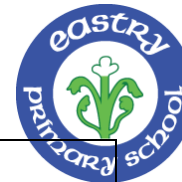
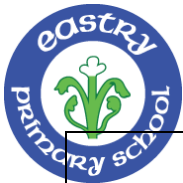


EASTRY C OF E PRIMARY SCHOOL KNOWLEDGE ORGANISERS



YEAR GROUP	4
SUBJECT	Science
KEY VOCABULARY	<p><u>Animals including humans</u></p> <ul style="list-style-type: none">• Digestive system – oesophagus, stomach, acid, small intestine, saliva• Protein, vitamin, mineral, carbohydrate, fats, energy, growth, repair.• Teeth – Incisors, canines, premolars, molars• Function• Food chain – producer, consumer, predator, prey <p><u>Living things and their habitat</u></p> <ul style="list-style-type: none">• Habitat, micro habitat• Pond, meadow, log pile, woodland, river, lake, beach, cliff• Organism – plant, animal• Trees - deciduous, evergreen, ash, birch, beech, rowan, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly,• Wild flowering plants -daisy, dandelion, garlic mustard, cow parsley, spear thistle, white deadnettle,• Garden plants – crocus, daffodil, bluebells, snowdrop, anemone etc• Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs• Invertebrates – snail, slug, woodlouse, spider, beetle, fly, etc• Pond animals – pond skater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc <p><u>Sound</u></p> <ul style="list-style-type: none">• Ways to create sound – bang, blow, shake, and pluck• Volume – quiet, quieter, quietest, loud, louder and loudest• Pitch - low, lower, lowest, high, higher, and highest



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- Vibrations
- Source
- Air
- Eardrum
- insulator

Electricity

- **Appliances:** fridge, freezer, TV, computer, iron, kettle, etc
- **Circuit:**
- **Power source:** mains, battery
- **Components:** battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch
- **Describing words:** brighter, duller, slow, fast, quiet, loud
- Electrical Conductor, Electrical insulator
- **Effects of electricity:** Light, sound, movement, heat
- **Switches** – open, close

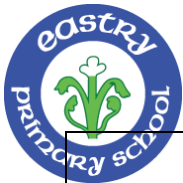
Materials

- Boiling, melting
- condensing, evaporating, freezing
- evaporation rate, rate, temperature
- the water cycle, precipitation
- gas, liquid, solid
- predict (Y2) research (Y2) measure (Y1) conclusion (Y3) diagram (Y1) stopwatch (Y3)
- steam
- thermometer

END POINTS KNOWLEDGE

Animals and humans

- To know the main organs of the human digestive system (mouth, teeth, tongue, oesophagus, stomach, small and large intestines) and describe their simple functions.
- To know the different types of human teeth (incisor, canine, premolar and molar) and their simple functions.
- To know that it is important to brush teeth twice a day, make good food choices and visit the dentist regularly.
- To describe the teeth of carnivores and herbivores, and understand why they are different.
- To know that predators hunt for their food and prey are the animals being hunted.



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- To know that producers make their own food.
- To know that food chains begin with a producer followed by consumers, and arrows to show the energy passed on.

Living things and their habitat

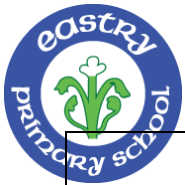
- To know that living things can be grouped in different ways.
- To know that a classification key can be used to group and identify plants and animals.
- To know that vertebrates are animals which have a backbone and invertebrates are animals which do not have a backbone.
- To know that plants can be grouped into flowering or non-flowering varieties.
- To know that flowering plants include grasses and non-flowering plants includes ferns and mosses.
- To know that there are five main vertebrate groups: birds, mammals, reptiles, amphibians and fish.
- To know that invertebrate groups include snails, slugs, worms, spiders and insects
- To know that habitats can change throughout the year and this can be dangerous for living things.
- To know that humans can have both a positive and negative impact on the environment.

Materials

- To know that all substances around us can exist as solids, liquids and gases.
- To know that a property of a solid is that it keeps its shape unless a force is applied to it.
- To know that a property of a liquid is that it can flow freely and take on the shape of a container.
- To know that a property of a gas is that it does not have a fixed shape and can escape from an unsealed container.
- To know that heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating).
- To know that cooling causes gases to turn into liquids (condensing) and liquids to turn into solids (freezing).
- To know that water can exist as a solid, a liquid or a gas.
- To know that the melting point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius.
- To know that water flows around the world in a continuous process called the water cycle.
- To know that in the water cycle, evaporation is when bodies of water are heated and turn into water vapour.
- To know that in the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation.
- To know that the rate of evaporation increases as temperature rises.

Sound

- To understand that sound is a result of vibrations.
- To know that vibrations from sounds travel through mediums to the ear.



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- To know that an insulating material reduces the amount of vibrations that pass through it and this can be used to protect the ears from damaging sounds.
- To know that different materials provide different amounts of insulation against sound.
- To know a variety of ways to change the pitch or volume of a sound.
- To know that quicker vibrations cause higher-pitched sounds and slower vibrations cause lower-pitched sounds.
- To know that stronger vibrations cause louder sounds and weaker vibrations cause quieter sounds.
- To know that sounds get fainter as the distance from the sound source increases.

Electricity

- To know that all electrical appliances need a power source, including batteries or mains electricity.
- To know that an electrical circuit needs a complete path for the electrical charge to flow through.
- To know the main components in a simple series circuit.
- To know the precautions for working safely with electricity.
- To know that some materials allow electrical charge to pass through them quickly and these are known as electrical conductors (e.g. metals).
- To know that some materials do not allow electrical charge to pass through them easily and these are known as electrical insulators (e.g. wood and plastic).
- To know that metals are used for cables and wires because they are good conductors of electricity.
- To know that plastic is used to cover cables and wires because it is a good insulator.
- To understand that an open switch breaks a series circuit so the components will be off.
- To understand that a closed switch completes a series circuit so the components will be on.
- To understand the relationship between bulb brightness and the number of bulbs in a circuit.

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.

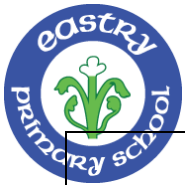
Beginning to make suggestions about how different questions could be answered

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.

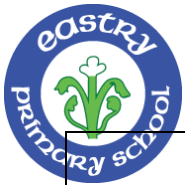
Grouping Classifying

Grouping based on visible characteristics and measurable properties.

Populating a pre-prepared branching and number key.

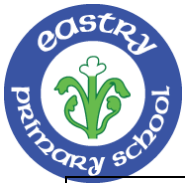
Choosing appropriate questions for classification keys.

Graphing

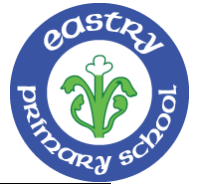


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	<p>Representing data using bar charts. Drawing bars with greater accuracy. Reading the value of bars with greater accuracy</p> <p><u>Analysing and drawing conclusions</u></p> <p>Writing a conclusion to summarise findings using simple scientific vocabulary. 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>
<p>IT HELPS IF I ALREADY KNOW</p>	<p><u>Animals including humans</u></p> <p>Recall the three key functions of the skeleton (movement, support and protection). Describe a vertebrate, invertebrate, endoskeleton and exoskeleton. Identify and name the skull, spine, ribs and pelvis on a diagram. Recall that muscles cause movements in the body, some of which we control by choice and that they cause a movement by shortening and pulling on a bone. Recall that animals, including humans, need to eat food to survive. Describe some examples of how energy is used by the body and make comparisons about the energy demands between people. List some of the seven nutrient groups, name foods that are good sources of them and describe what they are needed for in the body.</p> <p><u>Electricity</u> This is an introductory unit</p>



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Sound This is an introductory unit

Materials Name objects with the same use that are made from different materials. Name materials that are used to make objects with different uses. Recognise that stretching, twisting, bending and squashing can cause some solid objects to change shape. Name properties that make materials suitable for their use.

Living things in their habitats

Identify and name a variety of plants and animals. Recall that minibeasts live in microhabitats. Describe microhabitats and their conditions. Describe how microhabitats provide for the basic needs of animals and plants. Describe the job role of a botanist. Ask questions to further their knowledge. Recall some life processes, giving examples of how they apply to plants and animals. Classify objects into alive, never been alive and was once alive, giving reasons for their choices. Match different plants and animals to their habitats. Give examples of how animals use their habitat for food and shelter. Recall that plants produce their own food for energy. Name living things that are producers and place a producer at the beginning of a food chain. Use arrows to show the order in a food chain