



LESSON 3: Understanding Medicine Measuring Tools, Storage, and Safe Disposal

Students will practice pointing out information on the drug facts label and learn about measuring tools, where to store medicine, and how to safely dispose of it.

Students will learn the importance of reading dosing instructions and where to properly store medicine.

Grades: 5 and 6

Duration: 40 minutes

Pre-instructional Planning

OBJECTIVES

Students will:

- 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

- Responsible Medicine Dosing printable
- OTC Medicine Safety Answer Key printable

- Safe Medicine Storage printable
- Over-the-Counter Medicine Safety Classroom Poster printable
- [Up and Away interactive website](#)
- 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
- Paper and pen or pencil
- Medicine Safety for Families Newsletter printable
- Computer with internet access
- Projector
- Whiteboard and markers

During Instruction

SET UP

1. 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.
2. Make copies of the printables for each student in your class.
3. Set up a projector to visit the [Up and Away website](#).

LESSON DIRECTIONS

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

- If I wanted to measure how far it is from the school to my house, would I use a ruler? Why or why not?
- What are some different ways that people make mistakes when measuring things out?

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

- When is it okay to get less-accurate measurements or even to estimate?
- When is it important to get really accurate measurements? Why?

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

- 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 Over-the-Counter Medicine Safety Classroom Poster printable. 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.

Step 4: Show students the different medicine bottles (filled with colored water) and measuring devices.

Step 5: Read the 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.

Step 6: Repeat the activity with the 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.

Step 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.

Step 8: Distribute the Responsible Medicine Dosing printable. 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.

Step 9: 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.

Step 10: 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 cabinet, bathroom cabinets, or parents’ or trusted adult’s bedroom. As students answer, ask for specifics.

- Are the medicines in drawers or cabinets or on the countertop?
- 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 medicine. 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.

Step 11: If using a whiteboard, visit the [Up and Away interactive website](#) to learn more.

Step 12: Distribute the Safe Medicine Storage printable. Explain to students that they are looking at the inside of a home and it is their job to identify the medicine storage errors that could lead to accidental medicine poisoning.

Step 13: Ask students how their families get rid of unused medicine. Common answers may include putting the medicine in the trash or flushing the medicine.

Step 14: 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.

- Why do you think that the FDA has these guidelines for safe disposal of medicines?
- What could happen if a medicine is not disposed of properly?

Step 15: After the students have completed their Responsible Medicine Dosing printable, continue the discussion.

- What did you learn about safe storage?
- Is there anything from today's discussion that might be important to mention at home?

Step 16: 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.

LESSON EXTENSIONS

1. 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

HOME CONNECTION

1. If you haven't already, send home the Medicine Safety for Families Newsletter printable so students may continue the discussion at home.

2. 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. toiletry bag hanging low from doorknob inside closet; 5. medicine bottles visible and accessible inside kitchen cabinet below open purse with multivitamin bottle sticking out of the top.

Test your knowledge of medicine safety: [ymiclassroom.com/video/jj-safestorage](https://www.ymiclassroom.com/video/jj-safestorage)

ANSWER KEY

► STUDENT WORKSHEET 1

1. Both
2. Prescription
3. Prescription
4. Both
5. OTC
6. Both
7. Both

► STUDENT WORKSHEET 2

1. Answers might include: mentions of reasons that someone should not take the drug, such as an allergic reaction to the product or any of its ingredients; other products that should not be used while using this product; or other reasons why a person should not take the product. It's important that a person read this information before taking medicine because it can help avoid preventable side effects.
2. Yes. Side effects may include drowsiness and/or excitability, particularly for children.
3. Answers may include: A doctor should be consulted before use of this product if you have liver or kidney disease, and for the purposes of administering to children under 6 years of age. A doctor should be consulted if allergic reaction or overdose occurs.
4. The "Directions" section.
5. 1-800-222-1222

► STUDENT WORKSHEET 3

1. At 8 a.m. the next day. After that, no more doses should be given until after 8 p.m.
2. a. 2.5 mL
b. 2.5 mL
3. Utilizing anything other than the dosing device that is packaged with the medicine can result in an inaccurate dose.

4. A *Drug Facts* label might suggest that people contact a doctor before use for a variety of reasons. These reasons may include factors such as age, health conditions, or other medicines they are taking that may require special instruction or may make the medicine inappropriate for certain people.
5. Answers could include a discussion of the information provided on the *Drug Facts* label; use of proper dosing devices; the consequences of not using proper dosing devices; communicating the importance of understanding dosing information.

► STUDENT WORKSHEET 4

[Freeform writing. Answers will vary.]

► STUDENT WORKSHEET 5

Any response that identifies medication stored in a location that is not up, away, and out of sight would be acceptable. The medication storage errors shown in the picture are as follows:

1. Bottle of cough medicine on the counter and a teaspoon with a trace of medicine visible on spoon
2. Medicine left out on the nightstand with dosage cup
3. Allergy medicine on the table next to vase
4. Toiletry bag hanging low from doorknob inside closet
5. Medicine bottles visible and accessible inside cabinet below kitchen sink
6. Open purse with multivitamin bottle sticking out of the top

OTC MEDICINE SAFETY

ANSWER KEY

(Continued)

PRE-ASSESSMENT QUIZ, POST-ASSESSMENT QUIZ

Q1. PRESCRIPTION MEDICINE

Q2. OVER-THE-COUNTER (OTC) MEDICINE

Q3.

| | |
|---|--------------|
| If you use a household or kitchen spoon to measure liquid medicines, you can be sure you will get the right dose. | FALSE |
|---|--------------|

| | |
|---|--------------|
| You can't be harmed by over-the-counter medicines. After all, you can buy them without a doctor's prescription. | FALSE |
|---|--------------|

| | |
|---|--------------|
| It's okay to take two medicines with the same active ingredient at the same time. | FALSE |
|---|--------------|

| | |
|--|--------------|
| It's okay to use someone else's prescription medicine if you have the same symptoms he or she had when he or she got it. | FALSE |
|--|--------------|

| | |
|--|--------------|
| It's okay to take your leftover prescription medicine later if you get sick again. | FALSE |
|--|--------------|

| | |
|--|--------------|
| It's okay to take more medicine than what is directed on the label if you are very sick. | FALSE |
|--|--------------|

| | |
|---|-------------|
| In a medicine, an active ingredient is what relieves a person's symptoms. | TRUE |
|---|-------------|

| | |
|--|-------------|
| The <i>Drug Facts</i> label tells you what symptoms the medicine treats. | TRUE |
|--|-------------|

| | |
|---|-------------|
| The <i>Drug Facts</i> label gives you the dosage information (how much medicine to take). | TRUE |
|---|-------------|

Q4.

| | |
|---|-------------|
| A pharmacist can answer questions about over-the-counter medicines. | TRUE |
|---|-------------|

| | |
|--|-------------|
| All medicines have an expiration date. | TRUE |
|--|-------------|

| | |
|--|-------------|
| Children should not use prescription medicine without the permission of their parent or a trusted adult. | TRUE |
|--|-------------|

| | |
|---|-------------|
| Medicine should be kept in a place where children can't reach it. | TRUE |
|---|-------------|

| | |
|--|--------------|
| If you and your friend are the same age it will be safe for you to take the same dose of an over-the-counter medicine. | FALSE |
|--|--------------|

| | |
|---|-------------|
| Prescription medicine cannot be bought without a doctor's permission. | TRUE |
|---|-------------|

(Continued)

OTC MEDICINE SAFETY

ANSWER KEY

(Continued)

PRE-ASSESSMENT QUIZ, POST-ASSESSMENT QUIZ

Q5.

| | |
|---|--------------|
| Children over 12 can take over-the-counter medicine without a parent's permission if they carefully read the label. | FALSE |
| Medicine should be stored in the container it came in. | TRUE |
| One gulp from a bottle of liquid medicine is exactly one tablespoon of medicine. | FALSE |
| Over-the-counter medicines can be dangerous when misused. | TRUE |
| Prescription medicine can be found on the shelves in some stores. | FALSE |
| Prescription medicine is meant to be used by one person. | TRUE |

Q6.

| | |
|--|--------------|
| The local poison center is a good place to call if someone has taken too much medicine. | TRUE |
| Medicine should be kept on the kitchen counter so you remember to take it. | FALSE |
| Taking more medicine than directed will help you feel better faster. | FALSE |
| Taking more than one medicine with the same active ingredient will help you feel better faster. | FALSE |
| If you have questions about an over-the-counter medicine you have not taken before, you should ask a friend who has taken it before. | FALSE |
| You can call the poison center even if it isn't an emergency. | TRUE |



OVER-THE-COUNTER MEDICINE SAFETY

UNDERSTANDING THE LABEL

The *Drug Facts* label helps you understand the medicines that you take and how to take them safely. All medicines should be taken with the direct supervision of a parent or trusted adult.



ACTIVE INGREDIENTS

The ingredients in the medicine that make it work.



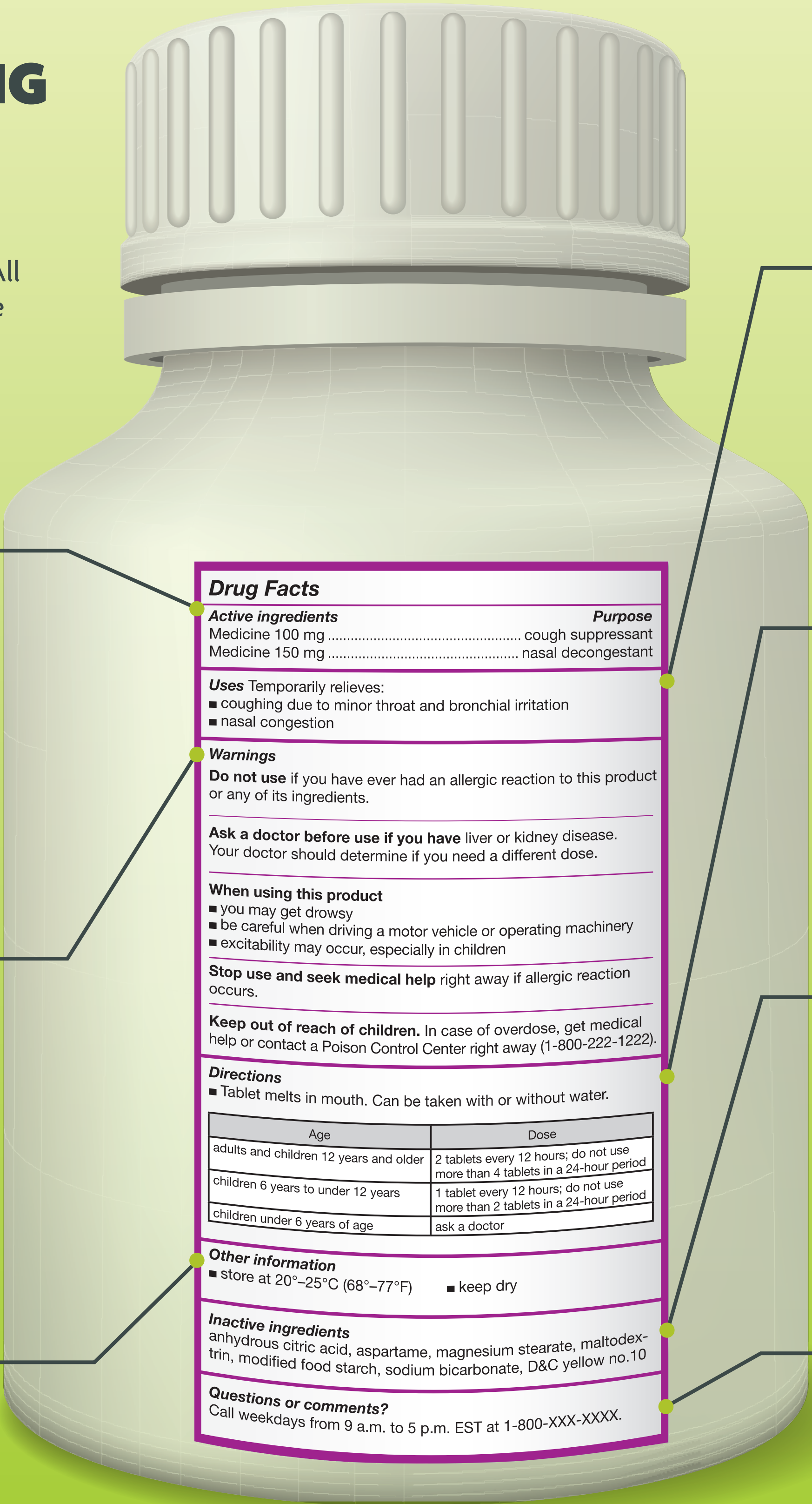
WARNINGS

Safety information, including side effects, the questions you should ask a doctor before taking the medicine, and which medicines to avoid using at the same time.



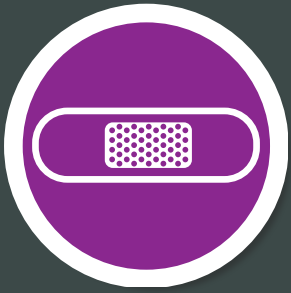
OTHER INFORMATION

How to store the medicine.



USES

Describes the symptoms that the medicine treats.



DIRECTIONS

Indicates the amount or dose of medicine to take, how often to take it, and how much you can take in one day.



INACTIVE INGREDIENTS

Ingredients not intended to treat your symptoms (e.g., preservatives, flavorings).



QUESTIONS OR COMMENTS?

Call the company if you have questions about a specific medicine.



This is not an actual *Drug Facts* label.

MEASURE IT CORRECTLY

To get an exact measurement, it is important to only use the dosing device that is provided with the medicine. The *Drug Facts* label tells you how much medicine you should take based on your weight and/or age. Take only one medicine with the same kind of active ingredient at a time.



FACT: Household spoons come in various shapes and sizes, which means they hold different amounts of liquid.

ASK FOR HELP

Always talk with a parent or trusted adult to learn more about the responsible use of all medicines. Other resources include doctors, nurses, and pharmacists as well as your local poison control center.

In 2018, America's poison control centers managed

1.23 MILLION

exposure cases involving children, tweens, and teens. About half of these exposures involved various medicines.¹

Poison Help
1-800-222-1222

DID YOU KNOW?

Poison control centers are staffed with experts including doctors, nurses, and pharmacists who can help answer questions about medicines or can provide help over the phone if you come in contact with a poison. Calls are free and private.

¹Source: American Association of Poison Control Centers' National Poison Data System. Data covers ages 0-19.



OVER-THE-COUNTER MEDICINE SAFETY FOR FAMILIES

Over 20,000 kids per year need medical help
due to medicine mistakes or misuse.*

Download more **FREE** resources:
ymiclassroom.com/otcmedsafety-families



Support for the development of this education
material was provided by

Johnson & Johnson CONSUMER INC.

*AAPCC National Poison Data System query parameters: 2011–2016 annual average, ages 0–19, all unintentional and intentional misuse reasons for pharmaceutical exposure, cases en route to a healthcare facility or treatment recommended by a specialist in poison information, all outcomes.

**All program materials
are FREE.**



Keeping Your Children Medicine-Safe

As children get older, they often start to take on more responsibility—at home, at school, and even with their health. That is why it's so important for families to help children learn how to make safe choices.

Over-the-counter (OTC) medicines can be purchased from a store without a doctor's prescription, but they still need to be treated with the same amount of care! It is important to read and follow the *Drug Facts* label every time.

Medicine Action Plan

Create a medicine action plan to help keep everyone safe and healthy! Have your child check off each item as you complete it together.

- ☐ Which adults should your child talk to if he or she is sick and may need medicine?
Provide options if a primary caregiver is unavailable.
- ☐ Where will medicines be stored in your home? Remember that they should be up, away, and out of sight!
- ☐ How will you make sure that each medicine and the dosing device it comes with are kept together?
- ☐ How will your family make sure that the child safety caps are locked on all medicines?
- ☐ How will you make sure that visitors keep all of their medicines out of children's reach and sight?
- ☐ Program the Poison Help number into your phone: **1-800-222-1222**. Bookmark the Interactive Poison Help Website: **poisonhelp.org**.

Get to Know Your Medicine Label

Work as a family to learn more about the children's OTC medicines that you have in your home. Answer these questions together:

- ▶ What are the active ingredients?
- ▶ Are any side effects listed (under "Warnings")?
- ▶ Where is the poison control number on this label?
- ▶ What is the correct dose for your child to take if he or she is sick?
- ▶ How frequently should your child take the medicine if he or she is sick?
- ▶ Is the dose or frequency different for a younger sibling?
- ▶ What type of medicine dosing device came with the medicine? (Make sure it is stored with the medicine!)



Get free, confidential answers to your medicine questions by calling



Medicine Storage and Disposal, Safe Use, and Misuse

Using the correct dose of medicine is a science—too little won't be effective, and too much could be harmful. It's also important to make sure that medicines are stored up, away, and out of sight, as well as disposed of properly (see bit.ly/fda-disposal).

Play the **Hidden Home Hazards** game as a family to learn about safe storage.

Medicine Safety Hunt

How safe is each room in your home? Work together as a family to make sure that all types of health-related items are up and away in a safe location. Look for all of the following:

- ▶ Liquid medicines
- ▶ Pills
- ▶ Medicated creams
- ▶ Cough drops
- ▶ Eye drops
- ▶ Vitamins
- ▶ Supplements
- ▶ Prescription medicines
- ▶ Other healthcare products or potentially dangerous products, such as detergent pods

1. Are all medicines up, away, and out of sight?
2. Is the medicine dosing device stored with the medicine?
3. When disposing of a medicine, do you follow the U.S. Food and Drug Administration's guidelines?
4. Is any medicine past its expiration date?

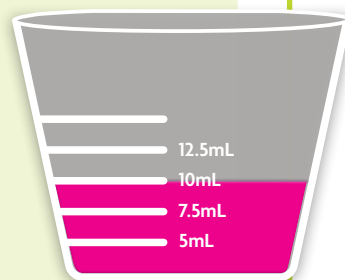
What Should You Do?

As a family, read each of the following scenarios about OTC medicines. Is this situation safe? Is this misuse? How should the characters handle the situation?

- ▶ Nikita has a headache. Last time she had a headache, her dad gave her some ibuprofen. He isn't home from work yet, so Nikita goes to the medicine cabinet and takes a couple of the pills without talking to her dad.
- ▶ Ruben is taking a dose of cough syrup under his mom's supervision. He forgot the dosing device in the cabinet, so he

grabs a spoon from the kitchen drawer to measure his dose of medicine.

- ▶ Every day, Angelica takes a once-a-day allergy medicine. Her mom always reminds her at breakfast. Today, though, it doesn't seem to be working. At lunchtime, Angelica takes another dose of the medicine so she will feel better faster.



Dosage Cup



the Poison Help number, 1-800-222-1222, or visit poisonhelp.org.



Our OTC Medicine Safety Checklist

- ☐ Read and follow the *Drug Facts* label every time.
- ☐ Measure carefully. Keep the medicine and the dosing device it comes with together. Never use household spoons to measure medicine.
- ☐ Check that all medicines, vitamins, and supplements are stored up, away, and out of sight of young children. Keep prescription medicines locked away.
- ☐ Ensure that the child safety caps are locked on all medicines.
- ☐ Remind visitors to keep luggage, purses, or anything else that might have medicines in it out of children's reach and sight.
- ☐ Medicines should only be taken with the supervision of an adult or trusted guardian. Communicate with other caregivers to prevent double-dosing errors.
- ☐ Make sure your children know that using OTC and prescription medicines incorrectly can cause harm.
- ☐ Program the Poison Help number into your phone: **1-800-222-1222**.
- ☐ Bookmark the Interactive Poison Help Website: **poisonhelp.org**.

Emergency Contacts

Post these numbers in a prominent place in your home. Remember to save them into your cell phone in case of emergency.

Family Doctor Name: _____

Phone Number: _____

Pharmacy Name: _____

Phone Number: _____



Poison Help Number: **1-800-222-1222**

Open 24 hours a day *every day of the year*. Calls are fast, free, and confidential.

Interactive Poison Help Website: **poisonhelp.org**

All of these resources and more are available for FREE:
ymiclassroom.com/otcmedsafety-families