Is Nail Polish Nano?
Student Handout

A material that we are familiar with in one situation can have a very different appearance in another. For example, when we think of gold, we usually think of it in its bulk appearance—a shiny, metallic, yellow-gold color. We can section it into smaller pieces, such as a ring or tiny links in a necklace and it still has this typical appearance. However, when gold is divided into much, much smaller pieces, such as nanoparticles of different sizes, it can appear as different colors in solution, such as red, purple, and green.

In this activity, you will investigate the appearance of a familiar material, nail polish, in two different situations.

Materials
- Two strips of black Bristol paper or construction paper
- Clear fingernail polish
- Water
- Shallow container at least slightly larger than the paper strips
- Paper towels

Activity
1. Fill the shallow container halfway with water.
2. Briefly soak one of the strips of paper in the water. Remove it and lightly blot it with a paper towel.
3. Using the brush applicator, paint or drip a small amount of clear fingernail polish onto a small portion of the paper strip. What does the surface look like?
4. Place the second strip of black Bristol paper or construction paper into the water. Make sure it is completely submerged.
5. Using the brush applicator, drip a single drop of clear fingernail polish onto the surface of the water. What happens to the polish?
6. Grip one end of the paper strip and lift it up out of the water, through the fingernail polish.
7. Place the wet strip, polish-side up, on a paper towel to dry. What does the surface look like?

Questions

1. Compare and contrast the surfaces of the two paper strips where the polish was placed.

2. Describe what happened to the drop of polish when it was placed on the surface of the water.

3. Why do you think the polish looks different on the second strip? Explain.