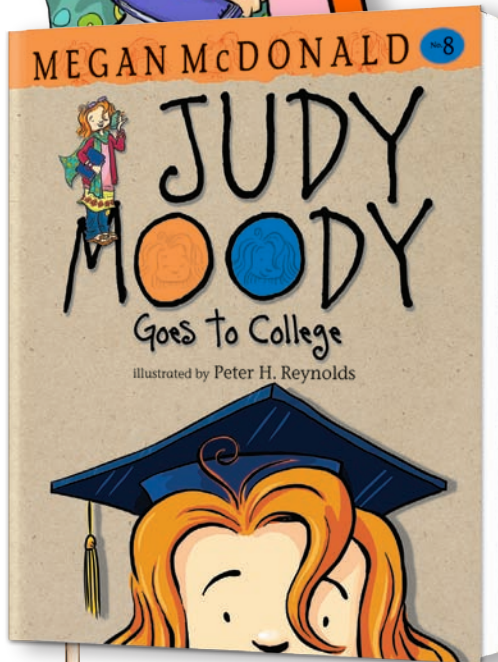
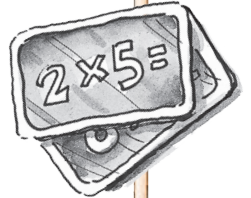


Candlewick Press Teachers' Guide



JUDY MOODY + Cool Math Activities
= RARE to the Tenth Power!



"Math is everywhere. Math is a fact of life."

—Chloe, Judy Moody's uber-funky math tutor

Judy Moody is having a roar of a time with math. She, Judy Moody, is in a mood. A *bad math-i-tude*. Then Judy becomes a tutor tot! She gets a cool college kid named Chloe for a tutor, and Chloe helps Judy see that math is not *old skool*—it's *the bomb!* Positively *polygon-ish!* Inspired by *Judy Moody Goes to College*, here are some fun ideas you might use with your class to help children develop a positive *math-i-tude*.

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★ Positively Polygon-ish!

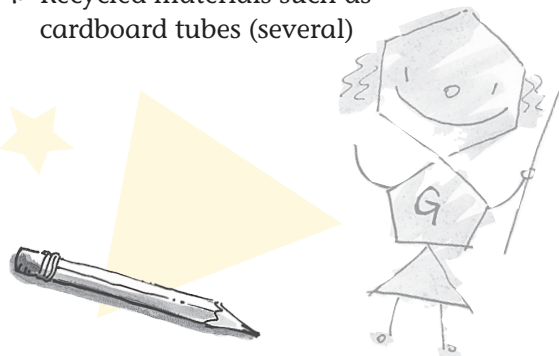
One day at recess, Judy plays a game in which she looks for polygons on the playground (page 49). Explain to students that a polygon is a shape with three or more straight sides. Challenge students to look around the classroom and see how many polygons they can find. You might take them out to the playground to search for more.

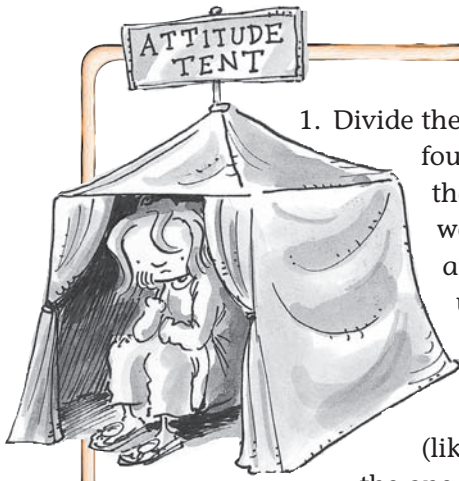
Skills Developed

In this project, students create and combine 2-D shapes to form a 3-D structure. Building structures from scratch lays the groundwork for understanding concepts in geometry, physics, and other areas of math and science.

Materials (per group of four):

- * Newspapers (at least 8)
- * Tape (1 roll)
- * Scissors (1 pair)
- * Recycled materials such as cardboard tubes (several)





1. Divide the class into groups of four students. Explain that each group will work together to build an indoor structure using polygons. The structure might be a house, an “attitude tent” (like

the one in Judy’s classroom), a dorm room, or another structure of their choosing. Note that the structure should be big enough that a child can fit inside it, either sitting or standing. Before beginning, each group should discuss the size and shape of the structure they plan to build and how to divide the work so that everyone contributes.

2. Distribute the materials among the groups. Demonstrate how to roll and tape newspaper into tubes. Then show some ways they can use the tubes to create shapes and build a structure. Tubes can be laid across one another for support or attached to each other at the ends to form corners or longer tubes. Discuss the stability of different shapes. The building portion of this project will take at least 20 minutes, so plan your time accordingly. Let children know when they have 10 minutes left to build. Suggest to those who finish early that they may want to decorate their structures.

3. When all the groups have finished, invite each group to give a tour of their structure to the rest of the class. As needed, prompt with questions such as:

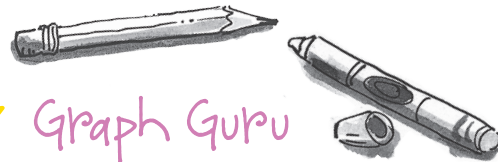
- ☉ How many walls (or surfaces) does your structure have?
- ☉ What shapes do you see in your structure?
- ☉ What is an example of a problem you ran into, and how did you solve it?

- ☉ Which of the structures is the tallest? The widest? The longest?
- ☉ Which structure has the most polygons? Which has the fewest?

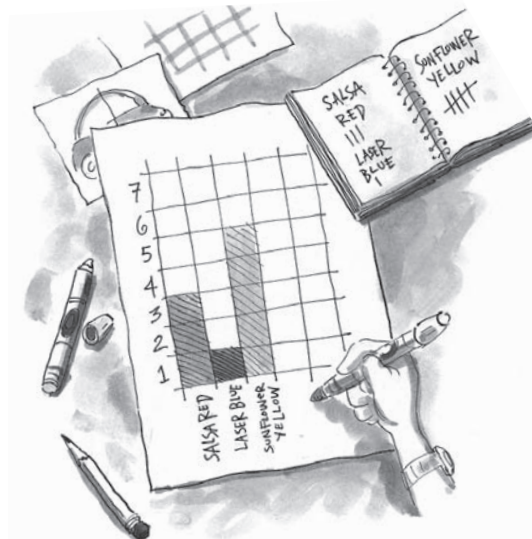
If your available space is limited or if you don’t have sufficient materials to do the project above, you might want to try the following variation:

Recycled City

Have children bring toy cars or stuffed animals from home (unless you have them in the classroom) and build a city for them using the same materials as above. Children may work individually or in pairs, each creating a structure such as a garage, apartment building, or schoolroom, to contribute to the city.



In the college parking lot, Judy counts the different colored Volkswagen Beetles parked there (pages 30–33), then makes a bar graph of her data. But there are lots of other fun things to graph without going out into a parking lot! Several ideas are suggested on the next page.



Skills Developed

In this project, students learn about different kinds of graphing.

Materials:

- * Graph paper
- * Pencils or markers

- ☆ As a class, create a line graph to show how many kids in the classroom are wearing shirts with words on them. Continue the graph for one week. Does the line go up or down—or both? Then create a line graph to show how many kids are wearing a particular type of footwear, such as sneakers. Continue that graph for one week as well.



- ☆ Ask each student to think of something else that could be graphed over the course of a week to mark its changes. Then have kids create individual graphs using their own ideas.
- ☆ Make a list of main characters in the Judy Moody and Stink books (Judy, Stink, Mouse, and so on), and have kids vote for their favorite. Then create a bar graph of their choices. You might also show students how the same information looks on a pie chart.
- ☆ Have each student make a bar graph showing how many M&M's of each color are in one bag. Then compare graphs. Is one color usually the most common?
- ☆ And finally, here's a hilarious activity that Megan McDonald, author of the Judy Moody and Stink series, once saw when she visited a classroom: graph Judy Moody-style tongue-rolling! Ask students, "How many of you can roll your tongue like a hot dog? How many can roll your tongue like a hamburger? How many can roll your

tongue both under and over? How many of you *can't* roll your tongue?" According to Megan McDonald, a talent for rolling your tongue is genetic!



☆ How Many in a Minute?

When Judy's substitute teacher, Mrs. Grossman, talks to the class about estimating, Judy finds herself looking at her Ask-a-Question Watch 5000—and not surprisingly, this distraction gets her in trouble (pages 6–9). If Mrs. G. had led the class in the following game, Judy's attention might not have wandered—but then again, she wouldn't have had the chance to go to college!

Skills Developed

In this project, students learn about timing, estimating, and collecting data.

Materials:

- * Clock or watch that shows seconds
 - * Paper and pencils
1. Choose a repetitive activity that students will do for one minute, such as twirling a Hula-Hoop around their waist, doing multiplication problems, or throwing and catching a ball. You might ask each child to pick a separate activity or have all students do the same one. Before they begin, ask students to write down the date, what activity they will be doing, and a prediction of how many repetitions they'll be able to do in a minute.

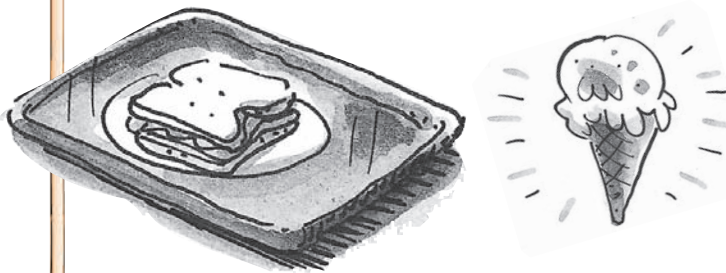
2. Select one volunteer to time the group for one minute. (If needed, review how to time one minute.) You might want to have children work individually and keep count themselves, or you could pair them up so that one child does the activity for a minute while the other counts.
3. When their minute is up, ask students to write down, next to their estimate, the actual number of repetitions they did. Call on volunteers to tell how close their estimates were. Then put all the records in a safe place so that students can keep track over time. You'll want to do this activity at least twice, so that children can compare their times on different trials. If the students are working in pairs, have them take turns doing the activity and being the timekeeper.

Materials:

- * Grocery-store circulars (1 per pair or group)
- * Paper and pencils
- * Calculators (optional)



1. Divide students into pairs or small groups, and distribute the materials. Explain that each pair or group will create a shopping list for their snacks—and that all of the items on the list can total no more than the limit you have set—say, \$25. Tell students that when their lists are finished, the class will vote on which one is their favorite.
2. Ask students to use the circulars for reference as they record items and prices. Suggest that they round prices to the nearest dollar. (For example, if an item is \$1.95, they should round it up to \$2.00.) Explain to students that once they get close to their spending limit, they will need to figure out exact amounts by going back and writing down the actual price.
3. Have each pair or group finalize their shopping list. You might suggest that they come up with a fun name for their special snack. (Small-tall upside-down snack with extra whip, perhaps? Fruitapalooza? Quiz Quackers?)
4. Then ask each pair or small group to present their list to the class and explain how they made their choices, as well as how they stayed within the spending limit. Invite them to tell why they chose the name they did for their special snack.
5. Finally, have the class choose a favorite shopping list.

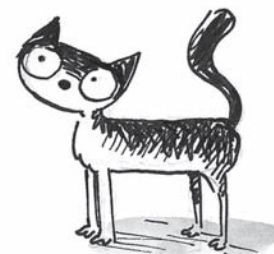


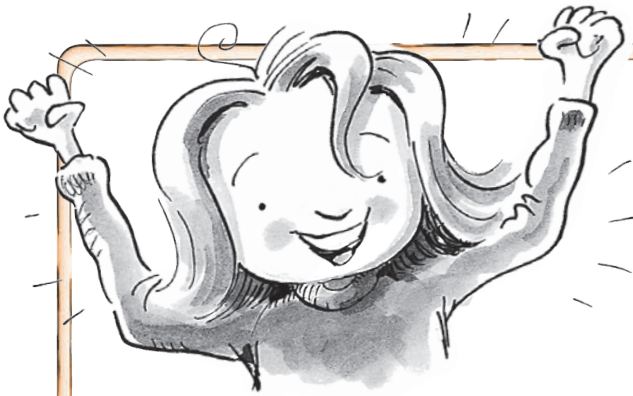
★ **Uber-Rad Snack Attack!**

Two of Judy's favorite discoveries at college are the cafeteria, where breakfast is served all day long, and the coffee shop, where hot chocolate is served in a *bowl* (page 26). Here's a chance for students to dream up their own special college-style snacks. They'll be using grocery-store circulars to choose their ingredients and create shopping lists for their mad-awesome taste delights. The catch? They'll have a spending limit. All the ingredients they list must come in on budget. Ready, set, let's food!

Skills Developed

In this project, students learn about estimating, rounding figures, and using arithmetic with money.





★ It's Soooo Money!

Judy's brother, Stink, is very familiar with the value of money. When Judy is the only one in her class to pass a math quiz, he becomes worried that their parents will reward her with money—because he is good at math, too (page 111). If Stink were introduced to the following coin game, however, even *he* might volunteer the use of his money to play it!

Skills Developed

In this game, students learn about money values, coin recognition, and addition.

Materials:

- * Coins (5–7 per group)
- * Paper and pencils

★ Divide the class into small groups. Introduce the coins you are using, making sure that all students know how much each type of coin is worth. If, by any chance, you use

coins from outside the United States, invite students to share what they know about the country the coins originate from. Or if you include special state quarters, ask students to tell what they know about the state each quarter comes from, and why the quarter has the symbols it does.

★ How to play: On each player's turn, he or she gently tosses all the coins. That player must add up on a piece of paper the total of the coins that land heads up (not counting the coins that land tails up). (For example, a dime that lands heads up = 10, but a quarter that lands tails up = 0). Then the next player follows suit. After everyone has had a turn, the person with the highest total wins the round. Each group plays a total of five rounds. Within each group, whoever wins the most rounds wins the game.

★ As a variation, you might also ask students to add up their individual tallies at the end of the five rounds. Within each group, have kids compare their final tallies to see who has the highest score. Is it the same person who won the most rounds?



Most ideas in this guide are based on activities from *Mixing in Math*, a program developed by TERC, Inc., of Cambridge, Massachusetts, with funding from the National Science Foundation. More activities similar to these are available at <http://mixinginmath.terc.edu>.

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