**Vocabulary:** **Electromagnetic Induction**



**Vocabulary**

* Current – the flow of electrical charge.
	+ In a metal wire, current is the flow of negatively charged particles (electrons).
	+ In many applications, “conventional current” is shown as the theoretical flow of positive charge in a wire.
	+ Current is measured in amperes (A).
	+ In equations, the symbol for current is *I*.
* Electric field – a region in space that surrounds charged object.
	+ Charged objects and moving magnets within the electric field experience a force.
	+ *Vectors* in the electric field represent the direction and magnitude of the electromagnetic force on a positively charged particle.
* Electromagnetic induction – the process of creating a current in a circuit by a changing *magnetic field*.
* Magnetic field – a region in space that surrounds a magnet or moving charged particle.
	+ Magnets and moving charges within the magnetic field experience a force.
	+ Magnetic field lines show the direction magnetic objects such as iron filings or compass needles will align to.
	+ Magnetic forces are greatest where the magnetic field lines are closest together.
* Magnetic flux – a measure of the strength of the magnetic field through a given area.
	+ Informally, the magnetic flux is proportional to the number of magnetic field lines that cross a given area.
	+ The symbol for magnetic flux is “ΦM.”



**Right-hand rule**

* Right-hand rule – a way to visualize the magnetic field produced by an electric current.
	+ The thumb points in the direction of conventional (positive) current, while the fingers show the direction of the magnetic field.
	+ The electric field produced by a moving magnet can be visualized with a “left-hand rule” in which the thumb of the left hand points in the direction the north pole of a magnet is moving and the fingers represent the electric field.
* Vector – a quantity that has both magnitude and direction.
	+ Vectors are represented graphically as arrows.
		- The magnitude of the vector is shown by the length of the arrow.
		- The direction of the vector is shown by the direction of the arrow.
	+ Vector quantities include displacement, velocity, acceleration, and force.



**Wind generator**

* Voltage – a measure of the electrostatic potential energy in a circuit.
	+ Just as pressure causes water to flow through a pipe, voltage can be thought of as “electrical pressure” that causes electrical charge to flow through a circuit.
	+ Voltage is measured in *volts* (V).
	+ In equations, the symbol for voltage is *V*.
* Wind generator – a device that converts wind energy to electricity.
	+ Most wind generators consist of a turbine, or propeller, that is connected to an electrical generator.