

Year Five Science Half Termly Planning – Materials and their Properties

Science			
Year/class: 5	Unit: Materials	Duration: 1.5 hours	SEND: HW, AD, KD
Science Capital: Buying, pharmaceuticals,		ENGAGE (<u>recap/consolidate knowledge from previous lessons</u>) Concept cartoon about properties of glass	
Prior learning: LO: To compare materials and their properties		Misconceptions Insulators let 'stuff in'. Thermal means fire/heat	
Enquiry Type (highlight) Comparative Fair test Identify, sort, classify		Research Observation over time Pattern Seeking	Skills Focus: Ask questions and plan enquiries. Observe and measure Interpret and Report Set up enquiries Record Evaluate
Vocabulary: _ Thermal, insulator, conductor, independent and dependent variable			
Success Criteria To measure temperature using a thermometer. To only change the independent variable each time.	Learning objective (including working scientifically where appropriate). LO: To compare the thermal conductivity of everyday materials		Big Question What is thermal insulation? How do animals insulate? How do we use this knowledge in our lives?
	What knowledge do the chn need to learn/apply? <ul style="list-style-type: none"> • A thermal conductor is the opposite to an insulator. • Thermal conductors allow heat to spread easily. • Metal is an excellent conductor. Eg. Saucepans. 		
	Introduction to lesson (Talk for Science). Share letter from Chillli Flask Company: they are looking to support marathon swimming and need the most suitable insulators for their flasks. What is thermal insulation: https://www.bbc.co.uk/bitesize/clips/zkntsbk	Build (Guided task). Task 1 – discussion about three BIG questions. Teacher models an answer, pupils then write their own for each. Task 2: Children complete predictions as to which of the three materials will be best insulator: china mug,	Apply (detail of practical and presentation activity). Complete experiment and record on pre-made results table. Conclusion will include the following three prompts: The best material for keeping hot liquids hot is... because... My prediction was... To be more accurate next time,

		<p>glass, or plastic cup.</p> <p>Children then asked how we could test each material for their thermal insulation qualities.</p> <p>Task 3: Children then asked to consider the variables: Independent (we are changing)</p> <p>Dependent (we are measuring)</p> <p>Control (we must keep the same)</p>	we could...	
<p>Assessment as learning (hinge questions, exit tickets): Exit ticket: Which materials would be suitable for the handle on a pan? Hinge questions to vary based on misconceptions that may arise.</p>		<p>Plenary Sharing of findings.</p>		
<p>Assessment for learning (question to ask chn): What is thermal conductivity? Knowledge: Describe thermal conductivity Skills/Working Scientifically: Create an investigation to measure the effectiveness of a materials thermal insulation.</p>		<p>Resources. China cup x 10 Glass x 10 Plastic Cup x10 Roll of cling film Thermometers (up to 32) Table for recording raw data Letter from Chilli Flasks Concept cartoon about properties of glass CLOZE procedure for SEND Key Words glossary for SEND</p>		
<p>Safe Practical Work - Risk Assessment.</p>				
<p><u>Level of supervision</u> Low level supervision required (32 pupils to one adult) Staff to communicate with: LSAs x 2</p>		<p><u>Safety Measures</u> Children to consider safety precautions for when working with ice. Cleapss Risk Assessment reference. https://science.cleapss.org.uk/Resource/PP055-Changing-state-melting-ice-and-heating-water.pdf</p>		

