

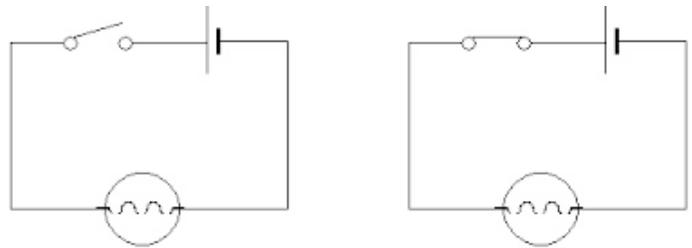
# Circuits & Simple Machines Study Guide

Name: \_\_\_\_\_ Test Date: \_\_\_\_\_

## Circuits:

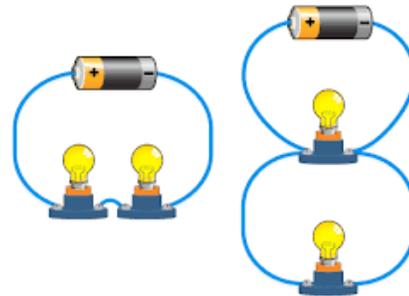
- 1) Name the three parts of a circuit:
- 2) Voltage is electrical \_\_\_\_\_.
- 3) What is the difference between Insulators and Conductors:

- 4) What is the difference between an open circuit and a closed circuit:



Label these as either "Open" or "Closed":

- 5) Why will all of the lights in a strand of bulbs go out if one bulb is pulled out?
- 6) What is the difference between a series circuit and parallel circuit:



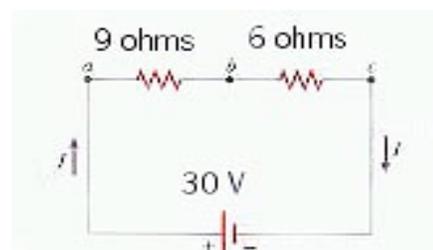
Label these as either "Series" or "Parallel":

- 7) Draw a circuit diagram with a load, battery and switch connected in series:
- 8) Draw a circuit diagram with a 3 loads, 2 batteries and switch connected in parallel:

- 1) Find the following for the series circuit:

a) Total Resistance:

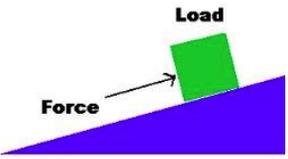
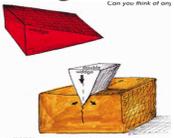
b) The total current:  $V=IR$

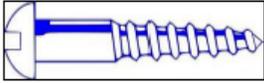
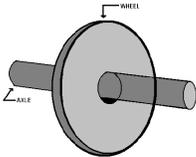
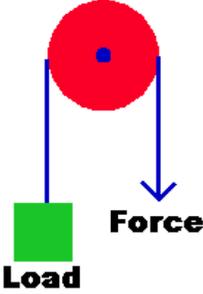


# Simple Machines:

1. Simple Machine:
2. Work:
3. Energy:
4. Compound Machines:

<p>There are six simple machines:</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> </ol>	<p>Simple machines make work easier.</p> <p>They make it easier to:</p> <ul style="list-style-type: none"> <li>• Lift or move a heavy object</li> <li>• Push things apart</li> <li>• Cut or split objects</li> <li>• Hold an object together</li> </ul>
--	---

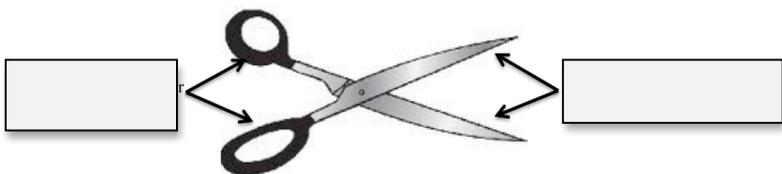
Simple Machine	How it Works	How it Makes Jobs Easier	Examples
<p><i>Lever</i></p> 	<p>A lever is made of a stiff bar that rests on a fulcrum. The bar is the part of the lever that moves and the fulcrum does not move.</p>	<p>It helps you to lift or pry things open/apart more easily.</p> <p><b>3 Parts of a lever:</b></p> <ol style="list-style-type: none"> <li>1. Fulcrum</li> <li>2. Effort</li> <li>3: Load/Resistance</li> </ol>	<p>3 Classes of Levers:</p> <p>1<sup>st</sup>:</p> <p>2<sup>nd</sup>:</p> <p>3<sup>rd</sup>:</p>
<p><i>Inclined Plane</i></p> 	<p>A flat surface that is higher on one end.</p>	<p>It helps you push an object to a lower or higher place.</p>	
<p><i>Wedge</i></p> 	<p>Made up of two incline planes that form together to create 1 sharp edge</p>	<p>It helps you push two objects apart, or cut an object into pieces. It can also hold objects into place.</p>	

Simple Machines	How it Works	How it Makes a Job Easier	Examples
<i>Screw</i> 	Made from an incline plane that winds around a cylinder; it has ridges unlike a nail.	It helps you hold objects together. It can also create holes.	
<i>Wheel and Axle</i> 	Has two parts, the wheel and axle. The axle is a rod that goes through the wheel and helps the wheel turn.	It helps you to move or turn things.	
<i>Pulley</i> 	Made up of a wheel and a rope; the rope fits into the wheel and part of the rope is attached to an object. When you pull on one side of the pulley the wheel will turn and the object will move up, down, or sideways.	It helps you move objects up, down, or sideways. They are good for moving objects in hard to reach places. <b>Block and Tackle:</b> Multiple pulleys put together.	

Compound Machines:

Identify the Simple Machines in each:

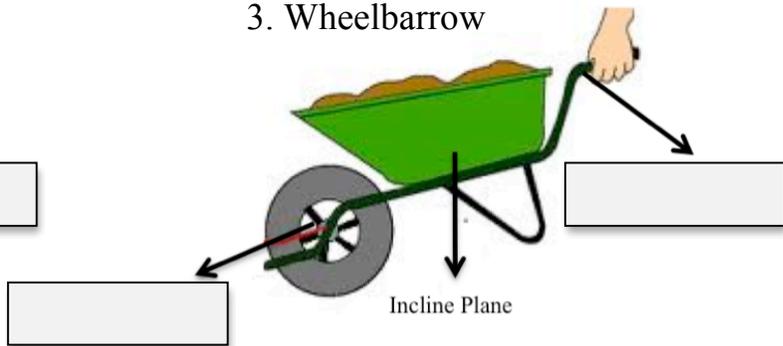
1. Scissors



2. Bicycle



3. Wheelbarrow



4. Shovel

