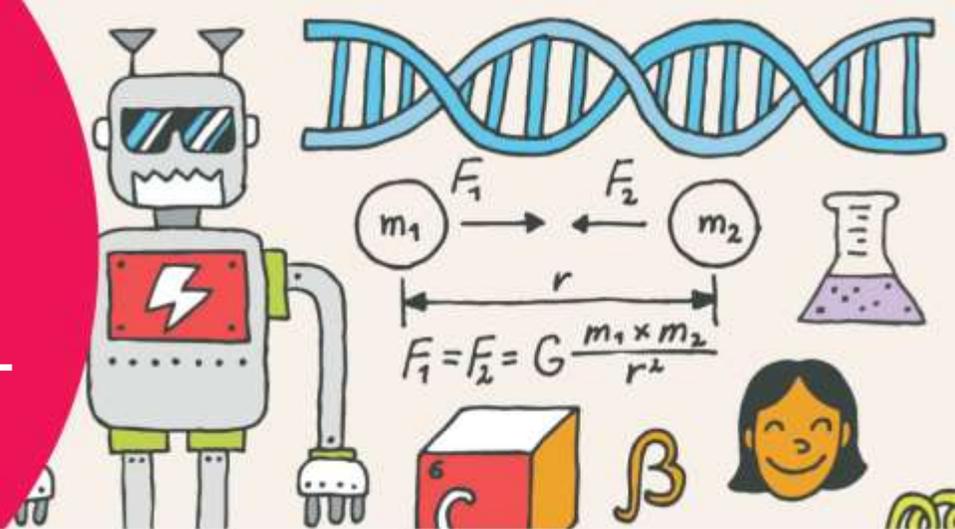


# Electri-city

## Curriculum Connections - Ontario



## GRADE 6 – SCIENCE AND TECHNOLOGY

### Understanding Matter and Energy - Electricity and Electrical Devices

#### 2. investigate the characteristics of static and current electricity, and construct simple circuits.

- 2.1 follow established safety procedures for working with electricity.
- 2.2 design and build series and parallel circuits, draw labelled diagrams identifying the components used in each, and describe the role of each component in the circuit.
- 2.6 use appropriate science and technology vocabulary, including current, battery, circuit, transform, static, electrostatic, and energy, in oral and written communication

#### 3. demonstrate an understanding of the principles of electrical energy and its transformation into and from other forms of energy.

- 3.3 identify materials that are good conductors of electricity and good insulators.
- 3.5 identify ways in which electrical energy is transformed into other forms of energy.
- 3.6 explain the functions of the components of a simple electrical circuit.
- 3.7 describe series circuits and parallel circuits, and identify where each is used.

## GRADE 9 – ACADEMIC - SCIENCE

### Physics – The Characteristics of Electricity

#### E2. investigate, through inquiry, various aspects of electricity, including the properties of static and current electricity, and the quantitative relationships between potential difference, current, and resistance in electrical circuits.

- E2.1 use appropriate terminology related to electricity, including, but not limited to: *ammeter, amperes, battery, current, fuse, kilowatt hours, load, ohms, potential difference, resistance, switch, voltmeter, and volts*
- E2.3 predict the ability of different materials to hold or transfer electric charges (i.e., to act as insulators or conductors), and test their predictions through inquiry

- E2.4 plan and carry out inquiries to determine and compare the conductivity of various materials (e.g., metals, plastics, glass, water)
- E2.5 design, draw circuit diagrams of, and construct series and parallel circuits (e.g., a circuit where all light bulbs go out when one light bulb is removed; a circuit that allows one of several light bulbs to be switched on and off independently of the others)
- E2.6 analyse and interpret the effects of adding an identical load in series and in parallel in a simple circuit

**E3. demonstrate an understanding of the principles of static and current electricity.**

- E3.2 explain the characteristics of conductors and insulators
- E3.4 identify the components of a simple DC circuit (e.g., electrical source, load, connecting wires, switch, fuse), and explain their functions
- E3.5 explain the characteristics of electric current, potential difference, and resistance in simple series and parallel circuits, noting how the quantities differ in the two circuits

## **GRADE 9 – APPLIED - SCIENCE**

### **Physics – Electrical Applications**

**E2. investigate, through inquiry, the properties of static and current electricity and the cost of the consumption of electrical energy;**

- E2.1 use appropriate terminology related to: static and current electricity, including, but not limited to: *ammeter, ampere, battery, conductivity, current, energy consumption, fuse, kilowatt hours, load, ohm, potential difference, resistance, switch, voltmeter, and volts*
- E2.2 use an inquiry process to determine and compare the conductivity of various materials (e.g., metals, plastic, glass, water)
- E2.4 design, draw circuit diagrams of, and construct simple series and parallel circuits (e.g., circuits with: one light bulb; two light bulbs of the same brightness; one light bulb on and the other light bulb off)
- E2.5 compare, on the basis of observation, the differences between series and parallel circuits

**E3. demonstrate an understanding of the concepts and principles of static and current electricity**

- E3.1 compare conductors and insulators,
- E3.3 identify the components of a simple direct current (DC) electrical circuit (e.g., electrical source, electrical load, switch, fuse), and describe their functions
- E3.5 explain the characteristics of electric current, potential difference, and resistance, in simple series and parallel circuits