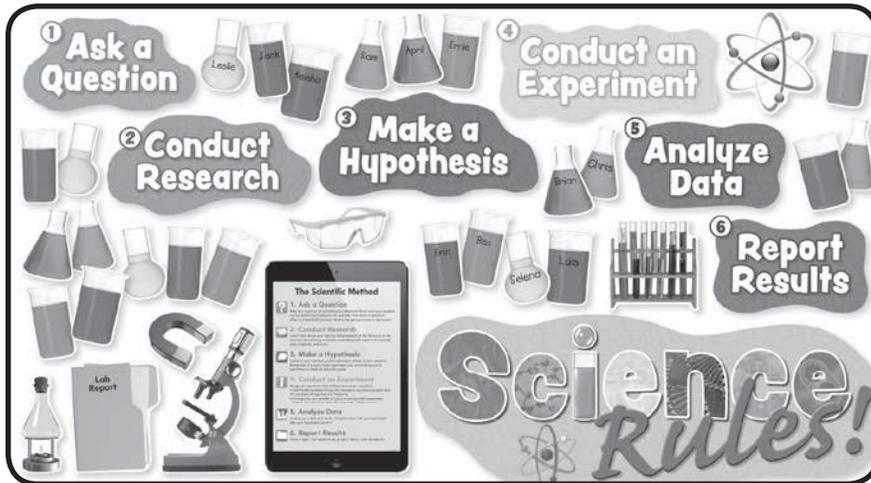


Science Rules!

A Teaching and Learning Bulletin Board

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SCIENCE

Introduce the Scientific Method

After setting up your display, review the steps of the scientific method with students. Explain that these steps will help them organize, plan, and report the results of a science experiment. For most experiments, the steps should be followed in a specific order; however, flexibility may be required in some cases. For instance, students might need to return to step 1 after working on step 2 if they are unable to find enough information from their research to continue. To help reinforce the order of the steps in the scientific method, cover the number on the piece for each individual step with a sticky note. Put those pieces in your science center, then invite students to put them in order from the first step to the last. When finished, students can check the order of their steps by looking at the numbers under the sticky notes.

Questions to Consider

Help inspire students to come up with a question to research by posting suggestions on your display. Simply write questions or topic ideas on the beakers and flasks. (Or use colorful copies of the patterns on page 3). Invite students to share their own ideas, as well. You might record and collect students' ideas over a period of time—for instance, over a week or two—to give them time to consider and brainstorm a variety of possible topics and questions. At the end of that time, add their suggestions to the display. Then review the posted ideas with students and help them come up with a research question on which to base their science experiment.

Conduct a Class Experiment

Demonstrate the steps of the scientific method by conducting an experiment with the whole class. As you go along, use the display to highlight each step in the procedure. For step 1, have a volunteer write the question on a large, irregular shaped, orange cutout and post it next to the bulletin board piece for that step. Similarly, invite students to write information for each step of the experiment on large cutouts that match the color of the display piece for that step (for example, use green for step 2, red for step 3, and so on). Once the experiment has been completed, discuss the procedure and findings using the information posted on your display.

Displaying Your Bulletin Board Set

Choose an eye-level bulletin board on which to display your "Science Rules!" bulletin board set. Use the display, individual bulletin board pieces, and the reproducible patterns in this resource guide to do the suggested activities.

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Step by Step

When students get ready to conduct their own science experiment, ask them to write their name on a beaker or flask and place that piece next to the first step on the display. After they decide on the question they will ask and on which their experiment will be based, instruct students to move their name to the next step. Each time they complete a step of the scientific method, have students move their name to the next step until they get to the last one and have reached a conclusion and have reported their results. By moving their name from step to step, students can track their progress while also keeping you informed of how their experiment is moving along.

Magnificent Magnification

Point out the microscope on the display. Explain that this instrument is used to see details that can't be seen without magnification. Then invite students to observe a variety of objects—such as a leaf, thin piece of bark, tissue paper, cracker crumb, and drop of water—with just their eyes at first, then under a microscope. Have them draw what they see with and without magnification, label their drawings accordingly, and compare the two. Encourage students to share and compare their drawings with classmates.

LANGUAGE ARTS

Mystery Scientists

Label large index cards with the names of different kinds of scientists, such as *chemist*, *astronomer*, *biologist*, *oceanographer*, *zoologist*, *entomologist*, *meteorologist*, *archeologist*, *botanist*, *paleontologist*, *neurologist*, *psychologist*, and *ecologist*. Place the cards in a paper bag. Then explain to students that many kinds of scientists do research and conduct experiments to help us learn about our world. Tell them that they will draw a card from the bag, read the name of the scientist on it to themselves (they should keep the name a secret!), and then do research, using books, the Internet, and other sources, to find out what, where, why, and how their scientist studies. Have students write their findings on the back of their card. Later, invite them to use that information to make up clues about their scientists to present to the class. Challenge the class to try to guess the kind of scientist that each student is describing.

CLASSROOM MANAGEMENT

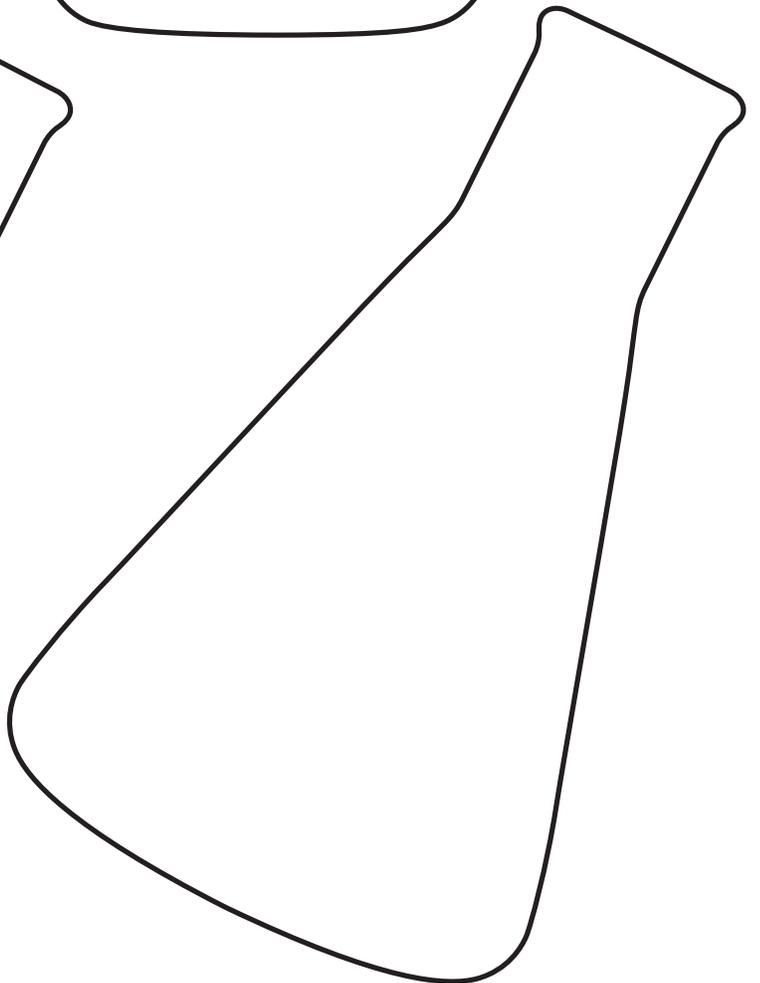
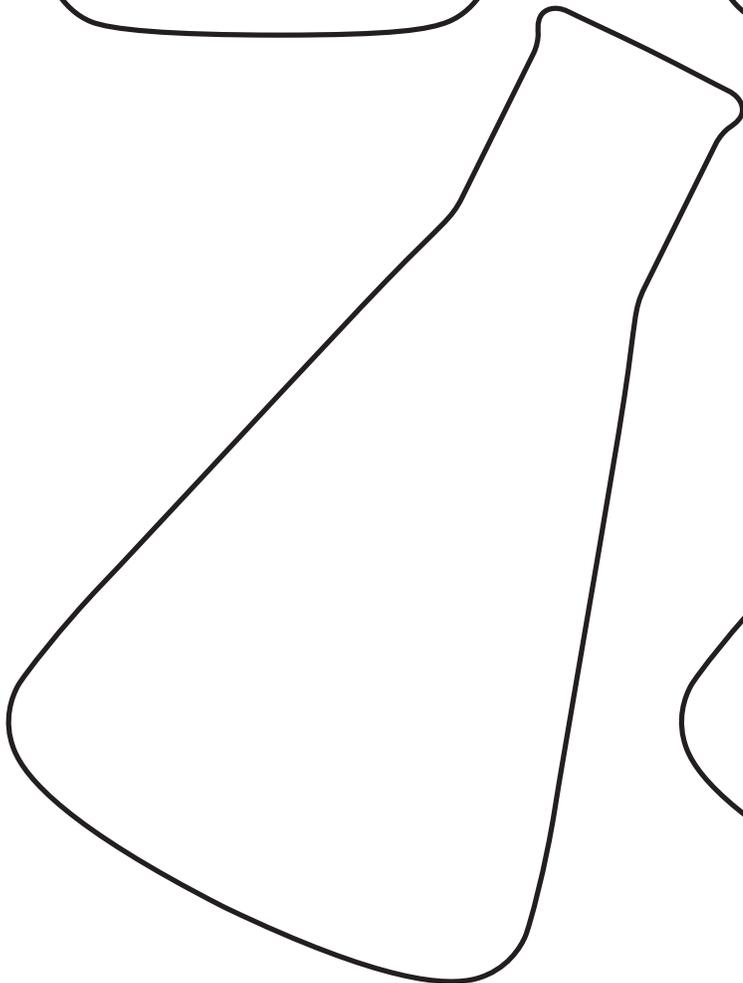
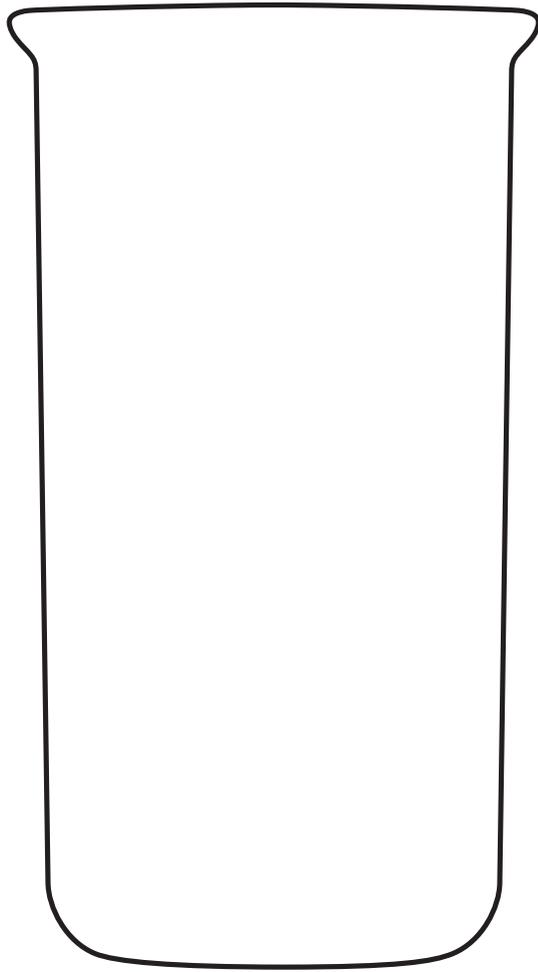
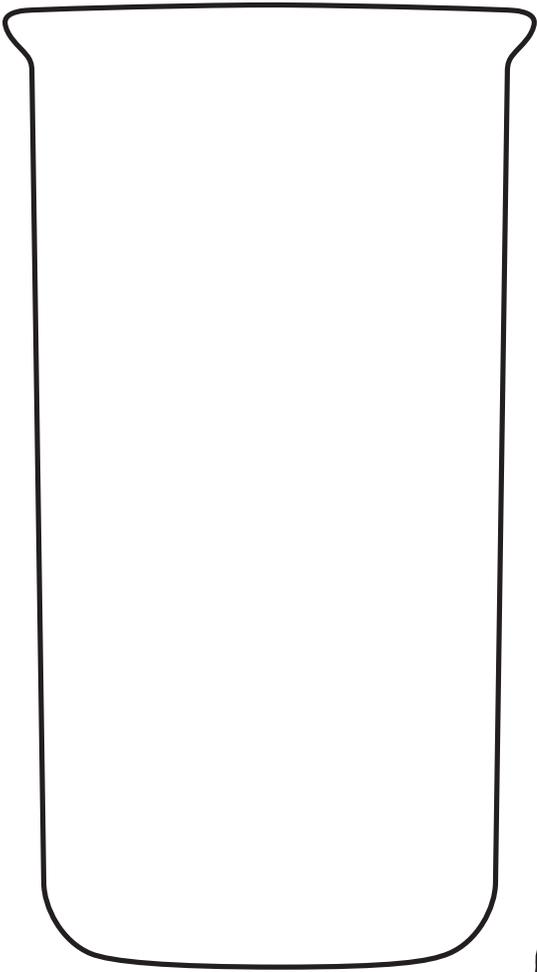
Grouping Students

Assemble students into groups and invite each group to select a beaker or flask in a specific color. (If more pieces are needed, use the patterns on page 3.) Label large index cards with the names of the groups, add to the display, then have students place their names with their group. You can use the display as a quick reference whenever you need to know which group a student belongs to. Or use it as an information center on which to post assignment requirements or other reminders for each group.

Using the Reproducibles

To extend learning opportunities, use the reproducible templates on pages 3 and 4 with these additional activities.

- ◆ Write science-related words, such as *experiment*, *hypothesis*, *microscope*, *goggles*, *laboratory*, and *thermometer* on the beaker and flask cutouts (page 3). Display the pieces on a word wall and use them to reinforce students' word recognition, vocabulary, and spelling skills. Also encourage students to refer to the word wall as they write about and discuss their experiments.
- ◆ Label a supply of the beaker and flask cutouts (page 3) with the names of different solids, liquids, and gases, such as *ice*, *snowflake*, *bubble*, *oxygen*, *steam*, *smoke*, and *exhaust fumes*. Have students work in pairs to sort the words by the category they belong to. Encourage students to discuss their decisions and research any that are questionable. (To make the activity self-checking, write the category on the back of each piece.)
- ◆ Write math problems on the front of a supply of beaker and flask cutouts (page 3) and the answers on the back. You might write basic facts or higher-level addition, subtraction, multiplication or division problems on the cards, depending on students' abilities. Invite students to solve the problems on the front of the cards and check their answers on the back.
- ◆ Have students use the labels for the steps of the scientific method (page 4) to prepare the final report on their experiment. They can color and cut apart the labels, glue each one to the top of a separate blank page, then write or attach the information for that step on the page. To complete, students might sequence and bind the pages into a book or attach them to a poster or project board. Or they might display each page individually as they give a step-by-step presentation of their experiment to the class.





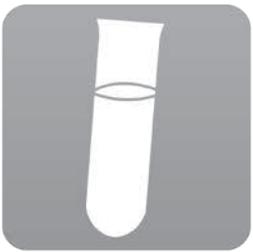
1. **My Question**



2. **My Research**



3. **My Hypothesis**



4. **My Experiment**



5. **My Data**



6. **My Results**