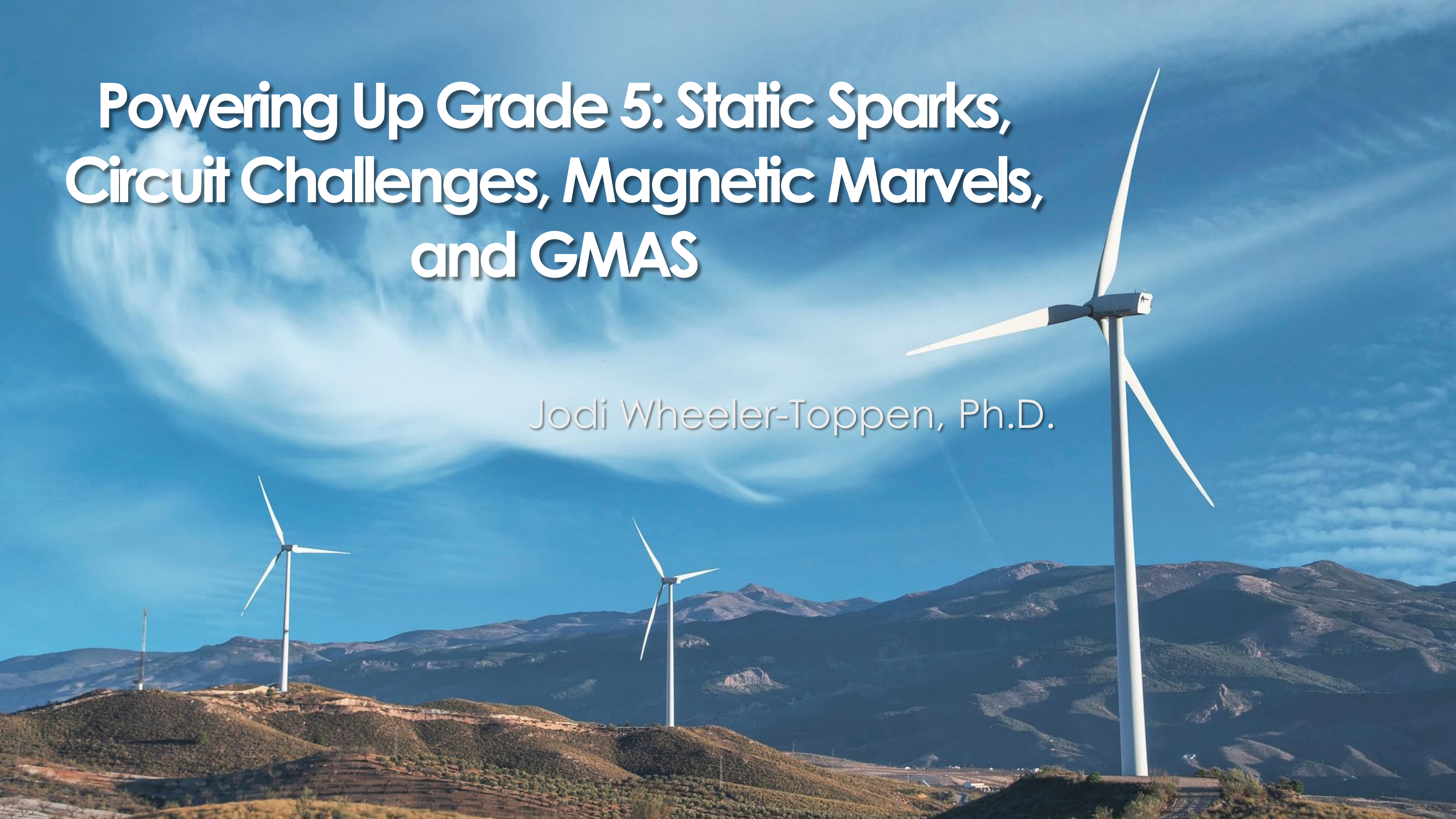
Powering Up Grade 5: Static Sparks, Circuit Challenges, Magnetic Marvels, and GMAS

Jodi Wheeler-Toppen, Ph.D.



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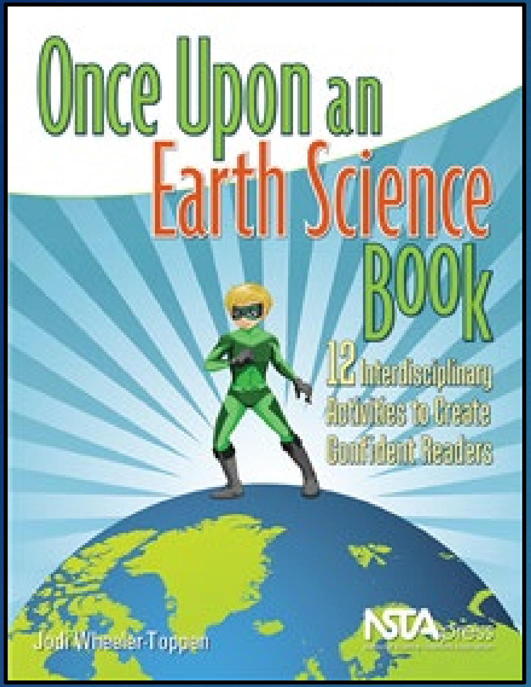
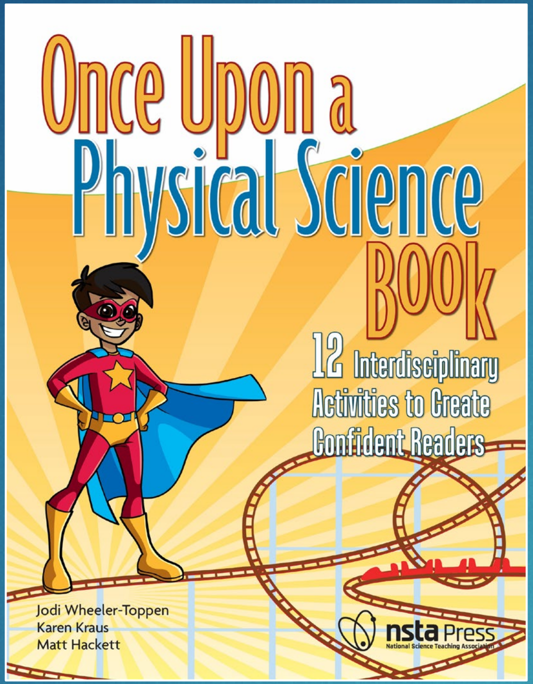
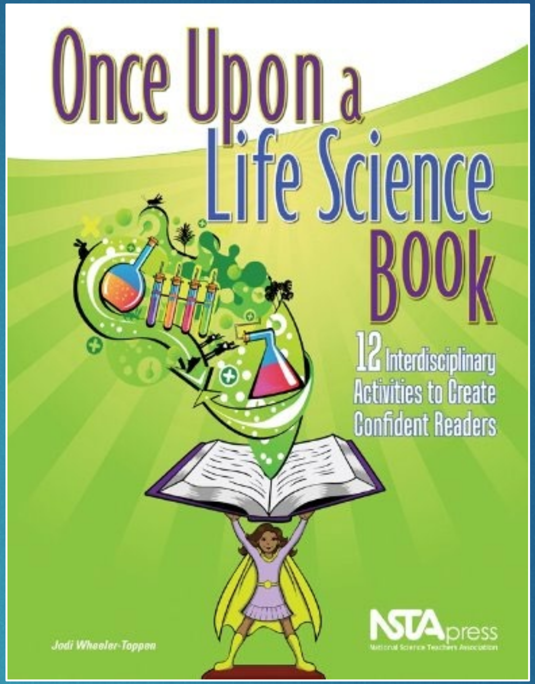
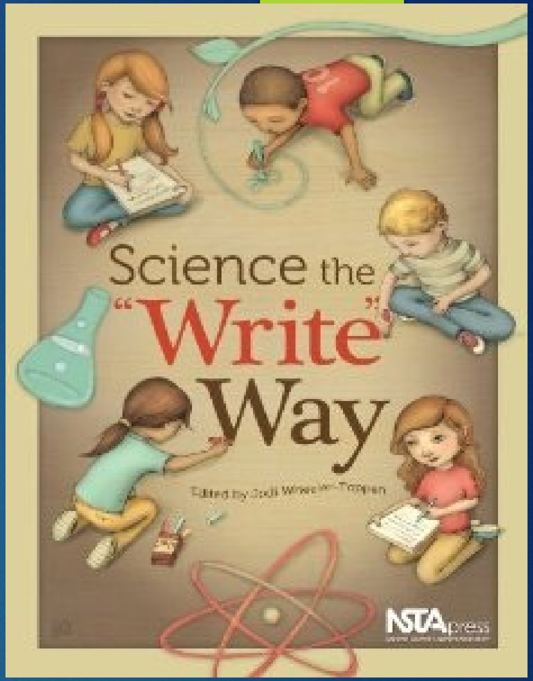
Agenda

- Introductions
- Work through a sample lesson together that combines electricity/magnetism and literacy
- Talk about structure and materials
- Work parts of 4 additional lessons that you can walk out of here and use









Who I Am and
How I Ended Up Here


NATIONAL GEOGRAPHIC KIDS
DOG SCIENCE UNLEASHED
FUN ACTIVITIES TO DO WITH YOUR CANINE COMPANION
JODI WHEELER-TOPPEN
NATIONAL GEOGRAPHIC KIDS
HANDS-ON SCIENCE
CAT SCIENCE UNLEASHED
FUN ACTIVITIES TO DO WITH YOUR FELINE FRIEND
JODI WHEELER-TOPPEN
PHOTOGRAPHS BY MATTHEW RAKOLA
This Is a BOOK to READ with a WORM
Jodi Wheeler-Toppen
Illustrated by Margaret McCartney
NATIONAL GEOGRAPHIC KIDS
EDIBLE SCIENCE
EXPERIMENTS YOU CAN EAT
Science Experiments THAT FIZZ AND BUBBLE
Fun Projects for Curious Kids
EDGE BOOKS
Our Ears Can Hear
Our Eyes Can See
Our Mouths Can Taste
Our Noses Can Smell
Our Skin Can Touch
GROSS SCIENCE PROJECTS
GUIDES
Human Muscles
Fact Finders
GHOSTS AND ATOMS
Cool Chemistry Activities for Girls
by Jodi Wheeler-Toppen, PhD
The Big Book of Mad Scientists' Alchemy
RECYCLED SCIENCE
AMAZING CARDBOARD TUBE SCIENCE
EDGE BOOKS
Science Experiments THAT EXPLODE AND IMPLODE
Fun Projects for Curious Kids
ORCHID MANTISES AND OTHER EXTREME INSECT ADAPTATIONS

Find Powerpoint here.

OnceUponAScienceBook.com

wheelertop@gmail.com

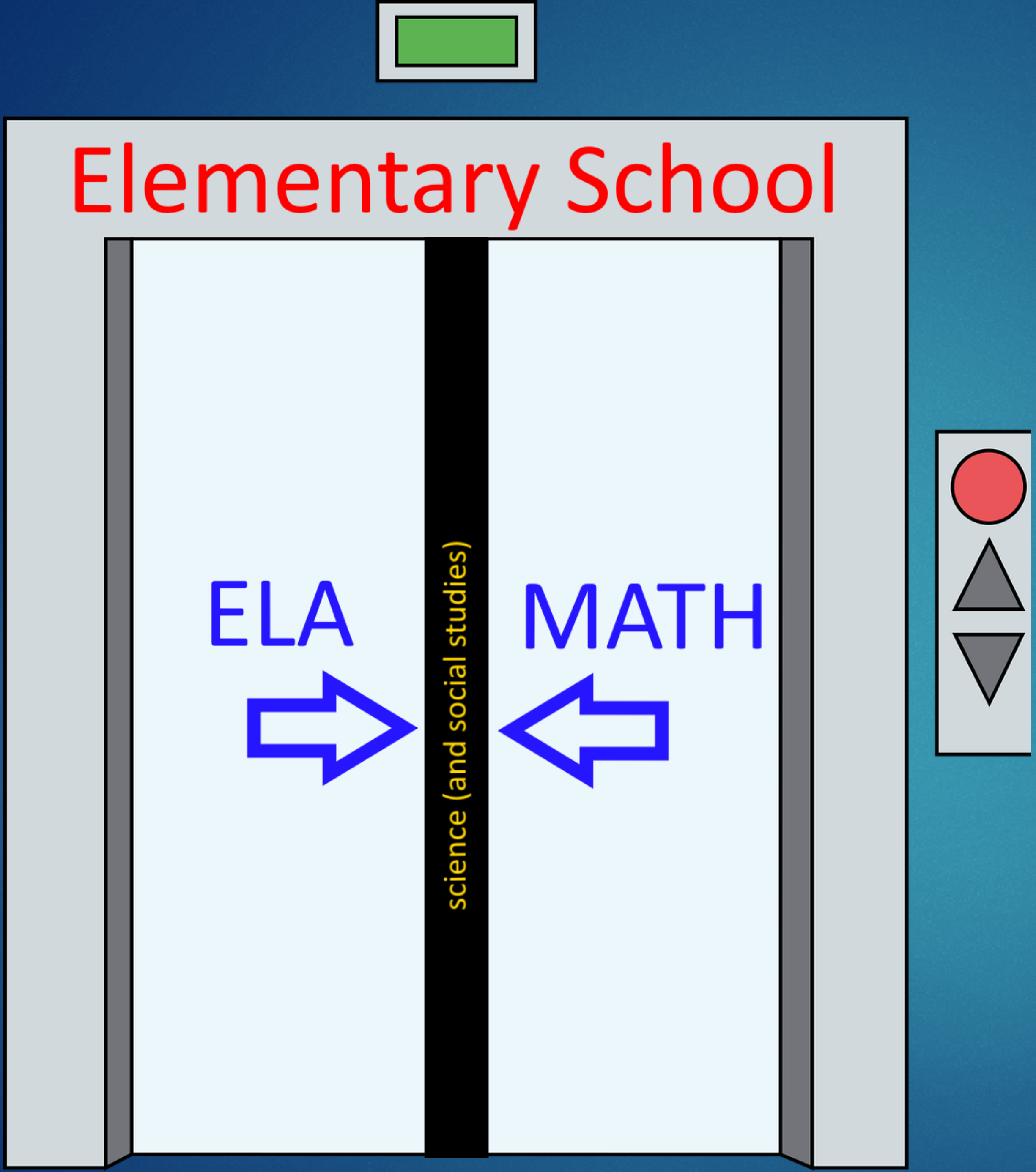
Connect with Me

Who are you?

1. Get into groups of 3! (we're going to need these groups going forward!)
2. Tell each other:
   - Your name
   - Your school
   - Your role at your school (teacher/ instructional coach/ etc.)
   - Your favorite topic in 5th grade science

Who are you? (pt 2)

- Are there particular issues that you have around teaching electricity and magnetism that we may be able to help with?
- Was “electricity and magnetism” anyone’s favorite 5th grade topic?



GA DOE: Literacy and Science Tasks

Literacy-Based Science Task: Electricity (Part 1) Naturally Occurring

LEARNING STANDARDS

S5P2.a | 5.T.C.2.c | 5.T.T.1.e

S5P2.a Obtain and combine information from multiple sources to explain the difference between naturally occurring electricity (static) and human-harnessed electricity.

activities

Overview

This literacy-based science task is an interdisciplinary lesson that emphasizes reading and writing skills through the ELA and Science standards. Each task is designed with three parts; one or more **Pre-Reading Activity**, **Reading Article**, and one or more **Post-Reading Activity**.

- Click for the full pdf version

Part 2

Big Idea/ Topic (Science)
• Static Electricity

Reading/ Writing Skills
• **Reading Skill:** Visualize images to help understand a text
• **Writing Skill:** Writing a nonfiction narrative

Pre-Reading: Static Electricity Investigation

Students will be ready to read when they have observed static electricity as it attracts and repels things and have seen how they can create static electricity by friction. These activities are especially important to give students the background they will need to practice the reading skill.

Materials: 2 balloons (one for each person in the collaborative pair); String – 10 to 12 inches per student; Ruler or yardstick; Scraps of wool cloth such felt or an old sweater (make sure if you use an old sweater or some other type of clothing that it has not been washed or dried with any type of static eliminator); Paper Towel; Salt; Pepper; Aluminum foil or empty soda can

Activity 1: Electric Balloons

Start the investigation by asking: Have you ever touched a doorknob and felt a small shock? Have you ever pulled off a sweater and your hair stood up? Have you ever opened a pack of crackers, and the plastic seemed to stick to your hand? Have you ever taken clothes out of the dryer and had a sock or cloth stuck to something else? Why do you

Lesson 1: Exploring Static Electricity

- https://inspire.gadoe.org/lesson/25918

Let's Explore with Balloons

1. Blow up two balloons. Tie a string around each one.

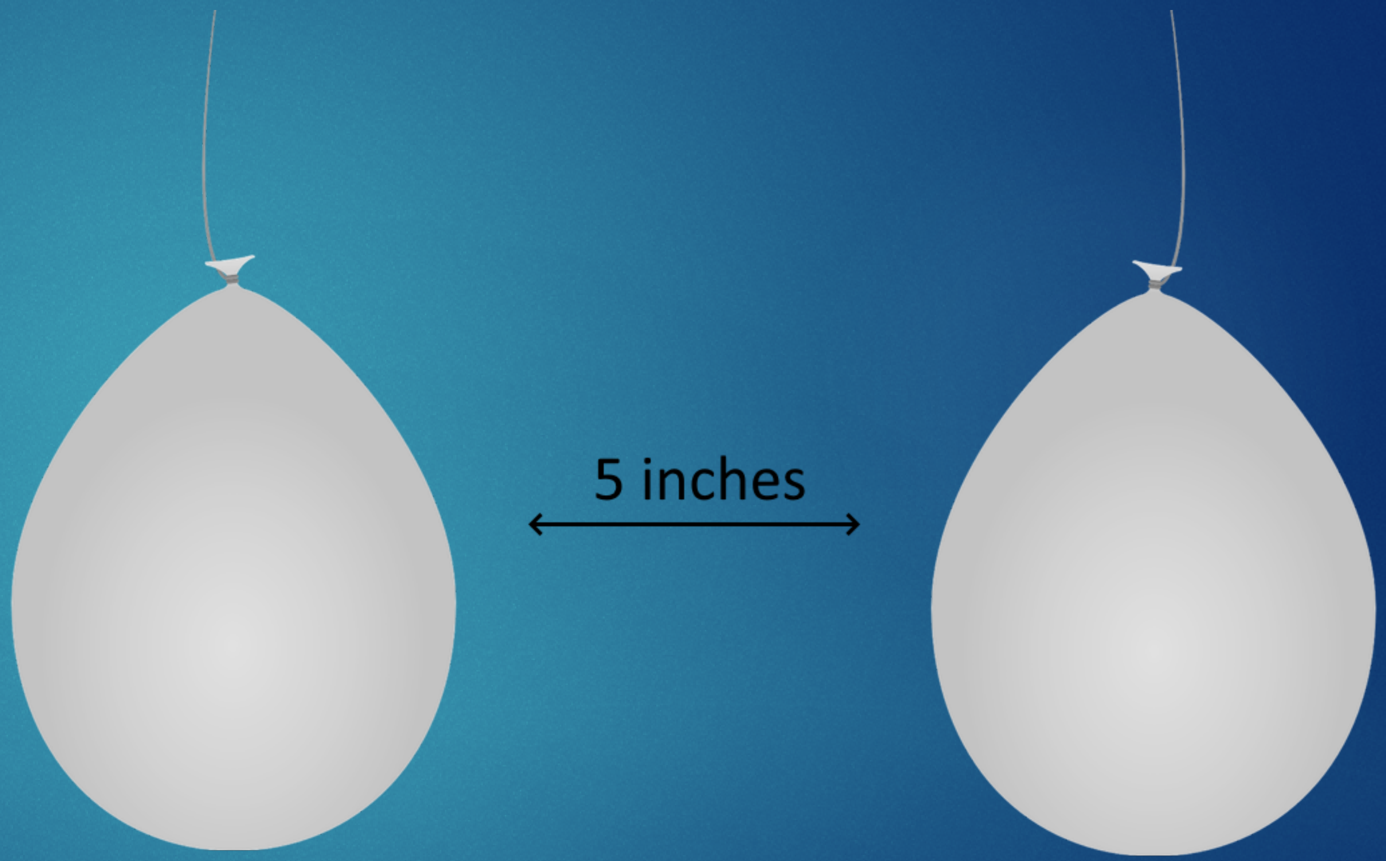
2. Hold the balloons about 5 inches apart.

Describe how your balloons are hanging:

____

____

____

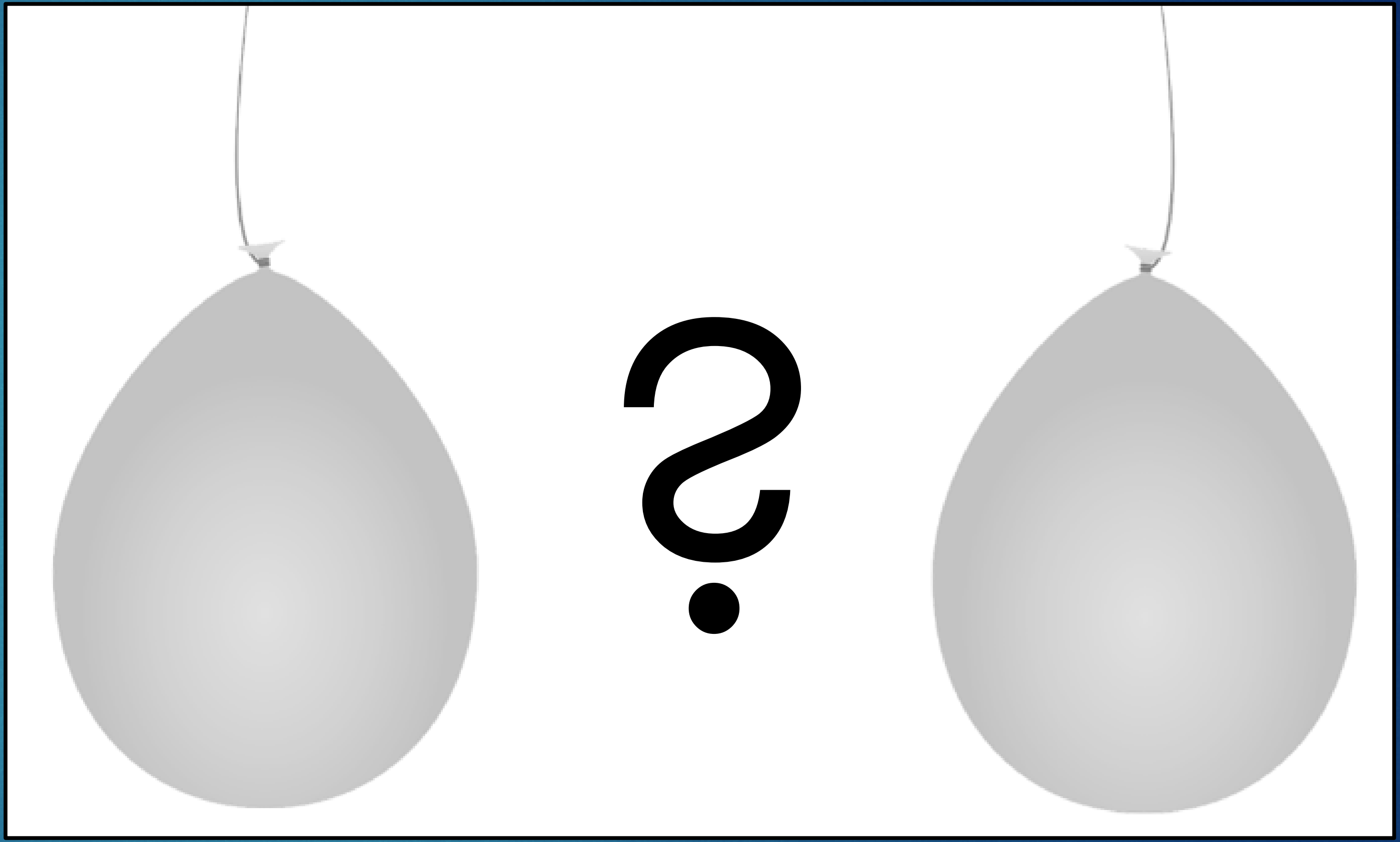


Let's Explore with Balloons

3. These balloons do not have an electric charge. You can give them a charge by rubbing them with the wool cloth. Rub ***just one*** balloon with a wool cloth.

4. Hang them upside down again, about 5 inches apart.

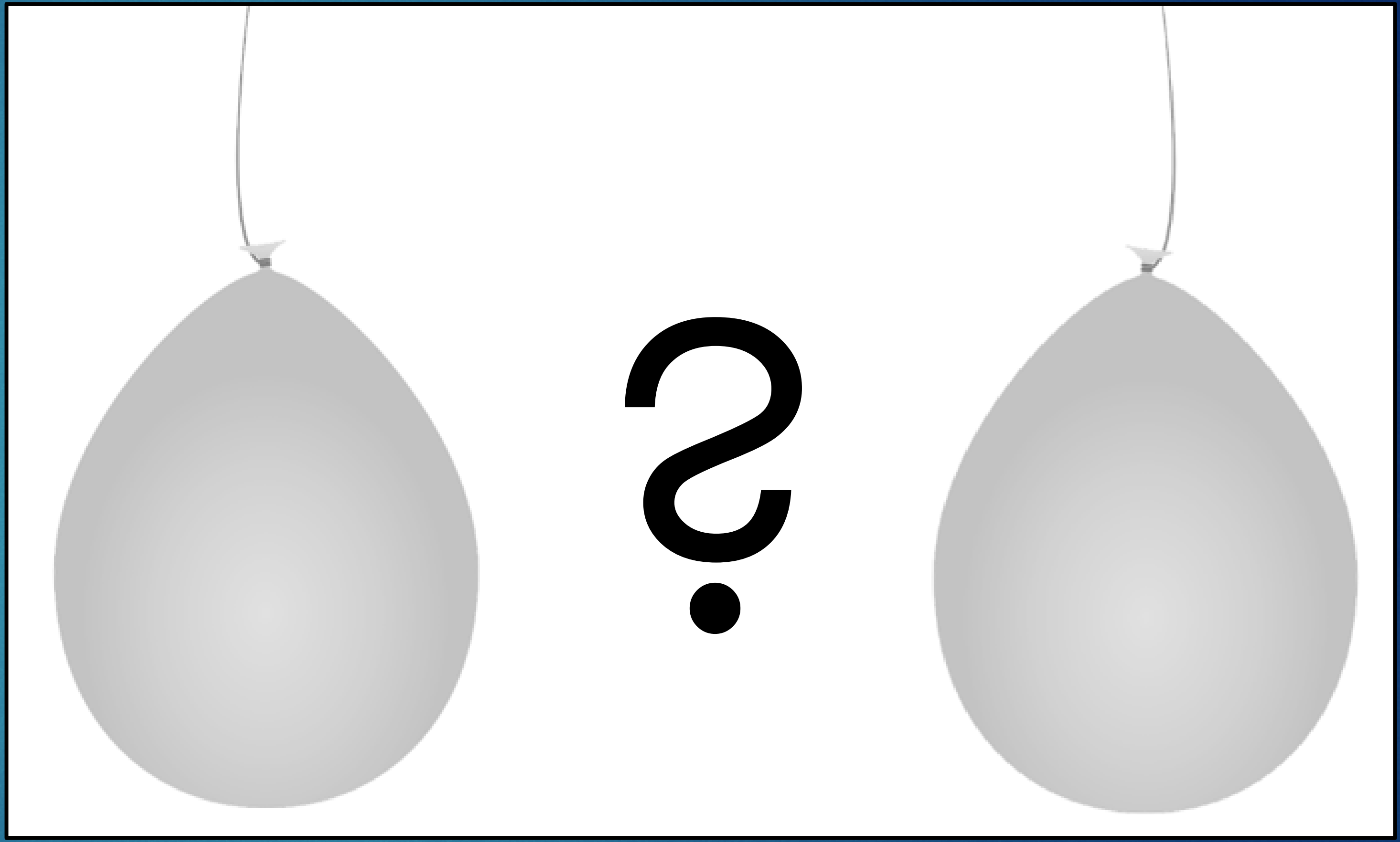
Draw what happens in the space provided.



Let’s Explore with Balloons

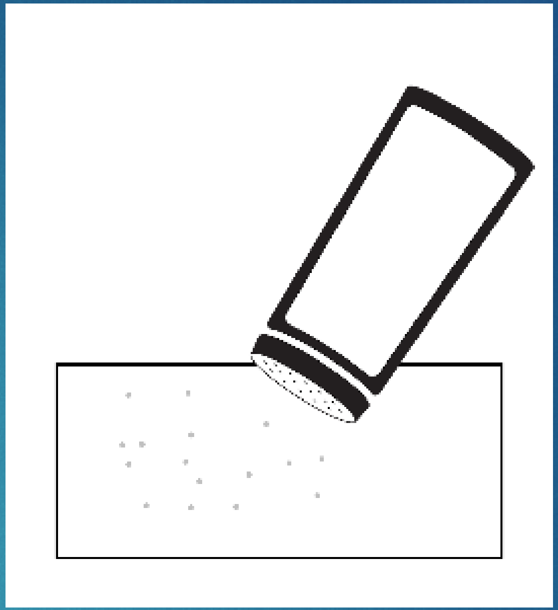
5. Now rub ***both*** balloons with the wool cloth. Hang them upside down and 5 inches apart.

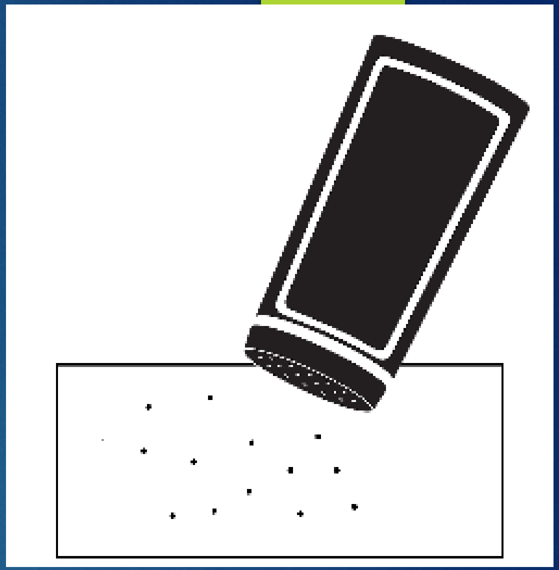
Draw what happens this time.



Pat both balloons all over with a paper towel. This will take the charge off the balloons.

Balloons and other items

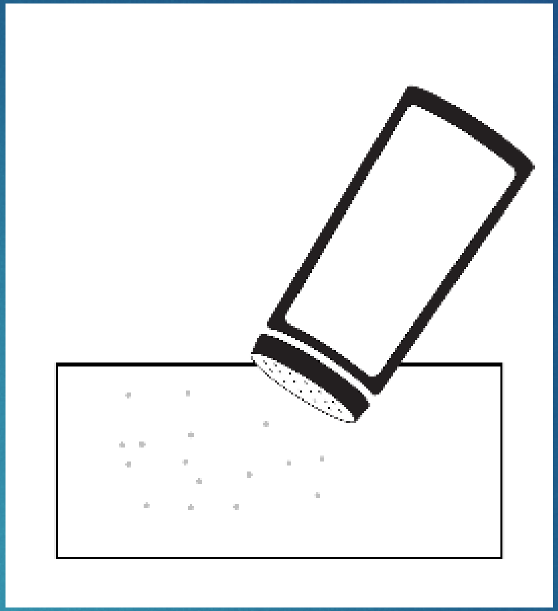


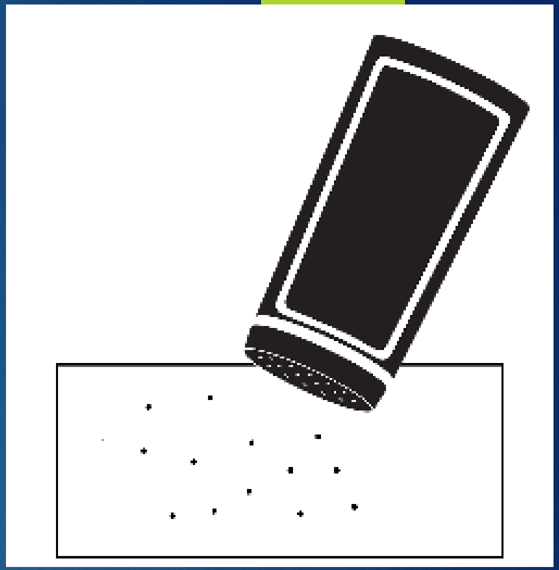


Pour a small amount of salt on a piece of paper towel, and a small amount of pepper on another paper towel.

Put the soda can or a piece of aluminum foil next to the paper towels, as shown.

Balloons and other items





Pour a small amount of salt on a piece of paper towel, and a small amount of pepper on another paper towel.

Put the soda can or a piece of aluminum foil next to the paper towels, as shown.

Balloons and other items

- Hold one *uncharged* balloon a few inches over each item, one at a time. Describe what you see in the chart below and circle if the item is attracted to the balloon.

- Charge a balloon by rubbing it with the wool cloth. Again, hold it over each item. Fill in the second line of the chart.

	salt	pepper	Aluminum foil or soda can
Uncharged Balloon	attracted/ not attracted	attracted/ not attracted	attracted/ not attracted
Charged Balloon	attracted/ not attracted	attracted/ not attracted	attracted/ not attracted

Did you hear anything when you held the charged balloon over the items?

Let's read an article that will help us explain what we saw with the balloons.

It's Electric!

But first... a reading skill

Picturing as you Read

Science texts often describe situations. If we make a picture of them in our heads as we read, it helps us understand.

It’s Electric!

Have you ever grabbed a doorknob and felt a shock? Maybe you shook hands with a friend and she yelled, "Ouch! You shocked me!" When you feel a shock, it hurts, because energy is surging into your body. That energy is called electricity.

Whenever you see an asterisk (star) in the article, notice what picture you are forming in your mind.

It's Electric!

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Electricity is made of moving charges. There are positive charges and negative charges. You may have heard it said that "opposites attract." That's certainly true for negative and positive charges! Whenever they can, negative charges race toward positive charges.

All Charged Up

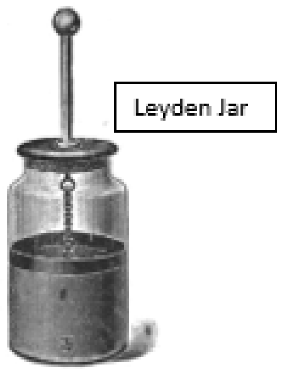
Picture yourself rubbing a balloon with a wool cloth.* That process causes negative charges to build up on the balloon. If you put that balloon near another object, the negative charges move from the balloon to the object, creating a little burst of electricity.* The electricity can pick up tiny objects, such as pepper or bits of paper.*

The opposite of "opposites attract" is also true. If two objects have the same charge, they repel each other, which means they push each other away. If you rub two balloons with wool cloth, they will both have a negative charge. They will move apart.*

Shocking!

Shocks from a doorknob and charged balloons are two examples of static electricity. Static electricity is the name we give to electricity that happens naturally.

In the 1600 and 1700's, scientists realized that static electricity could be stored and used later. They created objects called Leyden jars that worked something like a battery.



They would rub cloth on a metal knob, much like you did with the balloon.* The jars would develop a strong negative charge. When the scientists wanted to release the charge, they would touch a wire to the jar, and the electricity would race into the wire. Often, they would be able to see a spark.*

Kite in the Night

In the late 1700's, Benjamin Franklin wondered what lightning was made of. He thought it might be made of powerful bursts of static electricity. He came up with a clever test to find out.

He fastened a piece of wire to a kite to attract electricity. Then he tied a rope made of two parts. One part was wet and would carry electricity. The other he kept dry so that his hands would not get shocked. He tied a key to the wet part of the rope.

Then he did something daring, or perhaps stupid. He flew the kite during a thunderstorm! Lightning flashed near the kite. Zip! Zap! Electricity raced into the wire, down the kite rope, and into the key.* Benjamin Franklin held his hand near the key and felt a shock.* He even managed to trap some of the electricity in a Leyden jar. He was lucky he didn't get killed by the intense energy in lightning!

However, his experiment worked. It showed that lightning is also a type of static electricity.

Writing Skill: Establishing the setting for a non-fiction narrative

Writing Prompt:
Describe a time that you experienced Static Electricity. It can be something that happened to you when you were younger, or it could be one of the experiences that you had in class working with the balloons. Describe where you were, what you did, what happened, and the science that explains why it happened. Use at least 4 of the vocabulary words from the word bank.

Reminder:
Readers will be trying to picture what is happening, just like you were trying to make pictures as you read the Static Electricity article!

Providing the setting for a narrative is an important part of helping your reader picture the event. The setting includes *where* something happened, *when* it happened, and *what the environment was like*. In a short piece like this one, letting the reader know who is present can also help create the scene.

My Static Electricity Experience

Describe a time that you experienced Static Electricity. It could be something that happened to you when you were younger, or it could be one of the experiences that you had with balloons in class. Use at least 4 of the vocabulary words from the word bank.

WORD BANK							
Energy	Electricity	Static	Charge	Negative	Positive	Attract	Repel

Setting

In this box, describe your setting. Remember that it should help your readers picture the story in their heads!

Static Electricity Event

In this box describe what happened.

Why It Happened

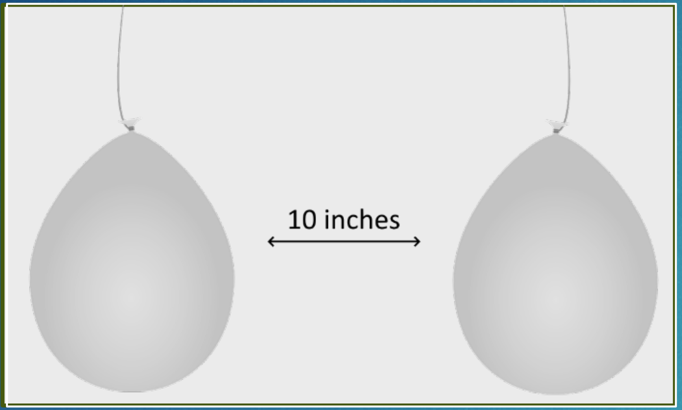
In this box, explain the science behind what happened (be sure to use your vocabulary!)

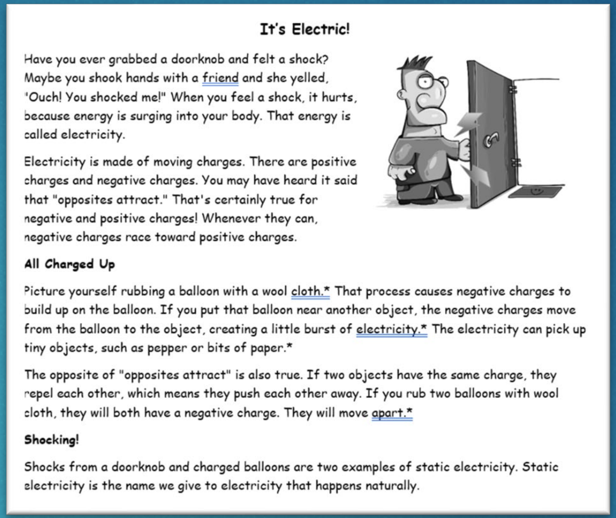
Conclusion

In this box write a conclusion sentence for your story.

Thoughts/ Observations on this sample lesson?

Lesson Structure





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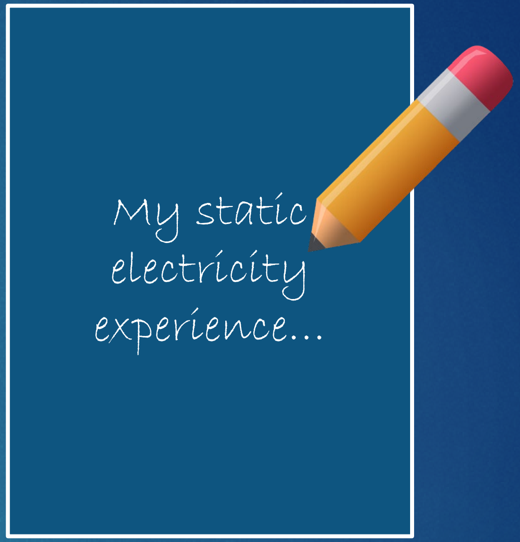


Why start with the activity before the reading?

Somerset Draw with Durham Hands Notts the Title

After bowling the home side out for 320, Somerset were left needing 181 from 17 overs to guarantee the title. But, at 48-3, the chase was abandoned at Chester-le-Street and a draw agreed.

Fired-up Notts then took the three Lancashire wickets they required at Old Trafford to pick up a sixth bonus point and break Somerset hearts.

Eventually, Trego had Scott Rushworth caught behind and Benkenstein was caught at slip by skipper Marcus Trescothick off Charl Willoughby to set up the Somerset chase.

They went to the crease not knowing if a draw would be good enough to hold off Notts and immediately lost Kieswetter, promoted up the order, when he was bowled by Somerset old boy Blackwell.

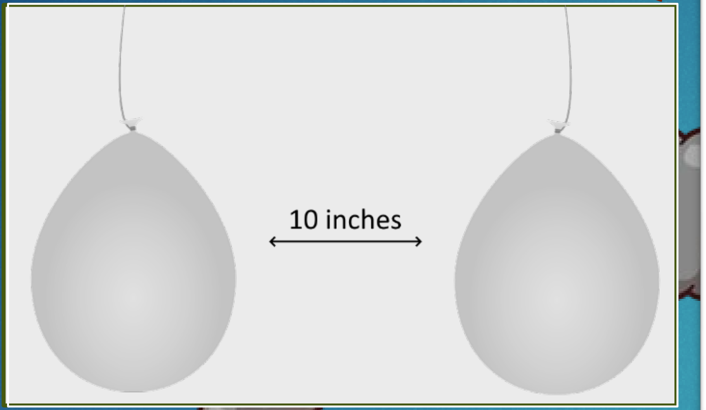
Start with hands-on science in order to:

- Build background for understanding text
- Help students approach text in "curiosity mode"
- Engage more deeply with the text as it isn't the "introduction" to the new ideas
- Help students develop "something to say" by the time they need to write

Meeting ELA Standards

Reading Strategy

Writing Strategy



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My static electricity experience…

Reflection (and Bathroom Break):

- Are there parts of this lesson you would like to try in your class? Which parts and why?
- Is there anything about this lesson structure you want to think about for future lessons?
- Do you have any questions about Static Electricity or this lesson that you would like a chance to ask?

Lesson 2: Simple Circuits

- https://inspire.gadoe.org/lesson/10091

And/Or

- https://inspire.gadoe.org/lesson/25920

Deserted Island Challenge

- You and your group were travelling across the ocean by boat when a huge storm came up during the night. Your boat sank!
- You made it to a deserted island and have scavenged a box of supplies.
- Fortunately, you can see a helicopter in the distance. Unfortunately, if you don't get the light bulb lit in the next 5 minutes, the helicopter will pass by without seeing you.
- Quick! You need to figure out how to light the bulb before it is too late!

Finishing in

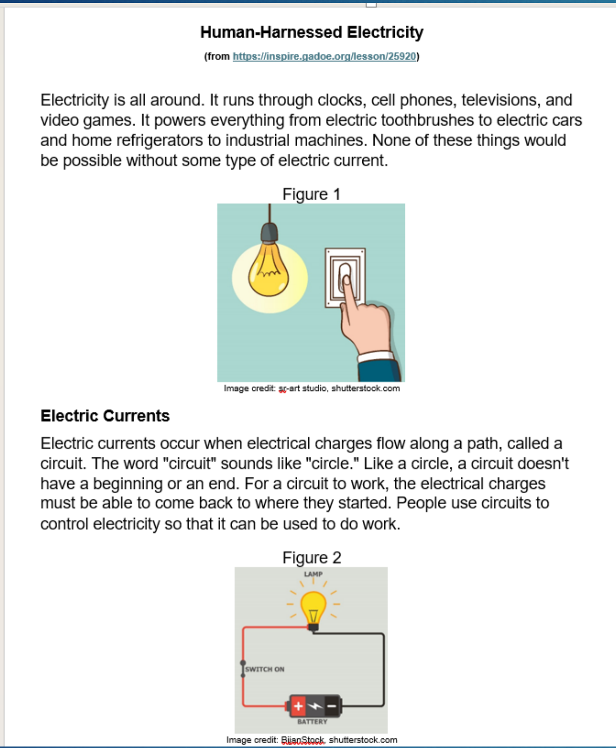
05:00

Start | Stop | Reset | mins: 5 | secs: 0 | type: Finishing

Breaktime for PowerPoint by Flow Simulation Ltd.

Show Settings

Reading Options for This Activity



Human-Harnessed Electricity

(from https://inspire.gadoe.org/lesson/25920)

Electricity is all around. It runs through clocks, cell phones, televisions, and video games. It powers everything from electric toothbrushes to electric cars and home refrigerators to industrial machines. None of these things would be possible without some type of electric current.

Figure 1

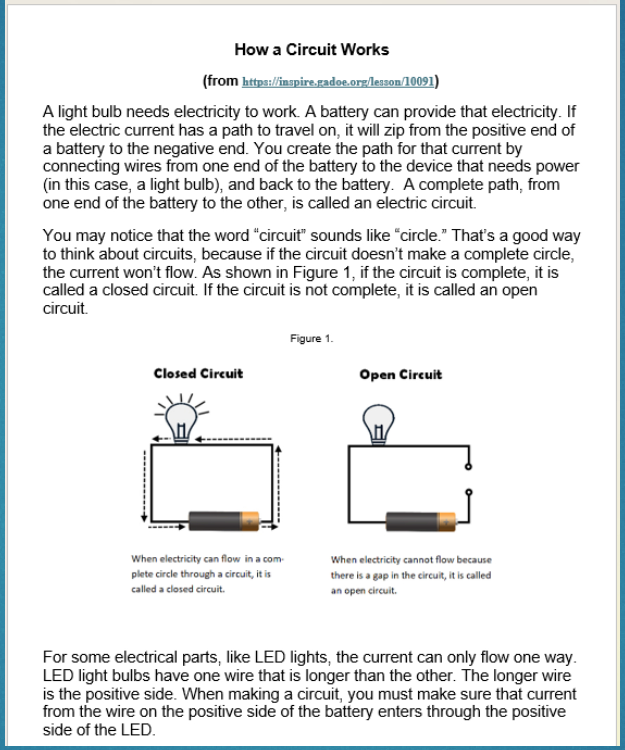
Image credit: sr-art studio, shutterstock.com

Electric Currents

Electric currents occur when electrical charges flow along a path, called a circuit. The word "circuit" sounds like "circle." Like a circle, a circuit doesn't have a beginning or an end. For a circuit to work, the electrical charges must be able to come back to where they started. People use circuits to control electricity so that it can be used to do work.

Figure 2

Image credit: BijanStock, shutterstock.com



How a Circuit Works

(from https://inspire.gadoe.org/lesson/10091)

A light bulb needs electricity to work. A battery can provide that electricity. If the electric current has a path to travel on, it will zip from the positive end of a battery to the negative end. You create the path for that current by connecting wires from one end of the battery to the device that needs power (in this case, a light bulb), and back to the battery. A complete path, from one end of the battery to the other, is called an electric circuit.

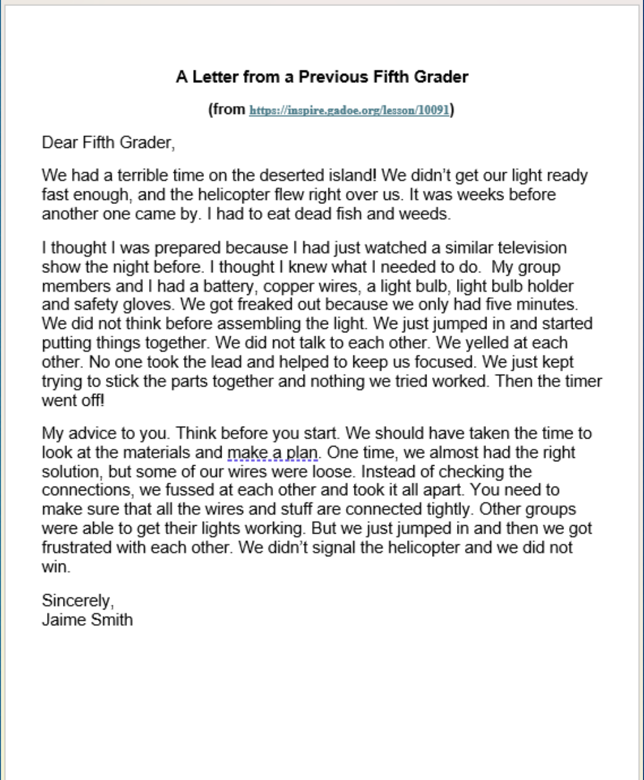
You may notice that the word "circuit" sounds like "circle." That's a good way to think about circuits, because if the circuit doesn't make a complete circle, the current won't flow. As shown in Figure 1, if the circuit is complete, it is called a closed circuit. If the circuit is not complete, it is called an open circuit.

Figure 1.

When electricity can flow in a complete circle through a circuit, it is called a closed circuit.

When electricity cannot flow because there is a gap in the circuit, it is called an open circuit.

For some electrical parts, like LED lights, the current can only flow one way. LED light bulbs have one wire that is longer than the other. The longer wire is the positive side. When making a circuit, you must make sure that current from the wire on the positive side of the battery enters through the positive side of the LED.



A Letter from a Previous Fifth Grader

(from https://inspire.gadoe.org/lesson/10091)

Dear Fifth Grader,

We had a terrible time on the deserted island! We didn't get our light ready fast enough, and the helicopter flew right over us. It was weeks before another one came by. I had to eat dead fish and weeds.

I thought I was prepared because I had just watched a similar television show the night before. I thought I knew what I needed to do. My group members and I had a battery, copper wires, a light bulb, light bulb holder and safety gloves. We got freaked out because we only had five minutes. We did not think before assembling the light. We just jumped in and started putting things together. We did not talk to each other. We yelled at each other. No one took the lead and helped to keep us focused. We just kept trying to stick the parts together and nothing we tried worked. Then the timer went off!

My advice to you. Think before you start. We should have taken the time to look at the materials and make a plan. One time, we almost had the right solution, but some of our wires were loose. Instead of checking the connections, we fussed at each other and took it all apart. You need to make sure that all the wires and stuff are connected tightly. Other groups were able to get their lights working. But we just jumped in and then we got frustrated with each other. We didn't signal the helicopter and we did not win.

Sincerely,
Jaime Smith

Scan the three texts. Underline the information that you think is most important for your students. What would you have your students read?

Remember that you can cut and paste paragraphs and information between the articles.

What would make you feel more comfortable with this topic/ lesson?

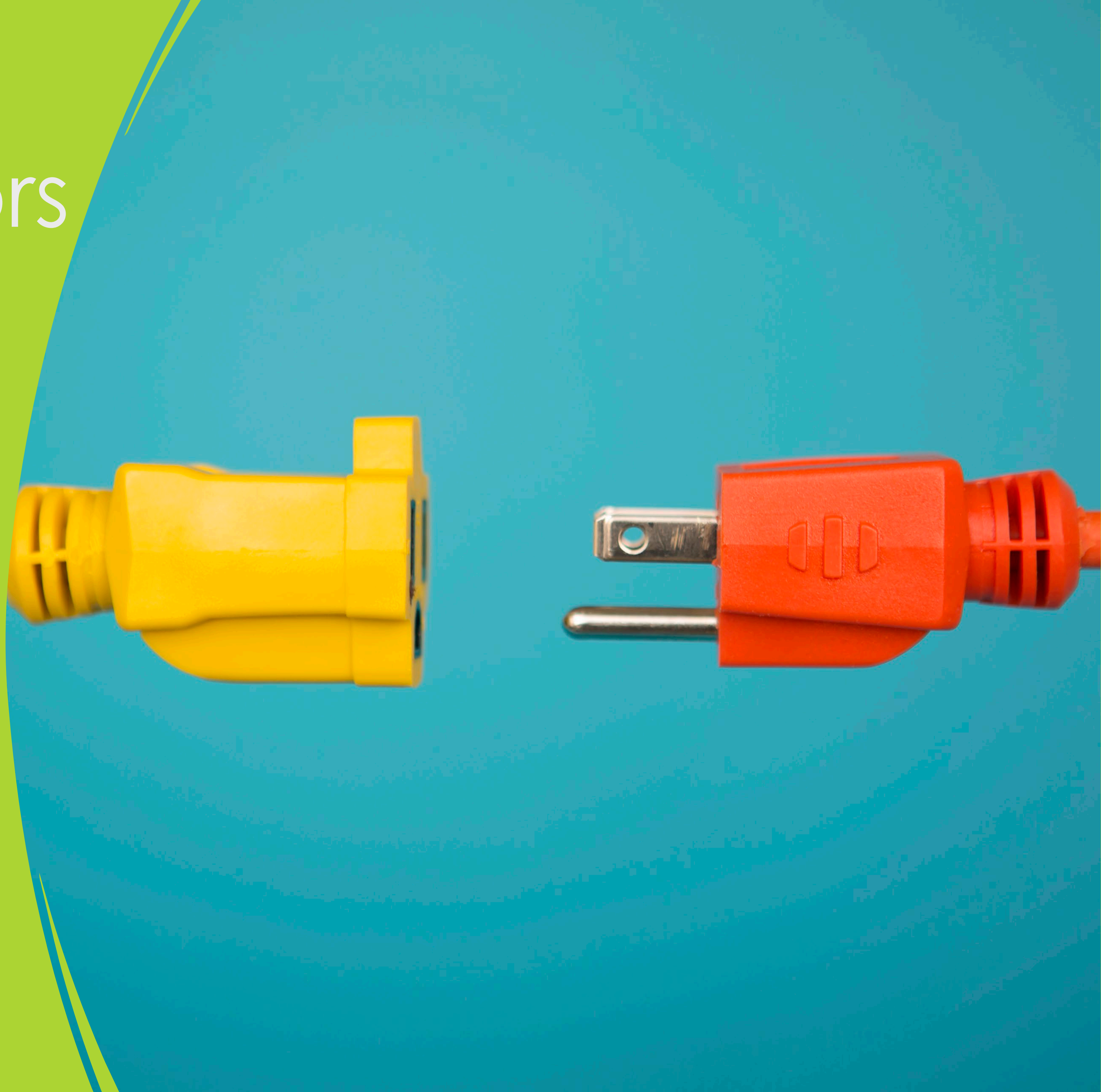
- Questions about circuits or electricity?
- Questions about materials and making the activity work?
- Anything else?

Lesson 3: Insulators and Conductors

https://inspire.gadoe.org/lesson/25921

And/Or

https://docs.google.com/document/d/1beC1JTtgjIQb9rD7L4Km6dIA9I7EoBx625KpGFRIlec/edit?usp=sharing



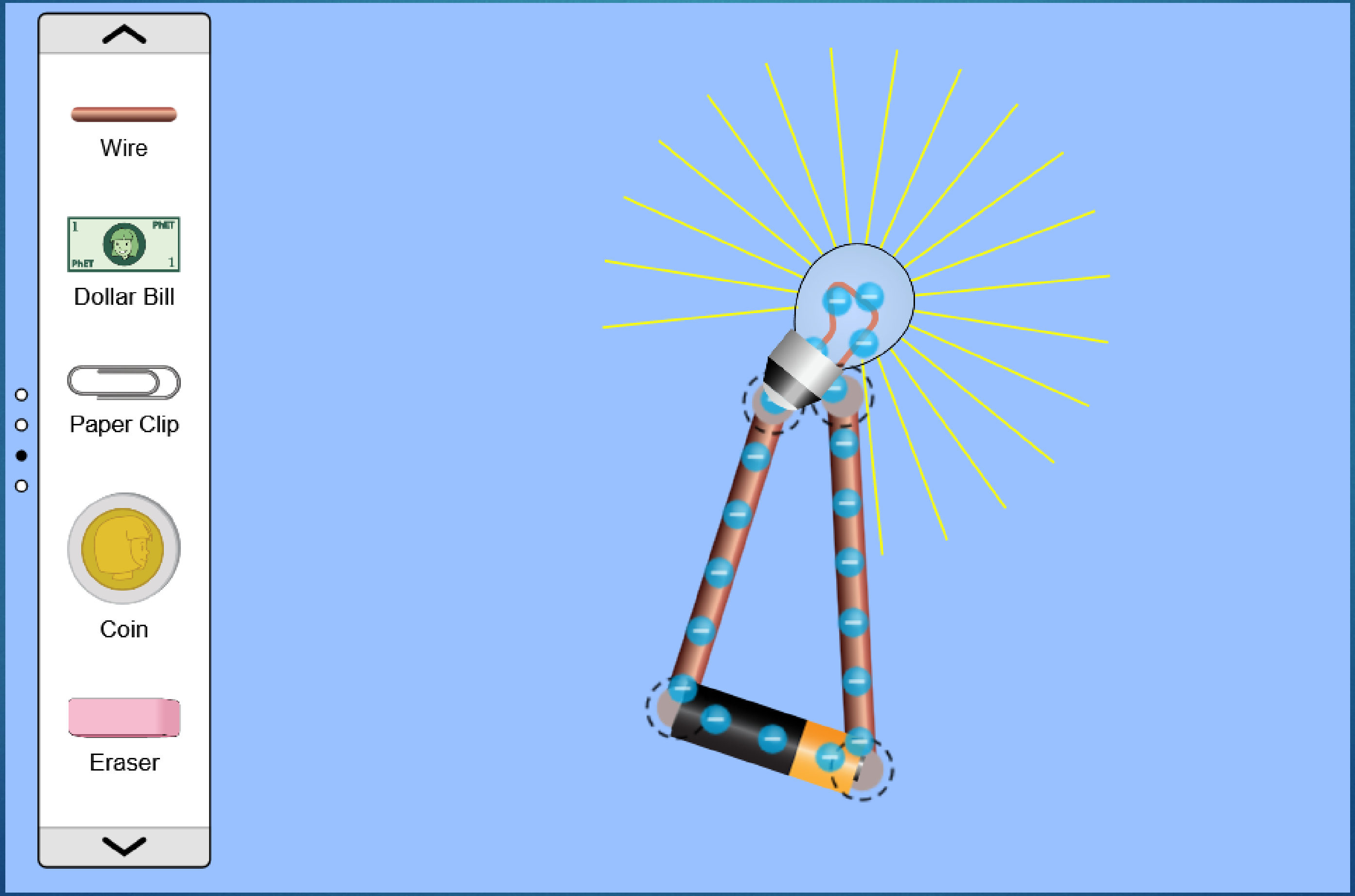
Electricity Phet

- https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab

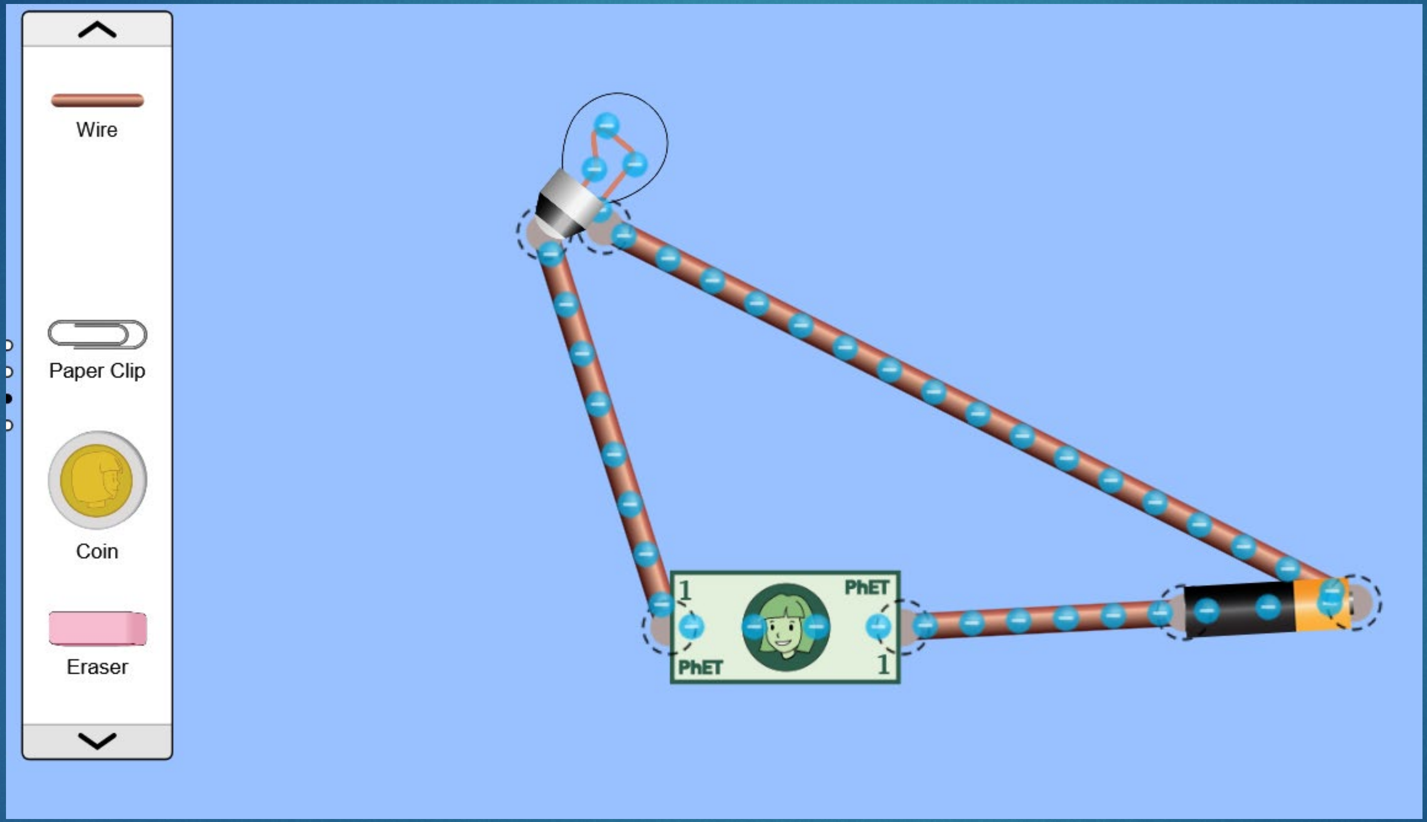
Open the PHET by going to http://PHET.Colorado.edu

- Search “Circuit Construction Kit: DC”
- Either simulation will work (lab or intro)
- Play with the simulation for a few minutes

Build a basic circuit for a lightbulb. (Students should have already learned about simple circuits.)



Now add an extra wire so that you can put an object inside the circuit.



What happened to the lightbulb when we added the dollar bill to the circuit?

Use your circuit to sort the objects. Do they create an open circuit or a closed circuit?

Open Circuit (Light on)	Closed Circuit (Light off)

Paper clip
Coin
Eraser
Hand
Dog
pencil

Lab Sheet Options—on main page, click "for teachers"

Requires free account to access teacher materials. Easy to get, but most students won't bother.

EDITABLE lab sheets!

Several here would walk your students through circuits, switches, and testing for conductivity.

Insulators and Conductors

How can a bird rest on a power line without being electrocuted?

Let It Flow

Have you ever seen birds sitting on a powerline?

Image Credit: By Montanabw - Own work, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=52947424

Have you ever wondered how they can rest on this power line without getting electrocuted? To discover the answer, we must learn a little about insulators and conductors.

Think back to when you created a circuit. Where did the energy come from? Where did the energy go? When the energy flow stopped, what caused it? We can imagine the flow of electricity as a circular river that allows charges to flow from the power source to the load and back to the power source.

Conductors

Some materials let that river of charge flow freely. Metals, such as iron, aluminum, copper, silver, and steel are often used to carry electric charges. These materials are called electrical conductors. Water with minerals dissolved in it is also an electrical conductor. This is why you should get out of swimming pools or lakes during a lightning storm. Even if lightning hits the water far away from you, the electricity can quickly reach you.

The word conductor is used for any material that allows energy to flow through it. In a circuit, that energy is electricity. Heat is another type of energy. Some materials are good conductors for both electricity and heat, while others are better at conducting one or the other type of energy.

Image credit: Proxima Studio, shutterstock.com

Insulators

Insulators are the opposite of conductors. If conductors are like a river flowing freely, insulators are like a dam that stops the water. Unlike conductors, insulators do not allow energy to pass through. Electrical insulators block the flow of electricity from the power source to the load. Glass, wood, foam, and rubber are all electrical insulators.

Plastic is another electrical insulator. This is why you see electric wires and cords that are covered with plastic. The plastic surrounds the wire and stops us from receiving an electric shock from the flow of electricity. Have you ever seen a cord with the wires frayed and exposed? Do not plug it in! Without the insulator, you will not have protection from the electricity.

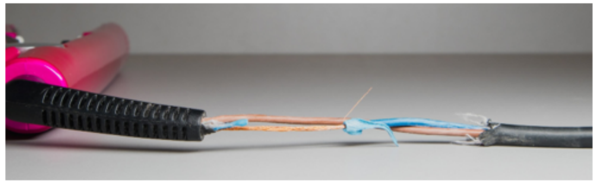


Image credit: Armands Photography, shutterstock.com

Similar to the word conductor, the word insulator includes both electrical insulators and heat insulators. Most materials that insulate against electricity also insulate against heat, but there are exceptions. Diamond, for example, is an electrical insulator, but a good conductor of heat.

Insulators and Conductors

Insulators and conductors are both important for human-harnessed electricity. We need both to be able to control the path that electricity takes from source to load and back again. Conductors let us move the electricity where we want it to go, while insulators let us prevent that flow from reaching places where we do not want it.

Now that you know about insulators and conductors, why do you think birds are able to remain on the powerline without being electrocuted?

Three Questions to Think About After Reading:

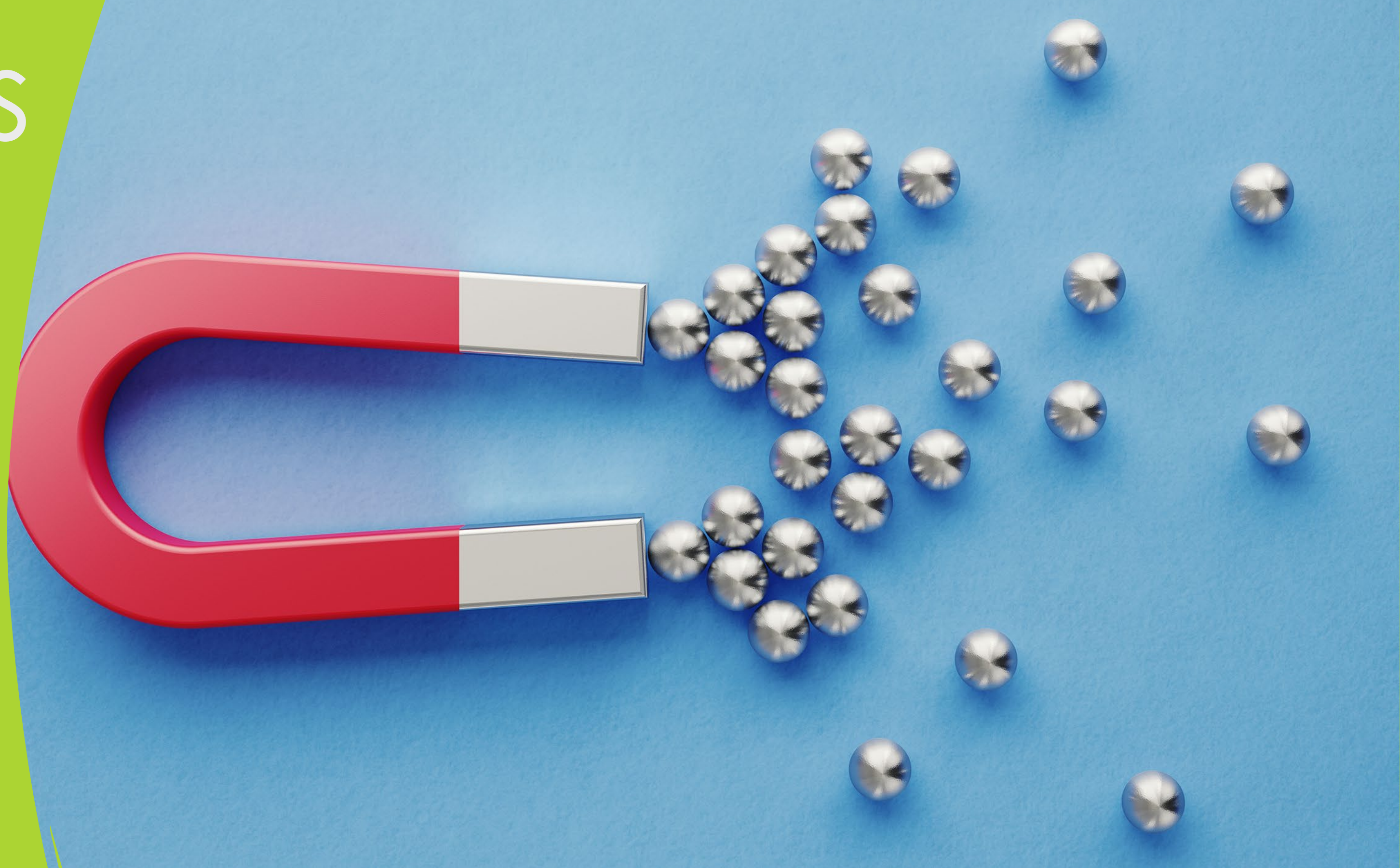
- How does this information help us explain why some things lit up and others didn't?
- How can a bird rest on a power line without being electrocuted?
- Antique screwdrivers (those from before the invention of electricity) look very different from modern screwdrivers. Why?

What would make you feel more comfortable with this topic/ lesson?

- Questions about insulators and conductors?
- Questions about materials and making the activity work?
- Anything else?

Lesson 4: Magnetic Fields

https://inspire.gadoe.org/lesson/25922



The Marvels of Magnets and Their Invisible Powers

Why Do Some Objects Stick to Magnets?

Have you ever wondered why only certain things stick to magnets? Paper clips--zip--stick right to a magnet. Paper? It doesn't budge at all. The secret ingredient is iron. Magnets attract, or pull toward, items that contain iron, along with a few less common metals such as cobalt. Magnets commonly stick to steel, because iron is one of the ingredients in steel. And guess what? Magnets can even attract each other because they contain iron, too!

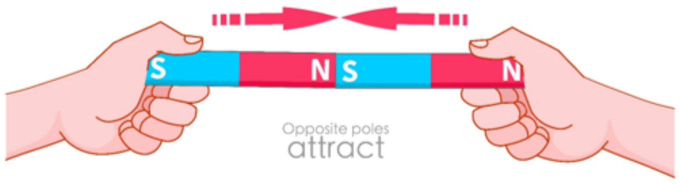


Image credit: grayjay, shutterstock.com

You may have also seen magnets *repel*, or push away, another magnet. The ends of a magnet are called *poles*. There's a north pole and a south pole on every magnet. If you have a north pole from one magnet and a south pole from another magnet, they'll attract each other. But if you have two magnets with the same kind of pole (both north or both south), they'll repel each other!

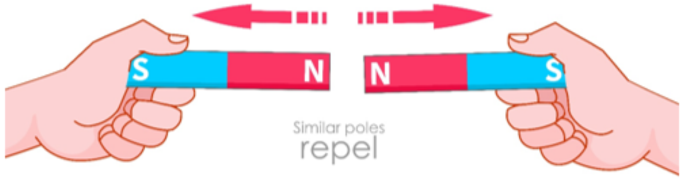


Image credit: grayjay, shutterstock.com

The Amazing Magnetic Field

Magnets are surrounded by an invisible force, called a magnetic field. Even though we can't see it, the magnetic field can push or pull objects. Imagine an invisible bubble around each pole of the magnet. The bubble would be its magnetic field. The magnetic field stays in place, even when there is an object inside the field. For this reason, magnets can attract metal objects through paper, wood, and even cloth.

In the picture below, you can see how little slivers of iron line up to show the magnetic field around a bar magnet. The field is super strong at the poles and weaker in the middle. The poles of a magnet can attract items that are farther away than the middle of a magnet. The size of the magnetic field is also determined by the strength of the magnet. Stronger magnets have a larger magnetic field.

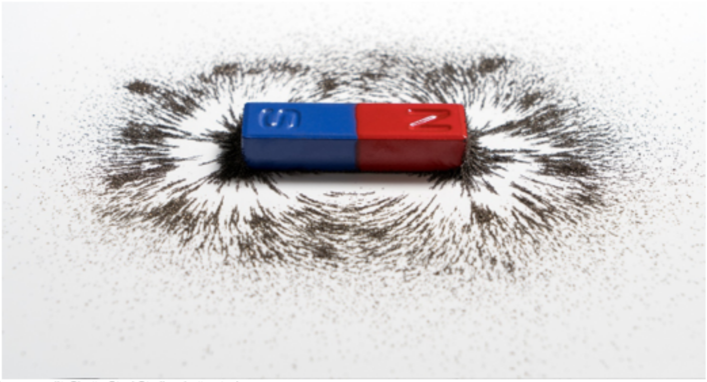


Image credit: ShutterStockStudio, shutterstock.com

What's the Deal with Earth and Magnets?

Did you know that Earth acts a bit like a giant magnet, too? The Earth's core, the center of the Earth, is made of iron. As you can see in the picture below, the Earth's core has a north pole and a south pole, just like a magnet.

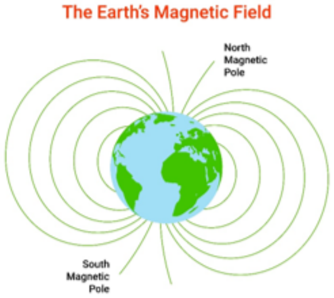


Image credit: Kolonko, shutterstock.com

And just like a magnet, opposite poles on Earth attract while similar poles repel. A compass is a navigational tool that uses the Earth's magnetism to figure out direction. A compass has a magnet that lines up opposite to the magnetic field around the Earth. And once again, this magnet can react even through other materials. In this case, those materials are all of the dirt, soil, and rock between your compass and the iron core of the Earth. The compass always points north, helping you find your way even in the wild outdoors.

Isn't magnetism fascinating? It's a hidden power that affects so much in our world, from sticking things on the fridge to helping hikers find their way. Next time you see a magnet, remember all the invisible power it holds!

Image credit: Good Luck Photo, shutterstock.com

Post-Reading/ Writing

You and a friend are walking on the sidewalk. Your friend drops their keys into the drain. When you look down the drain, you can't see the keys because there is a pile of leaves. It is too far down for either of you to reach it. During the discussion to find a solution, you suggest using a magnet, but your friend doesn't believe that will work.

Explain how a magnet could help even if you can't see the keys.

Use the graphic organizer with the terms to assist in your explanation. Make sure to include at LEAST three terms from the vocabulary page.

What would make you feel more comfortable with this topic/ lesson?

- Questions about magnets?
- Questions about materials and making the activity work?
- Anything else?

Lesson 5: Electromagnets

https://inspire.gadoe.org/lesson/25922

Recycling Quick Sort

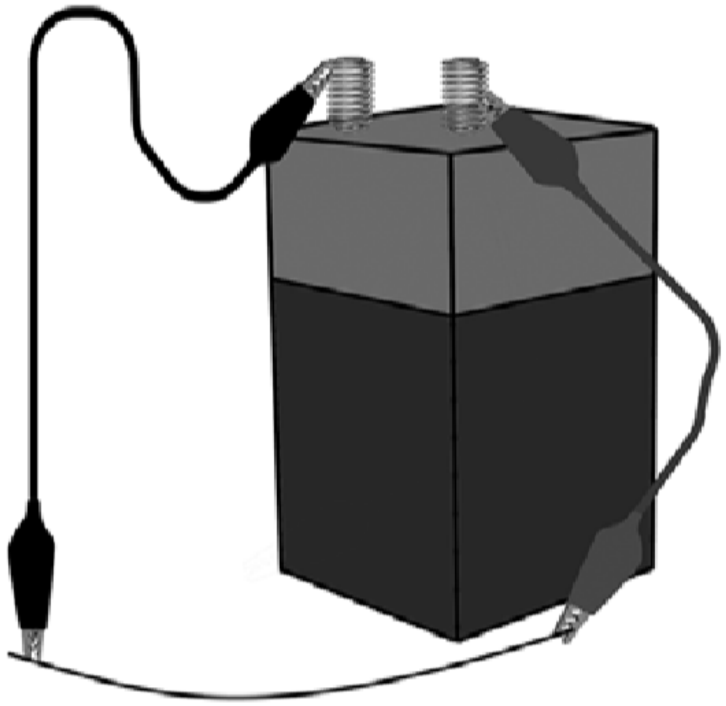
- You have a load of recycling, including paper, plastic, and iron-based metals. You wan to quickly pull out the metals and drop them into a collection bucket that can be sent to the metal recycling facility.

- How can you quickly pull out all the metals? Try your idea.

Collection Bucket

What if you had a magnet that you could turn ON and OFF? Let's make one. Use the materials from your teacher to assemble a basic electric circuit with a battery, alligator clips, and approximately 8 cm of wire, as shown in Figure S12.1. You will need to use sandpaper on both ends of your wire to remove the protective coating so that the alligator clips can transfer electricity. After you have the circuit, disconnect one wire to the battery so that it doesn't overheat.

Figure S12.1. Simple Electric Circuit

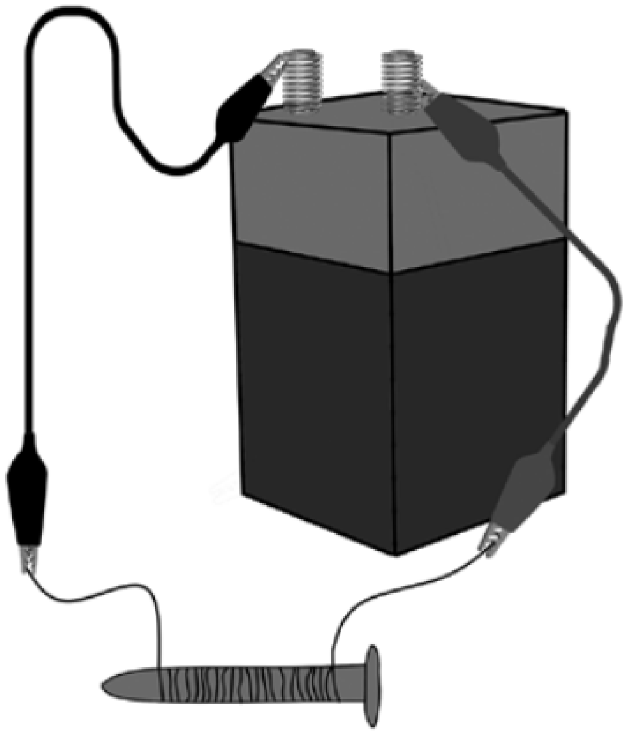


> ***SAFETY NOTE:*** The circuits you are building today are essentially "short circuits." They will get hot very quickly. Do **NOT** leave the circuits connected for more than a few seconds.

Can your wire-magnet pick up staples? If so, how many can it lift?

The magnetic field on a straight wire is weak. You can make it stronger by looping the wires around a nail. Disconnect your wire. Take a longer piece of wire (about 40 cm long) and use sand-paper to remove the coating from the ends. Wrap the wire around the nail at least 20 times. Make sure to leave a little unwrapped wire on each end so you can connect it to the alligator clips, as shown in Figure S12.2. Use a small piece of masking tape to hold the wrapped wire in place, and then clip the wire to the battery.

Figure S12.2. Circuit With Loops



7. Connect the wires to the battery. Can this device pick up staples? If so, how many can it lift?

This type of device is called an electromagnet because it uses electricity to create a magnet. Use your electromagnet to pick up some metal recycling and drop it in the collection bucket.

8. What do you need to do to your electromagnet to get the recycling to fall into the bucket?

Given this electromagnet activity, how could we build a literacy learning cycle?

How could you get the text?

How could you select your reading/writing skills?

What would make you feel more comfortable with this topic/ lesson?

- Questions about electromagnets?
- Questions about materials and making the activity work?
- Anything else?

Insert all 5th grade tasks and link to my updated files here.

(update on website as well)

5th grade Science and Literacy Tasks from GaDOE

Grade	PDF Link	Editable Pages
5	Static Electricity	https://inspire.gadoe.org/lesson/25918
5	Human harnessed Electricity (with circuits)	https://inspire.gadoe.org/lesson/25920
5	Circuits	https://inspire.gadoe.org/lesson/10091
5	Insulators and Conductors	https://inspire.gadoe.org/lesson/25921
5	Magnetic Fields	https://inspire.gadoe.org/lesson/25922
5	Animal Classification	https://inspire.gadoe.org/lesson/25917
5	The Cell as a System	https://inspire.gadoe.org/lesson/25916
5	Erosion	https://inspire.gadoe.org/lesson/1453

My personal edits and changes:
https://onceuponasciencebook.com/2024/07/23/more-literacy-learning-cycles-for-elementary-science/

Thank you!

Please reach out if you have questions or need support with anything!

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