Eastlea
COMMUNITY SCHOOL

Science Department KS3

Vision & Intent

The Science Curriculum Area, in line with Eastlea Community School's core values, is committed to ensuring that all our students make greater than expected progress across all Key Stages in the subject of Science. Our Science curriculum has been designed to be rigorous, fun as well as challenging with the aim of developing students who are skilled critical thinkers, problem solvers, innovators and team players, as these are sought after desirable and transferable skills which would empower our students to excel beyond Eastlea.

Teaching and Learning at Key Stage 3

At Eastlea Community School, we follow the key stage 3 National Curriculum (year 7 – 9), which equips our students with the knowledge, skills and attributes to become confident and proficient life-long learners. Not only does our curriculum provide a solid foundation for progression to Key Stage 4, it also offers our students a wide range of opportunities to develop a real love for Science. The Science curriculum fosters a healthy curiosity in children about our universe and promotes care and respect for our environment. We believe Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. Our curriculum also actively promotes the spiritual, moral, social and cultural development of our students.

Resources:

- **AQA Revision Guide**
- **Kerboodle Activate Science: Biology, Chemistry and Physics**

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- **The Origin of Species by Charles Darwin**
- **YouTube:**https://www.youtube.com/channel/UCqbOeHaAUXw9Il7sBVG3_bw/playlistssort=dd&view=50&shelf_id=16
- www.bbc.co.uk/bitesize/gcse/science
- https://www.newscientist.com/
- https://www.mygcsescience.com
- https://www.senecalearning.com
- https://www.youtube.com/channel/UCqbOeHaAUXw9Il7sBVG3_bw

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Year 7

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic/Focus	**Transition Lessons** **1:Forces-** 1.1 speed 1.2 gravity **SKILLS through experimentation**	**5: Matter** - 5.1 Particle Model 5. 2 Separating Mixtures	**8: Organisms-** 8.1 Movement 8.2 Cells **10: Genes -** 1 10.1 Variation	**Genes- 10.2** 10.2 Human reproduction **3 Energy-** 3.1 Energy Costs 3.2 Energy Transfer	**6: Reactions-** 6.1 Acids & Alkalis 6.2 Metals & Non-metals	**2: Electromagnets** 2.1 Potential difference and Resistance. 2.2 Current **7: Earth -** 7.1 Earth Structure 7.2 The Universe
Resources	Introduction to science workbook. Sustainability project Activate 1 textbook, practical equipment. https://www.kerboodle.com	Activate 1 textbook, practical equipment, https://www.kerboodle.com	Activate 1 textbook, practical equipment, https://www.kerboodle.com	Activate 1 textbook, practical equipment, https://www.kerboodle.com	Activate 1 textbook, practical equipment, https://www.kerboodle.com	Activate 1 textbook, practical equipment, https://www.kerboodle.com

Assessment	End of topic tests Exam question practise Extended writing **End of Autumn 1 Assessment (October 2021)**	End of topic tests Exam question practise Extended writing **End of Autumn 2 AssessmentAssessment (December 2022)**	End of topic tests Exam question practise Extended writing **End of Spring 1 AssessmentAssessment (February 2023)**	End of topic tests Exam question practise Extended writing **End of Spring 2 AssessmentAssessment (March 2023)**	End of topic tests Exam question practise Extended writing **End of Summer 1 Assessment (May 2023)**	End of topic tests Exam question practise Extended writing **End of Summer 2 Assessment (June 2023)**
Extended Learning Opportunities	Survival Island project Stem club (after school enrichment program). Science Quiz Club (TBC)	Centre of the cell visit	Visit the 'Who am I'? exhibition at the Science Museum	Space Challenge: Mission to Mars https://drive.google.com/drive/folders/19zsGF6XFiFsPwWUUeWXRWHxdxR4Lwaur	Floating Garden Project Visit Whipsnade zoo or London zoo	https://drive.google.com/drive/folders/19zsGF6XFiFsPwWUUeWXRWHxdxR4Lwaur

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Working Scientifically: (CONCEPTS)	Investigate variables on the speed of a toy car rolling down a slope Explain the way in which an astronaut's weight varies on a journey to the moon	Use models to investigate the relationship between the properties of a material and the arrangement of its particles Devise ways to separate mixtures, based on their properties Identify the principal features of a cheek cell and describe their functions Explore how the skeletal system and muscular system in a chicken wing work together to cause movement	Graph data relating to variation and explain how it may lead to the survival of a species Relate advice to pregnant women to ideas about transfer of substances to the embryo Explain the energy transfers in a hand-crank torch Compare the running costs of fluorescent and filament light bulbs	Model the processes that are responsible for rock formation and link these to the rock features Relate observations of changing day length to an appropriate model of the solar system	Devise an enquiry to compare how well indigestion remedies work Use experimental results to suggest an order of reactivity of various Metals Use a model to investigate the impact of changes in a population of one organism on others in the ecosystem Use models to evaluate the features of various types of seed dispersal	Relate changes in the shape of an oscilloscope trace to changes in pitch and volume Use ray diagrams to model how light passes through lenses and transparent materials Compare the voltage drop across resistors connected in series in a circuit Compare and explain current flow in different parts of a parallel circuit

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Year 8

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic/Focus	**Organisms-** Breathing & Digestion **Matter-** Elements & Periodic Table	**Forces -** Contact Force & Pressure **Ecosystem-** Respiration & Photosynthesis	**Reactions -** Types of Reaction & Chemical Energy **Waves 1-** Sound & Light	**Earth-** Climate & Earth Resources	**Electromagnets** Magnetism & Electromagnets **Ecosystems** Interdependence Plant reproduction	**Genes** Evolution & Inheritance **Energy- Work** and Heating & Cooling
Resources	Activate 2 textbook, practical equipment https://www.kerboodle.com	Activate 2 textbook, practical equipment, https://www.kerboodle.com	Activate 1 & 2 textbook, practical equipment, https://www.kerboodle.com	Activate 2 textbook, practical equipment, https://www.kerboodle.com	Activate 2 textbook, practical equipment, https://www.kerboodle.com	Activate 2 textbook, practical equipment, https://www.kerboodle.com
Assessment	End of topic tests Exam question practise	End of topic tests Exam question practise	End of topic tests Exam question practise	End of topic tests Exam question practise	End of topic tests Exam question practise	End of topic tests Exam question practise

	Extended writing **End of Autumn 1 Assessment (October 2022)**	Extended writing **End of Autumn 2 Assessment (December 2022)**	Extended writing **End of Spring 1 AssessmentAssessment (February 2023)**	Extended writing **End of Spring 2 AssessmentAssessment (March 2023)**	Extended writing **End of Summer 1 Assessment (May 2023)**	Extended writing **End of Summer 2 Assessment (June 2023)**
Extended Learning Opportunities	STEM club, trips, Science week. Science Quiz Club (TBC)	STEM club, trips, Science week Plant Nutrition Project https://drive.google.com/drive/folders/19zsGF6XFiFsPwWUUeWXRWHxdxR4Lwaur	TEM club, · **Visit the Atmosphere gallery at the Science Museum**	The Water Project (in cross-curricular folder) Floating Garden Project Science Week		STEM club, trips, Science week Evolution Group Video Project. · Visit the Who am I? exhibit at the Science Museum
Working Scientifically: (CONCEPTS)	Investigate a claim linking height to lung volume Evaluate how well a model represents key features of the digestive system	Investigate factors that affect the size of frictional or drag forces Investigate how pressure from your foot onto the	Investigate changes in mass for chemical and physical processes Investigate a phenomenon that relies on an exothermic or	Investigate the contribution that natural and human chemical processes make to our carbon dioxide emissions	Explore the magnetic field pattern around different types or combinations of magnets Investigate ways of varying the strength of an	Review the evidence for theories about how a particular species went extinct Model the inheritance of a specific trait and

	Compare the properties of elements with the properties of a compound formed from them Sort elements using chemical data and relate this to their position in the periodic table	ground varies with different footwear Use data from investigating fermentation with yeast to explore respiration Use lab tests on variegated leaves to show that chlorophyll is essential for photosynthesis	endothermic reaction Relate the impact of different types of wave on living cells to their frequency and the energy carried by the wave and their uses Use the wave model to explain observations of the reflection, absorption and transmission of waves	Predict the method used for extracting a metal based on its position in the reactivity series	electromagnet	explore the variation in the offspring produced Explain how an electric motor raising a weight is doing work Investigate how to prevent heat loss by conduction, convection and radiation

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Year 9

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic/Focus	B1 Cells and Organisation B2 Cell Division	B3 Organisation and the Digestive System C1 Atomic Structure	C2 The Periodic Table C3 Structure and bonding	P1 Energy & dissipation of energy P2 Energy Transfer by Heating	P3 Energy resources B4 Organising animals and Plant	B5 Communicable diseases B6 Preventing and treating disease
Resources	Textbook - Kerboodle Achieveinscience Biology for practical equipment Maths skills resources	Textbook - Kerboodle Achieveinscience chemistry for practical equipment Freesciencelesson	Textbook - Kerboodle Achieveinscience Physics for practical equipment Freesciencelesson	Textbook - Kerboodle Achieveinscience Biology for practical equipment Maths skills resources	Textbook - Kerboodle Achieveinscience Biology for practical equipment Maths skills resources	Textbook - Kerboodle Achieveinscience Physics for practical equipment Maths skills resources

Assessment	Exam pulse command words End of unit tests Discussion /Explanation. **End of Autumn 1 Assessment (October 2022)**	End of unit tests Discussion/presentation. Extended writing **End of Autumn 2 Assessment (December 2022)**	End of units tests Discussion and conclusion Exam practice Research **End of Spring 1 AssessmentAssessment (February 2023)**	End of units tests Discussion and conclusion Exam practice Research **End of Spring 2 AssessmentAssessment (March 2023)**	End of units tests Evaluation planning investigation Discussion and conclusion Exam practice **End of Summer 1 Assessment (May 2023)**	End of units tests Discussion and conclusion Exam practice Research **End of Summer 2 AssessmentAssessment (June 2023)**
Extended Learning Opportunities	Making models of specialised cells. https://www.youtube.com/watch?v=aaoq1HPvI6E	Research and Presentation covid-19 Science Talks (Soap or Sanitizer debate) https://drive.google.com/drive/folders/1zFn0hYbUZuLwgerEd2KJqKmTG6xisdai	Exam practice Data analysis Presentation The Nuclear Safety Project	Exam practice Revision Data analysis Presentation	Exam practice Research and presentation Stem club trips	Exam practice Revision Data analysis Presentation

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Working Scientifically: (CONCEPTS)	WS 4.4 Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano). WS 1.2 Recognise, draw and interpret images of cells. WS 1.1 Understand how scientific methods and theories develop over time WS 1.2 Use models and analogies to develop explanations of how cells divide.	WS 1.1, 1.6 To show an understanding of why and describe how scientific methods and theories develop over time. WS 2.2 Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena.	WS 4.3 Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate.. WS 4.5 Interconvert units. WS 4.6 Use an appropriate number of significant figures in calculation.	WS 1.2 Students should be able to use other models to explain enzyme action WS 1.5 Evaluate risks related to use of blood products. WS 1.3 & WS1.4 Evaluate methods of treatment bearing in mind the benefits and risks associated with the treatment.	WS 1.2 Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts.	WS 1.4 Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. WS 1.5 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.