

LESSON 3: Medicine Measuring Tools, Storage, and Disposal

Teachers: Before each lesson in the *OTC Medicine Safety* program, inform students that they should never take medicine without the supervision of a parent or trusted adult.

Objectives

- Identify information found in dosing instructions on *Drug Facts* labels (when, how, and how often to take the medicine).
- Explain the importance of reading and understanding dosing information.
- Understand why using proper dosing tools is important.
- Discuss possible consequences of not following dosing instructions.
- Describe what makes a location safe or unsafe for medicine storage.
- Identify potential consequences of unsafe medicine storage.
- Brainstorm ways students can talk to family members about safe medicine storage and safe disposal.

Materials:

- Student Worksheet 3 and 5 (see last pages)
- [Answer Key](#)
- Pediatric medicine bottle filled with colored water
- Dosing device that came with pediatric medicine
- Adult medicine bottle filled with different-colored water
- Dosing device that came with adult medicine
- Kitchen spoons (of different sizes)
- Student Worksheet 5
- Paper and pen or pencil
- *OTC Medicine Safety's* family newsletter resource
- Internet access (optional, for lesson Extension)

Visit the homepage at scholastic.com/OTCmedsafety for additional lesson plans and a variety of resources to support these discussions both inside the classroom and at home.

Time: One 40-minute class period

Technology Connection: [Up and Away](#); [Safe Kids Worldwide's Safe Storage, Safe Dosing, Safe Kids video](#).

Download Classroom Poster: [Drug Facts label](#).

Key Vocabulary

- **Dose or dosage:** The term “dose” refers to the amount of medicine that you should take or administer to a member of your family—as indicated by the “Directions” section of the *Drug Facts* label.
- **Dosing device:** A dosing device is the syringe, cup, or other receptacle that is packaged with your over-the-counter (OTC) medicine, meant specifically for use with that medicine. Dosing devices are customized to each medicine—you should never substitute a dosing device with kitchen spoons or any other household measuring device.

Lesson Steps

1. Begin with a class discussion about the importance of using the right tools when measuring different things. Ask students:

Q: *If I wanted to measure how far it is from the school to my house, would I use a ruler? Why or why not?*

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Q: *What are some different ways that people make mistakes when measuring things out?*

2. Encourage students to think about why accurate measurements are important. Ask:

Q: *When is it okay to get less-accurate measurements or even to estimate?*

Q: *When is it important to get really accurate measurements? Why?*

3. Ask students to think back to Lesson 2: Reading and Understanding the *Drug Facts* Label.

Q: *Do you remember which section of the label talks about how much medicine to take?*

Discuss different information contained in the Directions section of the Drug Facts label (amount of medicine to take, how often to take the medicine, and how to take it). If you deem it appropriate, display the classroom poster of the [Drug Facts label](#). Explain that students are going to learn why reading and understanding dosing instructions is important, and why medicines should always be measured using the proper dosing devices under adult supervision.

4. Show students the different medicine bottles (filled with colored water) and measuring devices.
5. Read dosing information for the pediatric medicine. Then try to measure out the correct dose using the dosing devices that are not meant for the pediatric medicine. Reflect on the results. Next, measure out the dose using the correct dosing device. Discuss with the class why using the correct device is important.
6. Repeat activity with adult medicine, but try to measure it out with devices that are too small for the correct dose. Reiterate the potential dangers of using the wrong device and why using the correct one is important.
7. Show students a medicine bottle that recommends a dose of 2 teaspoons of medicine. Then take out a handful of different-size household spoons, the kind that students might find in their kitchen drawers at home. Measure out 2 spoonfuls of “medicine” into any of the spoons, pouring the measured liquid into a dosing cup that has an accurate measurement for 2 teaspoons. Discuss the discrepancy with the class.
8. Distribute Student Worksheet 3.
9. Have students complete the worksheet; this can either be done individually or you can lead the class and work through it together, discussing each example.
10. Talk about how measuring doses incorrectly (measuring out tablespoons instead of teaspoons, for example) can cause an overdose or underdose. **Reinforce the importance of always communicating with a trusted adult before taking any medicine.** Connect this discussion with a brief introduction to safe storage, which, when ignored, may lead to accidental ingestion and medicine poisoning.
11. Ask students to name the locations where medicines are stored in their households. Write answers on the board for students to refer to later. Common answers may include kitchen cabinets, bathroom cabinets, or parents’ or trusted adult’s bedroom.
12. As students answer, ask for specifics.

Q: *Are the medicines in drawers or cabinets or on the countertop?*

Q: *Are the medicines easy for young children to see or reach?*

Get students thinking about how easy it is for young children in the house to find them. Explain that medicines need to be kept out of reach and sight of their naturally curious younger brothers and sisters, or young visitors to their home.

13. If using a whiteboard, visit upandaway.org to learn more, and as a class, watch the [Safe Kids video](#) and discuss the key messages.
14. Distribute Student Worksheet 5. Explain to students that they are looking at the inside of a home and it is

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their job to identify the medicine storage errors that could lead to accidental medicine poisoning.

15. Ask students how their families get rid of unused medicine. Common answers may include putting the medicine in the trash or flushing the medicine.
16. Explain to students that just as safe storage is important for keeping medicines away from people who shouldn't have them, safe disposal is also important. Before throwing away OTC medicines, mix them with an unappealing substance (such as kitty litter or coffee grounds) and place them in a closed container (such as a sealed plastic bag). The FDA has additional guidelines for certain prescription medicines (like disposal by flushing or using the National Take-Back Initiative). The Poison Control Center (1-800-222-1222) can answer any questions you have about how to dispose of medicines.

Q: Why do you think that the FDA has these guidelines for safe disposal of medicines?

Q: What could happen if a medicine is not disposed of properly?

17. After the students have completed their worksheets, continue the discussion.

Q: What did you learn about safe storage?

Q: Is there anything from today's discussion that might be important to mention at home?



Extension: Ask students to create a tool or advertisement to help people remember how to keep a home medicine-safe. Some possibilities include:

- An idea for an app that can help families remember all of the ways to make a home medicine-safe. Research for the app idea may involve connecting with a local health expert (pharmacist, nurse, etc.) or an expert from an organization similar to Safe Kids via email for insight.
- A jingle for the Poison Control Center's purpose and phone number
- A mnemonic device to remember the directions for safe medicine storage and disposal
- A survey to distribute to families to determine how medicine-safe their home is

Conclusion and At-Home Connection

After you've discussed safe storage of OTC medicines as well as being mindful of the importance of reading and understanding dosing information, explain that you'll be moving on to misuse in Lesson 4. Send home the Family Newsletter resource available in the Families Section at [scholastic.com/OTCmedsafety/parents](https://www.scholastic.com/OTCmedsafety/parents) so students may continue the discussion at home. Encourage students to discuss what they have learned about the Poison Help number, to post the number in a visible place in their homes, and to get family members to save the number in their mobile phones.

STUDENT WORKSHEET 3

Responsible Medicine Dosing

Directions: Below is a sample dosing table for an over-the-counter (OTC) medicine, similar to the information you can find on a *Drug Facts* label. Use the table as well as your knowledge about medicine safety to answer the questions below.

Children under 6 years of age	Ask a doctor
Children 6 to under 12 years of age	<ul style="list-style-type: none"> • 2.5 mL (½ teaspoonful) two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not give more than 5 mL (1 teaspoonful) in 24 hours.
Adults and children 12 years of age and over	<ul style="list-style-type: none"> • 5 mL (1 teaspoonful) two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not take more than 10 mL (2 teaspoonfuls) in 24 hours.
Adults 65 years of age and over	<ul style="list-style-type: none"> • 5 mL (1 teaspoonful) two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not take more than 10 mL (2 teaspoonfuls) in 24 hours.

Think It Through

1. Olivia is 12 years old and took her first dose of medicine at 8 a.m. She took a second dose at 8 p.m. the same day. By bedtime at 9:30 p.m., she is still not feeling better. Based on the label above, when can Olivia’s parents give her another dose of this medicine? Why?

2. Miguel is 11 years old. He and his parents are reading the directions in the dosing table above.

a. How many milliliters (mL) of medicine should Miguel take for his first dose? _____

b. If Miguel needs a second dose 12 hours later, how many milliliters (mL) should he take? _____

3. What might happen if someone taking this medicine used a household kitchen spoon to dose instead of the measuring device that came with the medicine?

4. What are some reasons a *Drug Facts* label might include instructions for certain people to ask a doctor before using the medicine?

5. How can you use what you’ve learned today about dosing to help your family use OTC medicines more safely?

Did you know? Over-the-counter (OTC) medicine errors and misuse result in over 10,000 ER visits for kids younger than 18 each year.

STUDENT WORKSHEET 5

Safe Medicine Storage

Directions: Circle the six medicine storage errors in this picture. On the back of this sheet, describe safe storage solutions for the medicines pictured below to help make this home safer.



ANSWERS: 1. bottle of cough medicine on the counter and a teaspoon with a trace of medicine visible on spoon (should be put up and away); 2. medicine left out on the nightstand with dosage cup; 3. allergy medicine next to vase; 4. toilet bag hanging low from doorknob inside closet; 5. medicine bottles visible and accessible inside kitchen cabinet below accessible and accessible inside cabinet below kitchen sink; 6. open purse with multivitamin bottle sticking out of the top.