

Rolling Rectangles

Thank you for downloading the science and mathematics activity packet! Below you will find a list of contents with a brief description of each of the items. This activity packet contains all the information (including any handouts) you will need to run this activity in your own classroom or at a science festival.

Please note: some activities might require the need for a facilitator to be present to oversee the activity. Activities that require a facilitator will be clearly noted.

-Community Resources for Science



Rolling Rectangles

ACTIVITY PACKET CONTENTS

1. Organizer Instructions for the person running the activity
 - Print suggestion: 1 for the facilitator
 - Includes information for setup prior to the event (e.g., materials prep)
2. Background Information
 - Extra information for the organizer/facilitator to better understand and explain the science behind the activity
2. Participant Instructions (tabletop sign/printout)
 - Print suggestion: 1-2 to put in a plastic sign holder



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ORGANIZER INSTRUCTIONS

Grade(s): 2-6

Standard connections:

- **CCSS.Math.Practice.MP1** Make sense of problems and persevere in solving them
- **CCSS.Math.Practice.MP5** Use appropriate tools strategically
- **CCSS.Math.Practice.MP2** Reason abstractly and quantitatively
- **CCSS.Math.Content.3.MD.A.1** Solve problems involving measurement and estimation

Next Generation Science Standards: Science and Engineering Practices

- **Using Mathematics and Computational Thinking** Describe, measure, and/or compare quantitative attributes of different objects
- **Planning and Carrying Out Investigations** Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question
 - Make predictions based on prior experiences

Objective: Predict the volume of various cylinders

Activity overview and background: Student-directed activity that can be completed independently or in groups. An adult can read the directions aloud, if needed, and model how to roll up the paper into two different sized cylinders.

Materials:

- 2 rectangular sheets of papers for each student
- Tape
- Filler objects (e.g. colored bears, cubes)
- Pencil

Setup:

1. Give each student 2 pieces of paper, filler objects, a pencil and some tape
2. If needed, read directions aloud and model how to tape rectangles



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BACKGROUND INFORMATION

Older students may be able to explain the differences in rectangles using their knowledge of the volume formula while younger students may explain based on the physical appearance of the cylinder's "opening" or diameter.

Students should see that the cylinder with the wider opening or diameter will hold more objects, because it has a greater volume than the cylinder with a smaller diameter.

Instructions

1. Take two rectangular sheets of paper
2. Roll the paper into two different sized cylinders (e.g. one tall, skinny and one short, fat cylinder)
 - Tape the cylinders so they stay closed and remain open on both ends
3. Make predictions about which cylinder will hold more objects or if they will hold the same amount of objects
4. Test predictions by using objects (e.g. colored bears) to fill up both of the rolled cylinders
5. How many objects does each cylinder hold?
6. Explain why the cylinders are the same or different?

