



What is electricity?

Use the words below to fill in the blanks and complete each sentence.

Electricity is a form of energy.

Electricity has the power to heat and cool, to light, to move things, and to make things work.

To understand the basics of electricity, it's helpful to understand the basics of the atom.

Atoms are microscopic particles that make up all matter.

An atom is made up of even smaller particles called protons, neutrons, and electrons.

Protons have a positive charge (+), neutrons are neutral, and electrons have a negative charge (-).

Atoms have a center known as the nucleus, which is made up of protons and neutrons - together they are positively charged.

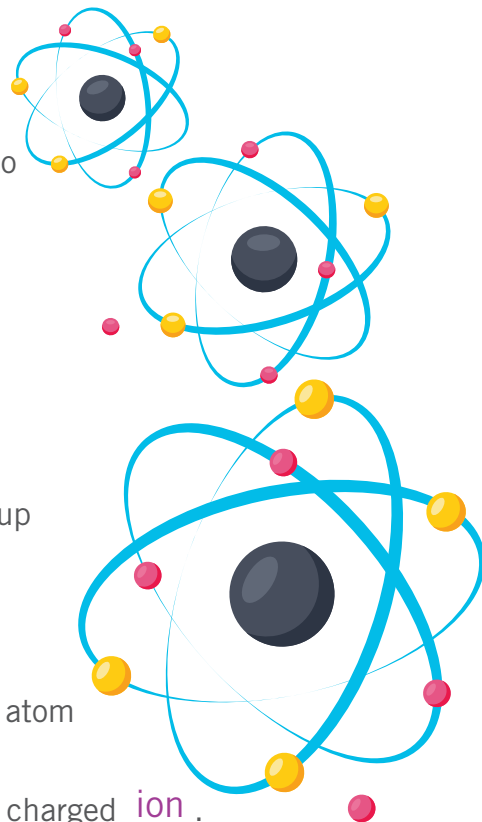
The positively charged nucleus of the atom attracts and is circled by negatively charged electrons.

Electrons are very energetic and sometimes they jump from atom to atom.

An atom that has more electrons than protons becomes a negatively charged ion.

When electrons jump from atom to atom, a current of electricity occurs.

Electricity is a secondary source of energy generated from the conversion of renewable and non-renewable primary sources such as nuclear fission, water, natural gas, solar, wind, and biomass.



atom

attracts

center

charged

conversion

cool

current

electricity

electrons

energetic

energy

form

generated

ion

jump

light

matter

negative

neutral

neutrons

nucleus

particles

positive

power

protons

source

understand

work

Student name:

Grade:

Teacher name:



Conductors vs. Insulators

A conductor is a material that allows electricity to flow through it. Many metals, such as steel and copper are strong conductors of electricity and are used in power lines.

An insulator is a material that reduces or prevents the flow of electricity. Rubber, plastic, porcelain and glass are often used in the electricity distribution industry as protection from electrical current.

Which is a conductor and which is an insulator?
Match each word to the list it belongs to.

trees air diamond fiberglass water
quartz concrete rubber people brass ceramic
lemon juice

Conductors

brass
concrete
lemon juice
people
trees
water

Insulators

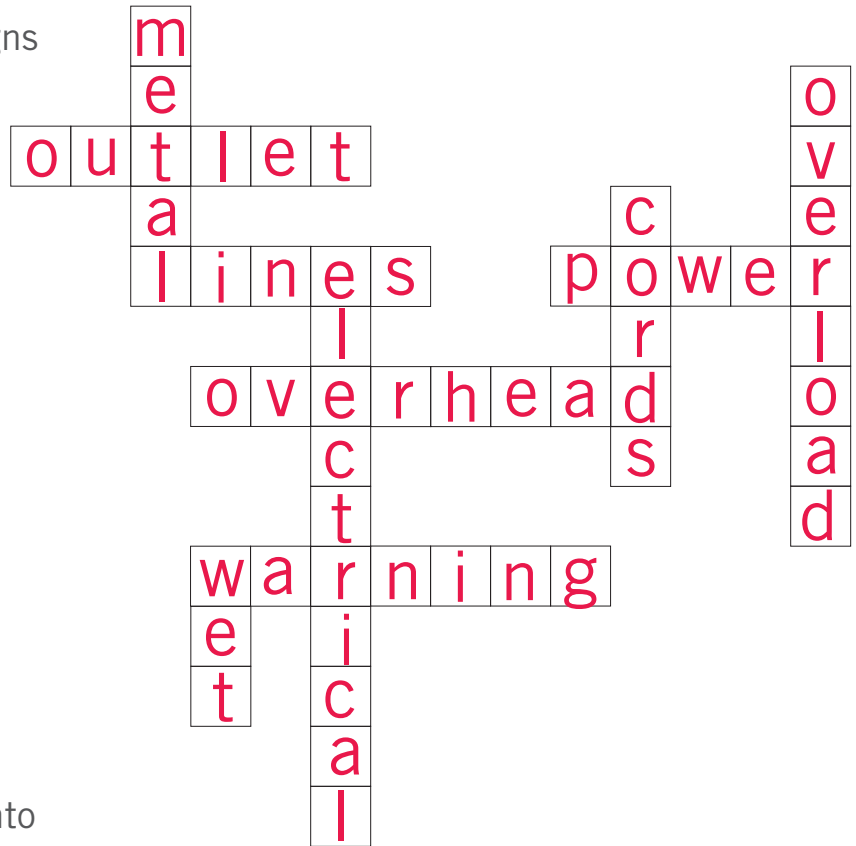
air
ceramic
diamond
fiberglass
quartz
rubber



Safety crossword puzzle tips

ACROSS

- 1 Never put fingers or other objects in an electrical _____
- 2 Never throw objects such as sneakers, at or onto power _____
- 3 Never fly kites, remote-controlled airplanes near _____ power lines
- 4 Never disobey _____ signs
- 5 Never touch or climb trees that are near _____ lines



DOWN

- 1 Never stick _____ objects into electrical appliances such as toasters
- 2 Never use an appliance or anything _____ near a sink, the bathtub, or close to any other source of water
- 3 Never use electrical _____ that are frayed or damaged
- 4 Never touch any electrical appliance or device, such as a light switch, if your hands are _____
- 5 Never _____ an electrical outlet

Student name: _____

Grade: _____

Teacher name: _____