

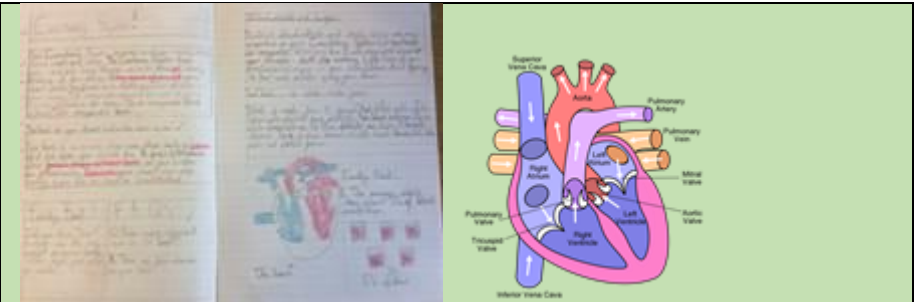
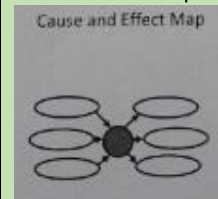


BIOLOGY

		Y5	Y6
Living things and their habitats	<p>Knowledge:</p> <ul style="list-style-type: none"> ♣ describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ♣ describe the life process of reproduction in some plants and animals. 	<p>Knowledge:</p> <ul style="list-style-type: none"> ♣ describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ♣ give reasons for classifying plants and animals based on specific characteristics. 	
	<p>Working scientifically:</p> <p>Identification and Classification (Focus)</p> <ul style="list-style-type: none"> Relates explanations of evidence gathered to scientific knowledge and understanding. <p>Pattern spotting</p> <ul style="list-style-type: none"> Uses simple models to help describe scientific ideas 	<p>Working scientifically:</p> <p>Identification and Classification</p> <ul style="list-style-type: none"> Use and develop keys and other information records to identify, classify and describe living things and identify patterns that might be found in the natural environment. 	
Animals, including humans	<p>Knowledge:</p> <ul style="list-style-type: none"> ♣ describe the changes as humans develop to old age. 	<p>Knowledge:</p> <ul style="list-style-type: none"> ♣ 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. 	
	<p>Working scientifically:</p> <p>Research</p> <ul style="list-style-type: none"> Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. 	<p>Working scientifically:</p> <p>Research</p> <ul style="list-style-type: none"> Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. Recognises scientific questions that do not yet have definitive answers. Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation. 	



			
Evolution and inheritance			<p>Knowledge:</p> <ul style="list-style-type: none"> ♣ 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
			<p>Working scientifically:</p> <p>Pattern spotting</p> <ul style="list-style-type: none"> • Uses scientific evidence to answer questions or support findings <p>Research</p> <ul style="list-style-type: none"> • Talk about how scientific ideas have developed over time • Identify scientific evidence that has been used to support or refute ideas or arguments • Explains why particular pieces of equipment or information sources will provide better quality evidence. 



		Y5	Y6
Chemistry	Properties and changes of materials	<p>Knowledge:</p> <ul style="list-style-type: none">♣ compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), 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 the action of acid on bicarbonate of soda.	
		<p>Working scientifically:</p> <p>Fair Testing (Focus)</p> <ul style="list-style-type: none">• Plan familiar enquiry types in appropriate detail.• Select and plan the most appropriate type of scientific enquiry to use scientific questions• Independently asks questions and offers ideas for scientific enquiry, which have a clear scientific purpose.• Recognise when and how to set up comparative fair tests and explain which variable need to be controlled and why. <p>Observing changes over time</p> <ul style="list-style-type: none">• Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models.• Where appropriate, makes a comparative statement, describing relationships between factors being investigated.	



		<table border="1"> <thead> <tr> <th>Initial Question (what is our overarching question?)</th> <th>Improved version (is there something more specific we are looking to do?)</th> <th>Best version (what are the details of what and how you want to explore an overarching question?)</th> </tr> </thead> <tbody> <tr> <td>What evidence can we find that the Earth spins?</td> <td>Who can we observe the rotation of planets?</td> <td>How can we observe the rotation of planets?</td> </tr> <tr> <td>How do we know that there are eight planets in our solar system, what are they like?</td> <td>How do we know there are 8 planets in our solar system?</td> <td>How do we know there are 8 planets in our solar system? What evidence do we have?</td> </tr> <tr> <td>How do we know that it is different times of day across the Earth at one moment?</td> <td>What experiment do we need to do to find out how different time zones affect different countries?</td> <td>How can we use different time zones to find out how different time zones affect different countries?</td> </tr> <tr> <td>How can we demonstrate that the Earth and planets orbit the sun?</td> <td>What might demonstrate the Earth and planets orbit the sun?</td> <td>What can we use to demonstrate that the Earth and planets orbit the sun?</td> </tr> <tr> <td>How do we know the Earth and planets are spherical?</td> <td>What can we use to demonstrate that the Earth and planets are spherical?</td> <td>What can we use to demonstrate that the Earth and planets are spherical?</td> </tr> <tr> <td>What tells us that the moon travels around the Earth approximately every 4 weeks?</td> <td>What can we use to demonstrate that the moon travels around the Earth approximately every 4 weeks?</td> <td>What can we use to demonstrate that the moon travels around the Earth approximately every 4 weeks?</td> </tr> </tbody> </table>	Initial Question (what is our overarching question?)	Improved version (is there something more specific we are looking to do?)	Best version (what are the details of what and how you want to explore an overarching question?)	What evidence can we find that the Earth spins?	Who can we observe the rotation of planets?	How can we observe the rotation of planets?	How do we know that there are eight planets in our solar system, what are they like?	How do we know there are 8 planets in our solar system?	How do we know there are 8 planets in our solar system? What evidence do we have?	How do we know that it is different times of day across the Earth at one moment?	What experiment do we need to do to find out how different time zones affect different countries?	How can we use different time zones to find out how different time zones affect different countries?	How can we demonstrate that the Earth and planets orbit the sun?	What might demonstrate the Earth and planets orbit the sun?	What can we use to demonstrate that the Earth and planets orbit the sun?	How do we know the Earth and planets are spherical?	What can we use to demonstrate that the Earth and planets are spherical?	What can we use to demonstrate that the Earth and planets are spherical?	What tells us that the moon travels around the Earth approximately every 4 weeks?	What can we use to demonstrate that the moon travels around the Earth approximately every 4 weeks?	What can we use to demonstrate that the moon travels around the Earth approximately every 4 weeks?	
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Opportunities for observing changes over time:

- Gummy bear absorbing liquid
- Rust on nails

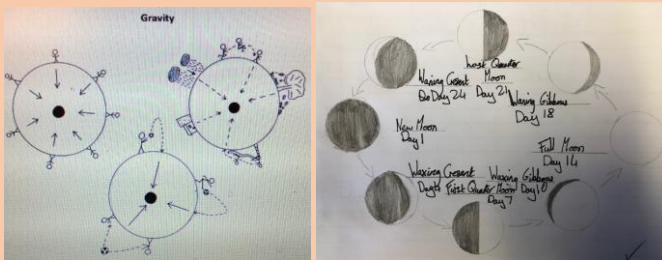
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Physics</p>	<p style="text-align: center;">Y5</p>	<p style="text-align: center;">Y6</p>
	<p>Earth and space</p> <p>Knowledge:</p> <ul style="list-style-type: none"> ♣ describe the movement of the Earth, and other planets, relative to the 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. <p>Working scientifically: Pattern Spotting (focus)</p>	<p>Electricity</p> <p>Knowledge:</p> <ul style="list-style-type: none"> ♣ 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 diagram. <p>Working scientifically: Fair testing</p>



- Communicates findings in written form, displays and uses other forms of presentation. Uses scientific language to communicate increasingly detailed analysis.
- Look for different casual relationships in data and identify evidence that refutes or supports ideas.

Research:

- Identify scientific evidence that has been used to support or refute ideas or arguments
- Talk about how scientific ideas have changed over time.



Opportunities for observing changes over time:

- Plotting course of sun and shadows
- Plotting celestial bodies

Forces

Knowledge:

- 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.

Working scientifically:

Observing (focus)

- Chooses to make a series of observations or measurements that will add to the quality of the evidence collected while investigating.
- Takes measurements, using a range of science equipment with increasing accuracy and precision

Light

Knowledge:

- 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.

Working scientifically:

Observing (focus)

- Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables.
- Draws valid conclusions that utilise more than one piece of supporting evidence.

Results

How many wires	Test 1	Test 2	Test 3	Test 4
2x wires	83.9	84.7	85.4	83.4
3x wires	82.6	85.9	85.8	83.3
4x wires	85.9	83.3	84.1	84.4

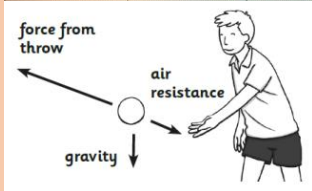


- Selects the most appropriate equipment to use in a range of contexts and enquiries.

Pattern spotting

- Makes generalisations about what that evidence seems to indicate.
- Recognises some of the limitations of their evidence and can suggest why it should not be trusted.
- Uses test results to set up further comparative tests

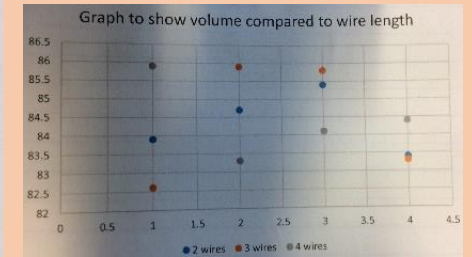
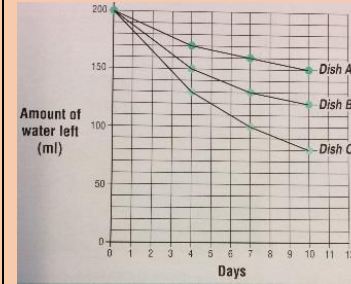
	Test one	Test two	Test three	Overall result
Variable change 1				
Variable change 2				



- Provides explanations for differences in repeated observations or measurements, identifying reasons for any anomalies noticed.

Fair testing

- Identifies scientific evidence that has been used to support or refute ideas or arguments.
- Select and plan the most appropriate type of scientific enquiry to answer scientific questions.



Opportunities for observing changes over time:

- Effect of UV on beads