

EASTRY C OF E PRIMARY SCHOOL KNOWLEDGE ORGANISERS



YEAR GROUP	3
SUBJECT	Science
KEY VOCABULARY	<p>dark, dull, bright, very bright, brighter, duller, and darker, brightest, dullest, and darkest</p> <p>Opaque, translucent, transparent</p> <p>Shadow – block, absence of light</p> <p>Reflect – bounce, mirror, reflection,</p> <p>light source, Sun – sunset, sunrise, position</p> <p>Magnets – bar and horseshoe, Attract, repel, North and south poles, Magnetic, Magnetic field,</p> <p>Names of rocks – Chalk, limestone, granite, basalt, sandstone, flint, slate, shale, marble</p> <p>Types of rock – Sedimentary, metamorphic, igneous</p> <p>Minerals</p> <p>Properties of rocks – Hard/soft, permeable/impermeable</p> <p>Processes – Heat, pressure, erosion, transportation, deposition, melt, solidify</p> <p>Size of rocks – Grain, pebbles</p> <p>Rock describing words – Crystals, layers</p> <p>Land formations – Plates, volcanoes, mountains, valleys</p> <p>Trees - deciduous, evergreen, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly,</p> <p>Wild flowering plants - daisy, dandelion, cow parsley,</p> <p>Garden plants – crocus, daffodil, bluebells,</p> <p>Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs</p> <p>Parts of a flower – petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule)</p> <p>Processes – pollination, fertilisation, germination</p> <p>Nutrition, Diet, Vitamins, minerals, fats, proteins and carbohydrates</p> <p>Functions of skeletons – protect, support and aid movement</p>



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END POINTS KNOWLEDGE

Light

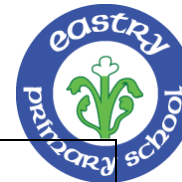
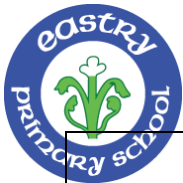
- To know that light travels from a source (e.g. the Sun, light bulbs and torches).
- To know that light is needed to see things and that dark is the absence of light.
- To know that light from the Sun can be dangerous and how to protect their eyes.
- To know that all materials reflect light.
- To know that shadows are formed when the light from a light source is blocked by an opaque object.
- To know that shadows change as a result of different factors: - Changing the position of the light source. - Changing the distances between the light source, object and surface.
- To know that shadows change position and length throughout the day as the Sun changes position in the sky

Forces and Magnets

- To know some examples of contact and non-contact forces.
- To know that some forces are a result of contact between two surfaces, but some forces can act at a distance (e.g. magnetism).
- To know the North and South poles of a magnet.
- To know some examples of magnetic materials, including iron and nickel, and how they react to a magnet and each other.
- To know some different examples of magnets, including bar, horseshoe, button and ring,
- To know some uses of magnets.
- To know that friction is a contact force that acts between two surfaces to slow an object down.
- To know that magnetism is a non-contact force that affects objects containing magnetic metal.
- To understand that the opposite poles of a magnet attract one another and like poles repel one another.
- To know that rougher surfaces have more friction between them than smoother surfaces.
- To understand that the strength of different magnets may vary.

Rocks and Soils

- To know that rocks can be grouped based on their appearance or properties, (e.g. colour, texture, hardness, permeability.)
- To know that rocks may contain grains, crystals or fossils.
- To know that grains and crystals appear differently and can be used to classify rocks.
- To know that soils are made from rocks and dead matter.
- To understand the relationship between the properties of rocks and their uses.
- To know that fossils can form from the remains of living things.



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To know that rocks can change over time (e.g. erosion, weathering).

Plants

To understand the functions of the basic parts of a plant and the relationship between structure and function.

To know that water is transported within a plant from the root, through the stem, to the leaves.

To know that plants need water, light, air, nutrients and a suitable temperature for growth and health.

To understand that the needs for growth and health vary from plant to plant.

To know the life cycle of a plant from seed to mature plant.

To know that flowers are the reproductive organ of a plant.

To know that the process of pollination is the transfer of pollen to the female (part of the) flower.

To know that the process of seed formation is the growth of a seed after pollination..

To know some different methods of seed dispersal and the benefits of each.

Animals including Humans

To know that animals can be grouped based on the presence of a skeleton.

To know that the skeleton in humans and some animals is used for movement, protection and support.

To know that the muscular system in humans and some animals works with the skeleton for movement.

To know the main bones in the body.

To know that animals, including humans, need the right types and amount of nutrition.

To understand that humans cannot make their own food and therefore eat to get the nutrition needed.

To know the main food groups (carbohydrates, protein, fats, fibre, vitamins, minerals and water) and their simple functions.

To know that a balanced diet should include all food groups.

Working Scientifically Introduced in Yr 3 and consolidated in yr 4

Posing questions

Beginning to raise further questions during the enquiry process.

Considering what makes a testable question.

Beginning to recognise that there are different types of enquiry and that they are suitable for different questions.

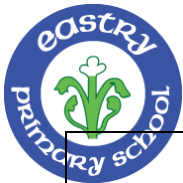
Beginning to make suggestions about how different questions could be answered

Planning

Beginning to select from options which variables will be changed, measured and controlled.

Beginning to suggest what observations to make and how long to make them for.

Planning a simple method, verbally and in writing.



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Beginning to write a simple method in numbered steps.

Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.

Predicting

Making predictions about what they think will happen by:

Using scientific knowledge and/or personal experience to explain their prediction (because...)

Beginning to consider cause and effect when making predictions, where appropriate.

Predicting a trend by considering how the changing variable will affect the measured variable. (The smoother the surface, the longer the distance the car will travel)

Observing (Qualitative data)

Using their senses to describe, in more detail and with simple scientific vocabulary, what they notice or what has changed.

Measuring (Quantitative data)

Using standard units to measure and compare.

Using measuring equipment with increasing accuracy.

Reading scales with unmarked intervals between numbers

Researching

Gathering specific information from a variety of sources.

Recording (Diagrams)

Beginning to draw more scientific diagrams by:

Using some standard symbols.

Drawing in 2D to produce simple line diagrams.

Labelling with more scientific vocabulary

Recording (tables)

Using a prepared table to record results including more detailed observations.

Using tables with more than two columns.

Identifying and adding headings to tables.

Beginning to design simple results tables.

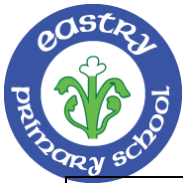
Grouping Classifying

Grouping based on visible characteristics and measurable properties.

Populating a pre-prepared branching and number key.

Choosing appropriate questions for classification keys.

Graphing



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	<p>Representing data using bar charts. Drawing bars with greater accuracy. Reading the value of bars with greater accuracy</p> <p><u>Analysing and drawing conclusions</u></p> <p>Writing a conclusion to summarise findings using simple scientific vocabulary. Beginning to suggest how one variable may have affected another. Beginning to quote results as evidence of relationships. Identifying data that does not fit a pattern (anomalous data). Recognising when results or observations do not match their predictions. Beginning to use identified patterns to predict new values or trends.</p> <p><u>Evaluating</u></p> <p>Beginning to identify steps in the method that need changing and suggest improvements. Beginning to identify which variables were difficult to control and suggesting how to better control them. Commenting on the degree of trust by reflecting on: Results that do not fit a pattern (anomalies). The quality of results (accurate measurements and maintaining control variables). Beginning to identify new questions that would further the enquiry.</p>
IT HELPS IF I ALREADY KNOW	<p><u>Light</u> This is an introductory unit</p> <p><u>Forces and magnets</u> This is an introductory unit</p> <p><u>Rocks and soils</u> – this is an introductory unit</p> <p><u>Plants</u></p> <p>I know how seeds and bulbs grow into mature plants and can observe & describe these over times. I know how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p><u>Animals including Human</u></p> <p>I know that animals, including humans, have offspring which grow into adults I know the basic stages in a life cycle for animals, including humans. I can find out and describe the basic needs of animals, including humans, for survival (water, food and air). I know the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>