

3rd grade Magnets Lesson Plan

Teacher
School

Date

SLE # PS.7.3.4: Differentiate between magnets and non-magnets, PS.7.3.5: Describe the effect of distance on attraction and repulsion, NS.1.3.5: Estimate and measure length using International System of Units (SI), NS.1.3.3: Conduct scientific investigations individually and in teams: lab activities, field studies

Objectives:

Content: I will be able to differentiate between magnets and non-magnets.
I will be able to describe the effect of distance on attraction and repulsion.
I will be able to estimate and measure length using SI.
I will be able to conduct scientific investigations individually and in teams.

Language: I will be able to communicate my results clearly in my writing.

I will be able to use at least 3 of the vocabulary terms in my writing and while I am communicating with my group.

Assessment: Students will be assessed throughout the activity based on their participation and their design.

Technology/Materials: ring magnets (5 or more per group), pencils or wooden dowel rods (1 per group), clay (optional- to hold dowel/pencil on desk), activity sheet, tape, milk carton (1 per group), string, 2 books, 1 piece of construction paper (color does not matter)

Vocabulary: attraction, repulsion/repel, North Pole, South Pole, alignment, polarity, magnet, non-magnet, gravity, measure, centimeters, collect, record, conclusions

Bloom's: Remembering Understanding Applying Analyzing Evaluation Creating

Questions: What does a magnet do? Describe what causes a magnet to attract or repel objects? Predict what would happen if I tried to force the North Poles of two magnets together. What could you use the attraction or repulsion of magnets for?

High Yield Strategies: Identifying similarities & Differences Summarizing & Note Taking Cooperative Learning
 Reinforcing Effort & Providing Recognition Setting Objectives & Providing Feedback Generating & Testing Hypotheses
 Cues, Questions & Advanced Organizers Homework & Practice Nonlinguistic Representations

Instructional Strategies:

Set: Ask the questions from above. Ask the students if they think magnets are used for anything in the real world. Create a list of student answers. Read pages 2-5, and page 15 of the Delta Science Reader "Magnets". Show the video on TLI of the Maglev Train to illustrate how trains are being built using the attraction and repulsion of magnets.

Model: The teacher can show how the placement of magnets on a dowel can either attract other magnets to one another, or repel one another. The teacher can show how the magnets will bounce and it doesn't matter how many magnets are placed together, the repulsion of the magnets will keep them separate.

Guided Practice/Strategies: Say, "What we are going to do now is to model how the Maglev train functions. It is all about the alignment of the magnets and how they either attract or repel the other magnets." The teacher can show how to properly secure the dowels to the desk and then experiment with the magnets.

Intervention Strategies: Teacher may need to remodel or help students.

Accommodations & Modifications (IEPs) Allow certain students to work together, students may draw their observations and conclusions instead of writing them.

Independent Practice/Activities: The teacher will then give the students the directions for the activity. The students will need to use the magnets, tape, milk cartons, string, modeling clay,

and dowel to design a way to move their milk cartons across their desk with touching them. The students could use all of the materials or only some of them. The students have 20 minutes to draw and build a means to move the milk cartons across their desk.

Scenario: You have a car (milk box) that is stuck in the mud (construction paper). It is too big and heavy for you to pull out using your hands. You are given the following materials. (Show the students the materials.) You do NOT have to use all of the materials but you CANNOT touch the milk cart when trying to remove it from the mud. You may touch it to add or remove items, but not when you are trying to remove it from the mud. After you design a method for removing it, you may test it. When you think you have figured out the best way, I will come and watch you remove it from the mud. You may test your method and redesign it as many times as you want to until I tell you the time is up.

Enrichment Activities: Students could see if the same techniques could help them move a wooden block across their desk.

Closure: Have the students write about the following questions.

Did your design work? If so, what helped your group accomplish the goal? If it didn't work, what could you do better the next time? Even if your design worked, what parts of your design would you change for the next time?

Homework: Have students design a way to use magnets to help them with a common household job (ie making their bed, taking out the trash, etc)

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