




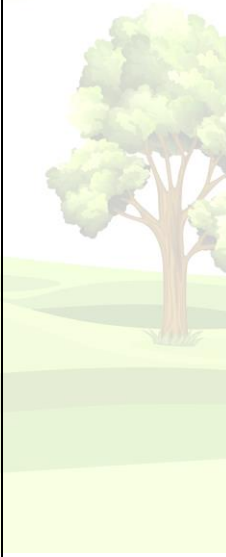
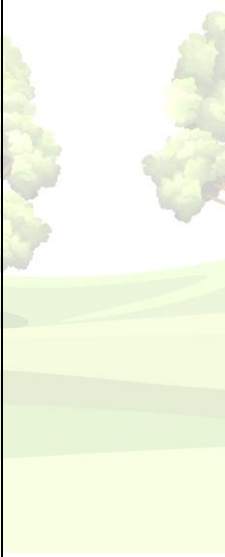

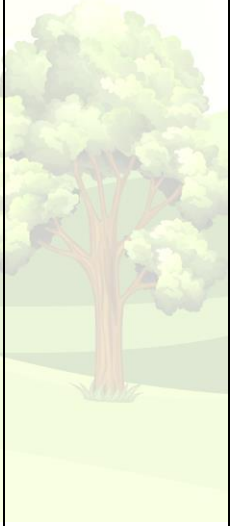
## SCIENCE TREES OF KNOWLEDGE AND SKILLS PROGRESSION

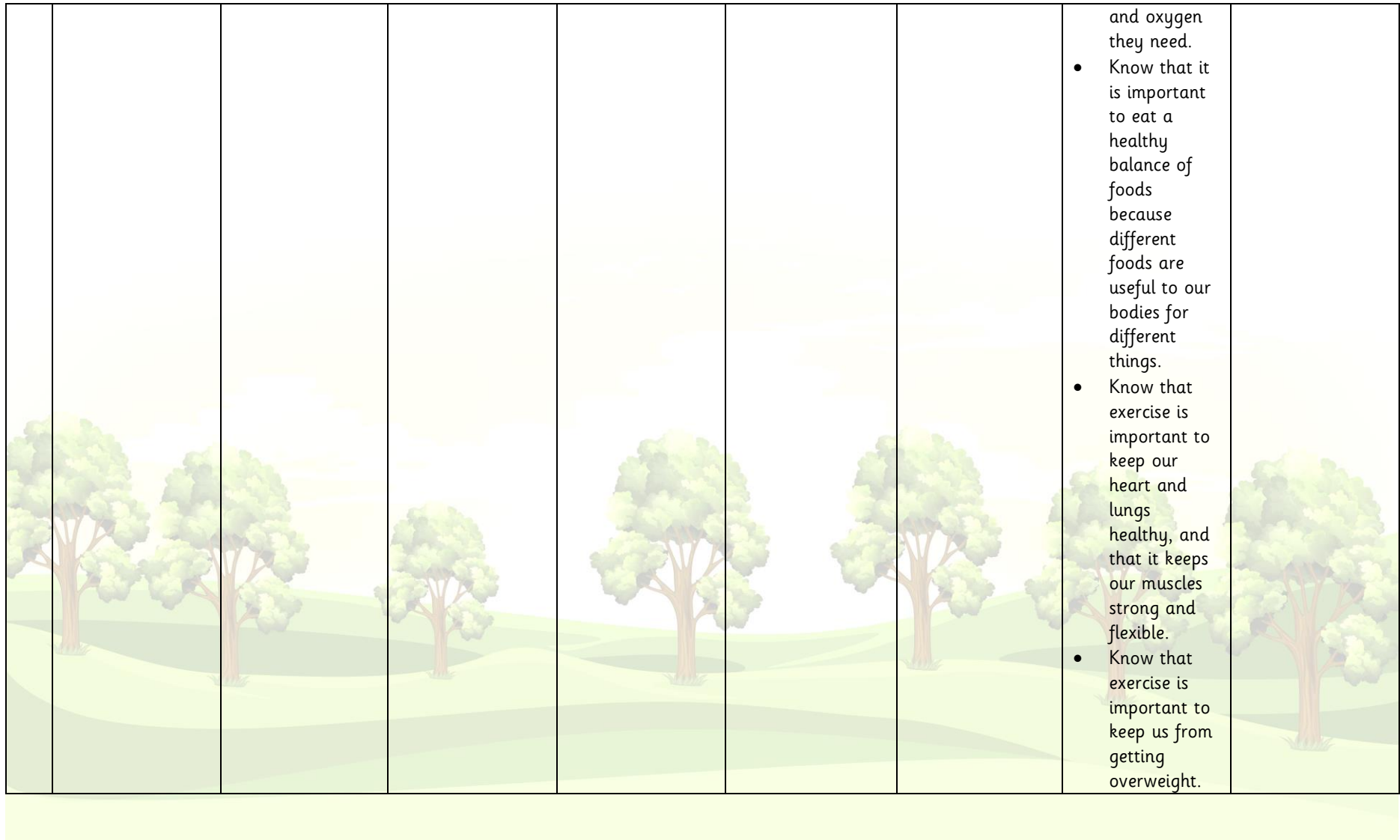
EYFS		Year 1			Year 2			
	<b>Nursery</b>	<b>Reception</b>	<b>Autumn Term</b> My body Seasonal Changes	<b>Spring Term</b> Everyday Materials Super Scientists	<b>Summer Term</b> Identifying Plants Identifying Animals	<b>Autumn term</b> Exploring Everyday Materials Super Scientists	<b>Spring term</b> Growth and Survival Animals including humans	<b>Summer term</b> Living things and their Habitats Growing Plants
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Know that we can explore our world using: eyes (for looking), ears (for listening), hands/fingers (to touch/feel) noses (to smell) and mouth/tongue (to taste)</li> <li>Know that living things grow</li> <li>Know that seeds grow into plants</li> <li>Know that a caterpillar turns into a butterfly</li> <li>Know that frogspawn changes into a tadpole</li> </ul>	<ul style="list-style-type: none"> <li>Know that we use our senses to explore natural materials</li> <li>Know that we have a responsibility to look after our world</li> <li>Begin to develop knowledge that we can play a part in saving our planet</li> <li>Know that some environments are different to others. Compare contrasting environments - hot and cold places</li> </ul>	<ul style="list-style-type: none"> <li>Know the names of the 5 senses.</li> <li>Know why each of the five senses is important, and how we use each one.</li> <li>Know that the senses of smell and taste are very closely linked.</li> <li>Know and name the different parts of my body, such as arms, legs, head, wrist, fingernails etc.</li> <li>Know which parts of the body we use for different activities.</li> </ul>	<ul style="list-style-type: none"> <li>Know what a material is</li> <li>Know the difference between a material and an object.</li> <li>Know which materials float and which materials sink - Super Scientists.</li> <li>Know what is meant by a 'fair test' and why it is important - Super Scientists.</li> <li>Know what 'waterproof' means.</li> <li>Know what 'recycling' means and that recycling</li> </ul>	<ul style="list-style-type: none"> <li>Know that a plant is a living thing that grows.</li> <li>Know that plants have seeds that grow into new plants</li> <li>Know the name of and identify a variety of wild plants</li> <li>Know the parts of a plant: roots, stem, leaves, flower, petals.</li> <li>Know that plants need sunlight, air and water</li> <li>Know the name of and identify a variety of trees</li> </ul>	<ul style="list-style-type: none"> <li>Know the difference between a natural and a man-made material.</li> <li>Know that the same product eg a table, can be made from a variety of different materials and can suggest suitable materials for each object.</li> <li>Know the names of different materials such as plastic, wood, metal, glass, brick, rock, paper,</li> </ul>	<ul style="list-style-type: none"> <li>Know what humans need to survive: food, water, air, shelter, sunlight.</li> <li>Know how emperor penguins keep warm</li> <li>Know that animals adapt to survive in cold habitats (penguins, polar bears, seals and blue whales)</li> <li>Know how to carry out a controlled experiment ('Huddle' experiment) and know why it is</li> </ul>	<ul style="list-style-type: none"> <li>Know the difference between things that are living, things that are dead, and things that have never been alive.</li> <li>Know that all living things will eventually die.</li> <li>Know what a 'habitat' is.</li> <li>Know that all living things need to live in a habitat that can provide them with the things they need to stay alive.</li> </ul>

	<p>and then into a frog</p>	<ul style="list-style-type: none"> <li>• Know that there are different seasons: Spring, Summer, Autumn and Winter and that the weather is different in different seasons.</li> </ul>	<ul style="list-style-type: none"> <li>• Know that the weather is always changing and that we have many different types of weather.</li> <li>• Know that there are four seasons in the UK.</li> <li>• Know and name the months each season occurs in.</li> <li>• Know the main features of each of the seasons.</li> <li>• Know that some foods are seasonal.</li> <li>• Know that the number of hours of daylight changes throughout each of the four seasons.</li> <li>• Know that there are more hours</li> </ul>	<p>helps the environment</p> <ul style="list-style-type: none"> <li>• Know which materials can be recycled and which can not</li> </ul>	<ul style="list-style-type: none"> <li>• Know the difference between an evergreen and a deciduous tree.</li> <li>• Know what roots are and why they are important.</li> <li>• Know the difference between a flower and a tree.</li> <li>• Know the names of a variety of common UK pets</li> <li>• Know the names of a variety of common UK mammals, birds, reptiles, fish and amphibians</li> <li>• Know that mammals have backbones, feed their young with milk and have fur.</li> </ul>	<p>cardboard, fabric</p> <ul style="list-style-type: none"> <li>• Know different uses of everyday materials (listed above)</li> <li>• Know that materials can change shape by squashing, bending, twisting and stretching.</li> <li>• Know that changes to materials are either reversible or irreversible.</li> <li>• Know that there are lots of different types of plastic that can be used for different purposes.</li> <li>• Know that paper and cardboard are made from wood and can describe the</li> </ul>	<p>important to control it</p> <ul style="list-style-type: none"> <li>• Know how to use a thermometer to take the temperature of water</li> <li>• Know that some climates are hot (link to work on Spice Islands)</li> <li>• Know that in hot climates adaptations have to be made in order to survive e.g. in deserts and rainforests (focus on camels and lizards).</li> <li>• Know that all species of animals have babies, including humans, and that if they didn't, the species would</li> </ul>	<ul style="list-style-type: none"> <li>• Know that the plants and animals in a habitat are all dependent on each other for survival.</li> <li>• Know that plants and animals in a habitat are linked to each other through food chains.</li> <li>• Know that plants get their energy from the sun.</li> <li>• Know that different seeds grow into different plants.</li> <li>• Know that seeds can be eaten by humans and animals.</li> <li>• Know that some plants grow from bulbs.</li> <li>• Know that the bulb</li> </ul>
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			<p>of sunlight during the summer than during the winter.</p>		<ul style="list-style-type: none"> <li>• Know that birds have feathers, wings and a beak.</li> <li>• Know that lizards are cold-blooded vertebrates that lay eggs.</li> <li>• Know that fish are amphibians and lay eggs.</li> <li>• Know the steps in the lifecycles of amphibians and fish, and spot similarities and differences.</li> <li>• Know what a herbivore, carnivore and omnivore are.</li> </ul>	<p>benefits of using paper and cardboard over wood for different purposes.</p> <ul style="list-style-type: none"> <li>• Know that scientists discover new things and make advances because they ask questions and work out how to find the answers.</li> <li>• Know that names of some famous scientists and know what they invented: Alexander Graham Bell – telephone Charles Macintosh – waterproof fabric Thomas Edison - Lightbulb</li> </ul>	<p>become extinct.</p> <ul style="list-style-type: none"> <li>• Know that some baby animals look very similar to their parents and some look very different</li> <li>• Know that mammals give birth to live young, and birds, reptiles and fish lay eggs</li> <li>• Revisit knowledge that mammals have backbones, feed their young with milk and have fur.</li> <li>• Revisit knowledge that birds have feathers, wings and a beak.</li> <li>• Revisit knowledge</li> </ul>	<p>provides a store of food for the plant while it is in the ground during the winter months.</p> <ul style="list-style-type: none"> <li>• Know that the fruit of the plant is the part that carries the seeds.</li> <li>• Know that not all seeds will grow into a new plant and can explain reasons for this.</li> <li>• Know that the term 'germination' refers to the process when a seed starts to grow and produce shoots.</li> </ul>
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							<p>that lizards are cold-blooded vertebrates that lay eggs.</p> <ul style="list-style-type: none"><li>• Revisit knowledge that fish are amphibians and lay eggs.</li><li>• Revisit Knowledge of what a herbivore, carnivore and omnivore are.</li><li>• Know that different animals are pregnant for different lengths of time, and this is often dependent on the size of the animal.</li><li>• Know that the eggs animals lay are vulnerable to predators and other dangers, which is why</li></ul>	
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							<p>the parent animal builds a nest to keep them safe and lays several eggs at once.</p> <ul style="list-style-type: none"><li>• Know that some eggs have hard shells and some have soft shells.</li><li>• Know that all animals need food, water and air to stay alive, and that some animals breathe oxygen with their lungs, while fish take in oxygen through their gills.</li><li>• Know that animals need to live in different environments to get the food, water</li></ul>	
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<p style="text-align: center;"><b>Skills</b></p>	<ul style="list-style-type: none"> <li>• Use all of their senses in hands-on exploration of natural materials</li> <li>• Explore collections of materials with similar/ different properties</li> <li>• Talk about what they see, using an increasing vocabulary</li> <li>• Plant seeds and care for growing plants (flowers and vegetables)</li> <li>• Begin to understand the key features of the lifecycles of a plant, a butterfly and a frog</li> <li>• Begin to understand the need to respect and care for the</li> </ul>	<ul style="list-style-type: none"> <li>• Explore the natural world around them, using all 5 senses, including in our Forest School area</li> <li>• Manipulate and use natural materials to create art work</li> <li>• Explore collections of materials with similar and different properties</li> <li>• Describe what they see, hear and feel whilst outside</li> <li>• Discuss ways in which we can care for our world</li> <li>• Begin to discuss climate change</li> <li>• Become more aware of our surroundings</li> </ul>	<ul style="list-style-type: none"> <li>• Explore the 5 senses – making careful observations, gathering and recording data</li> <li>• Ask simple questions about the senses and/or body parts linked to senses</li> <li>• Identify familiar smells</li> <li>• Use appropriate vocabulary to describe tastes</li> <li>• Recognise and observe changes across the four seasons and identify common types of weather for each season</li> <li>• Observe, describe and</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a variety of everyday materials including: wood, plastic, glass, metal, water and rock and predict which materials will float and sink</li> <li>• Distinguish between an object and the material from which it is made</li> <li>• Describe simple physical properties of a variety of everyday materials using adjectives eg. waterproof, hard, soft, rough, smooth, flexible</li> <li>• Ask and answer simple</li> </ul>	<ul style="list-style-type: none"> <li>• Recognise where the seeds are in a variety of plants.</li> <li>• Plant a seed and describe what they expect it to look like in a few weeks' time.</li> <li>• Identify and describe a variety of garden plants.</li> <li>• Identify a variety of wild plants.</li> <li>• Identify and describe a variety of trees.</li> <li>• Identify the roots, stem, leaves, flower and petals of a flower.</li> <li>• Describe the changes a seed goes through as it becomes a plant.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the properties of materials, using a range of scientific language e.g. rough, smooth, bumpy, soft, flexible, rigid, stretchy</li> <li>• Sort materials into those that are man-made and those that are natural.</li> <li>• Explain how glass, pottery, and paper are made.</li> <li>• Name a variety of materials that can change shape, can change shape temporarily, and cannot</li> </ul>	<ul style="list-style-type: none"> <li>• Link what they know about basic human survival to cross-reference about how Scott tried to meet these needs on their expedition</li> <li>• Use a fact sheet to locate information about adaptations that have to be made to survive in hot and cold climates</li> <li>• Identify reasons why Scott failed in his attempt to reach the South Pole</li> <li>• Plan a controlled experiment ('Huddle' experiment)</li> </ul>	<ul style="list-style-type: none"> <li>• Name the seven life processes that all living things need to be able to do to stay alive.</li> <li>• Suggest what type of animals might live in a variety of different habitats.</li> <li>• Match animals to their correct habitat.</li> <li>• Identify and name some of the plants and animals that live in a seaside habitat.</li> <li>• Describe some habitats and their features in other parts of the world, such as rainforest, desert and</li> </ul>
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	<p>natural environment and all living things</p> <ul style="list-style-type: none"> <li>• Create animal homes (bug hotel and hedgehog house)</li> <li>• Explore and talk about the different forces they can feel</li> <li>• Talk about the differences between materials and changes they notice</li> </ul>	<ul style="list-style-type: none"> <li>• Recognise some environments that are different to the one in which they live</li> <li>• Digging, planting and growing plants in the garden area</li> <li>• Begin to explore the effect of changing seasons on the natural world around them</li> <li>• Understand that seasons change</li> </ul>	<p>record weather over time and identify any changes</p> <ul style="list-style-type: none"> <li>• Observe and describe how day length varies across the seasons</li> <li>• Identify the main features of each of the different seasons</li> <li>• Describe different clothing that is appropriate to wear during each season</li> <li>• Identify differences between each of the four seasons</li> <li>• Describe how animals are affected by each of the four seasons, and how their behaviour</li> </ul>	<p>scientific questions (using observations and experiences)</p> <ul style="list-style-type: none"> <li>• Observe closely, using simple equipment</li> <li>• Predict which items will float and which will sink</li> <li>• Carry out a simple and fair test to identify objects that float and sink</li> <li>• Identify and classify which materials float and which sink</li> <li>• Identify and classify (through testing) which materials are/are not waterproof</li> <li>• Gather and record data</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common UK pets.</li> <li>• Identify a variety of UK mammals, birds, reptiles, fish and amphibians.</li> <li>• Find a similarity or difference between pairs of mammals.</li> <li>• Identify differences in the features of birds and lizards.</li> <li>• Identify common animals that are herbivores, carnivores and omnivores.</li> <li>• Explain some of the ways in which people need to look after pets.</li> </ul>	<p>change shape.</p> <ul style="list-style-type: none"> <li>• Explore the suitability of plastic and metal for different purposes and explain why each material has been chosen for each different purpose.</li> <li>• Name some objects that can all be made from wood, plastic and metal eg chairs.</li> <li>• Suggest appropriate materials for an object to be made from, based on what the object will be used for and who will use it.</li> <li>• Draw on experiences</li> </ul>	<ul style="list-style-type: none"> <li>• Make predictions about what will happen in the 'Huddle' experiment</li> <li>• Carry out a controlled experiment (with support)</li> <li>• Record and then explain the results of their experiment</li> <li>• Describe features that help animals survive in hot and cold climates.</li> <li>• Match a variety of baby animals to their parents.</li> <li>• Identify a variety of animals that give birth to live young and those that lay eggs.</li> </ul>	<p>Arctic habitats.</p> <ul style="list-style-type: none"> <li>• Describe why some animals are well suited to their rainforest, desert or Arctic habitats.</li> <li>• Describe what a microhabitat is.</li> <li>• Identify some of the minibeasts that live in microhabitats</li> <li>• Construct some simple food chains for a variety of habitats.</li> <li>• Use information on a seed packet to tell me when a seed should be planted, how to plant it, and how to care for the seed as it</li> </ul>
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			<p>changes during each one</p> <ul style="list-style-type: none"> <li>Describe some of the ways humans adapt to the different seasons, e.g. by what we wear, eat and do</li> </ul>	<p>(in a simple table) to answer questions</p> <ul style="list-style-type: none"> <li>Identify the best material to make a boat with</li> <li>Explain why some materials are better suited for different purposes than others.</li> <li>Build a boat and test their predictions</li> <li>Share results with each other</li> <li>Draw conclusions from observations they have made</li> <li>Compare and group together a variety of everyday materials on the basis of their simple</li> </ul>		<p>to make a prediction</p> <ul style="list-style-type: none"> <li>Investigate everyday materials and identify if they are suitable for a particular purpose – using a fair test and understanding why this is important)</li> <li>Observe closely</li> <li>Gather and record results from their observations</li> <li>Ask and answer simple scientific questions, linked to observations and predictions</li> <li>Recognise that questions can be answered in</li> </ul>	<ul style="list-style-type: none"> <li>Identify common animals that are herbivores, carnivores and omnivores.</li> <li>Explain the stages a human goes through to grow from a baby to an adult.</li> <li>Use the food pyramid and balanced plate model to find out how much carbohydrate, fruit/veg, protein, dairy, fats and sugars I should eat.</li> <li>Plan a healthy balanced meal.</li> <li>Design an exercise to work my whole body using</li> </ul>	<p>grows into a plant.</p> <ul style="list-style-type: none"> <li>Follow the instructions on a seed packet to plant a seed.</li> <li>Explain the lifecycle of a plant grown from a bulb, such as a tulip.</li> <li>Explain why most plants grow lots of seeds instead of just one.</li> <li>Explain some of the ways in which seeds are dispersed.</li> </ul>
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				physical properties		different ways • Draw conclusions from their findings	different apparatus.	
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