



LEARNING LYNX | Investigating Tooth Decay

Students will understand the process of tooth decay and the role of oral bacteria.

Students will identify foods in their local grocery store ads that support or hinder oral health.

Students will apply their knowledge of healthy food choices to critically examine grocery store sales.

CHEW ON THIS

Have you ever heard a parent, teacher, or dentist tell you that sugar causes cavities? Many people believe that sugar dissolves your enamel and causes tooth decay or dental caries. But this is not the whole story. While sugar plays a role in tooth decay, the process involves some other key players. Your mouth is an environment full of life. It is home to billions – yes, **BILLIONS** – of oral bacteria, microorganisms that dwell in every corner of your mouth. Just like other living things, oral bacteria eat, reproduce, and make waste that is harmful to your teeth.



Not all bacteria are harmful! Take a look at how scientists at CU Denver are using bacteria to produce energy: http://www.denverpost.com/news/ci_24621676/

Perform a search in your local newspaper to find “bacteria” or “microorganisms”. In what kind of other environments do bacteria live? Are these bacteria helpful or harmful?

FOOD FOR THOUGHT

Here is the real truth behind tooth decay. Oral bacteria, like any other living creature, must eat in order to survive. Bacteria in your mouth have an appetite for two things: sugar and starches. When you eat sugary or starchy foods, your saliva helps to wash most of it down your throat. But some tiny food or drink particles linger in your mouth and become food for your oral bacteria. The bacteria in your mouth consume the sugar and starches and excrete a waste product called acid. The acid from the bacteria then begins to dissolve the tooth enamel, causing tooth decay over time.



THE TWO STAGES OF TOOTH DECAY

STAGE 1

Bacteria
+
Sugars or Carbohydrates
=
Acid

STAGE 2

Acid
+
Teeth
+
Time
=
TOOTH DECAY



TAKING ACTION

So what can we do to prevent tooth decay? Think about the two stages of tooth decay. There is a solution for each:

STAGE 1

In stage one, bacteria eat sugar or carbohydrates to make acid. By avoiding foods that are high in sugar and carbohydrates, oral bacteria will have nothing to eat. They will not die – unlike humans, many bacteria can remain dormant without food for a long time. But without sugars and carbohydrates to eat, bacteria will not produce the acid that destroys your teeth. As a bonus, these bacteria will not have enough food energy to reproduce, so there will be fewer harmful bacteria in your mouth as well.

STAGE 2

While limiting foods that are high in sugar and carbohydrates is the best way to prevent tooth decay, there is another line of defense. When oral bacteria make acid, it takes time for the acid to destroy your teeth. This period of time is different for every person. By brushing your teeth twice a day for two minutes and flossing daily, you can dislodge the plaque from your teeth and gums. Plaque is a sticky mixture of food, bacteria, and the acid that bacteria produce. Do you ever notice that your teeth feel fuzzy before you brush and smooth after? When you brush your teeth they feel better and are freed of the plaque and acid that causes tooth decay.



IDENTIFYING HEALTHY FOOD CHOICES

The best way to avoid tooth decay is to eat a balanced diet that is low in sugar and carbohydrates and full of nutrients. Meat, eggs, and nuts are naturally sugar and carbohydrate-free. They are a good choice for your oral health because they do not provide food for the bacteria in your mouth. There are many foods that contain some sugars or carbohydrates but are important to your diet because they also provide vitamins, minerals, and fiber that keep the body well nourished. These foods, which are also a smart choice for good oral health, may include fruit, milk, whole grains, and vegetables. High-sugar or high-carbohydrate foods should be limited whenever possible. These include candy, cookies, chips, soda, juice, and many packaged or processed foods.





Scan the grocery ads from your local paper. Create a list of ten food or drink items that are healthy choices for your teeth and ten items that are unhealthy choices. Why are these healthy and unhealthy choices? Remember to refer back to your learning on tooth decay.

Ten Healthy Choices:

- 1. _____ 2. _____ 3. _____
- 4. _____ 5. _____ 6. _____
- 7. _____ 8. _____ 9. _____
- 10. _____

Why are these good choices for oral health?

Ten Unhealthy Choices:

- 1. _____ 2. _____ 3. _____
- 4. _____ 5. _____ 6. _____
- 7. _____ 8. _____ 9. _____
- 10. _____

Why are these poor choices for oral health?

Are there more healthy or unhealthy food and drink items that are featured in sales and discounts? Why do you think this is the case? How do these advertisements impact shoppers' decision-making? What impact could grocery store advertisements have on oral health?



MILO'S EXTRA CREDIT

A Story for the Whole Family

Read this CU Denver produced story about oral health with your family:

<http://bit.ly/1gaAS3E>

Throwback Thursday

Enjoy these old school dental decay cartoons from the American Dental Association:

<http://www.mouthhealthy.org/en/Throwback-Toothday/>

Mark Your Calendar

National Children's Dental Health Month is February. Find printable posters and other dental health activity sheets here:

<http://www.ada.org/5578.aspx#sheets>



FIFTEEN SECOND SURVEY

Help us create a resource you can use with just 4 questions:

<https://www.surveymonkey.com/s/QMG3Z5V>

COLORADO ACADEMIC STANDARDS

CCSS.ELA-Literacy.CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text

CCSS.ELA-Literacy.CCRA.R.7 Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.