

ELECTRICITY

Electricity is a set of physical phenomena associated with the presence of electric charge. Various common phenomena are related to electricity, including lightning, static electricity, electric heating, electric discharges and many more. The presence of an electric charge, which can be either positive or negative, produces an electric field. On the other hand, the movement of electric charges, which is known as electric current, produces a magnetic field.

WORKBOOK LINK: <http://www.usscouts.org/mb/worksheets/Electricity.pdf>

PREREQUISITES:

PLEASE RESEARCH AND HAVE A BRIEF WRITE UP AND BRING IT WITH YOU TO Pi Day.

1. Explain what to do in an electrical storm.
2. Explain what to do in the event of an electrical fire.
3. Explain the difference between direct current and alternating current.
4. Make a simple drawing to show how a battery and an electric bell work.
5. Explain what overloading an electric circuit means. Tell what you have done to make sure your home circuits are not overloaded.
6. Make a floor plan wiring diagram of the lights, switches, and outlets for a room in your home. Show which fuse or circuit breaker protects each one.
7. Read an electric meter and, using your family's electric bill, determine the energy cost from the meter reading.
8. Explain the following electrical terms: volt, ampere, watt, ohm, resistance, potential difference, rectifier, rheostat, conductor, ground, circuit, and short circuit.

ELECTRONICS

Electronics is the science of controlling electrical energy electrically, in which the electrons have a fundamental role. Electronics deals with electrical circuits that involve active electrical components such as vacuum tubes, transistors, diodes, integrated circuits, optoelectronics, sensors etc. The science of electronics is also considered to be a branch of physics and electrical engineering.

WORKBOOK LINK: <https://meritbadge.org/wiki/images/e/ee/Electronics.pdf>

PREREQUISITES:

PLEASE RESEARCH AND HAVE A BRIEF WRITE UP AND BRING IT WITH YOU TO Pi Day

1. Discuss the safety precautions you must exercise when using, building, altering, or repairing electronic devices.
2. Find out about three career opportunities in electronics that interest you. Discuss with and explain to your counselor what training and education are needed for each position