

KFJS
Science Curriculum Map

In each project children will: build excitement and curiosity about natural phenomena by using science to explain, predict and analyse the way things behave.

Year 5

Project	Fantastic Forces Forces	Healthy and Hearty Animals including humans Puberty	Secrets of the Solar System Light, space and the Solar System
Key Question	How can we change the movement of an object?	How can humans keep their bodies healthy?	How do the Earth and Moon move in space?
Essential understanding	<p>Unsupported objects fall to Earth due to gravity. Air resistance and water resistance are types of friction that act in the opposite direction to that which an object is moving.</p>	<p>The circulatory system carries oxygen, nutrients and water to cells through moving blood around the body. Diet, exercise, drugs and sleep all effect how healthy our bodies are.</p>	<p>Light appears to travel in straight lines. Objects can be seen because they give or reflect light into our eye. All planets in our solar system, including Earth orbit the sun. Day and night are caused by the Earth rotating on its axis and is why the sun appears to move across the sky.</p>
<p>Beginning to ask own scientific questions and planning scientific enquiry to answer them. Recognise what a range of scientific equipment is for and can use it to take measurements using standard units. Can record data based on their enquiries and connect this with wider scientific evidence that supports or refutes their findings.</p>			
Objectives	<p>Explain that unsupported objects fall toward 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.</p>	<p>Identify and name the main parts of the human circulatory system, and describe the function of the heart, blood vessels and blood Recognise the impact of diets, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>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. Recognise that light appears to travel in straight lines.</p>

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			<p>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</p> <p>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.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
Working scientifically	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Take measurement using a range of scientific equipment with accuracy and precision, taking repeat recordings when appropriate.</p> <p>Use test results to make predictions to set up further comparative and fair tests.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs and line graphs.</p>	<p>Identify scientific evidence that has been used to support and refute ideas or arguments.</p>
Skills	<p>Explain the effect of gravity.</p> <p>Explain two types of friction: air resistance and water resistance</p>	<p>Understand how the circulatory system works.</p> <p>Explain the effect of diet, exercise, drugs and sleep on the human body.</p>	<p>Explain how light travels and how objects can be seen.</p> <p>Understand all planets in our solar system, including Earth orbit the sun.</p> <p>Explain how day and night occurs and why the sun appears to move across the sky.</p>

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Working scientifically	<p>Construct relevant questions which include prior knowledge and some scientific vocabulary.</p> <p>Plan independently a simple fair test, recognising the variables.</p> <p>With help, suggest own equipment which can be used to take measurements repeatedly.</p> <p>Share results and conclusions, including explanations and causal relationships, using a range of presentational and written methods, with support where needed.</p>		<p>With structure, create a simple plan, set up and complete and investigation to explore own question.</p> <p>Make a number of careful observations and describe what is seen with increasing technical vocabulary.</p> <p>Use labelled scientific diagrams, tables, bar and line graphs and classification keys to present findings.</p> <p>Create a conclusion using own data and begin to form explanations for this data using prior scientific knowledge.</p>
	<p>Use scientific language with increasing confidence and accuracy.</p> <p>Explain why the similarities and differences may have occurred.</p> <p>Find scientific evidence which supports findings and begins to question why some may not.</p>		
Assessment	<p>Create demonstration of two scenarios one in which the forces acting on an object are balanced (object will be still) and the other where they are unbalance (object will move). Could be children making a small clip and recording with ipads, flip book or comic strip.</p>	<p>Rank how healthy each individual is in three different scenarios which include a schedule of sleep, exercise and food.</p>	<p>Give children a range of pictures that include a light source and object for them to add the shadow to.</p> <p>Children to demonstrate understanding of sun, moon and Earth and movements through space. Could be through diagrams, comic strip or physical re-enactment.</p>
WTS	<p>Can demonstrate and identify gravity acting on an object.</p>	<p>Can identify if a lifestyle is healthy based one element e.g. Food intake.</p>	<p>Draw a shadow that is the same shape as the object that cast it.</p>

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			Can demonstrate that the moon moves around the earth and earth around the sun.
EXS	Demonstrate and identify gravity and friction or up thrust acting on an object and scenario where balanced/ unbalanced.	Take into account more than one aspect of lifestyle to assess whether an individual's lifestyle is healthy	Draw shadows that are the same shape as the object and in an appropriate direction based on direction of light source and some varying in size due to the distance from light source. Uses term orbit to demonstrate that earth orbits the sun, the moon orbits earth and though the sun appears to move through the sky in the day it is the earth spinning on its axis
GDS	As above but may demonstrate understanding in a more complicated scenario e.g. Using a pulley.	As above taking into account multiple elements and may offer how a lifestyle could be made healthier.	As above but with greater control and confidence. As above with greater detail more explicitly expressed e.g. The earth fully rotates on its axis once every 24 hours.