



## Circuits Pre-Visit Material

Thank you for scheduling an educational experience at the Putnam Museum. In this thirty minute program, an Education Specialist will lead your hands-on program in which your students will take a closer look at circuits. We look forward to seeing you and thank you for your interest in the Putnam Museum's education programs.

**Program Title:** Circuits

**Target Audience:** Grades 3-5

**Focus:** Circuits

**Focus Questions:** What is a circuit and how does it work?

### The program highlights:

- What a simple circuit is and how it works
- Different types of circuits
- Demonstration of conductor and insulator testing
- Students will have the opportunity to build a simple circuit (cost of materials may apply)

**Catalog Description:** Copper tape, Batteries, and LED'S oh my!! Simplicity is key when it comes to making electricity. Let us help teach your students in an electrifying class all about how simple circuits work. Cost of materials may apply.

### Key Words:

Electricity- the flow of electrical power or charge

Circuit-a closed loop or path that carries electricity

Current- flow of electrons in circuit

Voltage- a force that pushes electrons (as electricity) through a circuit

Resistance-opposes, or hinders, the current flow in a circuit

Conductor- a material that transmits heat, electricity, or sound

Insulator- a material that does not transmit electricity

LED- an electronic device that emits light when an electrical current is passed through it, LED stands for light-emitting diode

Open Circuit- an incomplete electrical circuit in which no current flows, a broken path for an electrical current

Closed Circuit-a complete or unbroken path or loop which an electric current flows

Short Circuit- a connection on an electric circuit that allows a current to follow an unplanned or accidental path

Direct Current (DC)- the electric charge (current) only flows in one direction

Alternating Current (AC) - the electric charge (current) changes direction periodically

Series Circuit- a closed circuit in which the current follows along one single path

Parallel Circuit- a closed circuit in which the current follows along two or more paths (branches)

**For more information:**

All about circuits

<http://www.allaboutcircuits.com/education/>

The Physics Classroom: Current Electricity

<http://www.physicsclassroom.com/class/circuits>

Autodesk Circuits

<https://circuits.io/>

Ayah Bdeir: Building blocks that blink, beep and teach video

[https://www.ted.com/talks/ayah\\_bdeir\\_building\\_blocks\\_that\\_blink\\_beep\\_and\\_teach](https://www.ted.com/talks/ayah_bdeir_building_blocks_that_blink_beep_and_teach)

AnnMarie Thomas: Hands-on science with squishy circuits video

[https://www.ted.com/talks/annmarie\\_thomas\\_squishy\\_circuits](https://www.ted.com/talks/annmarie_thomas_squishy_circuits)

**Further Activity for your classroom: Squishy Circuits**

<http://www.discovere.org/dreambig/activities/db-activity/Squishy%20Circuits>