**STUDENT ACTIVITY: Write a secret message**

**Activity idea**

In this activity, students use a UV light-emitting diode pen to write secret messages and investigate a range of objects to see if or how they fluoresce.

By the end of this activity, students should be able to:

* explain why an invisible dye fluoresces when UVA shines on it
* use UV light to investigate objects to see if and how they fluoresce.

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**Introduction/background**

The pen ink in a UV light-emitting diode ([LED](http://www.sciencelearn.org.nz/About-this-site/Glossary/LED)) pen contains an invisible dye that fluoresces yellow when UVA from the LED shines on it.

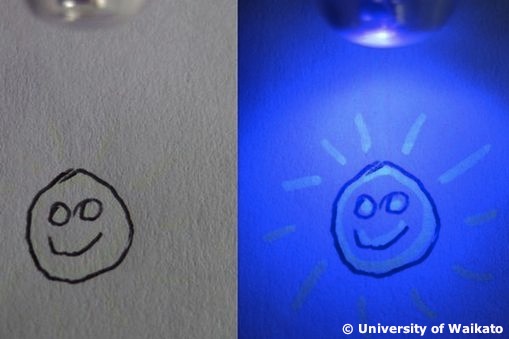
This activity is suitable for younger students – Teachers should read [UV and fluorescence](https://www.sciencelearn.org.nz/resources/1311-uv-and-fluorescence) to offer students an explanation about fluorescence appropriate to the age group. Older students could read and discuss the article themselves.

**What you need**

* UV LED pen (purchase these from science-based toy shops or online for under $10)
* Credit cards
* New Zealand and foreign banknotes
* Fluorescent pictures
* Toys
* Highlighter pens
* UV beads
* Various kinds of paper

**What to do**

1. Have students use the pen to write a secret message or draw a hidden picture:

* Make up clues guiding their partner to where the message/picture is hidden.
* Their partner solves the clues and uses the LED to search for and reveal the hidden message/picture.
* Swap over roles.

1. Have students use the UV LED part of the pen to investigate a range of objects to see if or how they fluoresce (they may need to investigate some of these in a dark place to reduce the effect of daylight) – credit cards, New Zealand and foreign banknotes, fluorescent pictures, toys, highlighter pens, UV beads and various kinds of paper.