4-H at HOME

To discover a wide selection of 4-H activities and experiences, visit 4-H.org/4HatHome

OPTIMAL PET HEALTH

NOT A SHOT IN THE DARK

30 minutes | Grades: 6-8

Measuring Medicine for Optimal Pet Health

—

Learn to keep your pets healthy by putting your math skills to work.

About the Activity

*This is the final activity in a four-part educational series about preventing and treating illness in animals. You can see the other activities in this series **here**.*

Do you remember the last time you went to the doctor? Maybe it was because you weren't feeling well, or maybe it was just for a checkup. Most likely, when you arrived, the nurse asked you to step on the scale. That part might not have seemed important at the time, but it probably helped the nurses and doctors guide how to treat you.

Weight plays a similar role with our pets. When a vet checks an animal's weight, they can learn a lot about the animal's health and how much medicine to give them if they are sick. With that in mind, we are going to learn how to measure medicine by weighing the people or animals in our household and applying some basic math. Then we'll make a pretend medicine, and pretend to give it to our patients. Ready to put your veterinarian skills to the test?

Supplies

These simple materials will get you started.

- A pen or pencil
- A piece of paper
- A measuring cup
- Regular cups
- Measuring spoons
- Water
- A scale
- The downloadable conversion chart attached to this activity
- Optional: A calculator
- Optional: food coloring

Grades: 6-8

Topic: Veterinary science
Time: 30 minutes

Activity Steps

Follow these steps to determine how much "medicine" to administer:

Part 1: Weigh your patient

1. Decide which people or pets in your house are going to be your patients. For younger veterinarians, it may be easy to start with people. You can pick a grownup, sibling, or any other friend who is willing to participate.

   OPTIONAL: You may also select a pet that lives in your home to be one of your patients, with adult supervision. It's probably a good idea to stick to pets that are easy to hold, and that live on the ground. Pets like fish, birds, or amphibians are probably not good for this activity, since they either need water to survive or are not easy to hold. If you have an animal like a cat that doesn't like to be held, choose a different pet.

2. Record your patients' weight, bringing them our scale one at a time. Have each patient step on the scale and record their weight on the chart below.

   TIP: If you have decided to weigh a pet, it will probably be difficult to capture their weight without help. To do this, ask one of your people patients for help and try the following:

   1. Have your helper stand on the scale, and write down their weight.

   2. Now have your helper stand on the scale again, but this time, while holding your pet. Write down that weight, too, using the example in the following chart:

Helper's weight	150 pounds
Helper's + Pet's weight	170 pounds
Pet's weight	???

   3. Subtract the first number you identified from the second one. The difference should be equal to your pet's weight. Put that final number into the downloadable conversion chart that is a part of this activity.

   EXAMPLE: To find your answer, write down the second number, then subtract the first:

   170 pounds - 150 pounds = 20 pounds.
   So, in this example, your pet would weigh 20 pounds!

   DID YOU KNOW? Maintaining a healthy weight can help animals to live a long and healthy life. Pets that have a healthy weight are **less prone to illnesses** like diabetes, high blood pressure, arthritis, and kidney disease. They are also less likely to suffer from injuries.

Part 2: Calculate their dosage

1. For this particular experiment, your patient should receive 1 cubic centimeter (cc) – sometimes referred to as a milliliter – of medicine for every pound they weigh. For example, a 20-pound dog would receive 20 cc of medicine.

- **1 cubic centimeter (cc) = 1 milliliter (ml)**
- **5 cc = 1 teaspoon (tsp)**
- **30 cc = 1 ounce (oz)**
- **8 ounces = 1 cup**

...**Part 2: Calculate their dosage** continued on next page

2. Use the attached conversion chart to plan out how much you are going to give to each of your patients.

3. Using water and your measuring spoons, serve out the number of teaspoons your patient needs into a cup. For example, if your patient needs 4 teaspoons of medicine, fill your teaspoon with water and place the water into a cup 4 times. If your patient needs 30 teaspoons of medicine, do this 30 times!

TIP: Want to make it more fun? Add some food coloring to the medicine and mix it up! But to keep from spreading germs, we don't suggest making anyone drink the medicine, whether it has coloring in it or not.

DID YOU KNOW? There's a faster way to measure out 30 teaspoons of medicine for a patient? See the bonus activity step below to learn more.

Patient	Weight	Dosage Rate	#CC | 5CC	Amount Given (TSP)	Amount Given (OZ)
Grownup 1	150 pounds	1cc per pound	150cc | 5cc	30 teaspoons	5 ounces
Pet 1	20 pounds	1cc per pound	20cc | 5cc	4 teaspoons	2/3 ounce

Bonus Activity Step:

Early in this activity, we asked if there was a better or faster way to measure out 30 teaspoons of medicine. **There is!**

If you want to further challenge your math skills, try converting cc to ounces.

- **Remember:** 30 cc = 1 oz
- Feel free to use a calculator or ask a grownup to help if you need some extra support. Use the chart above to fill in your answers!

DISCLAIMER: *Take medication correctly and only when directed by a doctor. This activity uses a harmless liquid as a "medication," but you should never play with medicines, take or administer them to others!*

30 minutes | Grades: 6-8

Test Your Knowledge

Test Your Knowledge

What have you learned about giving medicine to animals?

QUESTION 1

What does weight tell us about our pets?

a. If they are healthy
b. If they are happy
c. If they are smart
d. How much medicine they need if they are sick
e. Answers A and D

QUESTION 2

Animals that maintain a healthy weight are less likely to:

a. Have diabetes
b. Have high blood pressure
c. Have pain from arthritis
d. Have kidney problems
e. All of the above

QUESTION 3

True or False: The easiest way to measure the weight of a squirmy animal like a dog or a cat is have someone hold the pet while standing on the scale, then weigh that person by themselves, and subtract the weight of the person alone from the weight of the person holding the pet.

a. True
b. False

QUESTION 4

Fill in the blank: 1 cubic centimeter (cc) is equivalent to _____ :

a. 1 milliliter
b. 1 tablespoon
c. 1 teaspoon
d. 1 ounce

QUESTION 5

Fill in the blank: 30 cubic centimeter (cc) is equivalent to _____ :

a. 1 milliliter
b. 1 teaspoon
c. 1 ounce
d. 1 cup

Reflection Questions

Questions to deepen wonder and understanding.

- Why are math skills important for veterinarians?
- What could happen if you give an animal the wrong amount of medication?
- What other ways can animals receive medication aside from drinking it?
- What kinds of situations would require an animal to receive a different type of medicine than liquid to drink? Are there situations where an animal might receive a cream/salve or a pill instead?
- What other types of medicines are out there that you haven't talked about yet?

30 minutes | Grades: 6-8

Investigate & Explore

Take your new knowledge to the next level.

Pets and animals get sick, just like humans. Dogs, for example, can get common sicknesses like heartworm and kennel cough. Illnesses like these are treatable with different types of medicine – and the amounts of these medicines an animal would get would be based on how big they are.

Other common dog illnesses like distemper or parvo are also treatable with medicine, but the best treatment for those kinds of diseases is to stop them before your animal can ever catch them, with vaccines.

This is the final activity in a four-part educational series about preventing and treating illness in animals.

To see the other activities in this series, visit our Stopping Sickness activities page.

Brought to you by:

NATIONAL 4-H COUNCIL

TEXAS A&M AGRILIFE EXTENSION