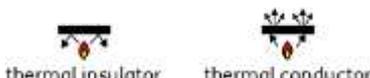
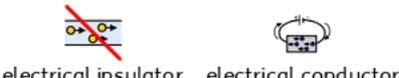
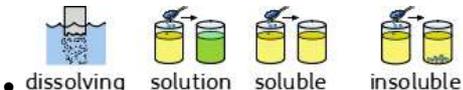


What should I already know?		What will I know by the end of the unit?																																																				
<ul style="list-style-type: none"> A variety of everyday materials including wood, plastic, glass, metal, water and rock. The physical properties of a variety of everyday materials (including those that are transparent) and to compare and group materials on the basis of these properties How materials are suitably used based on their properties. How magnets and electrical circuits work. Some materials which are magnetic. How shapes of solid objects can be changed by squashing, bending, twisting and stretching. Materials that are solids, liquids and gases and their particle structure. Some materials change state when they are heated or cooled and the temperature at which this happens. The roles of melting, evaporation and condensation in the water cycle and the role temperature has on the rate of evaporation. Some rocks are permeable. 		<p>How to group materials based on their properties using more complex vocabulary.</p> 																																																				
		<p>What are thermal insulators and conductors?</p>	<ul style="list-style-type: none"> Materials which are good thermal conductors allow heat to move through them easily. Thermal conductors are used to make items that require heat to travel through them easily, such as a saucepan which requires heat to travel through to cook food. Thermal insulators do not let heat travel through them easily. Examples of thermal insulators include woollen clothes and flasks for hot drinks. 																																																			
<p>Vocabulary</p> <table border="1"> <tr> <td>circuit</td> <td>a complete route which an electric current can flow around</td> </tr> <tr> <td>condensation</td> <td>small drops of water which form when water vapour or steam touches a cold surface, such as a window</td> </tr> <tr> <td>conductor</td> <td>a substance that heat or electricity can pass through or along</td> </tr> <tr> <td>dissolves</td> <td>when a substance is mixed with a liquid and the substance disappears</td> </tr> <tr> <td>electricity</td> <td>a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices</td> </tr> <tr> <td>evaporation</td> <td>to turn from liquid into gas; pass away in the form of vapour.</td> </tr> <tr> <td>filtering</td> <td>a device used to remove dirt or other solids from liquids or gases. A filter can be made of paper, charcoal, or other material with tiny holes in it.</td> </tr> <tr> <td>flexible</td> <td>an object or material can be bent easily without breaking</td> </tr> <tr> <td>gas</td> <td>a form of matter that is neither liquid nor solid. A gas rapidly spreads out when it is warmed and contracts when it is cooled.</td> </tr> <tr> <td>insoluble</td> <td>impossible to dissolve, esp. in a given liquid.</td> </tr> <tr> <td>insulator</td> <td>a non-conductor of electricity or heat</td> </tr> <tr> <td>irreversible</td> <td>impossible to reverse, turn back, or change.</td> </tr> <tr> <td>liquid</td> <td>in a form that flows easily and is neither a solid nor a gas.</td> </tr> <tr> <td>magnetic</td> <td>having to do with magnets and the way they work</td> </tr> <tr> <td>melting</td> <td>to change from a solid to a liquid state through heat or pressure</td> </tr> <tr> <td>particles</td> <td>a tiny amount or small piece</td> </tr> <tr> <td>permeable</td> <td>of a substance, being such that gas or liquid can pass through it</td> </tr> <tr> <td>properties</td> <td>the ways in which an object behaves</td> </tr> <tr> <td>rate</td> <td>the speed with which something happens</td> </tr> <tr> <td>resistance</td> <td>the opposing power of one force against another.</td> </tr> <tr> <td>solid</td> <td>having a firm shape or form that can be measured in length, width, and height; not like a liquid or a gas</td> </tr> <tr> <td>soluble</td> <td>able to be dissolved.</td> </tr> <tr> <td>solution</td> <td>a mixture that contains two or more substances combined evenly</td> </tr> <tr> <td>temperature</td> <td>a measure of how hot or cold something is</td> </tr> <tr> <td>thermal</td> <td>relating to or caused by heat or by changes in temperature</td> </tr> <tr> <td>transparent</td> <td>If an object is transparent, you can see through it</td> </tr> </table>		circuit	a complete route which an electric current can flow around	condensation	small drops of water which form when water vapour or steam touches a cold surface, such as a window	conductor	a substance that heat or electricity can pass through or along	dissolves	when a substance is mixed with a liquid and the substance disappears	electricity	a form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices	evaporation	to turn from liquid into gas; pass away in the form of vapour.	filtering	a device used to remove dirt or other solids from liquids or gases. A filter can be made of paper, charcoal, or other material with tiny holes in it.	flexible	an object or material can be bent easily without breaking	gas	a form of matter that is neither liquid nor solid. A gas rapidly spreads out when it is warmed and contracts when it is cooled.	insoluble	impossible to dissolve, esp. in a given liquid.	insulator	a non-conductor of electricity or heat	irreversible	impossible to reverse, turn back, or change.	liquid	in a form that flows easily and is neither a solid nor a gas.	magnetic	having to do with magnets and the way they work	melting	to change from a solid to a liquid state through heat or pressure	particles	a tiny amount or small piece	permeable	of a substance, being such that gas or liquid can pass through it	properties	the ways in which an object behaves	rate	the speed with which something happens	resistance	the opposing power of one force against another.	solid	having a firm shape or form that can be measured in length, width, and height; not like a liquid or a gas	soluble	able to be dissolved.	solution	a mixture that contains two or more substances combined evenly	temperature	a measure of how hot or cold something is	thermal	relating to or caused by heat or by changes in temperature	transparent	If an object is transparent, you can see through it	<p>What are electrical insulators and conductors?</p> <ul style="list-style-type: none"> 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. 
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		<p>What is dissolving?</p> <ul style="list-style-type: none"> When the particles of a solid mix with the particles of a liquid, this is called dissolving. The result is a solution. Materials that dissolve are soluble. Materials that do not dissolve are insoluble. 																																																				
		<p>Can materials be separated after they have been mixed?</p> <ul style="list-style-type: none"> Some materials can be separated after they have been mixed based on their properties - this is called a reversible change. Some methods of separation include the use of a magnet, a filter (for insoluble materials), a sieve (based on the size of the solids) and evaporation. When a mixture cannot be separated back into the original components, this is called an irreversible change. Examples of this include when materials burn or mixing bicarbonate of soda with vinegar. 																																																				
		<p>Investigation</p> <ul style="list-style-type: none"> Find the best material to stop an ice cube from melting. Remember to keep it a fair test by using the same number of ice cubes, or same size and thickness material. Place the same amount of a hot liquid in a thermal insulator and conductor. Measure the temperature over time and plot these on the same line graph. Use the line graph to ask and answer questions. Find out if thermal conductors also make good electrical conductors. Explain the difference between dissolving and melting. Investigate which materials are soluble and insoluble. Design an experiment that investigates dissolving - consider which variables you could change including: size of beaker, amount of liquid, number of stirs, size of solid, temperature of solid (remember that for a fair test all other variables must remain the same). Create a variety of mixtures using materials such as salt, sand, water, paper clips and rice and use a variety of methods to separate them. Observe and compare the changes that take place when cakes are baked or bicarbonate of soda mixes with vinegar. 																																																				

Question 1: Thermal insulators...(tick two)	Start of unit:	End of unit:	Question 7: Describe an efficient way of separating paper clips from rice and explain why you chose this method.	Start of unit:	End of unit:
do not allow heat to pass through easily					
allow heat to pass through easily					
keep heat contained and keep things warm					
do not keep heat contained and allow things to cool					
Q2: Examples of electrical conductors are....(tick all that apply)	Start of unit:	End of unit:	Question 8: You conduct an experiment to investigate if some solids dissolve quicker than others. Name one thing you will do to make the test fair.	Start of unit:	End of unit:
copper					
plastic					
wood					
iron					
rubber					
Question 3: Materials that dissolve are:	Start of unit:	End of unit:	Question 9: Match these mixtures to the most efficient methods of separation.	Start of unit:	End of unit:
insoluble			Salt and water		filtering
soluble			rice and water		sieving
a solution			sand and water		evaporating
Question 4: When solid particles mix with the particles of a liquid, this is called...	Start of unit:	End of unit:	Question 10: Write an 'R' or an 'I' to indicate if these are examples of reversible or irreversible changes.	Start of unit:	End of unit:
evaporation			frying an egg		
filtering			mixing paper clips and sand		
dissolving			mixing sugar and water		
sieving			baking a cake		
Question 5: A synonym for the word 'permeable' is...	Start of unit:	End of unit:	mixing flour and water		
waterproof			mixing coins and flour		
absorbent			mixing bicarbonate of soda and vinegar		
magnetic			mixing oil and water		
transparent					
Question 6: Match these changes to the scientific name for the process.	Start of unit:	End of unit:			
ice turns to water		condensation			
water turns to water vapour		evaporation			
water vapour turns to water		melting			