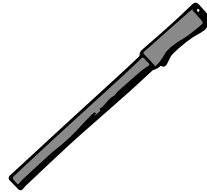


## ACTIVITY SHEET I : MAKE YOUR OWN PINHOLE CAMERA

### You will need:



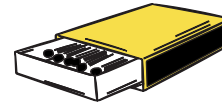
A disposable paper cup (ones that shops use for serving tea, coffee, or fruit juice)



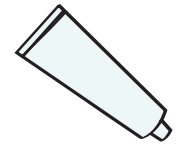
Black sketch pen



Needle



Matchbox



Glue



Candle



A pair of scissors



Butter paper  
or white paper



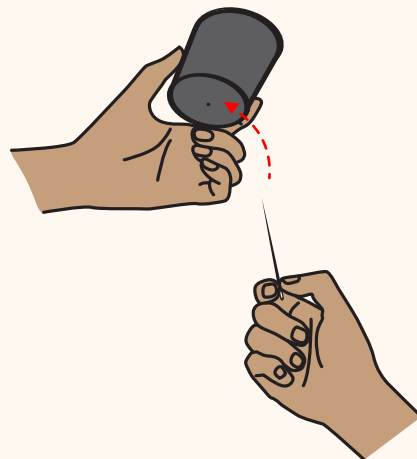
Vegetable oil

### How to make:

- Use the paper cup as the body of your camera. Use the sketch pen to blacken its sides and bottom. This will help keep the cup dark inside.
- Use the needle to pierce the bottom of the cup once. This pinhole will act as the aperture for your camera.
- Use glue to close the open end of the cup with a piece of circular butter paper. The butter paper will act as the screen of your camera. If you do not have butter paper, you can use white paper—make it translucent by rubbing 1-2 drops of vegetable oil on it.



1



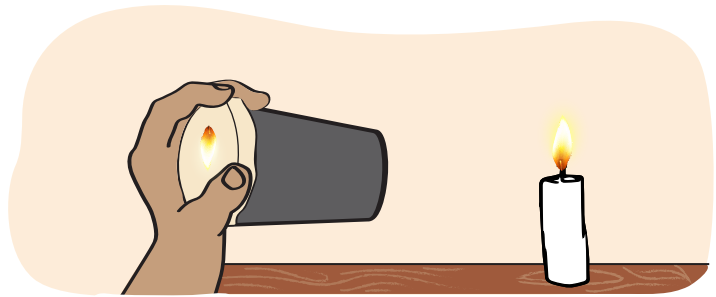
2



3

### What to do:

Place a lighted candle on a flat table. Turn the pinhole end of your camera towards the flame. Observe the translucent screen.



### Observe:

- What do you see on the screen? How is the image on the screen different from the actual flame?
- Move the camera closer and further away from the candle. How does the image on the screen change?
- At what distance is the image on the screen the same size as the flame of the candle? Measure this distance.
- At what distance is the image on the screen the sharpest? Measure this distance.
- Darken the room by drawing the curtains, closing the door, and switching off any other light sources. How does the image on the screen change?
- Use a pen to make the hole at the bottom of the cup bigger. How does the image on the screen change?
- Use the pin to make a second hole in the paper at the bottom of the cup. What do you see on the screen?

### Discuss with your classmates:

- Q1. What factors help create the clearest image on the screen of your camera? Is the size of the clearest image equal to the size of the actual flame?
- Q2. Why do you need translucent paper for the camera screen? Can you predict what would happen if you replaced this with a transparent polythene sheet or an opaque piece of card paper? How would you test your prediction?
- Q3. What changes in the design of your camera will make the image sharper?
- Q4. Is your pinhole camera different from the camera in a mobile phone? Share why.