school 'Strengths, Improvements, and Actions' (SIA) policy. Dedicated Improvement and Reflection Time (DIRT) is built into lessons, post assessments to allow students to reflect and act upon the feedback and complete an improvement and/or challenge tasks to improve and make further progress in their knowledge, skills and understanding.

**FORMATIVE ASSESSMENT:** For each topic at KS3, one **key concept** and one **working scientifically skill** required by the students to succeed in science is assessed through short structured written exam style assessments. Working scientifically and numeracy are extremely important skill areas that will be assessed in the final exams, and therefore it is important that students attend all lessons and participate fully in practical

experiments. We expect all students to make every effort to catch up with missed work in their own time and take advantage of the lunchtime study support system on offer.

**SUMMATIVE ASSEMENT:** There are two/three summative assessment tests per year at KS3. These are cumulative in nature and the purpose is to confirm the track point of the student and to promote longer term recall by testing earlier topics and to meet the demands of a linear course.



### SUPPORT AND GUIDANCE

1. Use the **KNOWLEDGE ORGANISERS** and the **KS3 CGP REVISION GUIDE AND WORKBOOK** to learn the key facts: READ – COVER – WRITE method → MASTER THE MINIMUM.

2. Apply your understanding to exam questions: Use the **KS3 CGP REVISION GUIDE AND WORKBOOK** to practise questions. Re-do assessment questions and questions completed in class to improve your responses.

3. Test yourself on the key facts, equations and units: use **FLASH CARDS**.

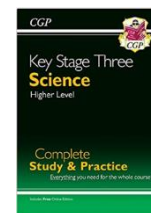
4. Use **Doddle**: Log onto [www.doddlelearn.co.uk](http://www.doddlelearn.co.uk). Use the 'browse' tab to view powerpoints, homework, revision lessons and interactive resources for every aspect of KS3 Science.

- INSTITUTION: Avanti Fields School
- USERNAME: FirstnameSurname18 (e.g. JoeBloggs18) (Y7:20; Y8: 19; Y9: 18)
- PASSWORD: avanti

5. Use **BBC BITESIZE**: <https://www.bbc.com/bitesize> to learn the key concepts, try quizzes and watch video clips.

6. Log onto **Google Classroom** to access additional resources to support you with your learning.

7. Attend **science study club** during lunchtimes (Monday – Thursday) for support with classwork and homework.



Regular review of classwork and revision in small chunks is much more effective than leaving it to the last minute before assessments and final exams.

### EXTRA-CURRICULAR / SUPER-CURRICULAR OPPORTUNITIES

**Science study club:** Monday – Thursday lunchtimes open to all students to gain further support with their homework, classwork or revision. Students will have access to the subject specific textbooks and laptops.

Throughout the year, students will have the opportunity to engage in various science and **STEM events, trips** and **competitions** through the ‘**Take it Further**’ provision. Students and parents will be informed of all opportunities as and when they are organised.

