



## Electrical Circuits - Curriculum Connections

### Suggested Grades: K-9

**Curriculum Connections:** Matter (Gr 2, 5), Energy (Gr 2, 4, 5, 6), Earth Systems (Gr 3,5,6), Living Systems (Gr 2), Computer Science (K-1, 6), Scientific Methods (Gr 1-6), Matter and Chemical Change (Gr 8), Electrical Principles and Technologies (Gr 9)

### Specific Learning Outcomes:

#### Kindergarten

- *Computer Science* - Children interpret instructions in various environments.

#### Grade 1

- *Computer Science* - Students follow instructions and relate them to outcomes.
- *Scientific Methods* - Students engage in and describe investigation (carry out an investigation, data collection).

#### Grade 2

- *Energy* - Students investigate the behaviours of light and sound.
- *Living Systems* - Students investigate the growth and development of plants and animals and consider their relationship to humans (humans negatively affecting environment - resource use).
- *Scientific Methods* - Students examine investigation and explain how it is influenced by purpose (methods and processes used in investigation, data collection).

#### Grade 3

- *Matter* - Students investigate properties of materials and relate them to a purpose.
- *Earth Systems* - Students analyze changes in Earth's surface and explain how its layers hold stories of the past (human activities can change Earth's surface, link to electricity generation).
- *Scientific Methods* - Students relate investigation to building knowledge (data can be used to analyze).

#### Grade 4

- *Energy* - Students investigate how forces can act on objects without contact.
- *Scientific Methods* - Students investigate evidence and reflect on its role in science (how evidence can advance knowledge in science, data types).



#### Grade 5

- *Matter* - Students investigate the particle model of matter in relation to the physical properties of solids, liquids, and gases.
- *Energy* - Students investigate and compare how forces affect living things and objects in water and air.
- *Scientific Methods* - Students investigate how evidence is gathered and explain the importance of ethics in science (observe phenomenon, variables).

#### Grade 6

- *Energy* - Students analyze forces and relate them to interactions between objects.
- *Earth Systems* - Students investigate climate, changes in climate, and the impact of climate change on Earth (connect electricity generation to climate change)
- *Computer Science* - Students examine abstraction in relation to design and coding, and describe impacts of technologies (light switch as an abstraction of a circuit).

#### Grade 8

- *Matter and Chemical Change* - Describe ideas used in interpreting the chemical nature of matter, both in past and present, and identify example evidence that has contributed to the development of these ideas (describe how observations of electrical properties of materials led to ideas about electrons and protons).

#### Grade 9

- *Electrical Principles and Technologies* - Investigate and interpret the use of devices to convert various forms of energy to electrical energy, and electrical energy to other forms of energy; describe technologies for transfer and control of electrical energy; describe and discuss the societal and environmental implications of the use of electrical energy.