



MASON JAR SCIENCE

**CLASSROOM
GUIDE**



FOR GRADES 3-7



Capture **SCIENCE** in a jar!

With *Mason Jar Science*, kids ages 8 and up create a science lab and conduct 40 fun and fascinating experiments using common household items, including one of the most accessible and versatile pieces of equipment available: the mason jar! Curious kids can test principles of chemistry, earth science, botany, biology, and physics while learning the “why” behind what they observe. Lead your class to discover the wonders of science in the microcosm of a jar!



WHO Children 8–12, or grades 3–7

LENGTH About 20 minutes per lesson, or 1 hour for all three

COST About \$100 for materials for a class of 25 students completing all three experiments. If you are providing mason jars, add about \$1 for each jar to this estimate. Alternatively, students may bring in their own jars.

HOW Use the instructions included in this activity kit to plan your own *Mason Jar Science* lab. Materials include:

- * Teachers' Planning Tips
- * 3 project lesson plans for teachers; lessons include Goo, Lava Lamp 2.0, and Tiny Tornado

WHY Awakening a child's love for scientific discovery is more fun than ever with *Mason Jar Science*! In this tabletop lab, kids see the core principles of chemistry and earth science come to life on a small scale.



QUESTIONS ABOUT THIS GUIDE?

Contact Storey's publicity department: publicity@storey.com | 413-346-2116

TO ORDER THE BOOK

Contact your Workman sales representative, email libraryteam@workman.com, or order direct from Storey Publishing at sales@storey.com | 1-800-827-8653.

MASON JAR SCIENCE | \$14.95 hardcover | ISBN: 978-1-61212-986-0
Available May 2018 wherever books are sold.



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It only takes a little planning to prepare for a **MASON JAR SCIENCE** workshop.

Simply follow the guidelines below.

Structure your class around one or more of these experiments. See individual lesson plans for supply lists.

LESSON 1: GOO (PAGE 20) | LESSON 2: LAVA LAMP 2.0 (PAGE 16) | LESSON 3: TINY TORNADO (PAGE 58)

4 OR MORE WEEKS BEFORE THE CLASS

- * Order your classroom copy of *Mason Jar Science* using the ordering information below.
- * Read the projects and choose which one(s) you want to teach in your class, depending on your available time and budget.

UP TO 1 WEEK BEFORE THE CLASS

- * Shop for materials (see materials list for each project).
- * Test the projects to ensure you know the steps.

DAY OF THE CLASS

- * Cover tables or desks with disposable tablecloths and have paper towels on hand.
- * Complete the prep work listed in each lesson plan.
- * Coach the students through each step. Encourage them to do all the steps on their own, but help if they need a hand.
- * Read aloud the “What’s Going On” section to teach kids the science behind their experiment. Discuss observations as a group.

END OF THE CLASS

- * Have students help with the cleanup.
- * Send the jars home with students.

AFTER YOUR WORKSHOP

Post pictures from the workshop to your social media channels! Tag @StoreyPub on Twitter and Instagram or Storey Publishing on Facebook, and use #MasonJarScience.



Water Fireworks, page 18



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GOO

MATERIALS

1 pint-size mason jar with two-piece lid for each student

White glue, 4 ounces per student

Paint stirrer or other mixing tool for each student

Baking soda, 1 teaspoon per student

Food coloring bottles to share among students

Contact lens solution (saline with boric acid), 1 tablespoon per student

Measuring spoons to share among students

Glitter, glow-in-the-dark paint, or shaving cream (optional)

Sharpies

PREP

- Cover tables with a disposable tablecloth, craft paper, or newspapers.
- Pre-measure 4 ounces of white glue into each student's jar, using the measuring lines on the jar.
- Place one jar with glue and one paint stirrer at each student's seat.
- Place boxes of baking soda, bottles of food coloring, bottles of contact lens solution, and measuring spoons around the table for students to share.

INSTRUCTIONS

- 1 Lead students through the instructions on page 20 of *Mason Jar Science*, starting with step 2.
- 2 Optional: Try mixing colors of goo or adding glitter, glow-in-the-dark paint, or shaving cream for fun variations (see page 22).
- 3 Let students play with their goo while you read the "What's Going On" section on page 21.
- 4 Students can put the lids on their jars, write their names on them, and take them home to play with for months.



LAVA LAMP 2.0

MATERIALS

1 pint-size or larger mason jar* with two-piece lid for each student

Large pitchers of water, about $\frac{1}{2}$ cup per student (enough to fill each jar about a quarter full)

Food coloring bottles to share among students

Vegetable oil, about 1 cup per student

Effervescent antacid tablets (such as Alka-Seltzer), $\frac{1}{2}$ tablet per student

Plastic spoons or stirrers

Sharpies

PREP

- Cover tables with a disposable tablecloth, craft paper, or newspapers.
- Place one jar and a plastic spoon at each student's seat.
- Place pitchers of water, food coloring bottles, and bottles of vegetable oil around the table for students to share.
- Keep halved antacid tablets with you to pass out before the last step.

* 28-ounce spiral mason jars were used in the book. A larger jar gives more dramatic results.

INSTRUCTIONS

- 1 Lead students through the instructions on page 16 of *Mason Jar Science*, pausing before step 3 to pass out the halved antacid tablets.
- 2 Observe as a group as the tablets start to bubble, causing blobs of colored water to rise up into the oil. Once the initial bubbling slows down, watch as smaller bubbles continue to rise and fall, or students can add more antacid tablet pieces broken into smaller chunks.
- 3 Ask students to share their ideas for why this works. Then explain the science behind it from the "What's Going On" section on page 17.
- 4 Leave the jars uncovered while you do the next experiment (otherwise the escaping gas could cause the jars to crack). Have students write their names on the lids before screwing them onto their jars. Students can take their lava lamps home with them and repeat the experiment by adding more antacid tablets.



TINY TORNADO



MATERIALS

1 quart-size (preferably smooth-sided) mason jar with two-piece lid for each student

Water

Food coloring bottles to share among students

Dishwashing soap, 1 teaspoon per student

Glitter or seeds beads (optional)

Vinegar, 1-2 teaspoons per student

Plastic spoons

Sharpies

PREP

- Cover tables with a disposable tablecloth, craft paper, or newspapers.
- Fill all the jars with water, leaving an inch or so of space at the top.
- Place the jars of water at each student's seat.
- Place food coloring bottles, dishwashing soap, and containers of glitter and/or beads around the table for everyone to share. The bottle of vinegar and a few spoons should be on the table in case they're needed at the end of the experiment.



INSTRUCTIONS

- 1 Lead the group through the instructions on page 58 of *Mason Jar Science*, starting with step 2.
- 2 If the soap gets too bubbly, students can scoop out some of the bubbles and add a spoonful or so of vinegar.
- 3 Let students swirl their tiny tornados for a while before reading the "What's Going On" section on page 59.
- 4 Students can write their names on their lids and take home their jars for tiny tornado fun again and again!

