The science curriculum is designed to produce scholars who question the world around them. Scholars should be encouraged to be curious about the things they experience and want to find an explanation for them through scientific methods. We aim to provide pupils with scientific knowledge and concepts that will provide a firm foundation as they continue their studies after KS2. Our backwards-planned curriculum carefully develops scientific skills, gradually inducting pupils into the scientific method. We believe strongly in the power of carefully sequenced practical work to embed and deepen understanding, as well as to inspire a new generation of children to consider STEM careers in the future. Schemes of work identify high-leverage knowledge that is important for pupils' further scientific study. The science curriculum is structured spirally, with topics revisited over time at greater depth. Regular low-stakes quizzing and revisiting of key content in future units aims to embed this knowledge into long-term memory, so that pupils can draw upon it fluently when engaging with this disciplinary aspect of the subject.

Below shows the knowledge that is studied in Science at different points throughout a scholar's time at Astrea Academy Sheffield.

	September 2022 – July 2023						
Year	Half-term 1	Half-term 2	Half-term 3	Half-term 4	Half-term 5	Half-term 6	What will a successful scholar look like at this stage?
7	Particle model Energy transfer and heating	Cells Mixtures and solutions	Generating electricity Reproduction	Acids and alkalis Forces	Earth Chemistry The Earth in Space	Variation, classification and ecology	By the end of year 7 AAS scholars will be able to confidently discuss the core basics of science content and be starting to understand how scientists come up with the theories and ideas they have.
8	Elements, mixtures and compounds Motion and pressure	Motion and pressure Health and lifestyle	More about reactions Waves	Respiration and photosynthesis Materials and industry	Materials and industry Electricity and magnetism	Inheritance and genetics	By the end of year 8 AAS scholars will be able to discuss further topics and content in science as well as retrieve and practice those basics from Y7. Scholars will be able to explain how the scientific method influences theories to the point where those theories change.
9	Health and lifestyle More about reactions	Materials and industry Electricity and magnetism	Inheritance and genetics Biology practicals	Chemistry practicals	Physics practicals	Classics and science	By the end of year 9 AAS scholars will be confident with all the basic scientific content, to feel ready to start their GCSE courses in Biology, Chemistry and Physics. They will be able to apply the content to real world situations and discuss how to plan and carry out and scientific investigation.
10	Bioenergetics (photosynthesis and respiration) Atomic structure and periodic table Particle model of matter	Cell biology Bonding structure and properties Radioactivity	Organisation Chemical changes Energy	Organisation continued Energy changes Electricity	Infection and response The rate of chemical change Electricity continued	Ecology Chemistry of the atmosphere Space	By the end of Year 10 scholars will have covered all of their paper 1 content for their GCSEs and be confident in discussing scientific ideas and starting to put content together with new theories and having a deeper understanding of the scientific method.
11	Homeostasis and response Chemical analysis Waves	Homeostasis and response Chemical analysis Waves	Inheritance, variation and evolution Using resources Magnetism and electromagnetism	Biology – Revision Chemistry – Revision Physics - Revision	Biology – Revision Chemistry – Revision Physics - Revision	Exams	By the end of Year 11 scholars will have completed all their science GCSE content and be confident in applying that in exam situations. They will be confident in the science content and also in the understanding of how scientists investigate and interpret results to influence science thinking.