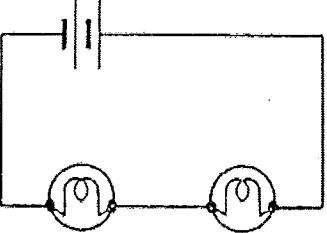
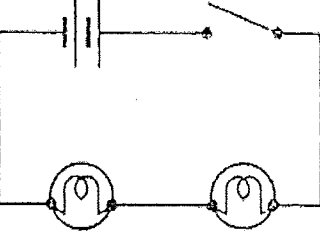
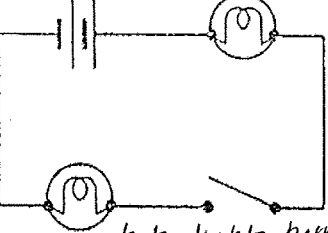
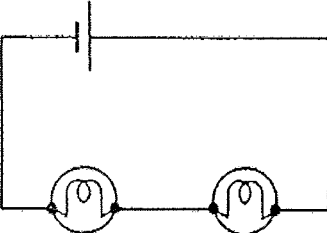
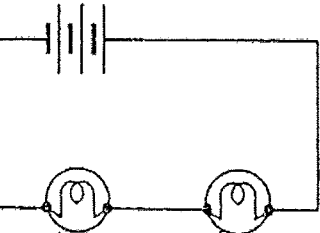
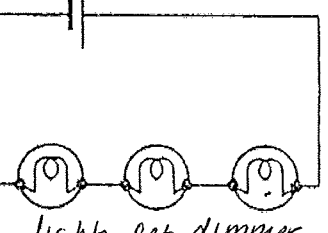
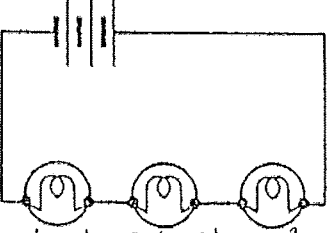
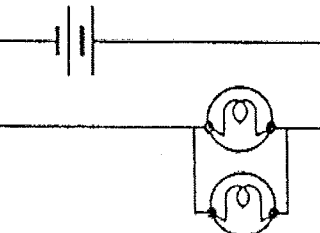
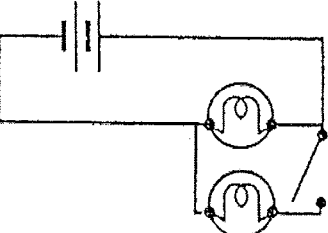
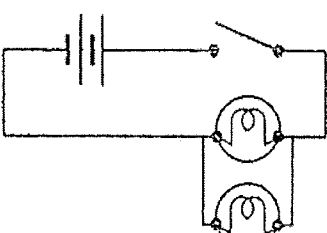
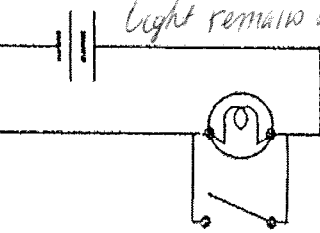
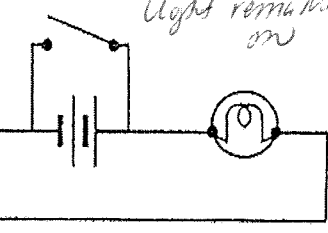


Electric circuits are used to convert electrical energy into the other forms of energy we need (heat, light, sound, ...). When the switch is closed and current is flowing, there is said to be a closed circuit. But what will happen when ...

Instructions

Answer the following questions. If you are not sure what will happen, use the "PhET circuit construction kit (DC only)" to build and then test each circuit.
<http://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>

 <p>1. one bulb is unscrewed? <i>both bulbs go out</i></p>	 <p>2. the switch is pressed on? <i>both lights turn on</i></p>	 <p>3. the switch is pressed on? (Does it matter where the switch is? <i>No</i>)</p>
 <p>4. a weak battery is used? <i>lights get dimmer</i></p>	 <p>5. a strong battery is used? <i>lights get brighter</i></p>	 <p>6. a weak battery is used, with three bulbs like this? <i>lights get dimmer</i></p>
 <p>7. a strong battery is used, with three bulbs like this? <i>lights get stronger brighter</i></p>	 <p>8. one bulb is unscrewed? <i>the other bulb keeps working</i></p>	 <p>9. the switch is pressed on? <i>the second light bulb turns on</i></p>
 <p>10. the switch is pressed on? <i>both light bulbs turn on</i></p>	 <p>11. the switch is pressed on? <i>nothing</i></p>	 <p>12. the switch is pressed on? <i>nothing</i></p>

NOTE: Diagrams 11 & 12 are special situations - they are known as short circuits. Because there is no electrical load to use up the energy from the battery, the circuit heats up and may become hot enough to start a fire.