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Science period: p.2

Language A period: p.1

**TITLE:** Light sticks

**QUESTION:** How is a light stick affected by thermal energy?

**HYPOTHESIS:** If we put two of the same light sticks in hot and cold water (one in hot and one in cold), then the color of the light sticks will change, because the heat of the water will effect the thermal energy.

**OBSERVATIONS AND DATA:** There is a pink thing in the middle of the clear gel in the glow stick. The pink thingy is moving around and is shaped like a stretched out circle. There is a little yellow splash on the left hand side of the thing in the glow stick. Once we cracked the glow stick, the thing in the middle popped and the clear gel turned pink and started to glow. the glow stick in hot water is brighter and has more color and the one in cold water id like faded and isn't glowing. There is more energy in the glow stick with the hot water.

**CONCLUSION:** My hypothesis was correct because i said if we put the two of the same light sticks in hot and cold water (one in hot, one in cold), then the color of the light sticks will change, because the heat of the water will effect the thermal energy and that was correct. Our data showed that the nightstick in the hot water was brighter and had more color in it than the glow stick in the cold water. The amount of thermal energy affected the brightnes, because the energy and the heat mixed and created more energy which made it more colorful and bright. Potential energy was when we put the glow sticks in the hot and cold water. Kinetic was when we took the glow sticks in the closet to see which one was brighter. Energy was conserved by making natural energy with water and not a battery.

**SUMMARY OF STATION ARTICLE:** The light stick was filled with a solution of ester and dye. On the inside of the light stick there is a little glass container, or ampule. The ampule hold hydrogen peroxide. Once you bend the glow stick, the ampule mixes with the ester and dye creating an chemical reaction. The light was creating radiant energy. The compounds did not need as much energy to hold the molecules together, so they realese the extra energy as light.

**REAL WORLD APPLICATION:**

STATION REPORT SUMMARY	
Report Response	Go to person
Why does hot water make the glow stick brighter and has a more vibrant color?	Mr. Land

<p>First we observed the glows sticks un cracked. Then we filled to beakers full of hot and ice cold water. Then we cracked two of the glow sticks. We put one of the glow sticks in hot water and one in cold water.</p>	<p>Mr. Landlightstickinvestigation101</p>
<p>The energy transformations were when we put the glow sticks in the water and the light from the glow stick exchanged energy with the thermal energy in the hot water.</p>	<p>Mr. Land</p>
<p>The glow sticks were exchanging thermal energy. The glow stick in the cold water got a lot of its thermal energy removed and the hot water gave off more thermal energy.</p>	<p>Mr. Land</p>
<p>The glow sticks reacted with different amounts of energy.</p>	<p>Mr. Land</p>