

# Disorientation Maze

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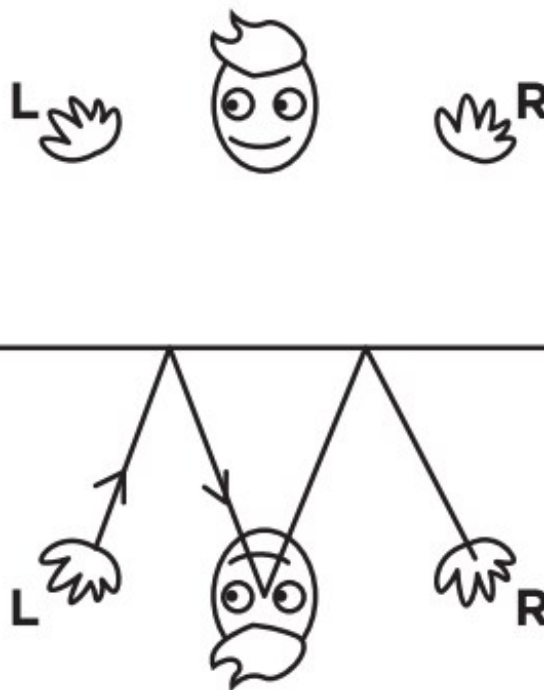
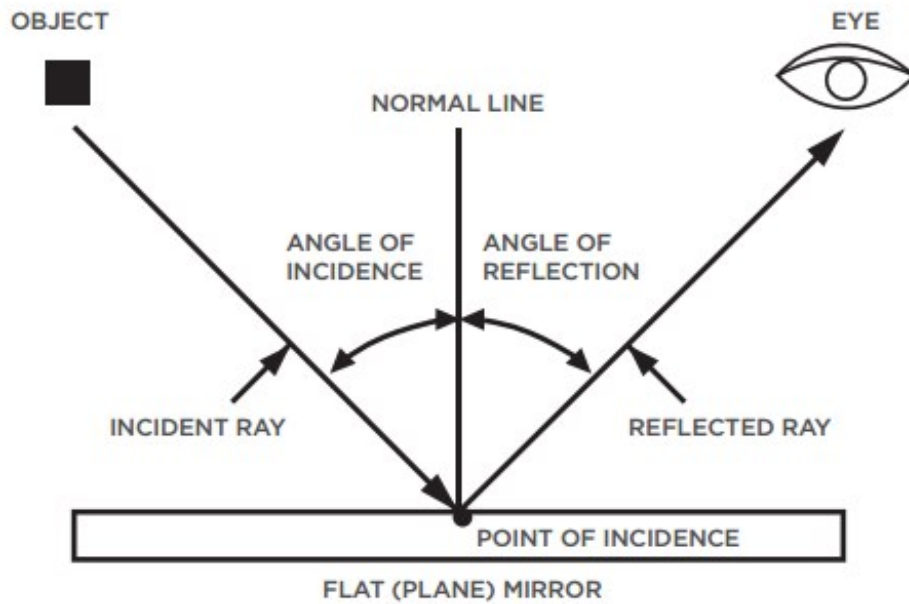
 [scienceworld.ca/resource/disorientation-maze/](https://scienceworld.ca/resource/disorientation-maze/)

## All Resources

In this activity, students navigate a **reflected** maze.

**Mirrors disrupt eye-hand coordination because the image in a mirror is reversed.** The movements you see are the opposite of what you expect to see.

When light from an object hits a flat, shiny surface, nearly all of it is **reflected** (bounces back) in a predictable way. The light bounces back at the same angle it came in at. When your eye catches the light, it appears as though it came from behind the mirror.



When you look in a **flat mirror**, you see a reflection of yourself that is the same size as you but reversed.

**Right and left are reversed** in the image because a light ray coming off your right hand bounces off the mirror, and into your eye. To your eye and brain, the light ray appears to have come from the left hand of someone who looks just like you, standing on the other side of the mirror. Because the image is “behind” the mirror, your right hand is their left one.

Ponder this: we may describe a reflected image as “switched from side to side”. But really, **a mirror only changes the direction the object is facing into and out of the mirror.** That is, back to front or front to back .

## Objectives

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- Describe how light rays can change direction.
- Demonstrate how visible light is reflected.

## Materials

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### **Per group:**

disorientation maze worksheet

2 pencils

stopwatch

flat (plane) mirror

## Key Questions

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- Why is it difficult to change direction in the maze when looking in the mirror?
- Which maze took longer?
- What made the task more difficult?
- Which could you complete more accurately?
- Could you improve your performance with practice?

## What To Do

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1. Work with a partner. Use a pencil to trace a path through maze A while your partner times you using a stopwatch.
2. Next, with your partner holding the mirror at the top of the maze B, draw a path through the maze, looking only at the reflection of the maze while your partner times you. Hint: To make sure the students doing the activity cannot see the maze, have them cover their drawing hands with paper.
3. Switch roles with your partner and do the activity again.
4. Compare how long it took to draw without the mirror and to draw with the mirror. If there's a difference, how can you explain it?

## Extensions

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- Ask students to draw a simple shape like a star or a heart. Have them trace that shape, looking only at its reflection in the mirror.
- Leonardo da Vinci wrote all of his notes in mirror-writing (from right to left). Can you write a message in mirror-writing? Try it, and then check it by using a mirror.
- Is it easier to write in mirror writing with your left hand or your right?

## **Mirrors**

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How we see certain objects depends on how the surrounding light rays interact with them: Light can be reflected,...

## **Space Disorientation Maze**

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You may not have a chance to go to space yourself, but you can simulate a little of what astronauts experience...



## **Puzzles and Illusions Gallery**

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