

Summer Science Activity: DIY Detective Lab

Suspicious activity in the neighborhood? Younger siblings snooping in your room? Learn the art and science of fingerprinting and stay on the cutting edge when it comes to clue-finding.

Activity #1: Book 'em and Print 'em

Materials:

- # 2 pencils
 - Pencil sharpener
 - White index cards
 - Scotch® Magic™ Tape or Scotch® Packaging Tape
 - Magnifying glass
 - Post-it® Flags
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Procedure:

- Ink pads can cause permanent fabric stains, so make a more user-friendly pad with graphite. Simply rub the side of a pencil tip on a white index card, covering a good-sized square.
 - Now press your index finger on the grey square. Press with a medium touch—not too light, not too hard—and gently roll from one side to the other.
 - Place a 3-inch piece of clear tape firmly on the fingertip. (Better yet, have a friend carefully do it for you.)
 - Lift the tape off your finger and stick it on a white index card. There's your print! (You may have to practice a few times to get it right.)
 - Be sure to note your name and the correct finger on the index card (e.g., Right – I = right hand, index finger)
 - Once you've got the process down, do both of your index fingers and both thumbs.
 - Snag some friends and family members and bring them in for prints (and questioning).
 - Now have some fun in your "lab," sorting and categorizing your fingerprint specimens into the three basic fingerprint patterns: loops, whorls and arches. *What, what and what, you ask?* You'll find fingerprint charts on the Internet, such as this one: http://encarta.msn.com/media_461551519/types_of_fingerprints.html
 - Use a magnifying glass to examine your prints more closely. Use color-coded Post-it® Flags to categorize and display them on the wall of your lab.
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Extensions:

Do all of your fingers (and those of your friends and family members) and create a larger collection. Label as follows: T – thumb, I – index finger, M – middle finger, R – ring finger, L – little finger (or pinkie). Use color-coded Post-it® Flags to sort them into categories. Do your toes!



Activity #2: Dusting for Fingerprints

Try “dusting for fingerprints” at a mock crime scene (or your bedroom or kitchen).

Materials:

- Cornstarch
- Powder make-up brush
- Scotch® Magic™ Tape
- Black construction paper
- Post-it® Notes

Procedure:

- Leave your fingerprints behind on several surfaces in a room, such as a desk or table top. (Note: Natural oils in your fingertips leave the prints, so don't wash your hands right before this activity. To make a stronger print, rub your forehead or the side of your nose first to add extra oil to your fingertip.)
- Sprinkle the print with cornstarch and then dust lightly with the powder brush. You should see a light outline of a fingerprint.
- Now place a 3-inch piece of clear tape over the print and gently lift it up.
- Stick on a piece of black construction paper.
- Use Post-it® Notes to make notes about each print (such as date, time and place the print was lifted).
- Now try this exercise for real, and find out whose hands have been in the cookie jar!

To learn more:

Learn the way it's done at real crime labs. Check out “FBI: Taking Legible Fingerprints:” <http://www.fbi.gov/hq/cjisd/takingfps.html>

For more resources, visit www.discoveryeducation.com/sciencefaircentral.

