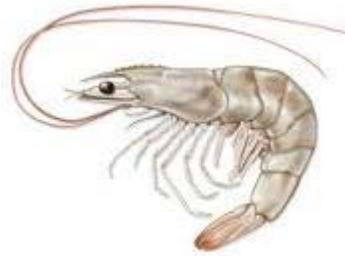


# What Are You Tasting?

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<b>Organization:</b>	<b>Louisiana Sea Grant College Program</b>
<b>Subject area</b>	<b>Food science, social science</b>
<b>Grade</b>	<b>4-12</b>
<b>Lesson Length</b>	<b>20-30 minutes</b>



## Focus/Overview of the lesson:

Taste is influenced by our senses and taste can also be influenced by our perception of what we expect to taste. During oil spills seafood contamination or tainting by oil is a concern for fishermen and consumers alike. This activity will help students determine that what they see or think they see is not always what they taste. Following the Deepwater Horizon oil spill in April 2010 the possibility of oil tainted seafood was a huge concern. Although little or no oil contamination has been found in seafood samples, Gulf seafood sales have been down because the public believes (falsely) that Gulf seafood was contaminated or tainted by the spilled oil.

## Student Learning Objective:

### The students will...

- ...use their senses to simulate seafood taster training
- ... link perceptions of taste to expectations created by outside factors of seafood tainting after the Deepwater horizon oil spill

## Louisiana SCIENCE Grade Level Expectations

GRADE LEVEL	TARGET GLEs
G-4, 5 Inquiry GLE#7	Use the five senses to describe observations (SI-E-A3)
G-5-8 GLE # 7	Record observations using methods that complement investigations (e.g., journals, tables, charts) (SI-M-A3)
G-5 GLE# 49	Identify and give examples of pollutants found in water, air, and soil (SE-M-A3)
G-5 GLE # 50	Describe the consequences of several types of human activities on local ecosystems (e.g., polluting streams, regulating hunting, introducing nonnative species) (SE-M-A4)
G-6 GLE 43	Explain how the use of different energy resources affects the environment and the economy (SE-M-A6)
G-7 GLE # 39	Analyze the consequences of human activities on ecosystems (SE-M-A4)
G-7 GLE # 43	Identify and analyze the environmental impact of humans' use of technology (e.g., energy production, agriculture, transportation, human habitation) (SE-M-A8)
G-8 GLE # 51	Analyze the consequences of human activities on global Earth systems (SE-M-A4)
HS ES Env. Sci. GLE # 12	Give examples and describe the effect of pollutants on selected populations (SE-H-A11)

## Ocean Literacy Principles

### 5. The ocean supports a great diversity of life and ecosystems.

a. Ocean life ranges in size from the smallest virus to the largest animal that has lived on Earth, the blue whale.

i. Estuaries provide important and productive nursery areas for many marine and aquatic species.

### 6. The ocean and humans are inextricably interconnected.

b. From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our nation's economy, serves as a highway for transportation of goods and people, and plays a role in national security.

e. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (such as point source, non-point source, and noise pollution) and physical modifications (such as changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

## Materials

Cinnamon sugar (store in a jar or salt shaker that cannot be seen through)

Student score sheets

Test liquids (pick 4-8, cut some 50:50 water and juice)

Water

White cranberry juice or standard cranberry juice

White grape juice

Lemonade

Apple juice

Lemon/lime Gatorade

Tasting cups (bathroom paper cups)

Food coloring

Clear bottles or pitchers, recycled water bottles (students must be able to see the liquid they are tasting)

Paper towels, trash container

Dump vessel for leftover juice

Unsalted saltine crackers (for clearing palette)

## Advanced Preparation

**Prepare** cinnamon sugar and store in a salt shaker

**Print** score sheets for each student

**Label** clear bottles A-D with black marker

**Place** juices in clear bottles

**Use** food coloring to tint each juice a different color

**Record** color and flavor of each marked bottle

**Suggested colors:**

White grape juice - yellow, red, orange,

Water - any color

Red cranberry juice - brown (add green)

Apple - blue or purple

White cranberry juice -green, blue/green

Gatorade lemon lime - brown

Lemonade - tan, blue, pink

## Background

Taste and smell are connected. The ability to taste is determined by your sense of smell. This activity models a process in which seafood "testers" are trained to recognize contaminated seafood by their sense of smell. A trained human nose can detect as little as 1 ppm of crude oil in seafood, far less than concentrations that can cause harm if consumed. What many people do not know is that they have to eat 63 lbs of seafood each day for five years to consume enough hydrocarbons to begin to be concerned about harmful health effects.

## Procedure

### **Engage**

*Silent Blind Taste Test 1* (to save time enlist an assistant)

Ask students to list the five senses and ask which senses are used to taste food. Write these senses on the board. Ask them what a blind test is. Tell them they will simulate part of the training seafood testers go through to become experts at detecting oil in seafood through their sense of smell.

Explain to your students that they will use only their sense of taste to determine a mystery substance. Pass out student score sheets and explain their writing task and tell students the score sheets will be collected. Announce that this is a **silent activity** and you will place something in their hand that they will taste with their eyes and noses closed. **Instruct** all students to hold their nose, close their eyes and hold their hand out palm up. Sprinkle some cinnamon sugar in each students hand and tell them they can taste it when they are ready. Once tasted and the flavor is determined and recorded they can open their eyes and noses to check **silently**. Students will write on their score sheets a description and flavor of the mystery substance.

### **Explore/Explain**

When everyone is ready, ask the class what they **thought** they tasted **before** they saw it. Write each item on the board. Take a poll of which flavor students wrote down. Some students will have no idea what the substance is, others will say sweet/sugar and typically none will taste the cinnamon.

Ask students why they think they were not able to taste the cinnamon or the sugar if they did not see it or smell it. Ask them if they were allowed to see or smell it before tasting would their result been more accurate? Reinforce that your sense of taste is linked to your sense of smell and therefore your perception of what you will taste. How does the media affect your perceptions?

Explain that cinnamon has very little taste. However; it has a strong aroma which gives it its taste. The sense of taste is dependent on the smell. Each person has different levels of ability in detecting different smells and tastes. Tasting oil in seafood especially after a spill is often a perception in rather than a reality.

### **Expand**

*Silent BlindTaste Test 2* (to save time have cups poured at each station)

Instruct students that now they will taste four or more different everyday liquids using all of their senses. This time they can look, smell and taste it. However, there is **no discussion** during the taste test either. Each student will record the flavor and strength (strong/weak/no) of each liquid on their score sheet.

Once everyone completes the task and returns to their seats, lead a discussion on each liquid. Ask students what liquid A was and list all suggestions on the board. Once no other flavors are added, take a count of hands for each suggested flavor. Then reveal its identity. Follow through on the other three.

### **Evaluate/Discussion**

Ask students if they were surprised at their result. How can relate to seafood safety? Did color have an influence? How difficult is it to determine taste with the incorrect cues. Which senses did they use? Refer back to the board at the beginning. Do they agree? Why? Reiterate that perceptions can affect your taste and smell. How can words affect you taste? Collect score sheets.

This lesson was developed by Louisiana Sea Grant in response to the BP Deepwater Horizon blowout in partnership with Louisiana teachers, Louisiana Sea Grant College Program, Audubon Aquarium of the Americas, Louisiana Wildlife and Fisheries, LSU Department of Education Theory, Policy and Practice, UNO Pontchartrain Institute for Environmental Studies, LSU Agriculture Center, SELU Department of Teaching and Learning, Barataria Terrebonne National Estuary Program and Louisiana Universities Marine Consortium.

**Student Score Sheet** (Keep your ideas to yourself until the group discussion!  
This sheet will be collected at end of activity)

Name \_\_\_\_\_ Date \_\_\_\_\_

**Silent Taste Test 1**

Describe what you felt and tasted **before** you knew what it really was.

What did you conclude what this substance was **before** you checked?

What is the substance?

**Silent Taste Test #2**

#	Color	Flavor	Taste is....		
			Strong	Weak	
			1	2	3
A					
B					
C					
D					

-----cut here

**Student Score Sheet** (Keep your ideas to yourself until the group discussion!  
This sheet will be collected at end of activity)

Name \_\_\_\_\_ Date \_\_\_\_\_

**Silent Taste Test 1**

Describe what you felt and tasted **before** you knew what it really was.

What did you conclude what this substance was **before** you checked?

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**Silent Taste Test #2**

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