

## Kindergarten Design Challenge Quick Guide: Magnets in Motion– Cycle 2

**Lesson Objective(s):** Students will design an object that can be pushed or pulled on a course by using magnets.

### Materials:

*Suggested for teams of 2-3 students unless indicated otherwise*

- magnetic tape
- cardboard
- cardboard tubes
- scissors
- scrap paper
- scrap fabric
- construction paper
- tape
- small magnet rounds
- magnets of different sizes and shapes
- paper clips
- markers/crayons
- pencils
- glue
- 21 Century Skills rubric for grading project
- Suggested Books
  - *What Makes a Magnet?* By Frank M. Branley
  - *You Can Use a Compass* By Lisa Trumbauer
  - Magic School Bus Series: *Amazing Magnetism* By Rebecca Carmi
- Design portfolio for each student
- Websites
  - [http://www.ehow.com/how\\_11384800\\_make-objects-move-magnet.html](http://www.ehow.com/how_11384800_make-objects-move-magnet.html)
  - <http://www.brainpopjr.com/science/forces/magnets/>
  - <http://www.brainpopjr.com/science/forces/magnets/draganddrop/>
  - <http://www.sciencekids.co.nz/gamesactivities/magnetssprings.html>

### TEKS:

*Science*

\*ⓈSci K.6B Explore interactions between magnets and various materials.

ⓈSci K.2E Communicate observations with others about simple descriptive investigations.

*Math*

ⓈMATH K.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.

ⓈMATH K.1E Create and use representations to organize, record, and communicate mathematical ideas.

ELPS	CCRS Science	CCRS Math	CCRS Cross-Disciplinary
C1A, C3E	1A2A, 5D1A	6B2A, 6B2B	1A1B, 1C1C

**Engineering Design Loop:** *For more details, refer to the overview page.*

**Identify the Need:** Teams of students will be challenged to design an object that can be pushed or pulled on a course by using magnets.

**Research the Problem** Teams will conduct research on magnets to help them solve the challenge.

**Math Connection:** Teams will create a bar graph and test the strength of magnets.

**Develop Possible Solutions:** Teams will draw or dictate to the teacher a possible solution to the magnet problem.

**Select the Most Promising Solution:** In a conference, teams will meet to discuss their possible design solution.

**Construct a Prototype:** Teams will create their solution with the materials they indicated in the interview.

**Test & Evaluate:** Teams will answer questions about their design and suggest changes to make their design better.

**Communicate their Design:** Teams will share their final design project and demonstrate how their design moves down their course.

**Redesign:** Teams will draw an idea for how they could redesign their magnet project to make it even better.