

BUFFALO PUBLIC SCHOOLS  
Department Of Science Education  
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**BPS**  
**TEAM**  
**Science**

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Dear Teacher,

Included in this Balls & Ramps Kit are two take home extension activities for students to complete with their parents.

There is one sample parent letter and worksheet for you to make enough copies for your entire class.

Enjoy.

Dear Parents,

We are learning about Balls and Ramps in our science class. Here is an activity you can do with your child at home. Let him/her show you what he/she is learning in class.

Please make sure to return the ball to school by:

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Thank you.

➤ Directions

- Create a ball with your child. You may use any materials you have at home such as;
  - ✓ Newspaper
  - ✓ Aluminum foil
  - ✓ Rubber bands
  - ✓ Clay
  - ✓ String
- Then test your ball for bounciness and record your answers on the sheet provided.

We hope you will enjoy doing this activity with your child. Make this a special time and have fun!

# Teachers Material List for a class of 30 Students

## Balls and Ramps Activity No. 2

- ✓ 1 Journal page per student
- ✓ 1 parent letter per student

➤ Test your homemade ball for bounciness

Name: \_\_\_\_\_

Try No. 1

No. of Bounces

Try No. 2

No. of Bounces

Try No. 3

No. of Bounces

Parents Comments:

Dear Parents,

We are learning about Balls and Ramps in our science class. Here is an activity you can do with your child at home.

➤ Directions:

- ✓ Take a walk with your child and look for ramps.
- ✓ Choose 4 ramps, draw and label them on the journal page.
- ✓ Write your observations about each ramp.
- ✓ Design your own ramp using household materials. Be creative!
- ✓ Return the journal page and homemade ramp to school by:

\_\_\_\_\_.

We hope you will enjoy sharing this activity with your child. Make this a special time and have fun!

Parents Comments:

# Ramp Search

Ramp 1 is a: \_\_\_\_\_

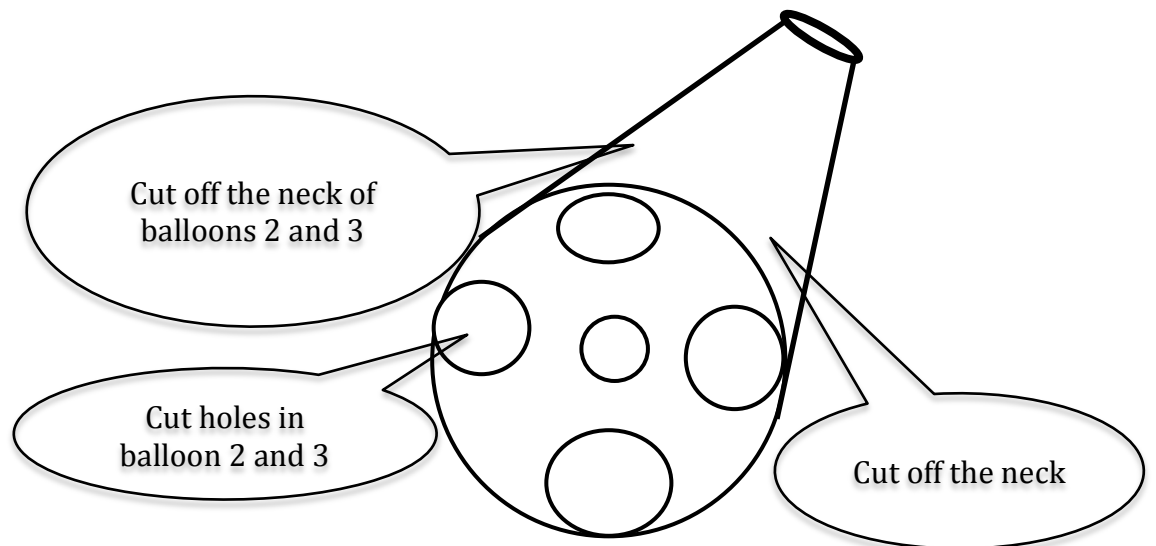
Ramp 2 is a: \_\_\_\_\_

Ramp 3 is a: \_\_\_\_\_

Ramp 4 is a: \_\_\_\_\_

## Juggling Balls

- Materials needed for 1 juggling ball
  - ✓ 3 Balloons for each ball, helium quality 9" or 11", round
  - ✓ 1/3 cup uncooked rice for each ball, a 2 lb. bag of rice is about 4 ½ cups
  - ✓ Scissors
  - ✓ Funnel
  - ✓ Small plastic water bottle
  - ✓ Strapping Tape
- Directions
  1. Using the funnel, measure 1/3 cup of rice into a clean, dry bottle.
  2. Inflate one balloon to the size of a fist and while holding the neck of the balloon closed, stretch the lip of the balloon over the neck of the bottle.
  3. Turn the bottle over to get the rice into the balloon; remove the balloon from the bottle.
  4. With scissors, cut off the rolled tip of the balloon.
  5. Fold over the neck of the balloon and tape down with 1 ½" of strapping tape.
  6. Cut off the neck of the second balloon; cut periodic holes in the balloon.
  7. Stretch the second balloon over the rice filled balloon.
  8. Repeat steps 6 and 7 with the 3<sup>rd</sup> balloon.
  9. Roll the ball between your hands to make it round.
  10. Make 2 more juggling balls following steps 1 through 9. Then juggle.



- ❖ Making the cuts in balloons 2 and 3 allows the colors to show through.

# Balls and Ramps

## Tip Sheet

- Parent Letter
  - Send a letter to parents two weeks prior to receiving your kit asking for the following items, all cleaned and dried:
    - ✓ Paper Towels, toilet paper, paper towel and wrapping paper tubes
    - ✓ ½ gallon milk cartons
    - ✓ Pop cans
    - ✓ Frozen juice cans
- ❖ **You may want to ask the parents to send the cardboard tubes in already cut in half lengthwise.**
- Flexible Tubing (Pipe Insulation)
  - The flexible tubing is for students to bend or manipulate in order to create ramps of various heights. Marbles work best on this tubing.
- Learning Experience 3
  - For the science notebook page entitled, Comparing Balls, (p. 71) you may wish students to focus on size and weight one day, and on how much it bounces and its ability to roll the next day.
- Centers
  - Many of the activities in this kit can be put into centers for future use.
- Learning Experience 4
  - This activity involves moving balls by blowing through straws. In order to contain balls you can use a sturdy box or a soda can carton.
- Learning Experience 6
  - Tape rulers to the edge of a table or desk and allow the ball to drop off the edge of the ruler. Make sure that the recorder for the group can write numbers.
- Learning Experience 8, Play Dough Recipes
  - School Glue Play Dough
    - 1 cup Elmer's glue
    - 1 cup liquid starch
    - a few drops of food coloring
    - 1. mix all together



- Kool-Aid Play Dough
  - 1 cup flour
  - ¼ cup salt
  - 1 Tblsp Cream of Tarter
  - 1 Pkg unsweetened Kool-Aid
  1. Stir well. Add 1 cup of water and 1 Tblsp of oil. Mix well. Microwave on high for 3 to 4 minutes, stirring every minute. Store in an airtight container.
  
- Non-Hardening Play Dough Clay
  - 2 cups, (500ml) Flour
  - 1 cup, (250ml) Salt
  - 1 tsp, (5ml) Cream of Tarter
  - 2 Tblsp, (25ml) Oil
  - 1 tsp, (5ml) Food Coloring
  - 2 cups, (500ml) Water
  1. Mix all ingredients in a saucepan. Cook over medium heat stirring constantly until dough leaves the side of the pan.
  2. Remove dough from the pan, when cool to the touch, Knead for a few minutes.
  
- Suggestions For Edible Balls
  - Popcorn Balls, Rice Krispie Treat Balls, Corn Balls, Meatballs, Doughnut Holes, Jell-O Balls, etc.
  
- Learning Experience 10
  - Please be aware that this experience is divided into 3 sessions
    1. Working in pairs, students will explore what they can do with balls, ramps, and tubes.
    2. Working in pairs, students will review their work from their previous session and try out different ideas.
    3. Working in groups of 4, students combine materials from the previous session in order to make longer and more complicated roadways.

#### Suggestions for Cooperative Grouping

Assign a student from each group to be a ball catcher when the ball gets away from their group. Make sure the recorder for the group can write numbers. Keep the group heterogeneous.

#### Donations

If you have received a large number of donated materials from parents, please share with other teachers. You may wish to save any extras for next year.

## ➤ Ball Sizes

- Here are the sizes of some of the balls that are included in your kit.
  - ✓  $\frac{3}{4}$ " Wooden
  - ✓  $\frac{3}{4}$ " Small Styrene
  - ✓  $1\frac{3}{4}$ " Rubber
  - ✓  $2\frac{1}{2}$ " Multi-Colored
  - ✓ 1" High Bouncers
  - ✓ 1" Marbles
  - ✓  $1\frac{1}{2}$ " Ping Pong
  - ✓ 3" Large Styrene