



Magnetic Properties

Physical Science/Grade 3

Students will explore how magnets function. They will learn about Earth's magnetic field. Students will work with a variety of materials to find what attracts magnets, and what does not. They will not only see common uses for magnets; but by the end of the unit, they will use this knowledge to engineer their own innovative gadgets to share with the class.

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This unit was developed with Race to the Top and National Science Foundation funding (Grant #1432591). It is a DRAFT document that will be revised annually as the unit is piloted through the 2017-18 school year.





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This unit was developed by the with funding from the National Science Foundation Grant No. 1432591

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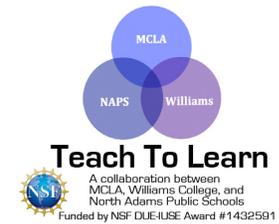


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CEPA

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Unit Plan

Stage 1 Desired Results		
<i>Meaning</i>		
	U	Q
<p>3-PS2-3. Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other. Clarification Statement: Focus should be on forces produced by magnetic objects that are easily manipulated.</p> <p>3-PS2-4. Define a simple design problem that can be solved by using interactions between magnets. Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.</p> <p>3.3-5-ETS1-1. Define a simple design problem that reflects a need or a want. Include criteria for success and constraints</p>	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> • Magnets have certain characteristics and attract specific types of metals • Magnets can be used to solve design problems • Magnets have poles that attract and repel • Magnets will work through non magnetic surfaces • Some objects and materials a magnet will attract and some objects and materials that a magnet will not attract 	<p>ESSENTIAL QUESTIONS</p> <p>How do magnets and their properties influence everyday life?</p>

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<p>on materials, time, or cost that a potential solution must meet.</p> <p>3.3-5-ETS1-2. Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and constraints of the design problem. Clarification Statement: Examples of design problems can include adapting a switch on a toy for children who have a motor coordination disability, designing a way to clear or collect debris or trash from a storm drain, or creating safe moveable playground equipment for a new recess game.</p> <p>3.3-5-ETS1-4(MA). Gather information using various informational resources on possible solutions to a design problem. Present different representations of a design solution. Clarification Statements: Examples of informational resources can include books, videos, and websites.</p>	<p style="text-align: center;"><i>Students Learning Targets</i></p> <p><i>Students will be able to</i></p> <ol style="list-style-type: none"> 1. Correctly predict whether or not an object is magnetic 2. Categorize objects by whether or not they are magnetic 3. Label the North and South ends of a magnet 4. Predict whether or not two poles will attract or repel each other 5. Determine the strength of a magnet based on number of paperclips held 6. Explain that a magnet will work through a non magnetic surface 7. Create a design to fix an everyday problem using magnets and materials supplied.
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<p>Examples of representations can include graphic organizers, sketches, models, and prototypes.</p> <p>2006- PS- 9 Recognize that magnets have poles that repel and attract each other.</p> <p>2006- PS-10 Identify and classify objects and materials that a magnet will attract and objects and materials that a magnet will not attract.</p>	
Stage 2 - Evidence	
Evaluative Criteria	Assessment Evidence
Pre-unit Assessment (if any)	<ol style="list-style-type: none"> 1. The end of the year science test. 2. Individual lesson worksheets
Stage 3 – Learning Plan	
<p><i>Third grade is the first time the concept of magnetic properties is introduced.</i></p> <p>Lesson 1 - Students will discuss magnets, what they are, and where they’ve seen them. They will then do 2 activities, first exploring which objects around them are magnetic objects and which aren’t, then predicting and testing the magnetic nature of objects.</p>	

Lesson 2 - Students will experiment in groups of 2-4 with a variety of magnets and the properties of north and south. They will have an opportunity to manipulate the magnets, and discuss how “like” poles repel and “different” poles attract. The students will extend these properties to the concept of a compass. They will manipulate a magnet and compass. They will see that the compass is attracted to magnetic forces, and that the introduction of a magnet will attract the needle to it.

Lesson 3: Students work with paper clips and magnets to determine the strength of various magnets. Students will also work with the property of magnets’ ability to work through other objects.

Lesson 4: Students take on the role of engineers. They will be given an everyday problem to solve, for which they will use magnets and a variety of craft materials to create a gadget. They will design a gadget which will solve the problem. Students will reflect on their recent knowledge of magnets and will work in groups to analyze problem, discuss the design of a gadget which will potentially solve the problem, test their theories to see what worked and what didn’t work, and present a final product to the class.

Adapted from Massachusetts Department of Elementary and Secondary Education’s Model Curriculum Unit Template. Originally based on Understanding by Design 2.0 © 2011 Grant Wiggins and Jay McTighe. Used with Permission July 2012

Tiered Vocabulary List

Tier 1	Tier 2	Tier 3
Magnet Metal Nonmetal Force	Attract Repel North South East West Poles Strength	Magnetic field

Lesson 1: Introduction to Magnets

BACKGROUND

Overview of the Lesson

Students will discuss magnets, what they are, and where they've seen them. They will then do two activities, first exploring which objects around them are magnetic and which aren't, then predicting and testing the magnetic nature of objects.

Focus Standard

3-PS2-3. Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other. **Clarification Statement:** Focus should be on forces produced by magnetic objects that are easily manipulated.

Learning Targets

I can correctly predict whether or not an object is magnetic.
I can categorize objects by whether or not they are magnetic.

Assessment

The assessment will be the two worksheets that the students complete during the lesson. One worksheet categorizes the objects into magnetic and nonmagnetic, the other has the students predicting whether or not an object is magnetic and testing their predictions.

WIDA Language Objectives

Dependent on the needs of your ELL students

Key Vocabulary

Tier 1: Magnet, metal, nonmetal

RESOURCES AND MATERIALS

Quantity	Item	Source
1	Large demonstration magnet	Bin
1 per student	Handheld bar magnets	Bin
1 per group	Plastic tray	Bin
1 of each per group	Paper clips, wood block, paper, plastic toy, pennies/coins, jar of iron filings, pipe cleaners, novelty fridge magnets, plastic bingo chips	Bin
1 per student	Scavenger Hunt Worksheet	Binder
1 per student	Discovery Worksheet	Binder

****Items in bold should be returned for use next year****

LESSON DETAILS

Lesson Opening/ Activator

In the beginning of the lesson, the teacher will have a large magnet to show in front of the class. They will then ask the students questions like “who knows what this is?” or “does anyone know what this might be/be used for?” Students will identify this as a magnet. The teacher should also ask students if they have encountered magnets at home or in other places. The teacher should demonstrate the magnet sticking to various surfaces in the front of the classroom, as the students may suggest that they have seen this before.

During the Lesson

Magnet Scavenger Hunt: The teacher explains this activity to the students. Students will each be given a magnet and a scavenger hunt worksheet, and they will take their bar magnet around the room to find 6 different things that the magnet sticks to, and 6 that it doesn't. (Based on the classroom, this number may be changed).

1. The teacher may choose to do this activity in small groups or have each student do this individually.
2. Give students an adequate amount of time to fill in their worksheets, then bring them all back to a whole group and start the discussion about what objects the students found to be magnetic.
3. The teacher should now collect the students' magnets.
4. Ask students what material the objects were made of. Were the objects metal or nonmetal? Students should eventually conclude that all the objects that the magnets stuck to were made of metal, but the magnet didn't stick to all metal objects.



The teacher will now explain to the students that they will be predicting whether or not an object is magnetic based on what they just learned. The teacher will split students into groups of 3-4 students and have the students in each group sit together around a table or central desk.

Magnet discovery basket: each group will be given a tray full of the various objects, and each student will be given a worksheet. The worksheet has a prediction column, and an experiment column.

1. Students will first predict whether or not the object is magnetic and note that in the prediction column.
2. Once the whole group has all of their objects classified as magnetic or not magnetic, the teacher should now give each group a few bar magnets to test their predictions. They will record their findings on the experiment section of their worksheet.
3. Once they finish this worksheet, they will regroup as a whole group and discuss the worksheet.
4. The teacher will ask about each item, including what they predicted about that item, and what they ultimately found out about that object.

Students will return to their assigned seats and the teacher will move to the lesson closing.

Lesson Closing

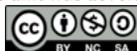
Students will recap what they learned during the lesson by reviewing what they learned about magnetic properties by conducting the scavenger hunt, from the discovery activity, and through discussing what all the objects have in common. The teacher may choose to do this on chart paper and save it for the rest of the lessons in this unit as a reference guide.





Assessment

The assessment will be the two worksheets that the students complete during the lesson. One worksheet categorizes the objects into magnetic and nonmagnetic, the other has the students predicting whether or not an object is magnetic and testing their predictions.



Lesson 2: Pole to Pole

BACKGROUND

Overview of the Lesson

Students will experiment in groups of 2-4 with a variety of magnets and the properties of North and South poles. They will have an opportunity to manipulate the magnets, and discuss how “like” poles repel and “different” poles attract one another. The students will extend these properties to the concept of a compass. They will manipulate a magnet and compass. They will see that the compass works by magnetic forces, and that the introduction of a magnet will attract the needle to it.

Focus Standard(s)

3-PS2-3. Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other.

2006- PS- 9 Recognize that magnets have poles that repel and attract each other.

Learning Targets

I can label the north and south poles of a magnet.

I can predict whether or not two poles will attract or repel each other.

Assessment

The students will be assessed on their participation and how well they respond to questions during classroom discussion.

- What can you say about magnetic poles of a magnet?
- When will they attract?



- When will they repel?
- What is a compass?
- How does a compass work?
- What could affect a compass and its effectiveness?

WIDA Language Objectives

Dependent on the needs of your ELL students

Key Vocabulary

Tier 1: magnet, force

Tier 2: poles, attract, repel, north, south (east, west).

Tier 3: magnetism, magnetic field.

RESOURCES AND MATERIALS

Quantity	Item	Source
5 of each	Bar magnet, block magnet, horseshoe magnet, ring magnet, button magnet, plastic-encased block magnet, magnet wand, North/South bar magnet	Classroom Attractions Kit (Dowling Magnets)
1	Demo Alnico bar magnet	Bin
8	Compass	Bin
1 per student	Science Journal	Classroom Teacher
6	Plastic bowls	Bin

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6	Sewing needles	Bin
6	Pieces of cork or Styrofoam	Bin

****Items in bold should be returned for use next year****

LESSON DETAILS

Lesson Opening/ Activator

Tell students: *“In our last lesson, you were able to experiment with bar magnets. You had the opportunity to do a scavenger hunt to find what types of materials are magnetic (drawn to a magnet) and others that were not. Would someone care to share something that they learned last week?”*

Students will share some objects that were successful and others that weren’t.

“Now that we are aware of some things that are “attracted” to a magnet, let’s see how magnets interact with one another. We’ll talk a bit about a compass. Some of you may know what that is. We’ll see how a compass fits our other ideas about magnets.”

During the Lesson:

1. **Guided Exploration:** Tell students: “Magnets have two ends, these ends are called poles. One is called the north pole. The other is called the south pole.” Put students into groups of 2-4 or as the classroom teacher sees fit to specific needs of the classroom.
 - a. Show the children the demo bar magnet, pointing to the ends marked N and S. Give the students two “like” magnets (two horseshoe, two bar or block magnets). Ask: “Why do you think they labeled N (North) and S (South) for you?” Children may answer that they are labeled in order to help them do their investigation until

they remember what magnets do on their own.

- b. First, have the children move the magnets so that the opposite/different poles are facing one another.
- c. Second, have the children move the magnets so that the same poles are facing one another.
- d. Discuss the pulling and pushing force that the students feel. Explain that when opposite poles face each other, the magnets attract each other; when like poles face each other, the magnets push away.

2. **Free Exploration:**

Allow children to explore with all the other types of magnets. Have the children remain in their groups and investigate and record their findings. Guide the students to use the different kinds of magnets to push the N/S ends of the different kinds of magnets together and see what happens. Does the same thing happen? Does something different happen?

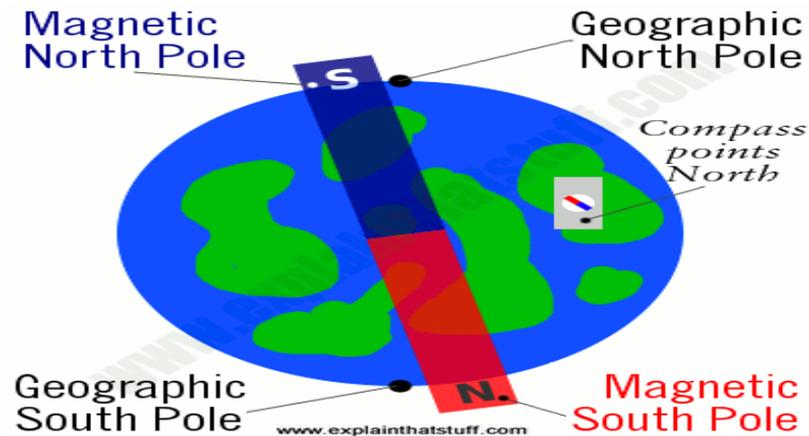
Give the children time to work through their investigations. Bring the class back together to discuss their findings. Have them share their observations and any notes they made in their science journal.

3. **Compass Exploration**

- a. Tell students: The Earth acts like a magnet and has a North and South pole, just like the magnets we've explored in class.
- b. The Earth is filled with magnetic materials, such as iron.

- c. Does anyone know what a compass is? What is it used for? A compass has a magnetized needle with a north and south pole just like other magnets. Ask students what they know about Earth's poles, North at the top and South at the bottom.
- d. A compass is simple: the red pointer in a compass (or the magnetized needle on your home-made compass) is a magnet and is attracted by Earth's own magnetism (sometimes called the *geomagnetic* field—"geo" simply means Earth). As English scientist William Gilbert explained a 400 years ago, Earth behaves like a giant bar magnet with one pole up in the Arctic (near the north pole) and another pole down in Antarctica (near the south pole).

Figure A



- e. Teacher shows a compass via a projector/Elmo and waits for the needle to stop moving. Teacher turns the compass around so that the arrow on the needle lines up with the “N” for North. Decide where north and south are in the room you are in. Then have the children predict where their needle will point.

Experiment 1: Have each group conduct the experiment with a needle, cork/styrofoam, and bowl of water and compass. Float the needle on top of the cork/styrofoam and set in the water within the bowl. Make predictions. Record which way the compass needle points. Set your bowl on the desk and your compass beside it and compare. The needle should line up just as the compass did. Discuss the results.

Experiment 2: Ask students if anyone can predict what will happen when you place a magnet next to your compass? A compass in the presence of other metals or magnets will throw off the true reading on your compass. Allow students to test out the magnet next to the compass and discuss the results.

- Did students predict correctly?
- Ask students why they think that the needle moved. Discuss responses.

Lesson Closing

Teacher reviews the first activity reinforcing what students learned about the poles of the magnets. Ask students to share things they discovered about the different kinds of magnets.



Assessment

The students will be assessed on their participation and how well they respond to questions during classroom discussion.

- What can you say about magnetic poles of a magnet?
- When will they attract?
- When will they repel?
- What is a compass?
- How does a compass work?
- What could affect a compass and its effectiveness?



Lesson 3: Magnetic Applications

BACKGROUND

Overview of the Lesson

Students work with paper clips and magnets to determine the strength of various magnets. Students will also explore magnets' ability to work through other objects.

Focus Standard

3-PS2-3. Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other. **Clarification Statement:** Focus should be on forces produced by magnetic objects that are easily manipulated.

Learning Targets

I can determine the strength of a magnet based on number of paperclips held.

I can explain that a magnet will work through a non magnetic surface.

Assessment

Use the worksheet done during the lesson closing to assess students' understanding.

WIDA Language Objectives

Dependent on the needs of your ELL students

Key Vocabulary

Tier 2: Strength

RESOURCES AND MATERIALS

Quantity	Item	Source
1 package	Matte finish paper plates	Bin
	Craft supplies	Classroom Teacher
1 package	Coin Magnets	Bin
	Various types of magnets	Bin
1	Box of paper clips	Bin

****Items in bold should be returned for use next year****

LESSON DETAILS

Lesson Opening/ Activator

The teacher will introduce the idea that magnets don't just stick directly together, they might need to do a job, or stick through something (e.g., through a picture to hang it on the fridge). Ask students if they have seen anything that uses magnets through an object. Discuss what the students might bring up. Then ask the students what they know about the strength of magnets. Ask

them probing questions about whether or not the strength matters, why it matters, and what different strength magnets are used for. (Weak magnets might be fridge decorations, stronger ones may hold pictures up on the fridge, and very strong ones may be used in workplaces like the crane in a junkyard).

During the Lesson

Discussion/Demo using magnets through surfaces. Examples include on fridges to hold things, to move things without touching them directly (why might this be useful? For moving things you can't reach otherwise).

1. The teacher will first discuss that one of the ways people use magnets is by using them through surfaces. Some examples would be hanging pictures on the fridge at home, the magnetic whiteboard eraser, and other things you might find around your home. Ask the students if they can think of some other places in their homes that magnets are used to help them or their parents.
2. Tell the students they will now be moving on to a creative activity using magnets

Magnet plate car: In this activity students will be decorating paper plates to resemble a racetrack style road so their car can drive in a circle on their paper plate.

1. Each student should be given a matte finish paper plate, access to crayons, colored pencils, markers, a print out of the car to color and cut out, scissors, 2 coin magnets, and glue.
2. Students will first color their plate and car, then they will cut out their car and glue it to one of the coin magnets. (liquid glue or gel glue is preferable for this activity). Students will then wait for their car to dry and put their car magnet on one side of the plate, and their second coin magnet on the back of the plate underneath the car magnet.



3. The students will move their magnet on the back of the plate and watch the car magnet move on their road/plate.

Magnet strength: The teacher should let the class know that they will be doing a strength activity today. The class will be divided up into equal groups of 2-5 students, depending on class size.

1. Groups will each be given a box of paperclips, and several different kinds of magnets. Students will test each magnet for strength by testing the number of paperclips each magnet can hold.
2. One student will hold up the magnet while the other students attach paperclips one at a time to the magnet until no more paper clips will hold without falling. Record the amount and have the students discuss and compare the different strengths. If there is enough time, students can repeat the test to see if the number changes for each type of magnet.

Continue the discussion on the usefulness of magnets. Discuss other uses magnets have. Use this time to review the today's activities.

Lesson Closing

The teacher will hand out a worksheet that the students will do to prepare them for the next lesson. The worksheet will review what they have learned about magnets in the first 3 lessons. This worksheet can be done in groups, individually, or as a class.

Assessment

Use the worksheet done during the lesson closing to assess students' understanding.



Lesson 4: Magnetic Engineers

BACKGROUND

Parts of this lesson were adapted from a lesson by Karen Ostlund and Sheryl Mercier at Teacherspayteachers.com

Overview of the Lesson

Students take on the role of engineers. They will be given an everyday problem to solve, for which they will use magnets and a variety of craft materials to design and create a gadget. Students will reflect on their recent knowledge of magnets and will work in groups to analyze the problem, discuss the design of a gadget which will potentially solve the problem, and test their ideas to see what worked and what didn't work, before presenting the final product to the class.

Focus Standard

3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets. (Clarification statement: Examples could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.)

Learning Target

I can create a design to fix an everyday problem using magnets and materials supplied.

Assessment

Use the following questions to assess the students:

- Did the children collaborate with their teammates?
- Did they build a design that would potentially solve the problem they were given?
- Did they use the materials given?
- Did they test their design?
- Can they describe how their design works?
- Can they state the problem that it solves?
- Did they use the magnets and understand why they worked?

WIDA Language Objectives

Dependent on the needs of your ELL students

Key Vocabulary

Tier 1: problem

Tier 2: create, engineer, practical.

Tier 3: design, gadget, contraption, collaborate

RESOURCES AND MATERIALS

Quantity	Item	Source
1	Steel can	Bin
30 cm	String	Bin
1-2	Piece tape	Bin

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6 each	Magnets (different types)	Bin
1 Package	Feathers	Bin
1 each	Box Paper clips (small and large)	Bin
1	Roll string	Bin
1	Package of craft Foam sheets	Bin
1	Package of popsicle sticks	Bin
1	Package of pom poms	Bin
1	Package of clothespins	Bin
1	List of design problems	Binder
1 per child	Science Journals	Classroom Teacher

****Items in bold should be returned for use next year****

LESSON DETAILS

Lesson Opening/ Activator

1. Tell the students *“In our previous lessons we’ve learned what a magnet is, what a magnet will attract, how magnets interact, how a compass works, and how magnets can work through other objects.”* Refer to the “What do you Know About Magnets?” worksheet that was completed in Lesson #3. Discuss this together before beginning the whole-class experiment.
2. *“Today we are going to be Engineers and solve a problem using magnets. What is an engineer? What does it mean to design something?”* See if there is anyone in the class who understands the terms engineer or design. Discuss that when you design something, you decide what it will look like and how it will function (work) in the best way that it can. When

you design something you use what you know and you imagine what it could be. *“Generally, engineers come up with ideas and design something to make something better, or to make something that makes things in our lives easier to accomplish. Engineers are people who do the designing and overseeing of the design. They figure out the problem to be solved, test their design, find out their mistakes, and find the best solution to the problem. Today you are the engineers creating a design to solve a problem. We have a cool demonstration to do together first and then we can get started.”*

During the Lesson

1. Paperclip Contraption/Whole-class:

- a. Explain that before you begin designing, that you’d like to share a cool demonstration. It’s called the *Paperclip Contraption*.”
- b. Have the experiment already set up in the front of the class. Place a magnet inside the steel can, close to the top. Turn the can upside down. Tie a paperclip to a string and tape it to one end of a table/desk.
- c. Ask students to observe what is happening to the paperclip in relation to the can and why.
- d. Lead a discussion addressing what is causing the paperclip to be drawn to the can. *“What materials must each item in our contraption be made of? Knowing what we do about magnets, why is there an attraction? What is causing the paperclip to levitate/hover?”* (hang in the air unsupported)
- e. Instruct the students to draw the “contraption” in their science notebooks and show what is making it work.
- f. “Let students know that now we’re going to take the “contraption” apart and see how it actually works.
- g. Discuss with the students what the contraption did and why it was able to do that. Have the students compare what they just learned with their original conclusions and drawings.
- h. Now ask the students to brainstorm possible ways they could change the contraption in some way, and share.

- i. Ask the students if they think there is a practical use for the paperclip contraption. Have the students brainstorm some possible uses for what they observed and write these on the board.

2. Engineers creating Gadgets

- a. Explain that using what we have learned about magnets, and what we've observed with our paperclip contraption, they are going to design their own contraption or gadget using magnets, and the design needs to solve a problem. We have talked about how a magnet will hold a note to a refrigerator, how a magnet will keep a door shut and other possible uses for magnets that make our lives easier.
- b. The Third Grade Engineers, will now be given a problem to solve and some materials to use. Ask students to take what they know and create a gadget to solve a problem.
- c. The teacher will place children in groups of 2-4. The slips of paper with a design problem will be in a container **(Note: These slips of paper should be cut out from the design problems sheet in the binder)**. Each group will choose a problem to work on. Each team will have a packet to complete as they go. Students will fill out the packet as they go through the following procedure. Once students have chosen a team name, they will
 - i. Identify the problem
 - ii. Brainstorm solutions
 - iii. Draw/design their prototypes (new designs)
 - iv. Build their prototypes
 - v. Test their designs
 - vi. Answer the conclusion questions at the end of the packet to complete the activity.



- d. While the students are designing their contraptions, a table with materials will be present in the room. The teacher may choose to familiarize the children with what is available first, and limit how many of each item they choose, depending on availability. Every team is given a variety of magnets to choose from. Let every team know that the rule is: every team must use a magnet/magnets in their design, but the other materials are up to them.
- e. Teacher should give the students a designated amount of time to complete their project. (Perhaps an hour).

Lesson Closing

Each team will present their “gadget” and explain how it works and answer the following:

- Does your gadget solve the problem you were given?
- What did you find challenging about this activity?
- What would you change about your gadget if you could do this again?

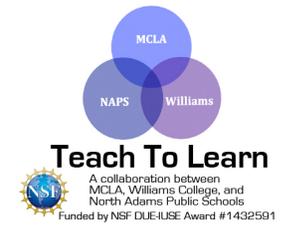
After everyone has shared their own contraptions, discuss with the class how they felt about the activities. Were there challenges? Ask the students to argue from evidence in answering these questions: Are magnets useful? How can they make our lives easier to manage? [**SP 2 – Arguing from Evidence**]

Assessment

Use the following questions to assess the students:

- Did the children collaborate with their teammates?
- Did they build a design that would potentially solve the problem they were given?
- Did they use the materials given?
- Did they test their design?





- Can they describe how their design works?
- Can they state the problem that it solves?
- Did they use the magnets and understand why they worked?



List of Unit Resources

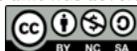
Lesson 1

Quantity	Item	Source
1	Large demonstration magnet	Bin
1 per student	Handheld bar magnets	Bin
1 per group	Plastic tray	Bin
1 of each per group	Paper clips, wood block, paper, plastic toy, pennies/coins, jar of iron filings, pipe cleaners, novelty fridge magnets, plastic bingo chips	Bin
1 per student	Scavenger Hunt Worksheet	Binder
1 per student	Discovery Worksheet	Binder

Lesson 2

Quantity	Item	Source
5 of each	Bar magnet, block magnet, horseshoe magnet, ring magnet, button magnet, plastic-encased block magnet, magnet wand, North/South bar magnet	Classroom Attractions Kit (Dowling Magnets)
1	Demo Alnico bar magnet	Bin

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8	Compass	Bin
1 per student	Science Journal	Classroom Teacher
6	Plastic bowls	Bin
6	Sewing needles	Bin
6	Pieces of cork or Styrofoam	Bin

Lesson 3

Quantity	Item	Source
1 package	Matte finish paper plates	Bin
	Craft supplies	Classroom Teacher
1 package	Coin Magnets	Bin
	Various types of magnets	Bin
1	Box of paper clips	Bin

Lesson 4

Quantity	Item	Source
1	Steel can	Bin
30 cm	String	Bin



1-2	Piece tape	Bin
6 each	Magnets (different types)	Bin
1 Package	Feathers	Bin
1 each	Box Paper clips (small and large)	Bin
1	Roll string	Bin
1	Package of craft Foam sheets	Bin
1	Package of popsicle sticks	Bin
1	Package of pom poms	Bin
1	Package of clothespins	Bin
1	List of design problems	Binder
1 per child	Science Journals	Classroom Teacher

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