



*Another Perplexing Pair...*  
**Parallel Circuits Or Series Circuits**



**Are the lights on your holiday tree in series or parallel?  
How do you know?**



This week we're going to look at the topic of **electrical circuits**. Initially, this may seem simple, but a closer look reveals complexities. There are two different types of circuits. Circuits can be **parallel** or **series**. Which of these kinds of circuits are your holiday lights?

**Series circuits** are the simplest type of electric circuit.

In a **series circuit**, the current flows through only one path.

**Parallel circuits** are more complicated.

In a **parallel circuit**, the electrons can flow on more than one path.

Suppose a battery, wires and a series of lights are connected in a **series circuit**. What happens if one of those lights goes out?

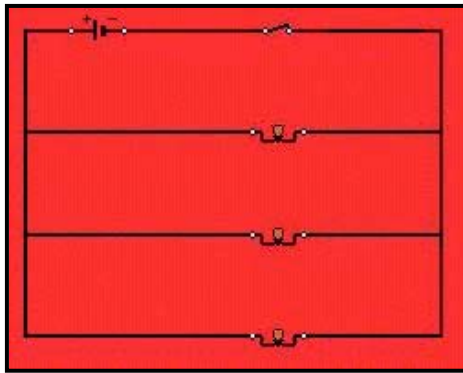
No electrons will flow. When the flow of electrons in a **series circuit** is stopped at any point, the whole circuit becomes open. None of the lights are lit.

In a **parallel circuit**, the electrons follow more than one path. The lights are on different branches. If one light goes out, the electrons will still reach the other lights.

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Parallel Circuit



Series Circuit

The electric circuits in your home are **parallel circuits**. When appliances are plugged into wall outlets, they are connected to **parallel circuits**. If one appliance stops working, the electrons still flow in the circuit. The other appliances still work. Most schools and office buildings also use parallel electric circuits.

### What do the Standards Say?

Elementary Science Core Curriculum Standard 4, The Physical Setting

Major Understanding

- 4.1e Electricity travels in a closed circuit.

Intermediate Science Core Curriculum Standard 4, The Physical Setting

Major Understanding

- 4.4e Electrical circuits provide a means of transferring electrical energy.

### Student Activity

Have your students go home and check the holiday lights they have at home to determine if they are on a **series** or **parallel circuit**.

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