
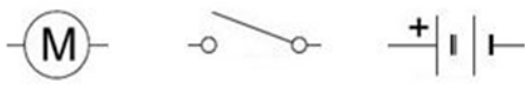




Motorised Vehicle Worksheet



Name:

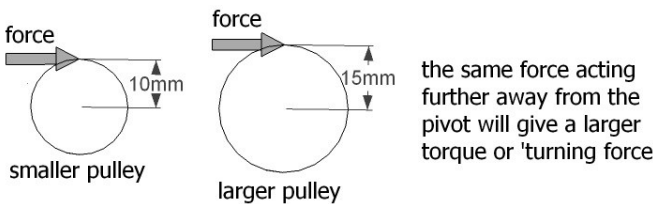
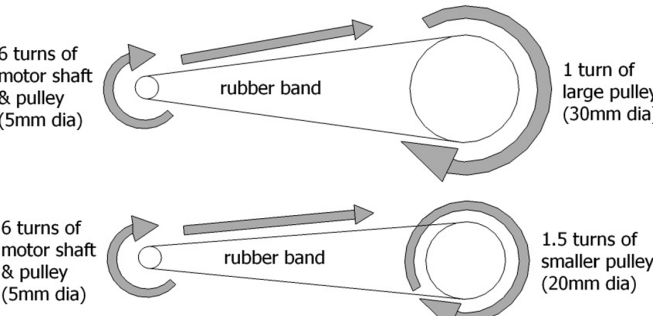
<p>Name these electrical parts:</p> 	
<p>Draw your circuit using these circuit symbols, and using lines to represent the wires. Label the components.</p> 	
<p>Is metal an insulator or a conductor?</p>	
<p>Is plastic an insulator or a conductor?</p>	
<p>What could happen if you short circuit your battery?</p>	
<p>What will happen if you leave the circuit switched on for a long time?</p>	
<p>If you measure the time T taken to travel a known distance D, how do you calculate the average speed?</p>	
<p>Which of your items are acting as bearings?</p>	
<p>Why does the pulley need to be a tight fit on the axle?</p>	



Motorised Vehicle Worksheet

continued



<p>Why do the wheels need to be a tight fit on the axles?</p>	
<p>If your buggy goes backwards what can you change to make it go forwards?</p>	
<p>Which goes faster, a buggy with a larger pulley or one with a smaller pulley?</p>	
<p>Which goes up steeper slopes, a buggy with a larger pulley or one with a smaller pulley?</p>	
<p><u>Extension questions</u></p>	
<p>Why do cars have rubber tyres?</p>	
<p>If you were cycling up a steep hill would you choose a gear which gives you low speed and high torque ('turning force') or high speed and low torque?</p>	
<p>Explain why the size of the pulley affects the hill climbing ability of your buggy.</p>  <p>force</p> <p>10mm</p> <p>smaller pulley</p> <p>force</p> <p>15mm</p> <p>larger pulley</p> <p>the same force acting further away from the pivot will give a larger torque or 'turning force'</p>	
<p>Explain why the size of the pulley affects the speed of your buggy.</p>  <p>6 turns of motor shaft & pulley (5mm dia)</p> <p>rubber band</p> <p>1 turn of large pulley (30mm dia)</p> <p>6 turns of motor shaft & pulley (5mm dia)</p> <p>rubber band</p> <p>1.5 turns of smaller pulley (20mm dia)</p>	