



مؤسسة الإمارات
للتعليم المدرسي
EMIRATES SCHOOLS
ESTABLISHMENT



Grade 3

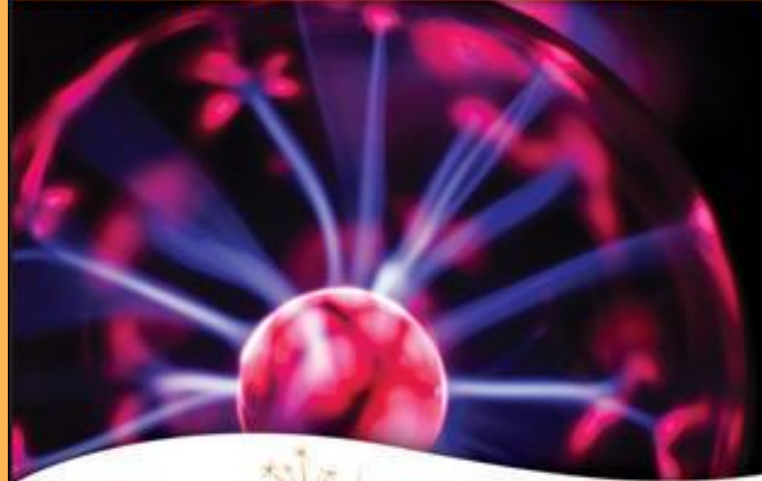
Term 1 -
lesson 3

Ms. Mahra Al
Ahbabi

Ms. Mahra Al Ahbabi

Grade 3 • Unit 1

Student Edition



Inspire Science

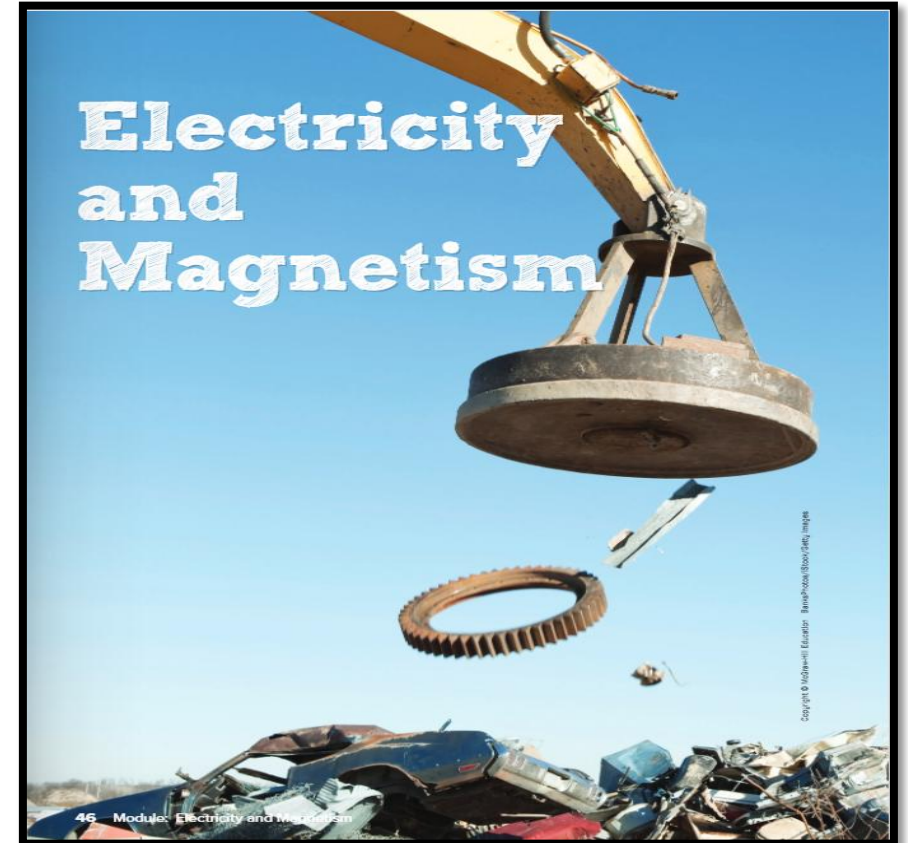
Forces Around Us

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Lesson 3

Electricity and Magnetism



46 Module: Electricity and Magnetism

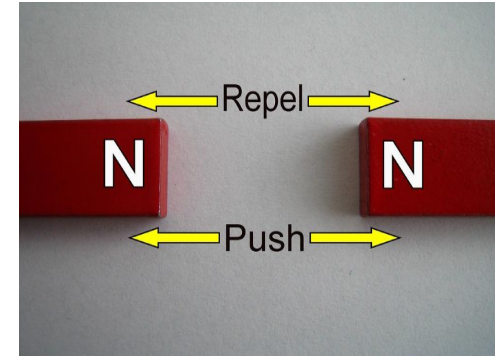
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Ms. Mahra Al Ahabbi

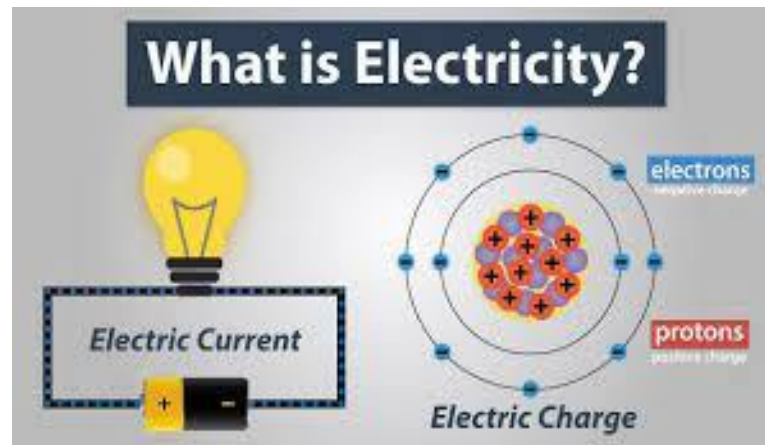
Vocabulary you need to know in this unit :



attract



repel



Electric charge



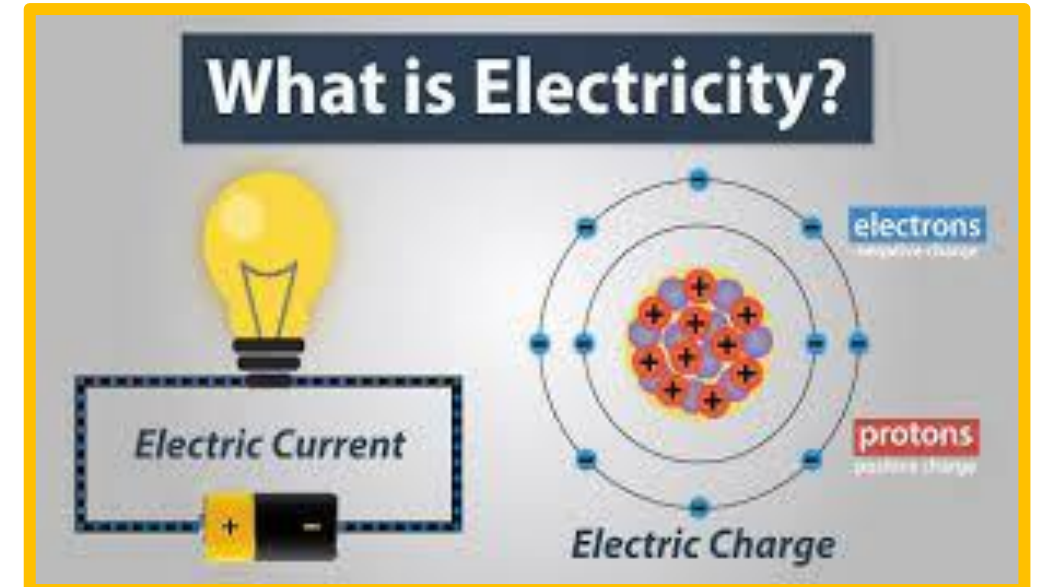
Static Electricity

Warning up !

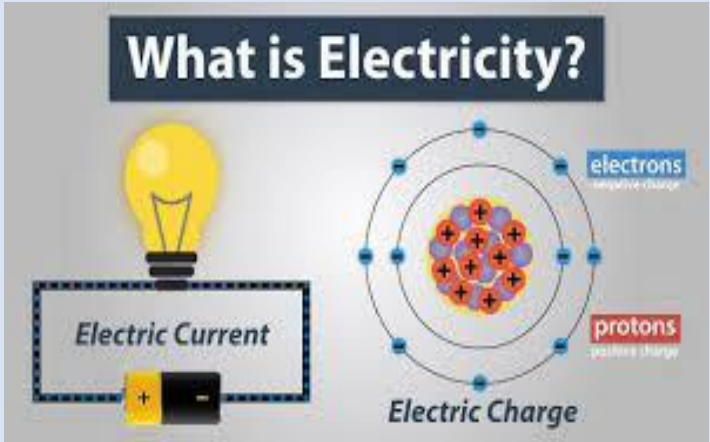



Learning objective :

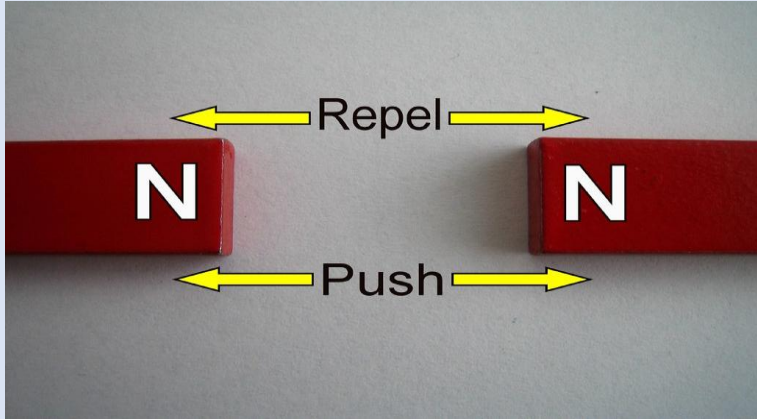

- Understand the meaning of electric charge and how does it interact with each other.



New Vocabulary

Vocabulary	Electric charge	Attract
Arabic	شحنة كهربائية	جذب
Meaning	The property of matter that cause electricity	Object that pull at each other
Picture		

New Vocabulary

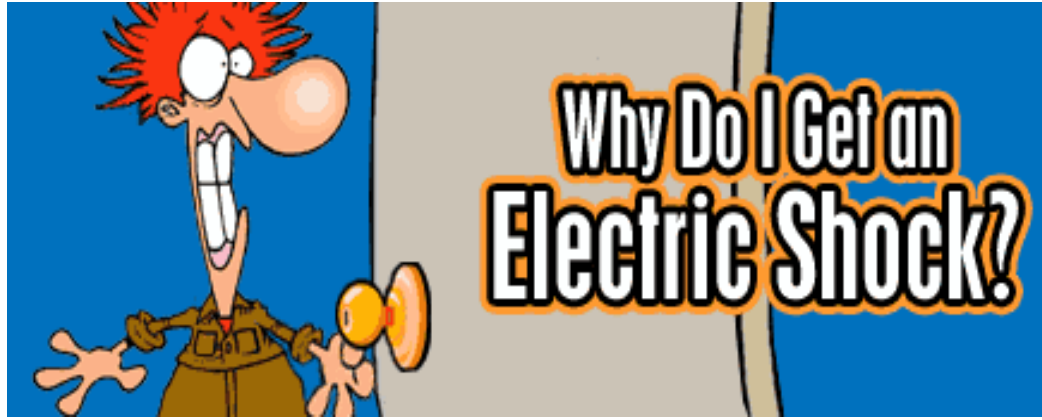
Vocabulary	Repel	Static electricity
Arabic	تنافر	كهرباء ساكنة
Meaning	Objects that push each other away	A buildup of electric charge
Picture		

INFORMATIONS

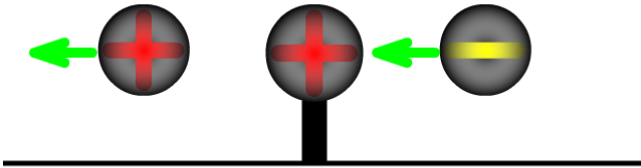


The tiny particles called atoms are the basic building blocks of all [matter](#)





**Like Charges Repel
Opposites Attract**



- Objects with a Positive charge push each other away.
- الأجسام ذات الشحنات الكهربائية الموجبة تتنافر
- Objects with a negative charge push each other away
- الأجسام ذات الشحنات الكهربائية السالبة تتنافر

There are two kinds of charges

يوجد نوعين من الشحنات الكهربائية

Positive charge

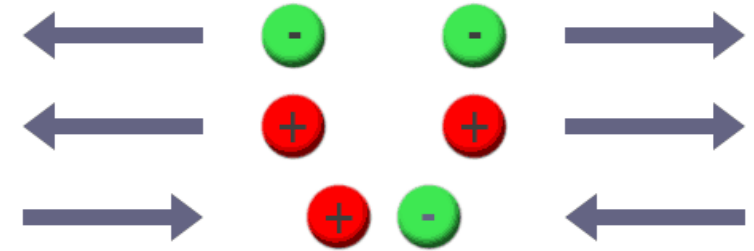
شحنة كهربائية موجبة

Negative charge

شحنة كهربائية سالبة



Charge forces



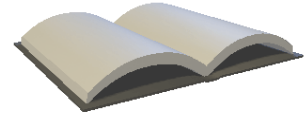
theengineeringmindset.com

- Objects with different charges attract each other
- الأجسام التي تملك شحنات كهربائية متعاكسة تتجاذب

Let's watch this video on Exploring Static CHARGE -Electricity



<https://www.youtube.com/watch?v=owla5xPR268>



Electrical Energy

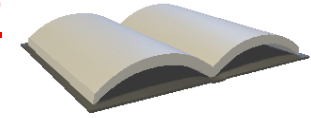
The materials that you used in the *Static Charge* activity are all made of very tiny parts, called particles. All matter is made of particles. Some particles have either a positive or a negative charge. Electrical energy is the energy of these charged particles. The property of matter that causes electricity is electrical charge. You cannot see electrical charge, but you can understand how objects with different charges interact. Objects that repel each other push each other away. Objects that attract each other pull at each other. A discharge occurs when static electricity moves from one object to another.

Repel



Attract





An object with a positive charge and an object with a negative charge attract.

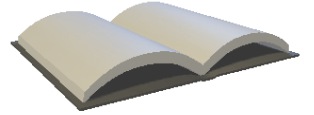


Objects that both have a positive charge push each other away.

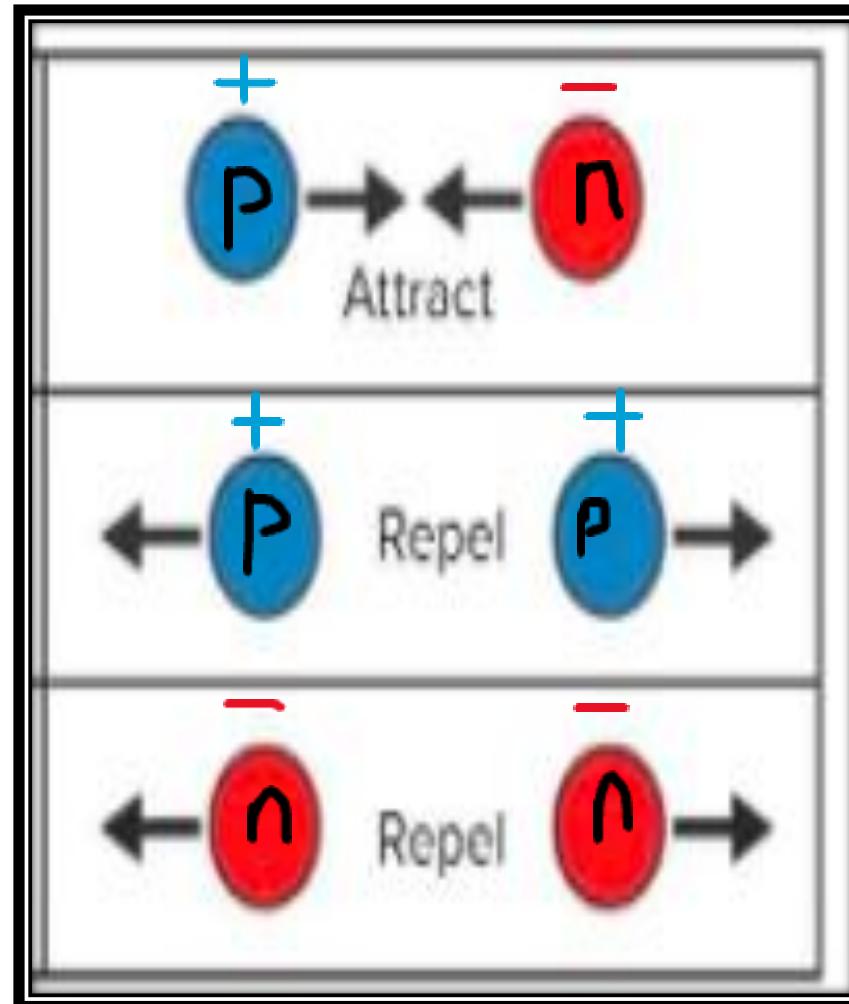


Objects that both have a negative charge also push each other away.





1. On the chart, label each particle as “p” for positive or “n” for negative.

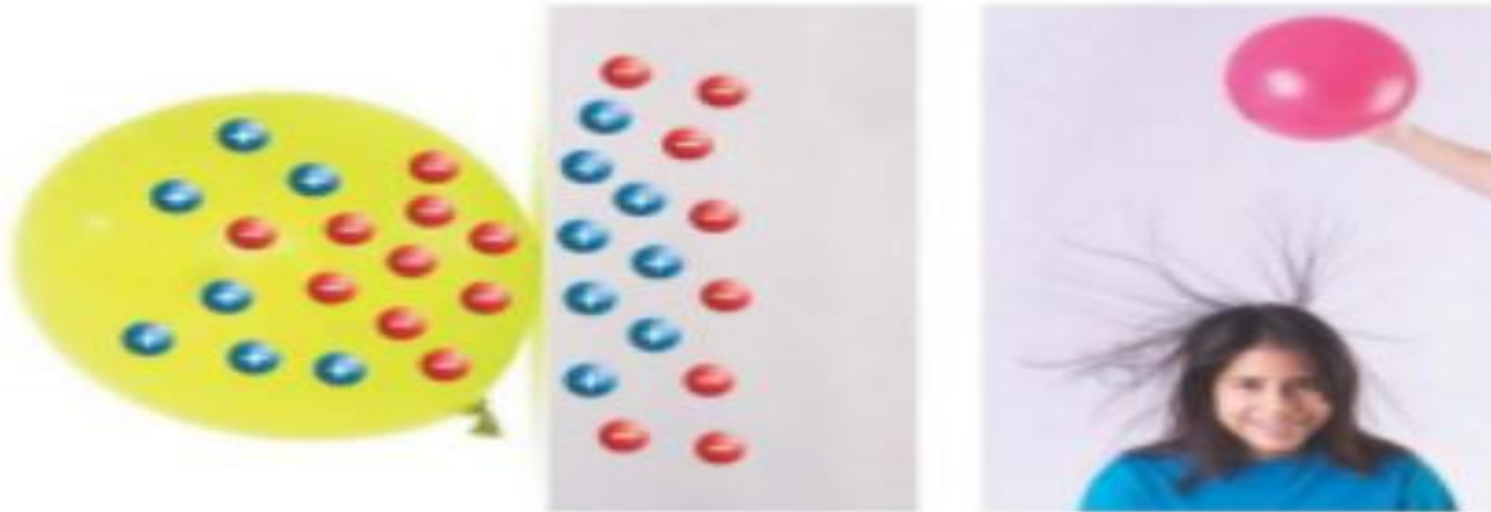
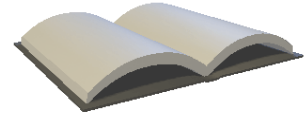




Static Electricity

All objects are made of charged particles. Most objects have the same number of positive particles and negative particles. When they do, the charges are balanced. When two objects touch, negative particles can move from one object to the other. Negative particles may build up on one object. That object has a negative charge. A buildup of electrical charge is called **static electricity**.

Think back to the *Static Charge* activity. After the balloon was rubbed, it had more negative particles. Those negative particles were then attracted to the positive particles in some of the objects and were repelled if the object also had a buildup of negative particles.



If you hold a charged balloon near a wall, the negative charge attracts the positive (+) particles on the wall. This attraction causes the balloon to stick to the wall.

Think back to the *Static Charge* activity. Why did you have to rub the balloon between each object?

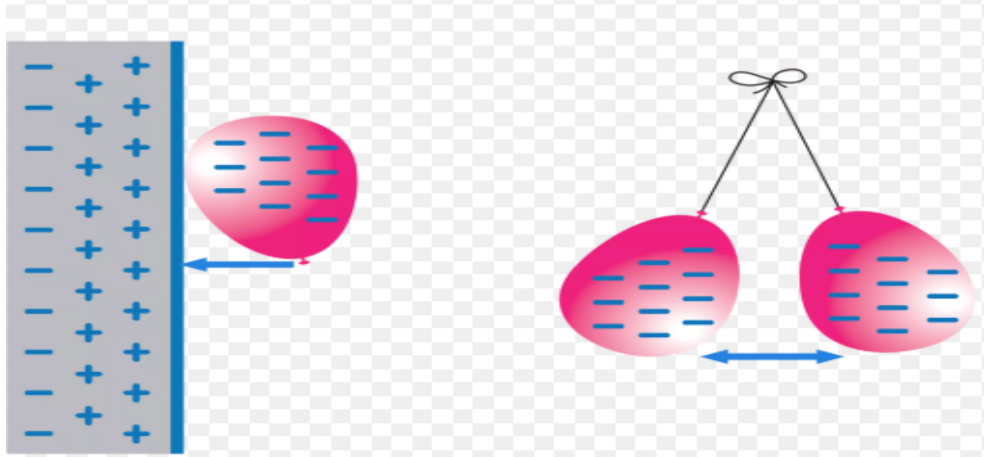
Because we need more negative charge

What is Static Electricity ?

ماهي الكهرباء الساكنة

Static Electricity is the buildup of electrical charge

هي تراكم الشحنات الكهربائية



- When you rub a balloon on a sweater ,negative particles move from the sweater to the balloon.

عند حك البالون بسترّة صوفية (أو بالشعر مثلاً) ،تنتقل الجسيمات السالبة من السترة إلى البالون

- The balloon gets a negative charge. So the negative particles will buildup in the balloon


يحمل البالون شحنة سالبة بسبب تراكم الأجسام السالبة عليه



The negative charge in the balloon will attract the positive particles in the wall and repels the negative particles. Because of this attraction the balloon will stick to the wall.

تنجذب الشحنة السالبة في البالون إلى الجسيمات الموجبة الموجودة في الجدار وتتنافر في ذات الوقت مع الجسيمات السالبة الموجودة في الجدار

وبسبب التجاذب بين الشحنات السالبة في البالون و الشحنات الموجبة في الجدار يلتصق البالون بالجدار



LESSON 1

Review

EXPLAIN
THE PHENOMENON

What does electricity have to do with a balloon attracting hair?

Summarize It

Explain how electricity is causing the girl's hair to stand up.

Because the balloon have negative charge then it is pulling up hair positive charge

REVISIT
PAGE KEELEY
SCIENCE
PROBES

Revisit the Page Keeley Science Probe on page 49. Has your thinking changed? If so, explain how it has changed.

64 EVALUATE Module: Electricity and Magnetism

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Three-Dimensional Thinking

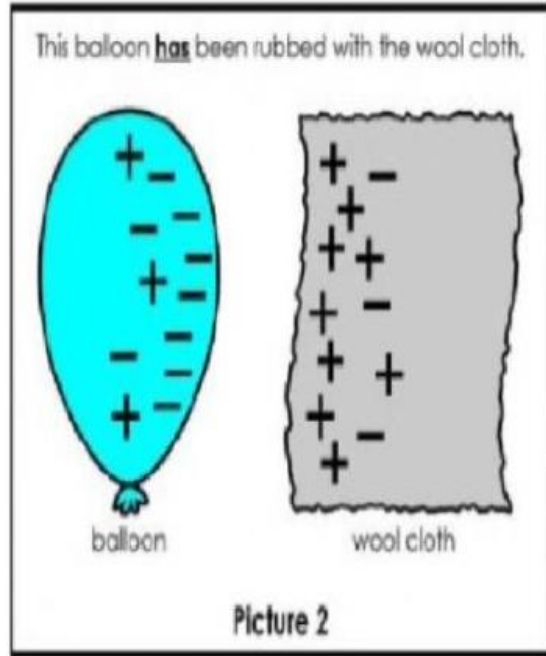
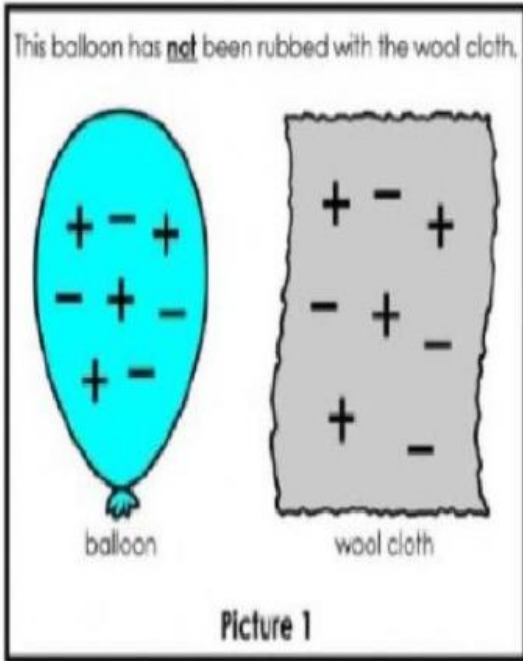
1. What is an electrical charge?
 - ☒ A. the property of matter that causes electricity
 - B. the uninterrupted flow of electricity
 - C. a sudden burst of energy
 - D. the path that allows electrical current to flow
2. If you rub two balloons with a wool cloth,
 - A. the balloons will attract each other.
 - B. the balloons will not affect each other.
 - ☒ C. the balloons will repel each other.
 - D. the balloons will pop.
3. Objects with the same charge _____ each other.
 - A. attract
 - B. balance
 - C. circuit
 - ☒ D. repel



Lesson 3 Worksheets

Static Electricity

Look at the pictures and answers the questions.



1. Look at picture 1. What kind of charge does the balloon have?

Positive charge

Negative charge

Neutral charge

2. Look at picture 1. What kind of charge does the cloth have?

Positive charge

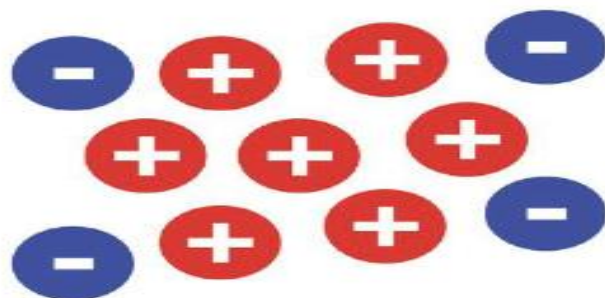
Negative charge

Neutral charge

3. Look at picture 2. How did the balloon change its charge?

4. When positive charges pull negative charges, we call it.....

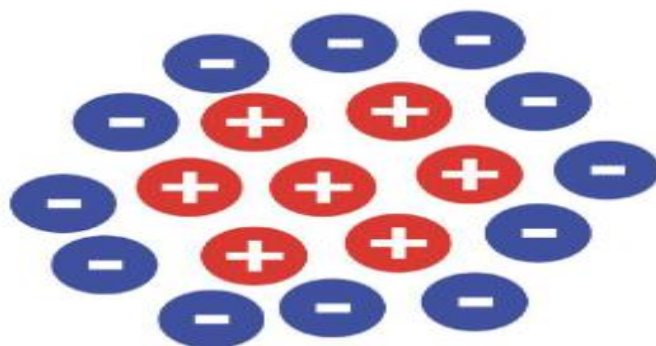
What is the electrical charged in the picture?



Negative charge

Positive charge

What is the electrical charged in the picture?



Negative charge

Positive charge

Identify as Attract or Repel.



Static electricity

Grade 3 Science Worksheet

positive	negative	attract
force	atoms	electrons

Static electricity is an invisible _____. It happens when tiny particles in _____ are attracted to or repel each other.



Protons have a _____ charge. Electrons have a _____ charge. Protons _____ or move away from other protons. Electrons repel or move away from other _____.

What happens between a proton and an electron? They _____, or move toward each other.



What is happening here? _____

If the hair has a negative charge, what does the balloon have? _____



Static OR Magnetic?



Read the description and check off if it is static electric or magnetic force.

1. Patty pulled off her wool hat after recess and her hair was standing up!



static

☐

magnetic

☐

2. Stan didn't push the refrigerator door closed all the way, but it seemed to close on its own.

☐

static

☐

magnetic



3. Paul went down the slide and as he got up he felt a shock.



static

☐

magnetic

☐

4. Jasmine's purse snapped closed when the two sides got close enough together.

☐

static

☐

magnetic



Lesson Check: Electricity and Designing Solutions

1) What happens to charged particles when two objects touch?

- ☐ Nothing ever happens.
- ☐ They are released into the air.
- ☐ They lose their charge.
- ☐ They can move from one object to the other.

2) Fill in the blanks using the available answer choices.

Two negatively charged balloons will _____ each other.
(Blank 1)

Blank 1 options

- attract
- repel

3) A flow of electrical charges is known as _____.

- ☐ resistance
- ☐ electrical current
- ☐ static electricity
- ☐ voltage

4) An object with a positive charge and an object with a negative charge will _____ each other.

GOOD LUCK