

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# HOW LIGHT TRAVELS



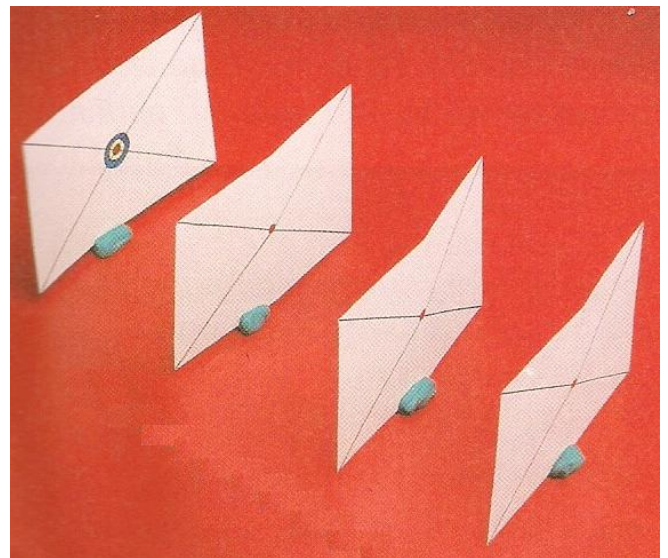
When we look at a spotlight we can see that the light is travelling in a straight path. However, for most light sources the path is difficult to see. This is because most light sources are so bright that you can not see a single **ray** of light. Today's investigation is designed to show that light does indeed travel in a straight line.

## *Equipment:*

- 4 index cards
- Play clay
- Ruler
- Straw

## *Procedure:*

1. Draw diagonal lines on 4 index cards, connecting the opposite corners.
2. Draw a bull's-eye on one of the cards in the exact center (at the point where the two diagonal lines meet).
3. Poke a hole in the exact center of the other three index cards.
4. Place 4 lumps of play clay in a line, with about 15 cm between each lump, and place the index cards on the clay as shown in the picture.
5. With the lights out, shine a light source at the first card and see if you can hit the bull's-eye with the light.
6. Adjust the cards if you did not succeed the first time.



*Observations:*

Draw a picture of your setup when you hit the bull's-eye with a ray of light. Use a sharp pencil to draw the light as it passes through the index cards.

*Discussion:*

1. How must the cards be placed so that the light shines through the holes?

*For the light to make it through to the last card, all of the cards had to be placed such that the holes were in a straight line.*

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2. What property of light does this demonstrate?

*This demonstrates that light travels in a straight line.*

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3. How can a shadow help show that light travels in a straight line? Draw a picture to support your answer.

*A shadow is a result of light being blocked. If light was able to turn, it could shine behind an object. However, when a light source is placed in front of an object, no light makes it behind the object. This shows that light moves in a straight line.*

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