



CHEMISTRY

UV Beads and Plasticity



BIG IDEA

Sunlight can create a chemical reaction objects. We can use that to make fun bracelets, design science experiments and learn about plasticity.

MATERIALS

- UV Beads
- Other beads (pony beads, letter beads etc)
- String or pipe cleaners
- Sunscreen (optional)
- Paper towel

THE SCIENCE

The Sun has many different wavelengths of light, including UV light. When the UV light hits the beads, it starts a chemical reaction that changes their color! That same UV light makes a chemical reaction in our skin, which is why we wear sunscreen for protection.

Our skin and the UV beads respond to changes in their environment, which means they have plasticity. Talking about being plastic or having plasticity can get confusing because we aren't talking about the *material* plastic. Plasticity is a trait that all living things have!

There are lots of examples of plasticity that you can learn about by watching the video *Being Plastic is Fantastic* by the IMPACTer Emily Harmon.

INSTRUCTIONS

1. Before you make your bracelet, plan it out! Maybe you want to alternate UV beads with normal pony beads; maybe you want to spell out your name between UV beads – anything works. Some UV beads are even different colors when exposed to sunshine.
2. Start putting your beads on your string or pipe cleaner. It might help to do this on a table so that the beads don't fall off. Remember to keep about ½ inch on each side of the bracelet to tie the knot.
3. Tie up the loose ends!
4. Take your bracelet outside for a few minutes. Watch how the beads change color in the sunlight. Why do this happen?
5. If you don't want to make a bracelet, don't worry! There are lots of ways to use UV beads. Let's set up an experiment to test out sunscreen.
6. For this experiment, we'll have two groups (or more). One group of UV beads without sunscreen, and one group with sunscreen. If you have sunscreen with different SPFs, you can make more than one sunscreen group!
7. Take a handful of the UV beads and apply sunscreen to them – make sure they're fully coated! If you have multiple SPFs, apply them to the beads separately. It might help to wash your hands between applications.
8. Put the beads outside on a paper towel for at least 10 minutes. If you have multiple groups, remember to keep them separate!
9. After 10 minutes, make some observations. Do the beads with sunscreen look different? Why might that be? What about groups of beads with different SPFs?