

Autumn 2 Year 5 Science Knowledge Organiser

Properties of Materials

Subject specific Vocabulary		Images/Diagrams/Maps	Important Knowledge
Condensation	Small drops of water which form when water vapour or steam touches a cold surface.	 Gas- particles move freely and expand to fill a container. Liquid- no defined shape, takes the shape of its container. Solid - Tightly packed molecules Writing/Provision/Enrichment opportunities Make own glue and link to the findings of Spencer Silver and Arthur Fry Tea bag rockets	<u>Conductors and Insulators</u> Electrical conductors allow electricity to pass through them easily while electrical insulators do not. Electrical insulators have a high resistance which means that it is hard for electricity to pass through these objects.
Conductor	A substance that heat or electricity can pass along or through.		
Evaporation	Turn liquid into a gas; pass away in the form of vapour.		
Filtering	A device used to remove dirt or other solids from liquids or gasses.		
Gas	Easy to compress, expand to fill containers and occupy more space than liquids or solids.		
Insoluble	Cannot be dissolved.		
Liquid	No defined shape, takes the shape of its container. Particles free to move over each other.		
Reversible	Can be changed back e.g. ice to water.		
Solid	Firm shape or form that can be measured in length, width, and height not like a liquid or gas. Tightly packed molecules.		
Soluble	Able to be dissolved		
Transparent	You can see through it.		
Scientific Enquiry Skills		Working Scientifically Skills	
			

Presentation	Working Scientifically and Scientific Enquiry Assessment		
	- Evaluate and communicate their methods and findings. - They suggest ways to improve what they have already done. - Can begin to evaluate different aspects of their enquiries such as equipment. - They can begin to understand how the enquiry improves outcomes from their questions.	- Can evaluate different aspects of their enquiries such as equipment and accuracy of measurements. - They can state how the enquiry improves outcomes from their questions. - Children can relate their results to the question and state if their test has enabled them to answer it. - They can suggest next steps based on the weakest aspects and state how this will help them or the test progress or give different results.	- Describe and evaluate their own and other people's scientific ideas using evidence from a range of sources. - Evaluate their choice of method, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources. - Children use scientific language and evaluates how their enquiry has answered the question.
	- Use subject knowledge or research to make predictions. - May need support to structure their ideas and add scientific language. - Raise further predictions from results based on patterns. - Make predictions for new values.	- Use subject knowledge, observations, or previous learning to make predictions. - Can add further detail and explanations for their predictions when prompted. - Can use scientific language. - Can base predictions on previous scientific enquiry.	- Develops predictions not based on results of a scientific enquiry but using own ideas and subject knowledge. - Use evidence to support predictions. - Gathers evidence through practical science to support predictions. - Use test result to make predictions to set up further comparative and fair tests.
	- Draws simple conclusions from results to answer questions and support their ideas. - Look for casual relationships in data and identify evidence that refutes/supports ideas. - Report on findings to an audience orally and in writing using appropriate scientific vocabulary for a range of audiences. - Draw conclusions based on straightforward evidence and current subject knowledge to support their findings. - Suggest improvements and raise further questions.	- Children interpret data to generate simple comparative statements based on evidence. - Use results to draw conclusions and can identify external factors that cannot be controlled e.g. temperature inside and outside. - Use scientific language and illustrations to discuss, communicate and justify scientific ideas. - Use results to make predictions and identify whether further observations, comparative tests, fair tests, pattern seeking, or research might be needed. - Can use comparative statements to explain results and how things work.	- Use oral and written forms to report conclusions, casual relationships and give an explanation of the degree of trust in their results. - Children can pose further questions which can be answered by extending the enquiry. - Can spot anomalies and identify results that do not fit the overall pattern. - Use data to refute or support ideas or arguments. - Focuses on scientific reasons for overall pattern rather than a comparison. - Uses labelled diagrams to support their explanation.
	Children can discuss observations. They may need support with scientific words to use to explain what is going on. Children may draw pictures to help explain the processes.	Children can use their senses when observing what happens when a substance is heated. They can use scientific words and record observations carefully.	Children can use observations from their tests to demonstrate the physical changes occurring as substances are heated. They can use scientific words to clearly demonstrate this change.
	- Can identify the type of enquiry needed to answer a question. - Follow a plan to carry out observations and tests. - Can select from a range of resources to gather evidence and - answer questions, to classify, compare and perform fair tests. - Use post it note planning approach with more independence in identifying variables and what needs measuring.	- Recognise when and how to set up comparative and fair tests and explain - which variables need to be controlled and changed. - Can identify independent and dependent variables to identify causal - relationships.	- Children can pose and answer their own questions, controlling - variables where necessary independently. - Decide whether they need to increase the sample size for validity. - Children understand how to gather data to prove a prediction. - Can identify a range of factors which may affect their investigation.

	• Can create own tables with own headings. • Can convert between units of measure. • May need support finding the average of results and finding patterns.	• Can produce own results table indicating cause and effect. • Records results systematically. Understands the need for taking repeat measurements and with support can find the average.	• They can calculate the mean and range of a set of data. • Use multiple data sets. • Can independently collect results and understand the need for repeat measurements for validity and reliability.
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