



## STEM Activity Idea:

### Glow Stick Investigation

**Suggested Program Level: Juniors – Cadettes**

Study the science behind glow sticks.

#### Supplies (per group):

- 3 glow sticks
- 2 glass containers (coffee cups or drinking glasses)
- Ice water/hot water

#### Instructions:

1. Show the girls how to bend the glow stick until they hear the pop and the liquid begins to glow. Ask the girls if the glow stick feels warm since it is glowing now.
2. Help the girls pour the hot and cold water into the cups (water should not be above 130°F so the plastic does not melt). Predict what will happen when the other two glow sticks are placed in the different cups. Once the predictions are made, let the girls pop the other two glow sticks, shake them up, then place each one in a cup, leaving the first glow stick out of the water.
3. Let the girls observe the differences between the hot and cold cups. Do they notice bubbles forming with either one? Is one brighter than the other?
4. After a few minutes, switch the glow sticks in the cups to see if anything else happens.
5. Remove the two glow sticks from the water and lay all three next to each other to compare the changes. How long does it take for all three to look exactly the same?

#### Why?

The popping sound that is heard when you bend the glow stick breaks a glass container in the tube that causes chemicals to interact, forming a glowing solution. Temperature can speed up or slow down the glowing process. The stronger the stick glows, the shorter the time it will glow because it uses up more of the energy created in the chemical reaction in a short amount of time. The colder the solution, the longer the chemical reaction will last.