Science Year Planner – Year 5 and 6 2022 - 2023

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| *Term* | *Autumn 1 and 2* | *Spring 1* | *Spring 2* | *Summer 1* | *Summer 2* |
| *Topic* | *Living things and their habitats*  *(Year 6)* | *Forces*  *(Year 5)* | *Evolution and Inheritance*  *(Year 6)* | *Light*  *(Year 6)* | *Animals including Humans*  *(Year 6)* |
| *Termly Project* | *Frozen Kingdom* | *Dynamic Dynasties* | | *Ground Breaking Greeks* | |
| *Science discipline:* | *Biology* | *Physics* | *Biology* | *Physics* | *Biology* |
| *Science Knowledge NC Focus:* | * 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 | * 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, that act between moving surfaces * recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect | * recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago * recognise that living things produce offspring of the same kind, but normally 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 | * 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 the eye * explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes * use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them | * dentify 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 |
| *Assessment for Learning and Enquiry Book* |  | A picture containing calendar  Description automatically generated |  |  |  |
| *Sequence of learning:* | **Sequence of learning:**  1. I can reflect on prior knowledge and ask scientific questions..  2. I can classify living things into broad groups (microorganisms, plants and animals) according to common observable characteristics and based on similarities and difference.  3. I can observe living things to classify them.  4. I can research Carl Linnaeus, a pioneer of classification.  5. I can research unfamiliar animals and plants.  6. I can understand that scientists don’t always agree on how groupings should be made. | **Sequence of learning:**  1. I can reflect on prior knowledge and ask scientific questions.  2. I can explain about friction.  3.  I can understand how friction can be reduced.  4. I can explain how gravity causes unsupported objects to fall.  5.  I can explain that when an object is stationary or moving at a constant speed, the forces acting on it are balanced.  6. I can design mechanisms using levers, pulleys and gears to allow forces to have a greater effect. | **Sequence of learning:**  1. I can reflect on prior knowledge and ask scientific questions.  2.I can recognise that living things produce offspring of the same kind but do not look identical.  3. I can identify how animals and plants are adapted to suit their environment in different ways.  4. I can recognise that living things have changed over time.  5. I can explain how fossils provide information about living things that inhabited the Earth millions of years ago.  6. I can create a family tree to show my ancestors.. | **Sequence of learning:**  1. I can reflect on prior knowledge and ask scientific questions.  2. I can explain that light travels in straight lines from a light source to our eyes.  3. I can explain how light travels to objects and then to our eyes.  4. I can explore how mirrors reflect light. I can investigation refraction and how periscopes change the direction of light.  5. I can investigate how light enables us to see colours. I can play with prisms to clear spectrums.  6. I can explain why shadows have the same shape as the object that casts them. | **Sequence of learning:**  1. I can reflect on prior knowledge and ask scientific questions.  2. I can identify and name the parts of the circulatory system.  3. I can describe the functions of the circulatory system.  4. I can explain how water and nutrients are transported around the body.  5. I can measure and compare heart rates.  6. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. |
| End Point: | Children can explore classification in detail; broad groupings, such as micro-organisms, plants and animals; classify animals into commonly found invertebrates and vertebrates; significance of the work of scientists such as Carl Linnaeus | Children can explore falling objects and raise questions about the effects of air resistance; explore the effects of air resistance by observing how different objects; experience forces that make things begin to move, get faster or slow down; the effects of friction on movement; the effects of levers, pulleys and simple machines on movement. | Children can find out more about how living things on earth have changed over time; idea that characteristics are passed from parents to their offspring; natural selection; genes; mutation in genes; changes over time; Charles Darwin and Alfred Wallace’s ideas on evolution. | Children can explore the way that light behaves; the idea that light appears to travel in straight lines; the relationship between light sources, objects and shadows; range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters. | Children can understand what the main body parts and internal organs; the circulatory system; how to keep bodies healthy and how bodies might be damaged; the relationship between diet, exercise, drugs, lifestyle and health. |
| Vocabulary: | **Vocabulary throughout:**  Antennae, arachnid, arthropod, crustacean, insect, myriapod | **Vocabulary throughout:**  Acceleration, air resistance, element, force mass, meter, gravity, newton, streamlined, water resistance, weight | **Vocabulary throughout:**  Adaptation, artificial selection, natural selection | **Vocabulary throughout:**  Angle of incidence, angle of reflection, light source, reflection, refraction, spectrum | **Vocabulary throughout:**  Artery, breathing rate, capillary, circulatory system, liver, pulse rate, vein |