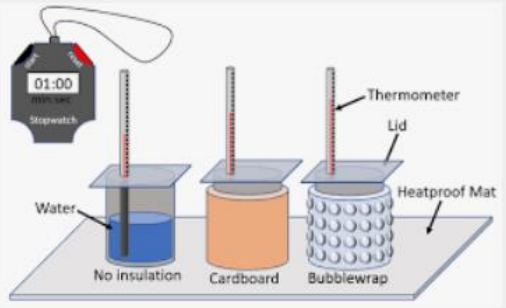


Subject: Science -Chemistry			
Year group: 5		Unit of Learning: Materials and their properties	
Prior Learning Children have learned about the basic properties of materials in Year 1 and Year 2 including, strong, weak, flexible, rigid, transparent, translucent, opaque, soft, hard, waterproof, absorbent, shiny, dull, stretchy, smooth, rough. In Year 3 they learn about how materials react to light and magnets and about electrical conductors and insulators in Year 4. They have also learned about changing state and how heating and cooling causes these changes		Future Learning In Autumn 2 pupils will learn about separating mixtures.	
	Learning Objective	Substantive knowledge	Suggested Activity
Session 1 (1 hr)	What are objects made from? What are the properties of different materials? To compare and group together everyday materials on the basis of their properties, including their hardness, solubility,	To know that materials have different properties that make them useful for different jobs . To know properties describe how a material behaves , and explain why it is well suited for a particular use. To know the meaning of common properties including, strong, weak, flexible, rigid, transparent, translucent, opaque, soft, hard, waterproof, absorbent, shiny, dull,	Introduce the vocabulary Give each group the same object (e.g sock, foil, rock, plastic spoon, sugar cube) ask pupils to identify what material the object is made from. As a team pupils select an object to hold up in response to these questions. "Predict which object weak." "What is it made from?" "Show me an object that is transparent." "What is it made from?" "Are all objects made from ____ transparent?" Introduce new vocabulary with definitions electrical conductor - allows electrical energy to pass through it easily electrical insulator - does not allows electrical energy to pass through it easily thermal conductor - allows heat energy to pass through it easily thermal insulator - does not allows heat energy to pass through it easily soluble - can be dissolved insoluble - can n be dissolved magnetic - attracted to magnets nonmagnetic - not attracted to magnets Pupils sort objects on their table into conductors/insulators

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	transparency, conductivity (electrical and thermal), and response to magnets	stretchy, smooth, rough. (hard= difficult to scratch)	
Session 2 (1 hr)	<p>How can we group these materials according to their properties?</p> <p>To 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</p>	<p>To know that materials have different properties that make them useful for different jobs.</p> <p>To know properties describe how a material behaves, and explain why it is well suited for a particular use.</p> <p>To know the meaning of common properties including, strong, weak, flexible, rigid, transparent, translucent, opaque, soft, hard, (hard= difficult to scratch) waterproof, absorbent, shiny, dull, stretchy, smooth, rough, electrical conductor, electrical insulator, thermal conductor thermal insulator,</p>	<ul style="list-style-type: none"> • Working in Kagen groups pupils sort objects / photographs / pictures into <ul style="list-style-type: none"> ○ Soluble / insoluble ○ Hard /soft ○ Electrical conductor / Electrical insulator ○ Thermal conductor / thermal insulator ○ Magnetic / nonmagnetic ○ Transparent / Translucent / Opaque • Are some properties easier to identify than others? Why? • Pupils use a sorting diagram to record their predictions (Pupils could choose Carroll or Venn - select/design their own) <p>Having made the predictions ask children how they could test that their prediction is correct.</p>

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		<p>soluble, insoluble, magnetic, nonmagnetic</p> <p>To know that materials often have several properties and can be grouped according to their properties</p>	
<p>Session 3 2 hours</p>	<p>Which materials will be the most suitable for building a shelter?</p> <p>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<p>To know that good thermal insulators will keep things at the same temperature longer.</p> <p>To know that waterproof materials will prevent things from getting wet (absorbing water).</p> <p>To know that a fair test involves changing one variable - the independent variable</p> <p>To know that a fair test involves measuring one variable - the dependent variable</p> <p>To know that a fair test involves controlling all</p>	<ul style="list-style-type: none"> • Introduce the concept of shelter and refugees using class text. • Using Kagan structures, pupils suggest what properties they would require from a shelter. • Pupils design and label a shelter by predict what materials would be most suited to this purpose. (maybe from a list of given options) • Pupils / whole class begin to design a fair test - <p>Question: Which material is the best waterproof / thermal insulator?</p> <p>Equipment:</p> <p>Prediction:</p> 

		the other variables - the control variable	
Session 4 30mins hour	<p>Which materials will be the most suitable for building a shelter?</p> <p>To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	To know how to interpret results and draw conclusions	<p>Pupils use conclusion to write / design a temporary shelter</p> <p>Investigation Enquiry Question: How do rocks and soils from different places differ? Complete group fair test planning/ predicting sheet</p>
Session 5	ASSESSMENT		<p><u>Key Assessment Criteria</u> To know the meaning of common properties including, strong, weak, flexible, rigid, transparent, translucent, opaque, soft, hard, (hard= difficult to scratch) waterproof, absorbent, shiny, dull, stretchy, smooth, rough, electrical conductor, electrical insulator, thermal conductor, thermal insulator,</p>

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			<p>soluble, insoluble, magnetic, nonmagnetic</p> <p>To know that materials often have several properties and can be grouped according to their properties</p> <p>(NC- To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnet)</p>
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Subject: Science - Chemistry		
Year group: 5		Unit of Learning: separating mixtures
Prior Learning Children should know that the properties of some materials allows them to be used for different purposes and understand that the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2). In Autumn 1 Pupils will have learned about properties of materials in more detail.		Future Learning: In Key stage 3 pupils will learn about the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure and changes of state in terms of the particle model.
	Learning Objective	Suggested Activity
Session 1 1 hour	<p>What are mixtures?</p> <p>Can all mixtures be separated?</p> <p>What are the different methods and equipment used for separation mixtures?</p>	<p>Vocabulary & Discovery Introduce new vocabulary Give children separating mixtures apparatus and some mystery mixtures for them to separate. Carousel could include</p> <ul style="list-style-type: none"> • Sand and rice • Water and rice • Water and flour • Water and sand • Sand and paperclips • Tealeaves in water <p>Allow children to attempt to separate the mixtures using the apparatus. Evaluate What have you found out? What worked/what didn't work?</p> <p>https://www.bbc.co.uk/bitesize/topics/zcvv4wx/articles/zw7tv9q</p>

<p>Session 2 (1 hr)</p>	<p>What is a solution? How can we recover a substance from a solution? To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution WS -To use test results to make predictions to set up further comparative and fair tests</p>	<p>To know that when you combine two or more substances you create a mixture. To know that when you dissolve a solid in a liquid you make a solution. To know that some mixtures can be reversed and you can separate the original substances To know that sieving can separate solid particles of different sizes, for example sand and gravel. To know that filtering can separate a mixture of a solid and a liquid. To know that evaporation can separate a solid that has been dissolved in water.</p>	<p>https://www.bbc.co.uk/bitesize/topics/zjty4wx/articles/zpbdpbk Give pupils sugar, milksake powder, jelly crystals, sand, flour, salt. Predict which of the solutes will dissolve in warm water Test predictions Demonstrate separation by filtering only works if the solute hasn't dissolved. Demonstrate simple distillation by putting a small amount of the remaining solution in a petri dish and allowing the water to evaporate (Keep for session 4)</p>
<p>Session 3 (1 hr)</p>	<p>What is a mixture? What are the different methods and equipment used for separating mixtures?</p>	<p>To know that when you combine two or more substances you create a mixture. To know that when you dissolve a solid in a liquid you make a solution.</p>	<p>Set up a carousel of mixtures to investigate</p> <ul style="list-style-type: none"> • Explain the carousel of mixtures to the children. • Children move around each station and select the best method of separating on their worksheet. (Round Robin or Think, Pair Share) • When everyone has visited each station discuss conclusions about best methods for separating. • Choose someone to carry out chosen method and evaluate its success

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	<p>To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p>	<p>To know that some mixtures can be reversed and you can separate the original substances</p> <p>To know that sieving can separate solid particles of different sizes, for example sand and gravel.</p> <p>To know that filtering can separate a mixture of a solid and a liquid.</p> <p>To know that evaporation can separate a solid that has been dissolved in water.</p>	<p>EXT: suggest other mixtures that could be separated by filtering, sieving or evaporating</p>
<p>Session 4 (1 hr)</p>	<p>What is the difference between reversible and irreversible changes? To demonstrate that some dissolving, mixing and changes of state are reversible changes</p>	<p>To know that a reversible change is a change that can be undone or reversed such as: dissolving melting freezing evaporation mixing</p> <p>To know that if you can get back the substances you started the reaction with, that's a reversible reaction. A reversible change might change how a material looks or feels, but it doesn't create any new materials.</p>	<p>Introduce reversible and irreversible changes using the clip https://www.bbc.co.uk/bitesize/topics/zcvv4wx/articles/z9brcwx</p> <p>Using the petri dishes from session 2 ask children to consider the statement 'Dissolving is a reversible change' Do they agree or disagree? Pupils write a speech / thought bubble. Explain that changing state can also be a reversible change Ralley Coach sheet: sort the following changes into Reversible / irreversible Melting chocolate / freezing water / boiling water / melting wax Explain that A change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed. Ask pupils to look at sorting activity again and discuss /take photos Ask pupils to think of some irreversible changes (Ralley Robin / Think Pair Share)</p>

<p>Session 5 (1 hr)</p>	<p>What is an irreversible change? To 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>	<p>To know that a change is called irreversible if it cannot be changed back again. To know that irreversible changes are also called chemical reactions. In an irreversible change, new materials are always formed. To know that heating, mixing and burning can lead to new substances being formed. E.g frying an egg, mixing vinegar and bicarbonate of soda, burning wood.</p>	<p>Give 1 -plaster of Paris and water 2 - Andrews salts and water 3 - vinegar and bicarbonate of soda +balloon 4 - vinegar and milk</p> <p>Take turns to combine and observe the results Is the change reversible or irreversible? Has a new material been form? Rally Robin Sheet: Pupils take it in turns to explain whether they think heating ice, cake mixture, a raw egg, dough, clay, water, chocolate is reversible or irreversible.</p>
<p>Session 6 (1 hour)</p>	<p>To apply our understanding of reversible and irreversible changes to our food technology project</p>	<p>Assessment Week</p>	<p><u>Key Assessment Criteria</u> NC- To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating NC- To 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>

Subject: Science - Physics			
Year group: 5		Unit of Learning: The solar system	
Prior Learning Children should know that seasonal changes and the amount of daylight change during the course of the year. (Y1) They know that shadows formed by the sun change in length and direction as the sun moves across the sky (caused by the rotation of the Earth on its axis) Y3		Future Learning: In year 6 pupil will learn about light. In Key stage 3, Pupils will learn; weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only) ♣ our Sun as a star, other stars in our galaxy, other galaxies ♣ the seasons and the Earth's tilt, day length at different times of year, in different hemispheres ♣ the light year as a unit of astronomical distance.	
Theme	Learning Objective	Substantive Knowledge	Suggested Activity
Session 2 1 hour	<p>What is in space?</p> <p>What is the solar system?</p> <p>What do we know about the planets?</p> <p>To use scientific vocabulary to explore ideas about our solar system</p> <p>To describe the Sun, Earth and Moon as</p>	<p>To know that Nicolaus Copernicus was an early astronomer, scientist and priest in Poland, who thought the Sun was at the centre of the solar system.</p> <p>To know Copernicus' theory was known as the heliocentric model.</p> <p>To know that the solar system is also home to lots of other celestial bodies such as asteroids, moons, and dwarf planets such as Pluto.</p>	<p>Explain that since human life on earth began people have been fascinated by space and the planets. Look at various diagrams/theories/ clips of space and our solar system https://explorify.uk/en/activities/odd-one-out/maps-of-the-solar-system</p> <p>Ptolemy, Alhazen and Copernicus.</p> <p>Explain that the celestial bodies in the our solar system include:</p> <ul style="list-style-type: none"> The sun moon stars Mercury Venus Earth Mars Jupiter Saturn Uranus Pluto (dwarf planet) <p>Ask pupils to draw a diagram of what you think the solar system looks like</p> <p>Discuss the different ideas</p>

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	approximately spherical bodies		Explain to pupils that the sun is a star and is at the centre of our universe and the 8 other planets (excluding Pluto -as it's a dwarf planet) Moon are celestial bodies that orbit planets. Earth has one but other planets have many such a Jupiter that has 4 large moons and many smaller ones. Video about the evolution of ideas about the solar system Using inflatable solar system to physically create the different models of the solar system
Session 2 1 hour	How do the planets move around the solar system? How does the moon move in rotation to Earth? To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. To describe the movement of the Moon relative to the Earth	To know the Sun is a star . To know the Earth is one of eight planets that orbits around the Sun . To know that the planets are called Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune . To know it takes Earth one year (365 $\frac{1}{4}$ days)to orbit the Sun . To know the Earth rotates on its axis at 1000 miles an hour, completing one full rotation in 24 hours . To know that the moon orbits Earth . To know that the moon does not give off his own light but reflects the light from the sun .	Use the inflatable solar system to demonstrate the movement of the Earth another planet in the solar system relative Pupils can use words or diagrams to communicate their understanding. Use the inflatable solar system to demonstrate the movement of the moon relative to the Earth Pupils can use words or diagrams to communicate their understanding.
Session 3 1 hour	How does the rotation of the Earth create night and day?	To know it takes 24 hours for the Earth to rotate on its axis . To know that when the Earth rotates on its axis , half the Earth is facing the Sun which	Use these clips to prompt discussion and explain day and night https://www.bbc.co.uk/bitesize/clips/zrd9wmn https://www.bbc.co.uk/bitesize/clips/zkynvcw https://explorify.uk/en/activities/whats-going-on/earth/classroom

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	<p>Why does the sun move across the sky? To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>means it is daytime. The other half, that is facing away from the Sun is in darkness so it is night time.</p>	<p>Use a torch to represent the sun and a globe. Keeping the torch stationary rotate the globe asking children what different parts of the globe would be experiencing. Pupils write an explanation about how day and night occur. Photographs of the torch light and the globe could be used to support this.</p> <p>Challenge: https://explorify.uk/en/activities/what-if/the-sun-rotated-and-the-earth-didnt</p>
			<p>Space Dome Visit.</p>
		<p>ASSESSMENT</p>	<p><u>Key Assessment Criteria</u> To know the Earth orbits the Sun, the Earth rotates on its axis and that the moon orbits Earth. (NC-To describe the movement of the Earth, and other planets, relative to the Sun in the solar system and the movement of the Moon relative to the Earth) To know that when the Earth rotates on its axis, half the Earth is facing the Sun which means it is daytime. The other half, that is facing away from the Sun is in darkness so it is night time. (NC-To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.)</p>

Shadows

- (a) One sunny day, some children use a rounders post to make shadows in their playground.



When light shines on the rounders post, a shadow forms.

Where does the light come from?



.....

1 mark

- (b) The rounders post makes a dark shadow.

Tick **ONE** box to complete the sentence below.

The rounders post makes a **dark** shadow because it is...

opaque.

smooth.

solid.

transparent.

tall.

heavy.

1 mark

- (c) The children draw round the shadow of the rounders post every half hour from 9:30 until 12 noon.



They measure the length of each shadow and record their results in this table:

Time (am)	Length of shadow (cm)
9:30	146
10:00	130
10:30	116
11:00	109
11:30	106
12:00	103

What happened to the length of the shadow during the morning?

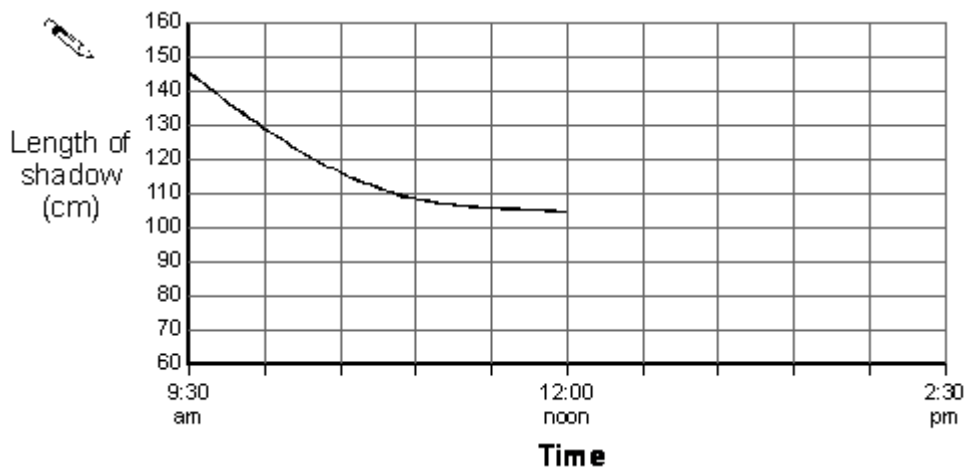


.....

1 mark

(d) The children make a line graph to show the results from the morning.

Continue the line on the graph to show how the length of the shadow would change between 12 noon and 2:30 pm.



1 mark

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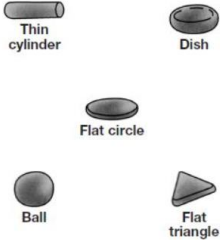
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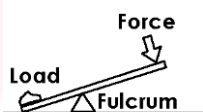
Subject: Science - Physics			
Year group: 5		Unit of Learning: Forces	
<p style="text-align: center;">Prior Learning:</p> <p>Pupils should know that friction affects the way objects move on a surface and that some forces need contact between two objects, but magnetic forces can act at a distance. Pupils should understand that some materials are attracted to magnets and some are not and that magnets as having two poles which will attract or repel each other, depending on which poles are facing each other.</p>		<p style="text-align: center;">Future Learning:</p> <p>In Key stage 3 pupils will learn: Describing motion ✦ speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time) ✦ the representation of a journey on a distance-time graph. Forces ✦ forces as pushes or pulls, arising from the interaction between two objects ✦ using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces ✦ forces: associated with deforming objects; stretching and squashing - springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water ✦ forces measured in newtons, measurements of stretch or compression as force is changed</p>	
Theme	Learning Objective	Substantive Knowledge	Suggested Activity
Session 1 1 hour	<p>What is friction, air resistance and water resistance?</p> <p>What is the effect of these forces on moving objects?</p> <p>To identify the effects of air resistance, water resistance and friction, that act</p>	<p>To know that friction is a force between two surfaces that are sliding, or trying to slide, across each other.</p> <p>To know that friction slows down moving objects.</p> <p>To know that air resistance (drag) is friction between a moving object and the air around it.</p> <p>To know that water resistance is friction between a moving object and the water around it.</p>	<p>Share vocabulary on a grid pupils self-assess then use Kagen partners to discuss meaning of unfamiliar words</p> <p>Share definitions and discuss 'resist' 'aero' 'equil' how can we use this to help us understand the words.</p> <p>children to investigate forces equipment and make discoveries.</p> <p>Provide some paper helicopters, pre-made parachute, newton metres, friction slope, magnets, lever resource from Miss Corrigan and create a carousel of activities for pupils to explore and hypothesise about.</p> <p>Pupils generate questions using the format</p> <p>Does theaffect the?</p>

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	between moving surfaces	To know that all these forces slow moving objects . Increasing friction, air resistance and water resistance will slow the movement of objects.	
Session 2 2 hour	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To identify the effects of air resistance. To identify the effects water resistance and friction, that act between moving surfaces	To know that the force of gravity causes objects to fall towards earth . To know that friction is a force between two surfaces that are moving, or trying to move , across each other. To know that friction slows down moving objects. To know that air resistance (drag) is friction between a moving object and the air around it. To know that water resistance is friction between a moving object and the water around it. To know that the forces of friction, air resistance and water resistance slow moving objects. Increasing friction, air resistance and water resistance will slow the movement of objects.	<p>https://www.bbc.co.uk/bitesize/topics/zf66fg8/articles/zqbm3k7 -Gravity https://www.bbc.co.uk/bitesize/topics/zf66fg8/articles/zqbm3k7 - Resistance</p> <p>Using some of the proposed questions from discovery session investigate how to slow falling objects by increasing air resistance.</p> <ol style="list-style-type: none"> Investigate how to slow a falling object by investigating parachutes. (best shape, size or material) or Investigate how blade length effects the time it takes for a paper helicopter to fall. Investigate which plasticene shape falls the slowest and the quickest through a cylinder of water. <p>Dropping modelling clay</p> <p>(a) Sarah makes five different shapes using modelling clay. She uses the same amount of clay for each shape.</p>   

			<ol style="list-style-type: none">4. Use newton meters to test the friction of their own shoes and the children in their group to decide which ones would be best to wear on an icy day.5. Focus group using the ramp, soles and newton meters to predict and test which surfaces will cause more friction.
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<p>Session 3 2, hour</p>	<p>What is the effect of mechanisms and machines?</p> <p>To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>WS -To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>WS - To take measurements, using a range of scientific equipment, with increasing</p>	<p>To know that in science using a force to move something is described as work.</p> <p>To know that mechanism or machine is something that makes that work easier to do.</p> <p>To know that mechanism or machine allow a smaller force to have a greater effect.</p> <p>To know force can be measured in newtons using a newton meter</p>	<p>Explain that in science using a force to move something is described as work. A mechanism or machine is something that makes that work easier to do. They allow a smaller force to have a greater effect.</p> <p>Use Kagen structures to list some examples of machines.</p> <p>Reveal some examples of machines such as a hammer, scissors, nail clippers, spade, door stop (wedge) and a tin opener - ask children if they put these on there list - did they realise these were machines.</p> <p>Refer back to the definition of a machine above. Show children a tin-opener and explain that this is an example of a complex machine. It uses several mechanisms (machines) to make the work easier.</p> <p>Share pg 82 from Usborne Illustrated Science Dictionary to identify what types of machine each of the above items is.</p> <p>Pupils plan to investigate how changing the fulcrum of the lever changes the effort required. Remind pupils about variable and fair testing</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;">  <p>The diagram shows a horizontal beam resting on a triangular fulcrum. A downward arrow labeled 'Force' is applied to the right side of the beam. An upward arrow labeled 'Load' is applied to the left side of the beam.</p> </div> <div> <p>This lever can be constructed using a metre stick, triangular prism a small load of weights, newton meter.</p> <p>Move the fulcrum (prism) from 10cm to 20cm to 30cm record the force required to lift the load at each interval. What do they notice? Is there a pattern? What do they conclude?</p> <table border="1" data-bbox="929 1157 2004 1345"> <tr> <td>Distance from load to fulcrum</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Force required in newtons</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div> </div>	Distance from load to fulcrum					Force required in newtons				
Distance from load to fulcrum													
Force required in newtons													

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	<p>accuracy and precision, taking repeat readings when appropriate</p> <p>WS -To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>WS -To report and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays</p>		
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	and other presentations.		
			Cross curricular links with DT
	ASSESSMENT WEEK		<u>Key Assessment Criteria</u> NC - To identify the effects of air resistance, water resistance and friction, NC - To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

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Subject: Science - Biology			
Year group: 5		Unit of Learning: Living things and their habitat	
Prior Learning:		Future Learning:	
<p>Children should be able name animals that are carnivores, herbivores and omnivores (Y1) and describe how animals obtain their food from plants and other animals, using the idea of a simple food chain (Y2). They should know that animals, including humans, need the right types and amount of nutrition, and they get nutrition from what they eat. (Y3) In year four they have been introduced to classification and learned about how environmental changes can impact on living things. In Year 3 pupils learned about the life cycle of flowering plants.</p>		<p>In Key Stage 3 pupils will learn reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta * reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms.</p>	
	Learning Objective	Substantive Knowledge	Suggested Activity
<p>Session 1 1 hour</p>	<p>How can we identify living things?</p> <p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p>	<p>To know that there are seven activities that all living things do and these are called life processes.</p> <p>To know that the life processes include;</p> <p>Movement</p> <p>Respiration - releasing energy from food usually using oxygen</p> <p>Sensitivity</p> <p>Use senses to respond to the world around them</p> <p>Growth</p> <p>Reproduction</p> <p>Make new living things to ensure their species continues.</p>	<p>Start by some retrieval practise about prior learning on Living / Dead / Never been alive and Life Processes</p> <p>https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/zs73r82</p> <p>Refer to Pg 6 of the Usborne Illustrated science dictionary to clarify misconceptions such as plant can't move</p> <p>Explore the environment looking for living, dead and never been alive or complete a sorting activity.</p>

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		<p>Excretion Get rid of waste</p> <p>Nutrition Getting energy from nutrients in their food</p>	
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<p>What is reproduction? What is a life cycle? How are some lifecycles different to others?</p> <p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p>	<p>To know that all living things reproduce.</p> <p>To know that reproduction is when living things make new living things to ensure their species doesn't die out become extinct.</p> <p>To know that mammals, amphibians, insects and a birds have different life cycles.</p> <p>To know that mammals give birth to live young whose body shape doesn't change much as they become adults.</p> <p>To know that insects, birds and amphibians lay eggs.</p> <p>To know that bird eggs hatch to release a baby that resembles its parents.</p> <p>To know that insect eggs hatch to release a nymph that resembles its parents or a larva that looks very different to its parents (caterpillar).</p> <p>To know that larva form a pupa or chrysalis around themselves where</p>	<p>Share the statement 'All living things have the same life cycles.'</p> <p>Do pupils agree or disagree?</p> <p>Share some pictures of birds / mammals / amphibian/ plants.</p> <p>Has that changed their opinion?</p> <p><i>Pupils debate and provide examples to support their argument.</i></p> <p>Pupils circulate identifying differences between the life cycles of different.</p> <ul style="list-style-type: none"> • butterfly • human • frog • penguin • owl • bear <p>Share this clip https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-the-life-cycles-of-different-organisms/zvh8qp3</p> <p>Pupils could work in groups or pairs to sort</p> <ul style="list-style-type: none"> • butterfly • human • frog • penguin • owl • bear <p>using these criteria</p> <ul style="list-style-type: none"> • undergo metamorphosis / doesn't • lay eggs / doesn't
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		<p>they transform into their adult shape.</p> <p>To know that amphibian eggs hatch to release a larva that looks very different to its parents. As the amphibian gets older it develops adult body parts.</p>	<ul style="list-style-type: none"> • leave their young to take care of themselves/ doesn't • feeds their young with milk they produce/ doesn't <p>go through each one and address misconceptions</p> <p>Use a range of sources to find out about the different lifecycles experienced by a mammal, an amphibian, an insect and a bird</p> <p>Pupils could create a poster displaying the four contrasting life cycles and then compare their similarities and differences.</p> <p>e.g amphibians, insects and birds all lay eggs</p> <p>most mammals and birds take care of their you until they have learned the skills to take care of themselves.</p> <p>EXT/ Plenary: Why do insects and amphibians produces lots of eggs/ young in one go but mammals and birds do not?</p>
	<p>How do plants reproduce? What is sexual and asexual reproduction in plants? To describe the life process of reproduction in some plants.</p>	<p>To know that plants are able to reproduce in two different ways - sexual reproduction and asexual reproduction.</p> <p>To know that sexual reproduction involves pollen from one flower fertilising the egg of another to produce a seed.</p> <p>To know that only one parent is needed in asexual reproduction and the offspring are exact copies.</p>	<p>Sexual Reproduction https://www.bbc.co.uk/bitesize/topics/zgssgk7/articles/zqbcxfr</p> <p>Seed dispersal https://www.bbc.co.uk/bitesize/topics/zxfrwmn/articles/z28dpbk</p> <p>Sexual and Asexual reproduction https://www.youtube.com/watch?v=co5jZId0F-g</p> <p>Create QR codes and in pairs pupils use iPads to access the above videos and research the different types of plant reproduction.</p> <p>Pupils could then be given a variety of statements that they then have to sort in to true or false</p> <p>E.g. Some plants can produce exact clones of themselves</p> <p>All plants have a stigma, stamen and ovule</p>

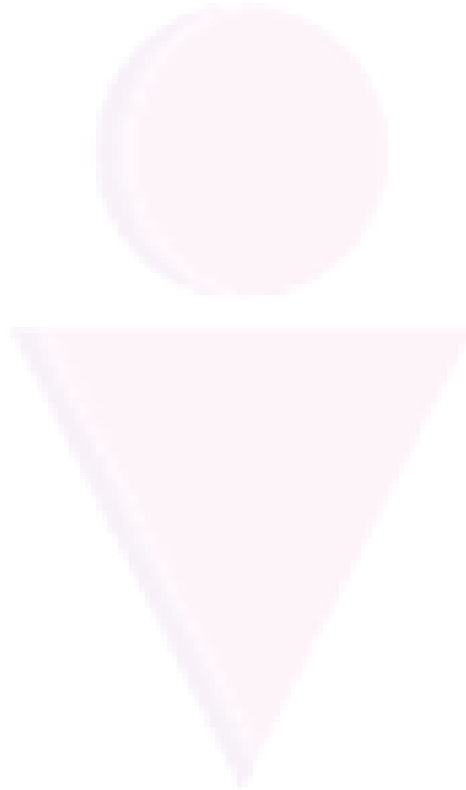
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			<p>Reproduction always requires 2 parents Strawberries reproduce by sending out runners. A new plant is formed at the end of the runner Investigate school environment to identify examples of sexual and asexual reproduction in plants</p>
			<p>David Attenbrough Green Planet - Tropical Worlds Great link to rainforest topic Could make for an interesting piece of cross-curricular writing.</p>
		ASSESSMENT WEEK	<p><u>Key Asssment Criteria</u> NC -To know the differences in the life cycles of a mammal, an amphibian, an insect and a bird NC- To describe the life process of reproduction in some plants.</p>

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Subject: Science - Biology			
Year group: 5		Unit of Learning: Animals including humans - reproduction	
Prior Learning: In Year1 pupils learn the scientific names for human body parts. They have gone on to learn about the function of the skeletal (Y3) and digestive system (Y4). In Year 3 pupils learned about the life cycle of plants. In PSHCE pupils have learned about similarities and differences between people. Check up to date guidance on RSE and school policy.		Future Learning: In Key Stage 3 pupils will learn reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta ♣ reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms.	
	Learning Objective	Substantive Knowledge	Suggested Activity
Session 1 1 hour	How do humans change during their lifetime from birth to old age? To describe the changes as humans develop to old age. Link to RSE	To know that humans give birth to babies and new born babies are totally dependent on their parents . To know that as babies grow into children, changes happen such as getting and losing milk teeth. To know that as children reach adolescence male and female bodies develop in different ways in order to get ready for adulthood . To know and understand the changes that occur during puberty . To know that as adults age their bodies and senses might	Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty. Follow school RSE policy and guidance.

		not work as well as they did when they were young .	
		ASSESSMENT	NC-To describe the changes as humans develop to old age.



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