

Pet Tech

Activity 2: Grades 5-8 Evaluating Dog Food

In the segment [The Bite Stuff](#), you learned how the consistency of dog food can affect the build up of dental plaque. Nuggets that are high in vegetable fiber are more likely to hold together as they are chewed. Since they maintain form, the nuggets offer a surface that can scrape teeth clean of plaque build up. With the plaque removed, teeth are better protected from decay.



OBJECTIVE

This activity page will offer:

- An inquiry experience
- An experience in modeling the biting process
- An opportunity to participate in consumer science

MATERIALS

- Large metal nails
- Quick drying correction fluid (such as the commercial product, Wite Out)
- Safety goggles
- Varieties of dry dog food samples
- Variety of vegetable and fruit chunks (such as carrots, apples, vegetables)
- Piece of cardboard

Part 1 - Evaluating Nuggets

PROCEDURE

1. Paint the pointed end of five nails with a coat of white correction fluid. The paint should extend from the point of the nail to approximately 1 inch (about 2.5 cm) up the nail shaft. Let dry.
2. Paint each of the nails with a second coat and let dry.
3. Obtain five different samples of dog food nuggets - each from a different manufacturer,

4. Put on your safety goggles. Place the nugget on a table on top of the piece of cardboard. Carefully insert one of the coated nails into the center of a nugget.
5. Once the nugget shatters, examine the appearance of the nail. Has it changed? If so, describe its new appearance. Note also if no change has occurred.
6. Repeat this test using a different nail for each of the remaining four brands of nugget.

ANALYSIS

Compare and contrast the action of the nuggets. How does the coat of correction fluid change as the nail is worked into the pellet? Which nuggets are more likely to clean the teeth surface during a dog's normal chewing activity? Is there a correlation between cost of the food and its teeth-cleaning ability? Is there a correlation between teeth cleaning ability and fiber content of the nugget? Which nuggets would you recommend? Why?

COMMERCIAL BREAK

Write a 60-second television commercial for a dog nugget manufacturer who wishes to sell a product that is superior in its teeth scraping ability. Once you've written the script, and with the proper permission, videotape your commercial. Have a Cannes Canine Film Festival and show off your productions to your classmates.

PART 2 - A Human Connection

PROCEDURE

1. Clean off the five nails and cover them with a fresh coat of correction fluid.
2. Obtain five chunks of different food samples such as carrot, apple, potato, pear, and celery.
3. Test each food with a new nail to uncover its ability to scrap teeth of plaque buildup.

ANALYSIS

Compare and contrast the effects of the food samples on the nail coating. Which types of food would be more likely to clean the tooth surface? Is this type of plaque-scraping capability less important in human foods? Explain.

ACID BREAKDOWN

Cavities are formed by the effects of acid on tooth material. You can model this reaction using vinegar (an acid) and an egg shell. Place pieces of eggshell in a container. Cover the eggshells with a layer of vinegar. Secure the top on the container and leave undisturbed. On the next day examine the eggshell. How has it changed? For a more dramatic effect, you might wish to submerge an entire egg in a larger vessel filled with vinegar.

WEB CONNECTION

Canis Major

<http://www.canismajor.com/dog/teeth.html>

a primer on dog teeth with numerous links pertaining to canine health

Pet Education

<http://www.peteducation.com/dental/toothbrushing.htm>

a site that instructs you how to brush your pet's teeth

The New Cavity Fighters

http://www.findarticles.com/m1200/8_158/65301573/p1/article.jhtml

Science News primer on the new generation of cavity fighters in humans

The activities in this guide were contributed by Michael DiSpezio, a Massachusetts-based science writer and author of "Critical Thinking Puzzles" and "Awesome Experiments in Light & Sound" (Sterling Publishing Co., NY).

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