

THE LAW OF REFLECTION EXPERIMENT

Question:

Does the angle of light change or affect the law of reflection?

Hypothesis:

Our hypothesis is that no matter the angle of the light source, the law of reflection will come into play, and reflect the light in an accordingly manner.

Materials:

- Raybox
- Protractor
- Mirror
- Paper
- Pencil
- iPad

Procedure:

1. Generate 5 random angles/numbers
2. Record the angles/numbers for further use
3. Set up the mirror and protractor onto a flat surface
4. Angle the raybox towards the mirror according to one of the randomly generated angles
5. Turn on the raybox and record the reflected angle
6. Repeat steps 4 and 5 until all the angles have been recorded
7. Compare the results

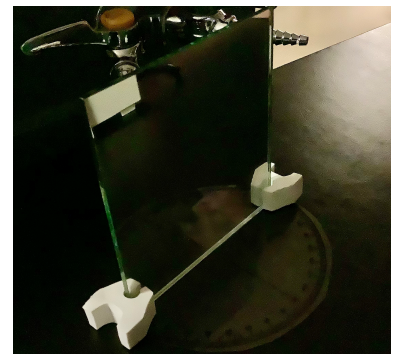
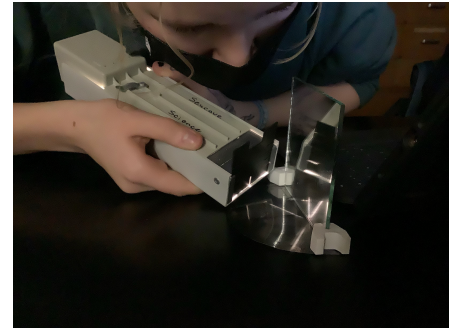
Data/Analysis:

Angle	Reflected Angle
45°	45°
100°	100°
60°	65°
130°	130°
90°	93°

2/5 (40%) of the angles were NOT equivalent to the reflected angle

Conclusion:

We've discovered that our hypothesis was mostly correct. In an ideal world, our angles would be equivalent to the reflected angle. However, since we probably didn't angle the raybox completely accurately in the right direction, our data was slightly flawed. The results on the 2



angles that were measured somewhat inaccurately, were only off by a slight angle. Overall, according to our collected data, there was a higher percentage/chance that the angle would be equivalent to the reflected angle.

Taking back a step, our chosen question for this experiment was, "Does the angle of light change or affect the law of reflection?" First off, we created our own hypothesis, "no matter the angle of the light source, the law of reflection will come into play, and reflect the light in an accordingly manner", which basically means that we believe the law of reflection is an accurate procedure in discovering how light bounces off mirrors.

We tested the legibility of our hypothesis by putting the law of reflection through a test where we generated completely random numbers to see that if we shone the light at those angles, the reflected angle would be identical on the other side. We found that our first example, 45° , did have an equivalent reflected angle, and that the law of reflection did come into play. To really test the accuracy of this, we tested it 4 more times to see if we had similar results. In the end, we mostly did.

In conclusion, the answer is yes; our hypothesis was correct. Although we may have made some slight angles off by a small portion, the law of reflection applies to all angles, provided you have shone the light in the correct angle in the first place.