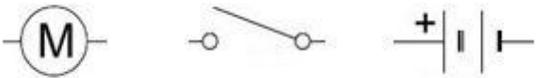
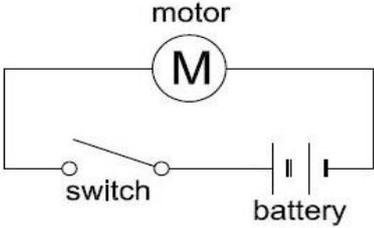




Fan Boats Question Sheet – Suggested Answers

Science: Electricity	
<p>Name the electrical parts (components) used in your circuit.</p>	<p>Motor Switch Cells (a battery consists of two or more cells) Battery holder & snap battery connector Battery Crocodile leads</p>
<p>Draw your circuit using these circuit symbols, and using lines to represent the wires. Label the components.</p> 	
<p>What will happen if you leave the circuit switched on for a long time?</p>	<p>You will drain the battery.</p>
<p>Why do you need to attach the crocodile clips onto bare metal, not onto plastic insulation?</p>	<p>The plastic is an insulator which prevents the current from passing. The bare metal ends are good conductors of electricity, so the current can pass through.</p>
<p>What could happen if you short circuit your battery? (A short circuit allows the electricity to flow round with very little resistance. For example if you accidentally connect your battery wires together instead of connecting via the motor.)</p>	<p>You could drain the battery quickly and possibly melt your battery holder and burn your fingers.</p>

Science: Materials	
Which items floated?	The lolly stick and the piece of polystyrene foam should have floated.
Which items sank?	The coin, the marble, the stone and the K'nex should have sunk.
Solid polystyrene is denser than water. Why did the piece of polystyrene foam float?	It has lots of little air bubbles trapped in it, and air is very light.
Science: Forces	
What force pulls the boat down onto the water?	The boat is pulled downwards because of the gravitational attraction between it and the Earth.
What opposing force pushes the boat up?	The 'upthrust' or buoyant force pushes the boat up.
What is the main force opposing the boat moving?	The main force opposing the boat moving is the resistance of the water, known as 'drag'.
Design and Technology	
Did your design meet your design criteria? Did you make any modifications?	
Extension question	
Explain why the fan boat moves across the water.	The propeller pushes the air backwards; the opposing force on the propeller pushes the fan boat forwards across the water.