SCIENCE KS3 CURRICULUM INTENT

The science curriculum is designed to be accessible to all students whilst exciting and promoting their curiosity beyond the national curriculum. It aims to develop students scientific literacy whilst ensuring the study of science is relevant to encourage them to look into future science-related careers. The curriculum is focused on building on students knowledge of science from KS2 and cementing core knowledge across KS3 to ensure this can be utilised at KS4.The curriculum is spiralled to ensure these key ideas reoccur developing students retrieval practice and interleaving skills.

ORMISTON FORGE ACADEMY

THRESHOLD CONCEPTS

TC1 – BBL – The Building Blocks of Life

TC2 – IOL – The Interaction of Life

TC3 – THB – The Human Body

TC4 – BOM – The Behaviour of Matter

TC5 – CR – Chemical reactions

TC6 – OE – Our Earth

TC7 – BOE – The Behaviour of Energy

TC8 – OEOO – Objects Effects on Other Objects

TC9 – BE – Beyond Earth

SUPPORT AT HOME

- Exploring websites such as BBC Bitesize
- Reading about science developments on the news.
- Watching science documentaries, such as Planet Earth.
- Talk about the world around you.
- Encourage students to ask questions that are hard to answer.

ENRICHMENT

- Visits to universities
- STEM club
- Guest speakers
- Trips linked to STEM
- Documentaries in science lessons

PERSONAL DEVELOPMENT

Science students will learn to understand the workings of the universe and, more importantly, students will be encouraged to ask the right scientific questions when they don't understand things. Science not only allows us to understand where we come from, but also to shape the world we will inhabit in the future. Our learners will develop the skills which will enable them to investigate scientific phenomena and analyse their findings. Helping the next generation respect and understand their surroundings is the best way to create a future that benefits everyone.

CURRICULUM LINKS

- English → use of key terminology and definitions
- Mathematics → calculating means, drawing bar charts and line graphs, completing equation calculations
- History → looking at the timeline of scientific discoveries and theories
- Geography → understanding ecology, volcanoes and global warming
- PE → understanding the human body and exercise

CAREERS

- Teaching
- Nursing/ Midwife/ Doctor/ Surgeon / Pharmacist / Optometrist / Dentist
- Engineer (chemical, mechanical, energy, nuclear)
- Environmental scientist / Science researcher
- Forensic scientist / Pathologist / Microbiologist
- Biochemists
- Biotechnology
- Astronomer

SCIENCE YEAR 7

AUTUMN

TERM 1

THRESHOLD CONCEPTS : 1, 4, 8, 9.

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Understand the importance of models used in science to represent the states of matter.
- Learn different forces and understand how forces can be balanced and unbalanced.
- Explore how organisms are structured and how the skeleton and joints allow for movement.
- Learn the structure of the atom and the difference between elements and compounds.
- Explore the planets of our solar system and other celestial bodies.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
- Share their own views and opinions and be respectful of other peoples views and opinions.
- Develop new practical skills through experiments and learn how to analyse and interpret data.
- Be exposed to new science-based careers and how their learning can prepare them for a future in science.

HOW

ASSESSMENT

Students will be assessed through:

- Whole class feedback and DM tasks.
- Verbal feedback in lessons.
- Regular homework quizzes to develop recall.
- End of post diagnostic assessments to assess recall and understanding.
- Two science assessments throughout the year to assess recall of current learning at that point in time.

VOCABULARY

Model, draw, suggest, sketch, represent, identify, describe, function, scale, observe, measure, calculate, use, name, label, predict, record, construct, state, composition, list, compare, explain, choose, summary, give, plan, justify, determine, define.

READING SKILLS

Students will use their key word banks to learn key terminology and scientific definitions. In addition to using lexonik in lesson to develop their oracy of words.

Students will develop their reading skills through tasks: skimming and scanning in order to answer questions.

SCIENCE YEAR 7 SPRING

TERM 2

THRESHOLD CONCEPTS : 3, 4, 5, 6

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Learn how substances can dissolve causing a physical change.
- Explore the human breathing system and the key organs involved.
- Understand how chemical reactions occur and explore a range of different types of reaction.
- Learn about the rock cycle and understand how different types of rock are formed.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
- Share their own views and opinions and be respectful of other peoples views and opinions.
- Develop new practical skills through experiments and learn how to analyse and interpret data.
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READING SKILLS

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SCIENCE YEAR 7

SUMMER

TERM 3

THRESHOLD CONCEPTS : 1, 3, 4, 9

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Explore the organs involved in the reproductive systems and how fertilization occurs.
- Understand how different lifestyle choices can impact health.
- Learn the difference between pure substances and mixtures and how to successfully separate a mixture.
- Explore key developments in the race to explore space beyond planet Earth.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
- Share their own views and opinions and be respectful of other peoples views and opinions.
- Develop new practical skills through experiments and learn how to analyse and interpret data.
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SCIENCE YEAR 8

AUTUMN

TERM 1

THRESHOLD CONCEPTS : 3, 4, 5, 6, 9

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Understand how chemical reactions occur and explore a range of different types of reaction.
- Explore the planets of our solar system and other celestial bodies.
- Learn the difference between pure substances and mixtures and how to successfully separate a mixture.
- Explore the human breathing system and the key organs involved.
- Learn about the rock cycle and understand how different types of rock are formed.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
- Share their own views and opinions and be respectful of other peoples views and opinions.
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- Two science assessments throughout the year to assess recall of current learning at that point in time.

VOCABULARY

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READING SKILLS

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SCIENCE YEAR 8 SPRING

TERM 2

THRESHOLD CONCEPTS : 1, 3, 6, 7

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Learn about the organs of the digestive system and the different food groups we need in our diet.
- Explore the composition of our atmosphere and the effects of global warming.
- Understand what temperature is and how thermal energy can be transferred.
- Understand the chemical reaction that occurs in cells to release energy for other life processes.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
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SCIENCE YEAR 8

SUMMER

TERM 3

THRESHOLD CONCEPTS : 2, 7, 8

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Explore different renewable and non-renewable resources and how this links to appliances in the home.
- Learn the different components needed to build an electrical circuit.
- Understand the process of how plants produce their own food by photosynthesis.
- Explore how forces can deform an object and how this links to Hooke's Law.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
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READING SKILLS

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SCIENCE YEAR 9

AUTUMN

TERM 1

THRESHOLD CONCEPTS : 1, 4, 5, 8, 9

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Explore the planets of our solar system and other celestial bodies.
- Understand how chemical reactions occur and explore a range of different types of reaction.
- Explore key developments in the race to explore space beyond planet Earth.
- Learn the difference between pure substances and mixtures and how to successfully separate a mixture.
- Explore how forces can deform an object and how this links to Hooke's Law.
- Learn how magnets work and interact and how this links to Earth's magnetic field.
- Explore what causes variation and how this links to the theory of evolution.

WHY

In order to:

- Learn core scientific terminology and understand what it means.
- Begin to question their understanding and ask questions to challenge their understanding.
- Share their own views and opinions and be respectful of other peoples views and opinions.
- Develop new practical skills through experiments and learn how to analyse and interpret data.
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VOCABULARY

Measure, observe, calculate, record, construct, state, define, describe, plan, justify, determine, use, represent, pattern, write, compare, summary, demonstrate, design, distinguish, plot, write.

READING SKILLS

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SCIENCE YEAR 9 SPRING

TERM 2

THRESHOLD CONCEPTS : 1, 4, 7, 9

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Learn how light waves travel and what happens when they interact with different object and materials.
- Explore how the tilting and spinning of planet Earth causes the four different seasons.
- Learn how to use a light microscope to view cells and explore how cells form tissues and organs such as the heart.
- Explore the sub-atomic particles in more detail and learn key properties of group 1, 7 and 0 of the periodic table.

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SCIENCE YEAR 9

SUMMER

TERM 3

THRESHOLD CONCEPTS : 1, 4, 5, 8

ORMISTON FORGE ACADEMY

WHAT

Students will:

- Understand how the arrangement of particles is linked to density.
- Explore how to test for different gases and how to carry out the separation technique of chromatography.
- Explore different forces and how they can effect the motion of objects.
- Understand the organs and enzymes involved in the digestion of food and how this links to the release of energy through respiration.
- Learn about series and parallel circuits and the relationship between current and potential difference.
- Explore the different types of bonding between different elements.

WHY

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