ANNEDROIDS

EPISODE 111

MAGNETIC PAL

Watch as Nick, Shania, Anne and Zach experiment with magnetism and try to demagnetize me – PAL!

EXPERIMENT SUMMARY

EXPERIMENT: Demagnetize PAL!

HYPOTHESIS: Magnets work because all the little magnets inside of them work together. By jumbling up the little magnets, I will become demagnetized.

METHOD:

1. Put Hand on claw mode and get Hand to smash me as hard as she can.
2. Put Hand on torch mode and torch me, PAL, so I get really hot.

RESULT:

1. Smashing was not strong enough to demagnetize the magnet.
2. The hot flames worked! They jumbled up the tiny magnets and stopped them from working together.

CONCLUSION: I am not a magnet anymore!

EXTENSION ACTIVITY

CREATE YOUR OWN MAGNET!

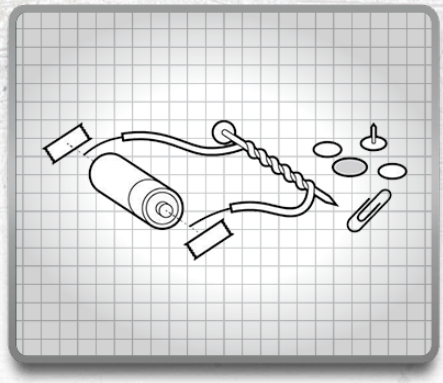
You will need the following materials:

1. Tape
2. A D-cell battery
3. Small magnetic objects (e.g., paper clips)
4. Copper wire with plastic coating (100cm, 36 inches)
5. Iron nail (8cm long, 3 inches)

Shaw Rocket Fund Fuelling creativity
tvokids
SINKING SHIP ENTERTAINMENT

Once you have gathered all your materials, you are ready to make your own magnet! Make sure an adult is with you and follow these steps:

1. Wrap the wire around the nail but make sure to leave 20cm of the wire free on BOTH ends.
2. Ask the adult helping you to peel off about 2cm (1 inch) of the plastic coating from each end of the wire.
3. Use the tape to attach each end of the wire to either end of the battery. The wire may get hot so be very careful!
4. Hold the tip of the nail close to the small magnetic objects. The tip of the nail should pick up the objects!



WHAT'S HAPPENING?

When electricity passes through some kinds of metals, it turns them into magnets! When the electric current passes through the wire, it creates a magnetic field in the iron nail, allowing it to pick up other metals.

SYNOPSIS FOR TEACHERS/PARENTS:

In this episode, while Anne is experimenting with magnetism, PAL gets stuck to Hand when she is in magnet mode. Anne realizes that some of PAL's parts are made up of magnetic metals, and getting stuck to Hand's powerful magnet turned PAL into a magnet! Anne, Shania, Nick and Nick's friend Zach, must find a way to demagnetize PAL.

This episode teaches children about the properties of magnets and magnetic metals. Furthermore, children will begin to understand the fundamentals of magnetizing and demagnetizing a material.

CURRICULUM EXPECTATIONS:

GRADE 3 SCIENCE: UNDERSTANDING MATTER AND ENERGY: FORCES CAUSING MOVEMENT

2.1 Follow established safety procedures during science and technology investigations.

2.2 Investigate forces that cause an object to start moving, stop moving, or change direction.

2.3 Conduct investigations to determine the effects of increasing or decreasing the amount of force applied to an object.

2.4 Use technological problem-solving skills and knowledge acquired from previous investigations, to design and build devices that use forces to create controlled movement.

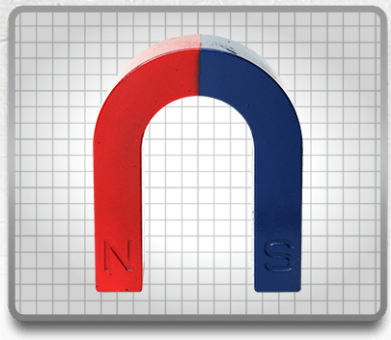
3.2 Identify different kinds of forces

3.3 Describe how different forces applied to an object at rest can cause the object to start, stop, attract, repel, or change direction.

3.4 Explain how forces are exerted through direct contact or through interaction at a distance.

3.5 Identify ways in which forces are used in their daily lives.

MULTIPLE CHOICE



QUESTION #1: WHAT IS A MAGNET?

A. A metal that attracts magnetic metals to it.

B. A panel that generates electricity using the rays from the Sun.

C. A complete path around which electricity can flow.

D. A metal that does not attract other metals to it.

QUESTION #2: WHAT DOES IT MEAN TO DEMAGNETIZE SOMETHING?

A. To pull a magnet off of a refrigerator.

B. To heat up a metal to turn it into a magnet.

C. To remove the magnetic properties of a magnet.

D. To add magnetic properties to a magnetic metal.

QUESTION #3: WHAT IS AN ELECTROMAGNET?

A. A tool to build magnets.

B. A magnet with two south poles.

C. A magnet made of wires.

D. A magnet that runs on electricity.

1. A 2. C 3. D

SORTING GAME

Sorting time! Magnetic vs. Non-magnetic items.

MAGNETIC

NON-MAGNETIC

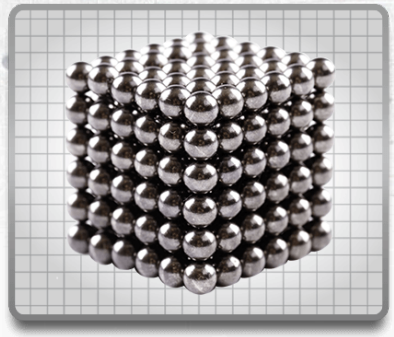
1. Glass (Non-magnetic). **2.** Aluminum foil (Non-magnetic). **3.** Iron metal (Magnetic). **4.** Wood (Non-magnetic).
5. Nickel metal (Magnetic). **6.** Cobalt metal (Magnetic).

Grownup–fold this part over before handing to a child!

TRUE OR FALSE

QUESTION #1:

Big magnets are made up of many tiny magnets that work together.

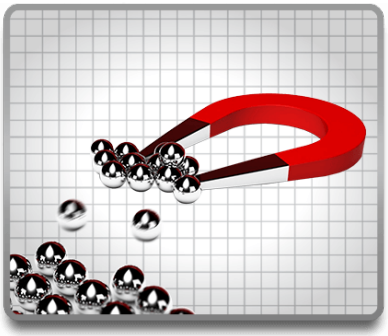


TRUE!

The tiny magnets work together when they are all lined up, to make the big magnet stronger!

QUESTION #2:

Magnets attract to ALL metals.



FALSE!

Magnets only attract to magnetic metals such as iron, nickel and cobalt.

QUESTION #3:

Magnetic metals can turn into a magnet when they touch a strong magnet.

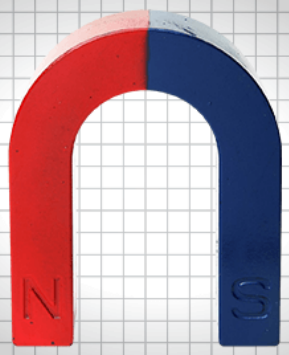
TRUE!

When I touched Hand's strong electromagnet, I became a magnet.

WORD JUMBLE

Unscramble the letters to find the missing word!

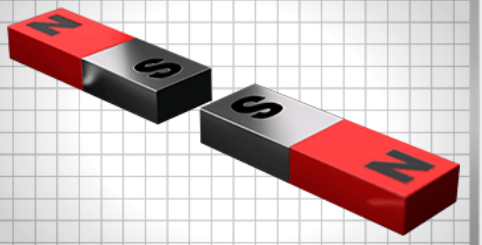
1



Magnets have two ___ ___ ___ ___ ___.

OPLSE

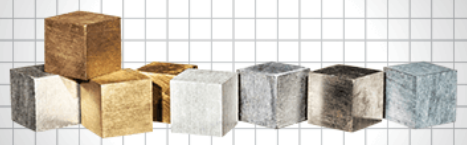
2



Opposite magnetic poles attract, but the same magnetic poles ___ ___ ___ ___ ___.

LEPRE

3



Not all ___ ___ ___ ___ ___ ___ are magnetic!

SLEMTA

1. POLES. Fact: Magnets have a north pole and a south pole. **2.** REPEL. Fact: The north pole of one magnet and the south pole of another magnet will attract, but two north poles will repel! **3.** METALS. Fact: Some metals are magnetic while others are not.

PUZZLE

Cut along the solid white lines to make a puzzle.