

Design Notebook: A Fork in the Road



Test Your Ideas

Draw a diagram for each circuit you test. Place the diagram in the correct column. Label each diagram with the power source, path, load, and the number of closed circuits you can identify.

Both Bulbs Light Up	Only One Bulb Lights Up	No Bulbs Light Up

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Reflect On Your Results

Look back at your drawings. What do you notice about the circuits where both bulbs were able to light up?

Compare your results to your colleagues' results. Did anyone find a different way to get both bulbs to light up? Explain.

Extend Your Thinking

One way to build a circuit with two light bulbs that light up is called a series circuit. In a **series circuit** (seer-ees sir-kit). If you remove one bulb or it burns out, the other bulb will stop working. Draw a picture of a series circuit. Remember to label the power source, path, and load.

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Explain why removing one bulb will make the other bulb go out in a series circuit.

A **parallel circuit** (pair-uh-lehl sir-kit) is another way to build a circuit with two light bulbs. In a parallel circuit, you have more than one path for electricity. If you remove one light bulb or one bulb burns out, the other will still keep working. Draw a diagram of a parallel circuit. Remember to label the power source, path, and load.

Explain why removing one bulb will not make the other bulb go out in a parallel circuit.

When might you want to use a series circuit instead of a parallel circuit in a design?

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When might you want to use a parallel circuit instead of a series circuit in a design?

What do you think would happen if you tried to build a circuit with two power sources instead of two light bulbs?

How many ways could you build a circuit with three light bulbs?

What examples of parallel and series circuits can you find in your life?

Series

Parallel

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