

**In this activity you will see if an ordinary plane mirror will follow the law of reflection.**

### Materials

1 plane mirror	3 half sheets with T	protractor
1 piece of cardboard	2 straight pins	pencil or pen
1 rubber band	1 wood block	

### Procedure

1. Place one of the half sheets of paper on the cardboard so that it lays flat.
2. Stand the mirror and the wood block on the long edge right next to each other with the mirrored surface facing away from the block. Put the rubber band around them. This will help to keep the mirror standing up.
3. Place the mirror and block on the half sheet of paper so that the edge of the mirror lies right along the top of the T and the line on the mirror sits at the intersection of the T.
4. Place one of the pins in front of the mirror on one side of the T (it doesn't matter which side). Do not place the pin too close to the mirror or too close to the T. Label this side "Incidence".
5. Bring your face down to table level and look at the mirror through the side of the T without the pin. You should see two lines on the mirror. Locate the image of the pin on the mirror and turn the cardboard until the image of the pin is between the two lines on the mirror.
6. With the image of the first pin still between the two lines, place the 2<sup>nd</sup> pin in line with the first pin. When you look at it from behind one of pins, that pin should be in the way of the reflection of the other pin and they should both be between the lines on the mirror.
7. Label the side with the 2<sup>nd</sup> pin "Reflection".
8. Repeat Steps 1-7 two more times with a new half sheet and a different pin location each time.
9. When all three trials are finished, return the block, mirror, cardboard, and pins to the table and pick up a protractor.
10. On each half sheet, draw a line from the intersection of the T through each of the pin holes. These lines represent the incident ray and reflected ray. Use the protractor to measure the angle of incidence and angle of reflection on each sheet and write them in the appropriate location.
11. Return the protractor to the table and answer the questions on the next page.
12. Staple the three half sheets to this sheet before you turn it in.

## Discussion Questions

1. What does the law of reflection say? \_\_\_\_\_

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2. What is a plane mirror and where would you find one in everyday life? \_\_\_\_\_

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3. Why do we see 2 lines on the mirror instead of just one? \_\_\_\_\_

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4. How closely did your results match the law of reflection? \_\_\_\_\_

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