

Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

aaargh!

...adapted from LIGHT #17
by TOPS Learning Systems

1. Poke half the length of a sharp pencil (or pen) through the center of an index card.
2. Hold some paper (on a firm backing) in front of a mirror. Adjust angles so you can see the pencil point in the mirror, but *not* in your hand.



3. Looking only in the mirror, draw a square crossed with diagonal lines.

4. Write your name so it looks normal in the mirror.



5. Why is this so hard to do?

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OBJECTIVE

To experience the reversed nature of a reflected image. To have fun.

LAB NOTES

Copy the lab for each student or lab team. Decide how students will access available mirrors.

ANSWERS

5. Looking into a mirror, my brain must coordinate the hand with a visual image reversed from what it usually sees. (When the reflected object is in the horizontal plane, the image is upside down. If the object is in the vertical plane, its image is reversed left-to-right.) With my paper flat, I must move my pencil away from me to bring the reflected pencil toward me. My hand must do the opposite of what my eyes see happening.

MATERIALS

- An index card. Small works fine.
- A mirror. Prop a hand mirror on a table, or stand in front of a wall mirror.
- A firm writing surface (book, clipboard, etc.), if standing in front of a wall mirror.

EVALUATION

Q. You are hired to paint the word FIRE on the front of a truck so other drivers can recognize the word in their rear-view mirrors. Draw how it should look. (Check your answer in a mirror.)

A. ƎRIF

EXTENSION

Q. Write this sentence in reverse, so its image reads and looks normal when held vertically in front of a mirror. It's okay to look at your pencil.

I am so discombobulated!

A. !ɹǝʇuɹɔɹɔɹɔɹɔɹɔɹɔɹɔ ɹɔ ɹɔ ɹɔ

This mirror writing is similar to the activity in that the letters must be formed backward to appear normal in a reflected image. Otherwise the two processes are different:

- Now you can look directly at the pencil point, instead of only its mirror image.
- Now the object is held vertically, which reverses the image side-to-side, but it is no longer upside-down. (Here you write letters right-side-up and right-to-left. Before your letters were upside-down and left-to-right.)

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