

St Edmund's Catholic Primary School



Science Curriculum And Progression of Key Skills

Year 1- Year 6

Composite Knowledge

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
R Topic: Physics/Biology - Seasonal Changes -Observe changes across the four seasons -Observe and describe weather associated with the seasons and how day length varies. Class weather station will help to explore changes over the year. -Understanding the world (The World)- Physical Development (Health and Self-care) Park Visits to be arranged for each term. Children will partake in observational drawings of plants and trees. They will consider before going what is the correct attire to bring and be able to explain their choices. Children will record and interpret charts and tables of wildlife and natural findings. Possible links to RE, Geography, History, English Year long observational chart to go around classroom.						
Scientific Enquiry Observing over time Working Scientifically. Observing closely Gathering and recording results Presenting results						

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1	Topic: Biology – Animals, including Humans. Significant Individuals: David Attenborough Steve Backshaw Cbeebies Andy's Adventures Teaching and Learning: Inference square + Knowledge Mat Assessment What do you know? What questions do you have? -Identify and name a variety of common animals including fish, amphibians, reptiles, mammals and birds. -Identify and name a variety of common animals that are carnivores, herbivores and omnivores. -Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, and mammals, including pets). -Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Knowledge Mat Assessment Visit from Zoo Lab		Topic: Chemistry – Everyday Materials. Significant Individuals: Leo Hendrik Baekeland Ole Kirk Christiansen Teaching and Learning: Inference square + Knowledge Mat Assessment What do you know? What questions do you have? - Distinguish between an object and the material from which it is made. Manufactured and natural materials. - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Children to go on whole school material trail. - Describe the simple physical properties of a variety of everyday materials. For example: hard, soft, brittle, transparent, opaque etc... - Investigative questions regarding materials. For example: What is the best material for an umbrella? Why? -Compare and group together a variety of everyday materials on the basis of their simple physical properties. Knowledge Mat Assessment		Topic: Biology – Plants Significant Individuals: Mr. Bloom – Plant Nursery – BBC Teaching and Learning: Inference square + Knowledge Mat Assessment What do you know? What questions do you have? - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees, fruits and vegetables. -Identify and describe the basic structure of a variety of common flowering plants, including trees. -Compare local plants and exotic plants and what they need to survive. - Make predictions about growing plants and observe this from seeds (broad bean or sunflower) Investigate over time, using simple drawings as recordings. Knowledge Mat Assessment	
	Scientific Enquiry Pattern seeking Working Scientifically Planning an enquiry Taking measurements Interpreting results Asking questions		Scientific Enquiry Comparing and fair Testing Identifying, grouping and classifying Working Scientifically Observing closely		Scientific Enquiry Identifying, grouping and classifying Working Scientifically Taking measurements Observing closely	

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2	Topic: Chemistry – Everyday Materials Significant Individuals: Charles Macintosh Teaching and Learning: Knowledge Mat Assessment - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Knowledge Mat Assessment	Topic: Biology – Animals, including Humans Significant Individuals: Carl Hagenbeck Teaching and Learning: Knowledge Mat Assessment -Notice that animals, including humans, have offspring which grow into adults. - Find out about and describe the basic needs of animals. Including humans, for survival (water, food and air). - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Knowledge Mat Assessment		Topic: Biology – Living Things and their Habitats Significant Individuals: Sir David Attenborough Teaching and Learning: Knowledge Mat Assessment -Explore and compare the differences between things that are living, dead and things that have never been alive. -Identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other. -Identify and name a variety of plants and animals in their habitats, including micro-habitats. -Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Knowledge Mat Assessment <i>Visit to local farm including links to previous unit VR Goggles – Exploration of habitats</i>		Topic: Biology – Plants Significant Individuals: Tim Smit Teaching and Learning: Knowledge Mat Assessment - Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and suitable temperature to grow and stay healthy. Knowledge Mat Assessment <i>Children to take ownership of KS1 garden and flowers around school.</i>
	Scientific Enquiry <i>Comparative and fair testing</i> <i>Identifying, grouping and classifying</i> Working Scientifically <i>Observing closely</i> <i>Presenting results</i> <i>Planning an enquiry</i> <i>Gathering and recording results</i>	Scientific Enquiry <i>Identifying, grouping and classifying</i> Working Scientifically <i>Taking measurements</i> <i>Interpreting results</i> <i>Asking questions</i>		Scientific Enquiry <i>Research</i> <i>Observing over time</i> <i>Pattern seeking</i> <i>Identifying, grouping and classifying</i> Working Scientifically <i>Asking scientific questions</i> <i>Observing closely</i> <i>Presenting results</i>		Scientific Enquiry <i>Comparative and fair Testing</i> Working Scientifically <i>Gathering and recording results</i> <i>Observing closely</i>

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3	Topic: Biology - Animals Including Humans Significant Individual Sir David Attenborough. Teaching and Learning Knowledge Mat Assessment - Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. -Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Knowledge Mat	Topic: Chemistry - Rocks Significant Individual Mary Anning Teaching and Learning Knowledge Mat Assessment - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties (Rocks/ stone around school) -Describe in simple terms how fossils are formed when things that have lived are trapped within rock. -Recognise that soils are made from rocks and organic matter. Knowledge Mat Assessment Children to take part in the big dig (In school fossil hunt).	Topic: Physics - Light Significant Individual Thomas Young Teaching and Learning Knowledge Mat Assessment -Recognise that they need light in order to see things and that dark is the absence of light. - Notice that light is reflected from surfaces. -Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. -Recognise that shadows are formed when the light from a light source is blocked an opaque object. - Find patterns in the way that the sizes of shadows change. Knowledge Mat Assessment Explore Dome – Light	Topic: Physics - Forces and Magnets Significant Individual: Sir Isaac Newton Galileo Teaching and Learning: Knowledge Mat Assessment - Compare how things move on different surfaces. -Notice that some forces need contact between two objects, but magnetic forces can act at a distance. -Observe how magnets attract or repel each other and attract some materials and not others. -Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. -Describe magnets as having two poles. -Predict whether two magnets will attract or repel each other, depending on which poles are facing. Knowledge Mat Assessment Science Museum – Feel the Force Trail		Topic: Biology - Plants Significant Individual George W.Carver Tom Hart Dyke Teaching and Learning Knowledge Mat Assessment -Identify and describe the functions of different parts of flowering plants: roots. Stem/trunk, leaves and flowers. -Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. (Mrs Jenkins - Garden Club) -Investigate the way water is transported within plants. - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and dispersal. Knowledge Mat Assessment Visit to Capel Manor Gardens
	Scientific Enquiry Research Identifying, grouping and classifying Working Scientifically Gathering and recording results Presenting results	Scientific Enquiry Research Identifying, grouping and classifying Research Observing over time Working Scientifically Making predictions Observing closely Presenting results	Scientific Enquiry Pattern seeking Working Scientifically Taking measurements Drawing conclusions	Scientific Enquiry Comparative and fair testing Identifying, grouping and classifying Pattern seeking Working Scientifically Planning an enquiry Making predictions Taking measurements Drawing conclusions Evaluating an enquiry		Scientific Enquiry Observing over time Working Scientifically Observing closely Asking questions Taking measurements Interpreting results Gathering and recording results Presenting results

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4	Topic: Biology - Living Things and their Habitats Significant Individuals: Evelyn Cheeseman Carl Linneaus Teaching and Learning: Knowledge Mat Assessment - Recognise that living things can be grouped in a variety of ways. Invertebrate hunt in school or park visit. - Explore and use classification keys to help group, identify and name a variety of living things. -Recognise that environments can change and that this can sometimes pose dangers to living things. Design and create an invertebrate hotel. Knowledge Mat Assessment Visit to Forty Hall for a forest and pond visit, Visit to Jubilee Park – Mini-beasts.		Topic: Chemistry - States of Matter Significant Individuals: Alfred Nobel Teaching and Learning: Knowledge Mat Assessment -Compare and group materials together, according to whether they are solids, liquids or gases. - Observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius (oC). -Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Knowledge Mat Assessment	Topic: Biology - Animals including Humans Significant Individuals: Charles Darwin Teaching and Learning: Knowledge Mat Assessment -Describe the simple functions of the basic parts of the digestive system in humans. -Identify the different types of teeth in humans and their simple functions. - Construct and interpret a variety of food chains, identifying producers, predators and prey. Knowledge Mat Assessment Visit to school from a dentist Possible links to PSHE	Topic: Physics - Electricity Significant Individuals: Michael Faraday Nikola Tesla Albert Einstein Teaching and Learning: Knowledge Mat Assessment - Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. - Recognise that a switch opens and closes a circuit and associate this with lights in a simple series circuit. -Recognise some common conductors and insulators, and associate metals with being good conductors. To build a pressure alarm to stop burglars. Knowledge Mat Assessment.	Topic: Physics - Sound Significant Individuals: Aristotle Galileo, Da Vinci Teaching and Learning: Knowledge Mat Assessment - Identify how sounds are made, associating some of them with something vibrating. -Recognise that vibrations from sounds travel through a medium to the ear. - Find patterns between pitch of a sound and features of the object that produced it. -Find patterns between the volume of a sound and the strength of the vibrations that produced it. -Recognise that sounds get fainter as the distance from the sound source increases. Knowledge Mat Assessment
	Scientific Enquiry Identifying, grouping and classifying Working Scientifically Asking questions Presenting results		Scientific Enquiry Observing over time Research Comparative and fair testing Working Scientifically Observing closely Interpreting results Making predictions Taking measurements Presenting results	Scientific Enquiry Observing over time Research Comparative and fair testing Working Scientifically Planning an enquiry Observing closely Asking questions Interpreting results Presenting results Evaluating an enquiry	Scientific Enquiry Fair testing Pattern seeking Working Scientifically Planning an enquiry Making predictions Gathering and recording results Drawing conclusions Evaluating an enquiry	Scientific Enquiry Pattern seeking Working Scientifically Observing closely Drawing conclusions

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5	Topic: Chemistry - Properties and Changes of Materials Significant Individuals: Stephanie Kwolek Walter L. Hawkins Teaching and Learning: Knowledge Mat Assessment - Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity and response to magnets, - Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. - Demonstrate that dissolving, mixing and changes of state are reversible changes. - Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and action of acid on bicarbonate soda. Knowledge Mat Assessment	Topic: Physics - Forces Significant Individuals: Issac Newton Galileo Teaching and Learning: Knowledge Mat Assessment - Explain that unsupported objects fall towards the earth because of the force of gravity acting between the earth and the falling object. - Identify the effects of air resistance, water resistance and friction, the act between moving surfaces. - Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Knowledge Mat Assessment	Topic: Biology - Living Things and Their Habitats Significant Individuals: Eva Crane Teaching and Learning: Knowledge Mat Assessment - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - Describe the life processes of reproduction in some plants and animals. Knowledge Mat Assessment Explore Dome - Environments.	Topic: Physics - Earth and Space Significant Individuals: Neil Armstrong Mae Jemison Katherine Johnson Stephen Hawkins Tim Peak Teaching and Learning: Knowledge Mat Assessment - Describe the movement of the earth, and other planets, relative to the sun in the solar system. - Describe the movement of the moon relative to the earth. - Describe the sun, earth and moon as approximately spherical bodies. - Use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky. Knowledge Mat Assessment Home Space Project - completed over several weeks. To be later presented to class. STEAM - To design a rocket, space station, and create rocket fuel to then be tested. Explore Dome - Space Show	Topic: Biology - Animals including Humans Significant Individuals: N/A Teaching and Learning: Knowledge Mat Assessment - Describe the changes as humans develop to old age. Knowledge Mat Assessment PSHE link Puberty / Well-being	
	Scientific Enquiry Comparative and fair testing Identifying, grouping and classifying Working Scientifically Planning an enquiry Making predictions Observing closely Taking measurements Presenting results Interpreting results	Scientific Enquiry Comparative and fair testing Working Scientifically Planning an enquiry Making predictions Taking measurements Drawing conclusions Evaluating an enquiry	Scientific Enquiry Research Observing over time Working Scientifically Observing closely Gathering and recording results Presenting results	Scientific Enquiry Observing over time Pattern seeking Research Working Scientifically Asking questions Observing closely Presenting results	Scientific Enquiry Observing over time Working Scientifically Gathering and recording results Presenting results Interpreting results	

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6	Topic: Biology – Evolution and Inheritance Significant Individuals: Charles Darwin Libbie Hyman Mary Leaky Teaching and Learning: Knowledge Mat Assessment - Recognise that living things have changed over time and that fossils provide information about the earth millions of years ago. - Recognise that living things produce offspring of the same kind, but offspring vary and are not identical to their parents. -Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Knowledge Mat Assessment	Topic: Physics – Electricity Significant Individuals: John Logie Baird Teaching and Learning: Knowledge Mat Assessment - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. -Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on / off position of switches. -Use recognised symbols when representing a simple circuit in a drawing. Knowledge Mat Assessment	Topic: Biology – Living Things and Their Habitats Significant Individuals: Carl Linnaeus Jane Colden Teaching and Learning: Knowledge Mat Assessment - Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics. Knowledge Mat Assessment National History Museum Trip		Topic: Physics - Light Significant Individuals: Percy Shaw Teaching and Learning: Knowledge Mat Assessment -Recognise that light appears to travel in straight lines. -Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into our eye. - Explain we see things because light travels from light sources to our eyes or from light sources to objects and then into our eyes. - Use the idea of light travelling in straight lines to explain why shadows have the same shape as the objects that cast them. Knowledge Mat Assessment	Topic: Biology – Animals including Humans Significant Individuals: Percy Julian Marie M. Daly Teaching and Learning: Knowledge Mat Assessment - Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. -Describe the ways in which nutrients and water are transported within animals including humans. Knowledge Mat Assessment
	Scientific Enquiry <i>Observing over time</i> <i>Research</i> Working Scientifically <i>Gathering and recording results</i> <i>Observing closely</i> <i>Presenting results</i>	Scientific Enquiry <i>Comparative and fair testing</i> <i>Pattern seeking</i> Working Scientifically <i>Asking questions</i> <i>Planning an enquiry</i> <i>Making predictions</i> <i>Drawing conclusions</i> <i>Evaluating an enquiry</i>	Scientific Enquiry <i>Comparative and fair testing</i> <i>Identifying, grouping and classifying</i> <i>Observing over time</i> Working Scientifically <i>Planning an enquiry</i> <i>Making predictions</i> <i>Presenting results</i> <i>Drawing conclusions</i> <i>Evaluating an enquiry</i>		Scientific Enquiry <i>Comparative and fair testing</i> <i>Research</i> Working Scientifically <i>Observing closely</i> <i>Taking measurements</i> <i>Presenting results</i> <i>Drawing conclusions</i>	Scientific Enquiry <i>Pattern seeking</i> <i>Research</i> Working Scientifically <i>Gathering and recording results</i> <i>Presenting results</i> <i>Interpreting results</i>