


<p>Topic: Properties and Changes of Materials</p>	<p>Year 5 Age 9-10</p>	<p>Title: Insulation layers</p>
<p>Working Scientifically Do: Use test results to make predictions to set up further comparative and fair tests</p>	<p>Conceptual Knowledge Context Compare everyday materials on basis of their thermal conductivity. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials.</p>	
<p>Assessment Focus</p> <ul style="list-style-type: none"> • Can children carry out an investigation to test a hypothesis? 		
<p>Pre-activity <i>Today we are going to be packaging technologists.</i> Tell the children you are fed up of having cold cups of tea and you want to see which cup will keep your tea warm for longer. Before the lesson show the children different cups of hot water, e.g. paper cup, stacked paper cups, thermos mug. Measure the temperature of the water and repeat after about one hour (at the beginning and end of lunchtime).</p> <p>Activity Use the results of the pre-activity to make predictions about insulations (a good insulator has more layers / traps air / made of...). Provide a collection of different materials and invite the children to discuss their ideas about which might be good for keeping the drink warm. The children could order the materials according to which will be best insulators? How will you test this?</p> <p>Adapting the activity Support: support the children with making choices about how to plan and carry out the test, e.g. by exaggerating 'unfairness', suggesting the use of a thermometer/probe. Testing sheet provided to structure the investigation. Extension: Children to predict/choose which alternative material could insulate their beaker better, thinking about properties of the materials. Other ideas: Which materials will insulate a hot baked potato?</p> <p>Key Questions</p> <ul style="list-style-type: none"> • Why has the beaker of water been wrapped? • What will you measure? • How will you make it a fair test? • What makes a good insulator? What other materials could be used as thermal insulators? Why has bubble wrap been chosen? • Where have you seen things insulated? 		
		
<p>Assessment Indicators</p> <p>Not yet met: Suggests which insulators might be best but needs support to carry out fair test</p> <p>Meeting: Carries out a fair test independently. From own findings identifies which material is the best insulator, e.g. <i>this one because it took longer to cool</i></p> <p>Exceeding: Compares own data with the original hypothesis & suggests reasons for similarities and differences, including any anomalies, e.g. <i>this one took longer to cool because...</i></p>		