



Electrical Circuits Design Project Lessons

Websites

[Blobz Guide to Electrical Circuits](http://www.andythelwell.com/blobz/guide.html)

Students experiment with electrical circuits on this educational website. Five different sections feature the following topics: What makes circuits work?, Conductors and insulators, All about switches, Changing circuits, and Circuit diagrams. Each section offers useful information, an activity or game, and a quiz.

(<http://www.andythelwell.com/blobz/guide.html>)

[Learning Circuits: Electricity and Circuits](http://www.learningcircuits.co.uk/)

This interactive website gives students a chance to learn about the basics of electricity (simple circuits, circuit diagrams, switches, changing circuits, insulators and conductors) and then put what they have learned into practice.

(<http://www.learningcircuits.co.uk/>)

[Science Games for Kids: Electricity Circuits](http://www.sciencekids.co.nz/gamesactivities/electricitycircuits.html)

Student will have fun with this interactive electricity game as they work through a variety of challenges such as changing circuits, moving switches, replacing bulbs, changing the voltage and adding longer wires.

(<http://www.sciencekids.co.nz/gamesactivities/electricitycircuits.html>)

[Changing Circuits](http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/changing_circuits/play.shtml)

This interactive website allows students to see what happens when they make changes to a circuit.

(http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/changing_circuits/play.shtml)

[Electrical Conductors](http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/circuits_conductors/play.shtml)

Students test different materials on this website to see which materials conduct electricity.

(http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/circuits_conductors/play.shtml)



The Electricity Book: Part 1: Looking at Simple Circuits

This kid-friendly web site describes the basic concepts of a simple circuit. A variety of simple circuit designs are shown and students are challenged to predict and test whether each design will work.

(http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks2/science/electricity_book1/index.htm)

All About Circuits: Basic Concepts of Electricity

All About Circuits is a good resource for teachers who want to learn more about the basic concepts of electricity. The site also includes a forum where students, hobbyists and professionals from around the world share their knowledge and ideas about electricity.

(http://www.allaboutcircuits.com/vol_1/chpt_1/index.html)

Welcome to the Electronics Club

For students interested in enhancing their study of electrical circuits, use this website to introduce more advanced symbols used in electric circuit schematics. Click on the appropriate tabs at the top of the page to learn more about electronic components, possible projects, and different circuit symbols.

(<http://www.kpsec.freeuk.com/index.htm>)

Circuits Tutorial

This is a terrific, interactive website that allows students to design their own circuits on a circuit board. The following components are available for students to work with: batteries, light bulbs, wires, resistors, capacitors, volt meters, inductors, and ammeters. Once a design is identified as a valid circuit, students can turn the switch on to see how current flows through the circuit.

(<http://www.mhhe.com/physsci/physical/giambattista/circuits/circuits.html>)

Electric Circuits

This terrific website, designed for children between 7 and 11 years of age, allows students to develop their understanding of electricity and learn how electrical circuits are used in common appliances. Interactive topics found on this site include the following: Electricity in the Home, Introduction to Circuits, Circuit Components, Changing Circuits, Circuit Diagrams, and The Wire Experiment.

(<http://www.hyperstaffs.info/work/physics/child/index.html>)



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Books

Batteries, Bulbs, and Wires

By David Glover (1993, Kingfisher)

In addition to discussing static electricity, magnets, and simple circuits, this book outlines some projects for students to build or get ideas from, such as a burglar alarm activated when someone completes a circuit by stepping on a surface, or a winch made with a motor, rubber band, and spool on a spindle.

Electric Mischief: Battery-powered Gadgets Kids Can Build

By Alan Bartholomew; illustrated by Lynn Bartholomew (2002, Kids Can Press)

This book outlines several projects of varying complexity. For example, an illuminated fork built with a handful of materials in nine steps, or a robot hand built with many materials in 25 steps). Whether students in your class build any of the objects or not, they can get good ideas about different ways to build switches and use motors.

Electrical Circuits and Currents

By Barbara Somervill (2009, Raintree)

In this age-appropriate book, the author describes a number of concepts related to electricity in graphic and entertaining ways. She explains that electricity is a form of energy and describes various ways that electricity is created and used. Basic and complex circuits are described, as well as various concepts related to electricity such as voltage, current, power, and resistance.

Electricity

By Jackie Ball and Richie Chevat (2003, Gareth Stevens, Inc.)

This graphic book with a comic twist uses a variety of writing styles to describe concepts of electricity. The book includes such varied treatments as a mock interview with an electron, an historical vignette starring Benjamin Franklin, a timeline of scientific and technological progress, and a variety of simple experiments.



Electricity (Eyewitness Books)

By Steven Parker (2005, DK Publishing)

This graphic guide to electricity contains a host of information about its discovery and use. The author vividly describes discoveries and technological advances made by a wide variety of scientists and engineers throughout history.

Electricity and Magnetism: Real World Science

By Dana Meachen Rau (2009, Cherry Lake Publishing)

In this simple, yet well written book, the author describes various concepts of electricity and magnetism. The book begins with a lively discussion of static electricity and moves on to other important topics such as the role of electrons in the flow of electric current, the way current flows through electrical circuits, and the creation of electro-magnets.

Electricity and Magnetism (Physics in Our World)

By Kyle Kirkland (2007, Facts on File, Inc.)

Although designed for older readers, this book is a useful teacher resource. You might search for answers to difficult student questions, or read it before teaching the project to gain a deeper understanding of the concepts of electricity and magnetism.