

FINGERPRINT FUMING

OVERVIEW

In this activity, you'll use super glue to reveal a fingerprint on a plastic surface.

Fingerprint impressions left behind at a crime scene can be visible (aka patent or plastic) or invisible (aka latent). When evidence is collected from a crime scene, chemical techniques can help uncover latent fingerprints.

DID YOU KNOW?

The science of fingerprint identification is called 'dactyloscopy' from the Greek words 'dactyl' meaning finger and 'scopy' meaning study or examination.

MATERIALS

- Hand lotion
- Pen lid (smooth plastic surface)
- Heat safe container (glass mixing bowl)
- Aluminium foil
- Glass container (small bowl or jar)
- Super glue (note: super glue must contain cyanoacrylate)
- Water
- Kettle

⚠ SAFETY TIP

Be sure to review the safety information on the super glue packaging before starting this activity. Setting up and using the 'fuming chamber' requires active adult supervision. We recommend setting this activity up in a well-ventilated area.



WATCH THE VIDEO LINK



IDEAL FOR 8-13 YEARS



ADULT INVOLVEMENT RECOMMENDED

METHOD

1. Boil water in a kettle.
2. Wipe the pen lid to remove any previous dirt or grime.
3. Rub some hand lotion onto your fingers and then press one finger against the pen lid for a minimum of one minute.
4. Place the pen lid onto the bench while you prepare the 'fuming chamber'.
5. Cut a piece of aluminium foil large enough to cover the top of the heat safe container.
6. Ask an adult to pour the boiling water into the heat safe container, no more than halfway up the container.
7. Cover the heat safe container with the aluminium foil.
8. Place the pen lid on the aluminium foil to one side of the 'fuming chamber' floor.
9. Ask an adult to add 5 drops of super glue onto the aluminium foil alongside the pen lid (make sure the super glue does not come into contact with the pen lid or chamber edge).
10. Quickly close the chamber with an upturned glass container. This creates your 'fuming chamber'.
11. Leave the pen lid in the 'fuming chamber' for about half an hour.
12. Remove the glass container from the 'fuming chamber' to reveal the pen lid.
13. Check the pen lid and you should see your fingerprint has been revealed.



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FOR DISCUSSION

What does the super glue do?

In fingerprint fuming, we use a super glue containing cyanoacrylate.

When the super glue is heated, the vapours of cyanoacrylate react with the oily residue left by your finger on the plastic pen lid surface. This reaction reveals the clear image of the fingerprint.

How could we lift the print from the lid?

Once you've revealed your fingerprint on the pen lid, you can try lifting the fingerprint pattern using a dusting technique. Watch the '[Lifting fingerprints](#)' video to find out how to do this.

EXTENSION: FINGERPRINT IMPRESSIONS

An important task for a crime scene investigator is to recover fingerprint impressions from the crime scene. Three different types of fingerprint impressions can be gathered:

- **Patent:** these are visible fingerprints, e.g. bloody or dirty or stained fingers that leave fingerprints on a surface.
- **Plastic:** these are visible, impressed prints that occur when a finger touches a soft, malleable surface and leaves a 3D impression of the fingerprint on the object, e.g. a fingerprint in butter.
- **Latent:** these are fingerprint impressions secreted onto a surface or object and are usually invisible to the naked eye. These fingerprints can be enhanced by physical (e.g. dusting) or chemical (e.g. super glue fuming) methods.

Now imagine that you're a crime scene investigator, what types of fingerprint impressions have you discovered in these scenarios?

1. On a half-eaten chocolate bar (Answer = plastic).
2. On a blood-stained broken window (Answer = patent).
3. On an Xbox (Answer = latent).
4. On a cup or glass (Answer = latent).

WANT TO DO MORE?

Try out the other fingerprint activities: '[Lifting fingerprints](#)' and '[Fingerprint patterns](#)'.