

Jellaser

Introduction

Light has many interesting aspects. **Refraction** is the way that light bends as it travels through different mediums. The **medium** is the substance that light is traveling through. If you are looking at the Moon while standing by a pool, the medium is air. If you are looking at the Moon from under water after you jump into the pool, the mediums are both air and water. The Moon would look differently from underwater because the light is refracted.

In this experiment you are going to see what happens when you shine a laser through different colors of Jell-O.

Materials

- Laser pointer
- Strawberry Jell-O
- Blueberry Jell-O
- Toothpicks
- Binder clip
- Clear glass or plastic dishes

Procedure

1. Make some red and some blue gelatin and mold it into the clear plastic or glass dishes and glasses.

2. DO NOT TASTE THE JELL-O!

3. Turn the laser on. **Never look directly at the laser beam or allow it to shine in someone's eyes.** Use the binder clip to maintain the laser pointer in the ON position.

4. Shine the laser through the blue Jell-O. Record what happens in a Data Table.

5. Shine the laser through the red Jell-O. Record what happens in a Data Table.

6. Insert a toothpick in the red Jell-O in a slant.

7. Place the beam of the laser pointer on top of the toothpick (as if the toothpick is coming out of the laser pointer).

8. Look at the Jell-O from the top and side. Do the toothpick and laser beam coincide? Make a sketch in your notebook and record what happens.

Questions

1. What happened when you shined the laser through the blue Jell-O?
2. What happened when you shined the laser through the red Jell-O?
3. Why was there a difference between the red and blue Jell-O?
4. Did the laser beam and toothpick follow the same path? Explain.

Extension

Record the results if your glasses are lens-shaped (that is, one surface is close to spherical).

Conclusion

What happens when you shine a laser through Jell-O? Use evidence from your lab to backup your claim.

Hints for making Jell-O

Be sure to allow enough time to prepare the Jell-O and refrigerate it to the correct consistency. . You will also need to use the Jell-O while it is cold.

If you want to leave the Jell-O in the dishes, you will have less of a mess. If you do this, you must use clear cups or dishes. You can make the Jell-O according to the following directions:

Regular Method

Mix 1 cup boiling water with Jell-O.

Add 1-cup cool water.

Divide into dishes and let set overnight.

Speed Set Method

Mix 3/4 cup boiling water with Jell-O.

In a measuring cup, put 1/2-cup cold water. Add ice until water and ice equals 1 1/4 cup.

Add cold water/ice mixture to Jell-O.

Divide into dishes, Jell-O will be set in one hour.

Molded Jell-O

If you want to turn the Jell-O out of the dishes, you can use dishes, glasses, or cups. Be sure to have plates to turn the Jell-O out on. Make the Jell-O according to the following directions. It is easier to unmold the Jell-O if you dip the container in warm water (without the water touching the Jello-O itself).

Jigglers® Recipe

Mix 1 1/2 cup boiling water with Jell-O.

Divide into dishes or cup and let set overnight.

To flip Jell-O out, dip dish or cup in hot water for 20 seconds to loosen.

Place Jell-O on plate.

Alternate Molding Method

Mix 1 cup boiling water with Jell-O.

Add one package of Knox® unflavored gelatin

Add 1-cup cool water.

Divide into dishes and let set overnight.

You can also experiment with different flavors of Jell-O. The Berry Blue® and Strawberry flavors work best.