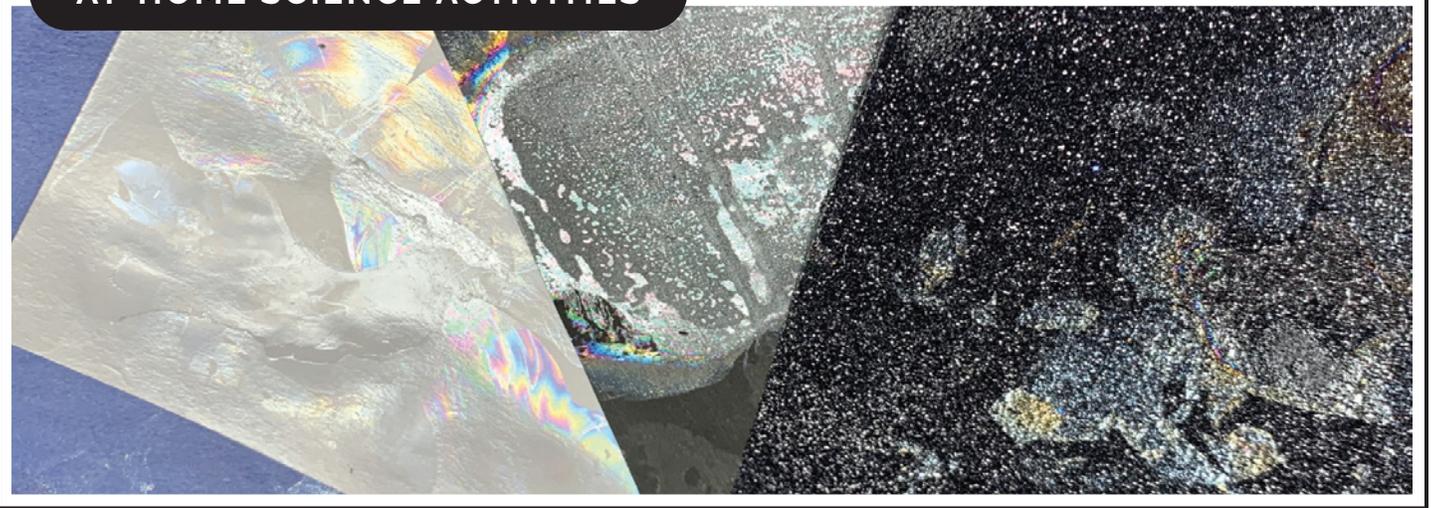


AT-HOME SCIENCE ACTIVITIES



how to trap a rainbow

MATERIALS

paper
(dark colors work best)

scissors

small disposable bowl

water

clear fingernail polish

towel

DIRECTIONS

Cut your paper into shapes that will fit completely in your bowl, but don't put them in yet. Fill your bowl with water to three-quarters full. With adult supervision, allow two drops of clear fingernail polish to fall onto the water's surface. Immediately immerse a piece of your paper completely into the water and remove it right away. Set your dipped paper "fingernail polish" side up on your towel and allow to dry. Repeat the last three steps with your additional pieces of paper. Once the paper dries, you will have captured a rainbow!

THE SCIENCE

Have you ever seen the phenomenon of rainbows shining on a surface? The rainbow colors appear because of a natural phenomenon called thin-film interference. In this experiment, the fingernail polish separates in the water and makes two very thin films that float for a short time on the surface of the water. When you dip the paper into the water the two films cling to the paper. When the water dries you see that these two films get in the way of each other and interfere with each other's wavelengths of reflected light, either making the reflections of color amplified (greater) or reduced (less).

EXPERIMENTS

- Try different colored paper. Which color shows off the best rainbows?
- Try different kinds of paper, like construction paper vs. cardboard. Did one work better than the other?
- Where else do you see a "Trapped Rainbow" or thin-film interference? How about in soap bubbles, bubble bath, oil on asphalt or pavement?

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