

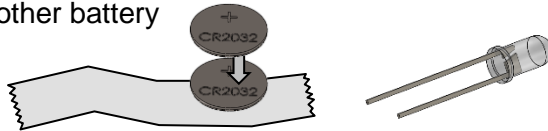
# LED/battery assembly

## Materials

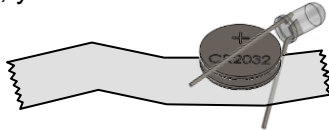
- UV LED
- 2 watch batteries
- Tape (optional)

## What to do

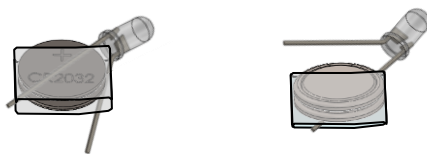
1. Open the batteries and place both writing side up
2. Put one battery on top of the other
  - a. Writing side of one battery should touch non-writing side of other battery



3. Carefully bend LED legs apart
4. Hold the longer LED leg in contact with writing side of the battery stack
5. (optional) Leaving half the battery uncovered on each side, tape the two batteries and the long side of the LED leg together
  - a. Do not tape the short leg of the LED to the battery -if you do, you cannot turn it on and off!



6. Touch the short leg of the LED to the non-writing side of the battery stack to turn the LED on and off



## Troubleshooting

- Check contact between the legs and the batteries
- Make sure the writing side of one battery is touching the non-writing side of the other battery
- Switch with leg is touching each side if the LED continues to not light up

# Turmeric demo

## Materials

- Isopropyl alcohol in smaller vial
- Plastic dropper (with yellow turmeric powder)



## What to do

1. Remove the film from the top of the smaller vial and open the vial
2. Remove the masking tape from the tip of the turmeric dropper (or use scissors to cut just the tip of the dropper)
3. Bring the UV LED setup close to the vial
4. Turn off the lights!
5. With the tip of the dropper over the liquid in the vial, carefully squirt the turmeric into the isopropyl alcohol
6. Watch what happens when you shine the UV light on it!

# Glow paint

## Materials

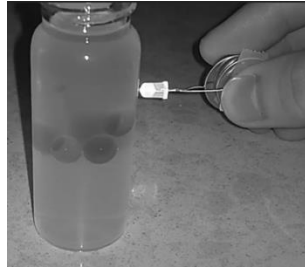
- Plastic container with paint base
- Water
- Plastic dropper (empty)
- Plastic dropper (glow paint powder)
- Paintbrush
- Paper or something to paint on

## What to do

1. Using the empty dropper, add 1 mL of water to the paint base
  - a. Check the markings on the dropper to find the 1 mL mark
2. Carefully remove the masking tape from the tip of the glow paint powder dropper (or use scissors to cut just the tip of the dropper)
3. Add the glow paint powder to the paint base and water
4. Using the tip of the dropper, mix together the glow paint mixture

To use the extra paint later, put the lid back on the container tightly and wash the brush

# Lava lamp assembly



## Materials

- Isopropyl alcohol in larger vial
- Water
- Plastic dropper (empty)
- Plastic dropper (olive oil)
- Blue food coloring (blue spot on paper towel)
- Two clean small containers for liquid

## What to do

1. Carefully remove the film from the top of the larger vial and open the vial
2. Using the clean dropper, remove some of the isopropyl alcohol from the vial and put it into a clean small container. Do this until the vial is about halfway full
3. Put some water in another clean small container, you don't need a lot!
4. Take the blue food coloring on the paper towel and soak it into the water until the water turns blue
5. Using the dropper, add blue water to the vial until the vial is almost full
6. Close the vial lid tightly and shake \*\* do not shake after adding oil \*\*
7. Carefully remove the masking tape from the tip of the olive oil dropper (or use scissors to cut just the tip of the dropper)
8. Add a big drop of oil by putting the oil dropper into the liquid and releasing an amount all at once, into one big bubble. You can also add smaller drops if wanted. \*\* do not mix up oil dropper with other dropper \*\*
  - a. Tip: When dropping in olive oil, don't stop squeezing while dropper tip is still in the vial. This will mix the oil and isopropyl and make the solution cloudy.
9. Close the lid and try your lamp!

Can turn the lava lamp over to watch the bubbles float around, but don't shake the lava lamp! Be gentle!

If the bubbles float to the top, add more alcohol to make them sink

If the bubbles sink to the bottom, add more water to make them float

# Extra: Make your own invisible ink (2 ways)

## Method 1: Bleach

### Materials

- Bleach
- Printer paper
- Toothpick or paintbrush
- Small container (cup or plate)

### What to do

1. With parent's supervision, pour a small amount of bleach into a cup or plate
2. Use a paintbrush or toothpick as a stylus to write a secret message on a piece of printer paper
3. Allow the "ink" to dry completely
4. Use the LED to reveal your secret message!

## Method 2: Lemon juice

### Materials

- Half of a lemon or pre-squeezed lemon juice
- Printer paper
- Toothpick or paintbrush
- Small container (cup or plate)
- Lamp

### What to do

1. Squeeze lemon or pour lemon juice into cup or plate
2. Use a paintbrush or toothpick as a stylus to write a secret message on a piece of printer paper
3. Allow "ink" to dry completely
4. Using a lamp as a heat source, heat up the paper where your message was written
5. After the paper is heated enough, your message will be revealed!