You Bend It!

Question:

How will light rays be affected when they pass through a series of lenses?

Hypothesis:

You will determine the hypothesis.

Materials:

- 2 concave lenses with different thickness
- 2 convex lenses with different thickness
- a source of light

Procedure:

1. Label the lenses as follows:



2. Shine the light source at the middle of lens A and create a ray diagram showing how the light rays are focused or dispersed.

- 3. Repeat step 2 using lens B.
- 4. Repeat step 2 using lens C.
- 5. Repeat step 3 using lens D.
- 6. Place both lenses A and B in front of the light source.
- 7. Place both lenses C and D in front of the light source.
- 8. Place both lenses A and C in front of the light source.
- 9. Place both lenses B and D in front of the light source.
- 10. Place both lenses A and D in front of the light source.
- 11. Place both lenses B and C in front of the light source.

Observations:

Create ray diagrams for each of the above situations, including one that shows the light with nothing in front of it. You should have 11 diagrams in total.

Conclusion:

You will determine the conclusion.

Questions:

- 1. What happened when lenses A and C were used together? Why do you think this happened?
- 2. What happened when lenses B and D were used together? Why do you think this happened?
- 3. Predict, using a ray diagram, what would happen if lenses A, B, and C were placed in front of the light source.
- 4. Predict, using a ray diagram, what would happen if lenses B, C, and D were placed in front of the light source.