

Rainbow Film

How can you make rainbow colors out of clear nail polish?

Description

In this activity, kids use clear nail polish to create a beautiful iridescent pattern on black paper.

Suitable for kids ages 3 and up.



Materials

Shallow pan

Strips of black paper
(Bristol is best, but construction paper works)

Clear nail polish

Pencil

Place to let paper dry



Time

Preparation: 5 minutes

Activity: 5 minutes

Cleanup: 5 minutes

Note: *It takes about 30 minutes for the bookmarks to dry.*

Safety

Do not eat or drink any of the materials in this activity. Supervise children at all times. Be sure to do this activity in a well-ventilated area.

Step 1

Use the pencil to write your name on a strip of black paper.

Holding onto one end, slide the paper into the pan. Make sure it's completely under water (except for the end you're holding).



Step 2

Use the brush to drip one drop of nail polish onto the surface of the water.

Watch what happens—the polish instantly spreads out into a thin film!

TIP

With young children, an adult can hold the paper and the child can drip the polish.



Step 3

Lift the paper up and out of the water. The film of nail polish will stick to the paper.

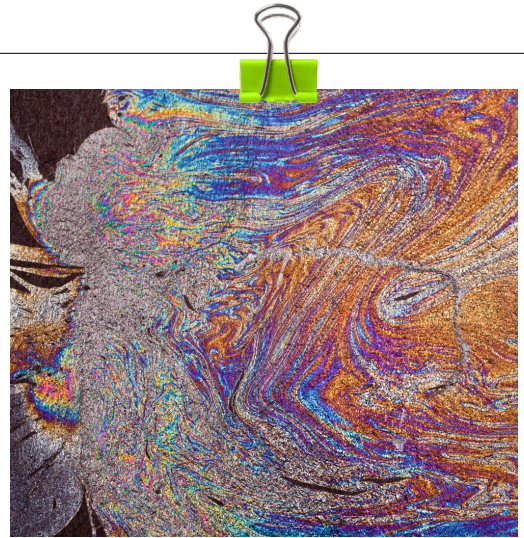
Does the nail polish still look clear?



What's going on?

The nail polish spreads out into a thin film, which creates iridescent colors on the paper. The film is only a few hundred nanometers thick. (A nanometer is a billionth of a meter.)

The film is slightly thicker in some places and thinner in others. The film reflects light differently depending on how thick it is, so you see different colors.

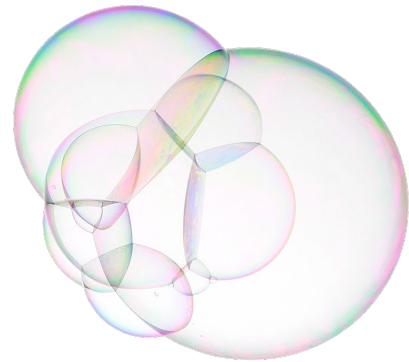


Thin films can make rainbow colors

How is this nano?

Thin films can reflect light in special ways, because they're only a few hundred nanometers thick. That's in the same size range as the wavelength of visible light.

Soap bubbles and oil slicks are some other examples of thin films that create beautiful, iridescent colors.



Thin films

Nanotechnology takes advantage of the way things behave differently at the nanoscale to make new products and applications.

For example, researchers are creating thin film batteries, solar cells, and electronic displays.

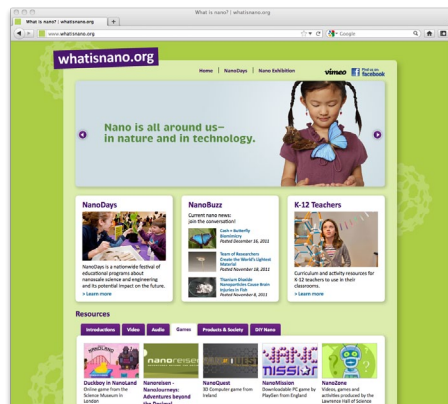


Solar panels

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Credits



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This activity was adapted from "Create Some Iridescent Art," in the DragonflyTV Nano Educator's Guide, published by Twin Cities Public Television, 2009.

Activity photographs, Gary Hodges Photography

Images of bubbles and solar panels, www.istockphoto.com