

<b>Date</b>	<b>Class Level</b> Third Class and Fourth Class	<b>Subject</b> Science
<b>Strand</b> Energy and Forces	<b>Strand Unit</b> Magnetism and Electricity	
<b>Title</b> Design and Make a Compass.		
<b>Objective(s)</b> Explore relationships between magnets and compasses.		
<b>Skills Required</b> Designing and Making: exploring, planning and making.		
<b>Learning Objectives</b>  The child will be enabled to:  Learn what a compass is and what it is used for.  Learn how magnets are used in the making of a compass.  Make a simple compass in pairs.  Check the accuracy of their compass using a Compass app or an actual compass.		<b>Learning Activities</b>  <b>Teacher Directed Approach:</b> Should the children not have a previous understanding of magnets and magnetic fields, a lesson on the opposite poles and attraction and repulsion may be useful. Using a magnetic whiteboard, get the pupils to determine whether pairs of magnets will attract or repel each other. Should the children have covered magnetism in a younger class, begin the lesson by showing the pupils a picture of a compass. Question the children about what this is. If the children are unsure explain that it is an instrument which enables people to go in the right direction. It is used by walkers, in airplanes and of course in ships.  <b>Talk and Discussion and free exploration of materials:</b> Split the students into pairs. Explain that the first step is to cut a circle of material which will float in the bowl of water. A selection of materials could be provided and the pupils could test and choose which material works best for them (floats= works well vs. sinks= does not work).  <b>Talk and discussion and</b>

	<p><b>investigation:</b> The next step is to magnetize the needle. This is done by rubbing the needle across the magnet thirty to forty times-in one direction, not back and forth.</p> <p><b>Investigation:</b> Next place the needle on the circle and place it into the centre of the bowl of water. The pupils will observe the needle turning slowly and eventually finding north. Ask the students to compare the direction their needle is pointing compared to other pairs of students close to them. Is their needle pointing the same way?</p> <p>Explain that the needles are pointing to the magnetic north pole. This can be substantiated using a compass app on a smart phone or compass.</p> <hr/> <p><b>Resources</b></p> <p>Sewing pins or needles: Ensure that the children exercise caution as needles and pins are sharp.</p> <p>Magnets</p> <p>Bowls of water</p> <p>Circle of paper or craft foam/ alternatively a leaf could be used.</p> <p>Phone with compass app or Compass.</p>
<p><b>Differentiation</b> Higher and Lower order questioning. Differentiate group activities and roles to account of individual needs, by support, task. Mixed ability pairing.</p>	
<p><b>Assessment</b> Teacher observation and questioning. Self assessment using app or compass to check accuracy of the compass.</p>	

**Linkage and Integration**

English oral language: The children are verbalizing the experiment and discussing methods with their partner.

Geography: The students are utilizing directional vocabulary which will assist them with map work. They will develop an increased sense of place and space.