

**Science Concept:** Objects can be moved without being touched.

**Objectives:**

The student will:

- explain objects can be moved without being touched;
- make observations;
- make inferences; and
- collect data.

**GLEs Addressed:**

*Science*

- [3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [3] SB4.2 The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by recognizing that objects can be moved without being touched (e.g., using magnets, falling objects, static electricity).

*Writing*

- [3] W.1.2.2 The student writes for a variety of purposes and audiences by using expressive language when responding to literature or producing text (e.g., journals, pictures supported by text or poetry).

**Vocabulary:**

*attract*- to pull to or toward oneself or itself (a magnet attracts iron)

*describe*- to represent or give an account of in words

*observe*- to watch carefully (observed how the food was prepared)

*predict*- foretell on the basis of observation, experience, or reasoning

*separate*- to set or keep apart (separate the pages with a slip of paper)

*static electricity*- electricity that consists of isolated stationary charges

**Materials:**

- Balloon (one per pair of students plus one for demonstration)
- String
- Felt-tip marker
- Adhesive tape
- Cloth (wool preferred)
- Paper plates (one per pair of students)
- Combs (one per pair of students)
- Puffed rice
- Salt
- Pepper
- STUDENT WORKSHEET: "Magic Movers' Data Sheet"

**Activity Preparation:**

1. Inflate a balloon, and draw a face on it with permanent marker. Tie off the balloon, and suspend it from a doorway or ceiling using tape and string.



2. Inflate the remaining balloons and set aside.
3. Prepare one plate for each pair of students in the class. On each plate, place equal amounts of salt and pepper.

## Activity Procedure:

### Gear Up

#### *Process Skills: observing, communicating, and predicting*

1. Rub the face of the balloon (prepared in Activity Procedure) with a cloth (wool works best).
2. Ask students what will happen if someone walks toward and around the balloon. Record responses and discuss. Invite a student to walk toward and around the balloon. Discuss what happened as a class.

### Explore

#### *Process Skills: observing, communicating, and inferring*

3. Divide students into pairs and distribute the STUDENT WORKSHEET: "Magic Movers' Data Sheet." Distribute a balloon and a small amount of puffed rice to each pair.
4. Instruct students to blow up the balloon and tie the end in a knot.
5. Instruct students to rub the balloon against their sleeves or shirts several times, and then hold the balloon near their partner's hair.
6. Instruct each student to draw and write his or her observations on the STUDENT WORKSHEET.
7. Instruct students to spread out the puffed rice on their desks, and then hold the balloon over the puffed rice. (NOTE: Puffed rice can also be moved with a comb that has been charged by running it along wool.)
8. Again, ask students to draw and write their observations.

### Generalize

#### *Process Skills: communicating and inferring*

9. Ask the following question and discuss as a class:
  - a. What happened when the balloon got near the hair and the puffed rice?
  - b. What made the objects move?
  - c. Why did the objects move?
  - d. What object other than a balloon can be used to get a similar result?

### Apply/Assess

#### *Process Skills: observing, inferring, and communicating*

10. Give each pair of students a comb and a plate with equal amounts of salt and pepper.
11. Challenge students to figure out how to separate the pepper from the salt without touching the plate.
12. Instruct students to draw and write what they did and what they observed.

## Extension Ideas:

#### *Process Skills: observing, predicting, and communicating*

1. Ask students to use a balloon to move other objects such as a ping-pong ball or tissue paper.
2. Invite students to explore rubbing various objects (pencils, rulers, glass, can) with a cloth and to use the objects to move different materials.
3. Ask students to cut paper tissue into shapes. Place the shapes into a clear plastic container with a lid. Use a balloon to make the shapes dance.

## Answers to Student Worksheet:

Answers will vary.



## MAGIC MOVERS

## RUBRIC

<b>Objective</b>	<b>GLE</b>	<b>Emergent</b>	<b>Developing</b>	<b>Proficient</b>	<b>Advanced</b>
The student explains objects can be moved without being touched.	[3] W1.2.2 [3] SB4.2	The student does not indicate in writing, drawing, or oral explanation that objects can move without being touched.	The student draws a picture or writes a sentence indicating that objects can move without being touched.	The student draws some pictures and writes some sentences indicating that objects can move without being touched.	The student completes all drawings and sentences and can articulate that objects can move without being touched.
The student makes observations.	[3] SA1.1 [3] W1.2.2	The student does not record any observations.	The student draws pictures and writes sentences for one of the tests or for some parts of the tests.	The student draws pictures and writes a sentence for only two of the tests.	The student draws pictures and writes sentences for all the tests.
The student makes inferences.	[3] SA1.1 [3] W1.2.2	The student does not determine a way to make the pepper move.	The student makes pepper move after prodding but is not able to explain in writing or drawing how he or she did it.	The student makes the pepper move and draws and writes an explanation with some clarity.	The student makes the pepper move and clearly explains in words and pictures how he or she did it.



**Test 1: Balloon and Hair**

**Procedure**

- STEP 1. Blow up a balloon and tie the end in a knot.
- STEP 2. Rub the balloon against your sleeve or shirt.
- STEP 3. Hold the balloon near your partner's hair.
- STEP 4. Record your observations.

1. Draw a picture of what happened (clearly label the picture):

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2. Use complete sentences to describe what happened:



**NAME: \_\_\_\_\_**

**MAGIC MOVERS' DATA SHEET**

# STUDENT WORKSHEET

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## Test 2: Balloon and Puffed Rice

## Procedure

- STEP 1. Blow up a balloon and tie the end in a knot.
  - STEP 2. Rub the balloon against your sleeve or shirt.
  - STEP 3. Spread a small amount of puffed rice on desk top.
  - STEP 4. Hold the balloon over the puffed rice.
  - STEP 5. Record your observations.

3. Draw a picture of what happened (clearly label the picture):

4. Use complete sentences to describe what happened:

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**NAME: \_\_\_\_\_**  
**MAGIC MOVERS DATA SHEET**

**STUDENT WORKSHEET**  
**(page 3 of 3)**

**Challenge: Without touching the plate, separate the pepper from the salt.**

5. Use words and pictures to describe what you did:

6. Draw a picture of what happened (clearly label the picture):

7. Use complete sentences to describe what happened:

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