

# Saturday Science Week 1 (K-2)

## Observation vs. Inference/Sense #1: Eyes

September 26, 2009

### Materials:

Science Journal – Composition notebook (one for each student - 24)  
4 Round fish bowls  
4 Pieces of heavy paper (cardstock would work)  
Tape  
Modeling clay (enough to make 8 medium sized balls)  
12 pairs of scissors  
4 pieces of white tissue paper  
4 flash lights  
4 magnifying glasses  
10-12 compasses  
Colored markers 50 rubber bands  
50 6”x6” of white card stock  
6 hole punchers  
Markers  
Jars  
Paper test strips

### Benchmarks (for unit):

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

- People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens. 1B/P1
- Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1B/P3
- When people give different descriptions of the same thing, it is usually a good idea to make some fresh observations instead of just arguing about who is right. 1B/P4
- Everybody can do science and invent things and ideas. 1C/P1
- In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean. 1C/P2
- People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

## **Standards:**

- K.1.2 Begin to demonstrate that everyone can do science.
- K.2.2 Draw pictures and write words to describe objects and experiences.
  - 1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.
  - 1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.
- 2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.
- 2.1.4 Make new observations when there is disagreement among initial observations.

## **BIG IDEA(S)**

- 1.) An observation is the information gained by using one of my senses. An inference is what I think the observation is based on the information gained.
- 2.) Seeing is one my five senses. It works with my brain to help me see the world around me.

## **Lesson One: Observation vs. Inference**

- 1.) Begin the lesson by reading the book “Seven Blind Mice” by Ed Young. Stop throughout book to ask students what each mouse is doing (making observation) and what they think the mystery is (inference). This book is great for the learning on observation and inference because it repeats the idea multiple times with each mouse achieving a different result based on different observations.
- 2.) After the book, have a group discussion as to what an observation is and what an inference is. Write ending definitions from the group discussion on the board for the entire class to see. Have them write down the ending definitions that are on the board in their science journals.
- 3.) **Activity 1: Tricky Tracks**
  - a. Display a “Tricky Tracks” on the projector. Only show small bits of the image in order for the students to share their observations and inferences.
  - b. After doing two out loud and group shares, have the students work as teams to figure out the end result of the image by continuing to show more aspects of the image and giving them a few minutes to share as a group what is going on in the picture.
  - c. Have them pick a group spokesperson to share with the class what their group inference is.
  - d. Gather the class back as a whole and have a group discussion as to what is going on in the image from the projector.
  - e. Have each group share their inference with the entire class.
  - f. Guide their discussion to include the words observation and inference.
- 4.) **Activity 2: Chromatography Paper and Colors**

- a. Tell the students that now they will be conducting their first in-class “experiment”. They will be using filters with colored dots on each and water to determine what colors are on the strips.
  - b. Set up what their science journal should look like on the board (place for before and after). Also write out the sentence on the board for them to fill out in their journals: **“My first observation is the color is \_\_\_\_\_. I infer the colors are \_\_\_\_\_ because I observed the colors \_\_\_\_\_.”**
  - c. Pass out supplies needed for the color filter experiment.
  - d. Walk around to help the students complete the experiment.
  - e. Encourage them to make many observations and to write them in their science journal.
- 5.) Snack time! Line students up for a restroom break and to wash their hands. When they return, pass out the snack.

## **Lesson Two: Sense #1 – Eyes (Seeing)**

- 1.) Show an eye diagram to the class using the projector. Ask the students what they know about the eye. Write notes on the board to track their discussion. Also, point out key parts of the eye (lens, retina, optical nerve, etc.)
- 2.) **Activity 1: Eye Simulation**
  - a. Set up four eye stations. Each station will have them learn more about how the eye works. At each station will be an eye simulation made from a fish bowl, water, a flashlight, a magnifying glass, and a cut-out image. The image will be projected onto the back of a paper on the back of the fish bowl upside down. This is to simulate the actual upside down image that our retina “sees”.
  - b. Have each student observe this at one station.
  - c. After observing, have them write or draw what they saw at the station.
  - d. Have them make inferences as to what is going on in eye simulation.
  - e. Come together as a group to discuss the eye station.
  - f. Show the eye picture again and compare it to the model at each station.
  - g. Lead and help students to conclude to answers about the eye and as to why we actually see things the “right way” (right side up) by the help with the brain.
  - h. They may also now at this time add things to their information they gained from the station.
- 3.) **Activity 2: Motion and How Your Eye and Brain Work Together!**
  - a. Start a discussion as to how the eye works to see things move such as on the television, a movie, or in a flip book.
  - b. Pass out flip books or show one from a youtube video.
  - c. After the showing of the clip/looking of the book, it is time to begin the activity.
  - d. Have each student cut out one circle (about 2 inches in diameter). Draw a red circle on one side and a blue cross on the other. Put two hole punches (one on each side of the circle) on the paper circle. Loop one rubber band through each hole. Twist the rubber bands by holding onto them and spinning the circle. Release the circle and have them record what they see in their science journals.

- e. After the class has worked on this and has made observations, gather the class back together to discuss what they observed.

**4.) Assessment Activity: Observation and Inference with Frog Picture**

- a. Project one image from the projector for the students to observe. Have them make 3 observations and 3 inferences in their science journal. Write the following on the board: **“I observe ...”** and **“My inference is ...”**.

# Saturday Science Week 2 (K-2)

## Hearing and How the Ears Work

October 3, 2009

### Benchmarks (for unit):

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

- People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens. 1B/P1
- Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1B/P3
- When people give different descriptions of the same thing, it is usually a good idea to make some fresh observations instead of just arguing about who is right. 1B/P4
- Everybody can do science and invent things and ideas. 1C/P1
- In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean. 1C/P2
- People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

### Standards:

K.1.2 Begin to demonstrate that everyone can do science.

K.2.2 Draw pictures and write words to describe objects and experiences.

1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.

1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.

2.1.4 Make new observations when there is disagreement among initial observations.

### BIG IDEA(S)

- 1.) Hearing is one my five senses.
- 2.) Sounds travel in waves. I can feel these waves because they cause vibrations.

## Materials

Students' Individual Science Journal (started last week)  
"Sounds All Around" Picture Book

### Activity 1:

- 4 pots
- Plastic wrap
- 2 wooden spoons
- 2 plastic spoons
- small bag of uncooked rice

### Activity 2

- 3 beakers filled with water
- 3 sets of tuning forks (each have 3 different pitches)
- Tuning fork hammer to hit tuning fork

### Activity 3

- 3 cardboard tubes
- Plastic wrap
- 3 flashlights

### Activity 5

- 15 plastic Easter eggs
- Tape
- Small items to place in the eggs (paper, coins, legos)

## Lesson Plan

- 1.) Begin by reviewing the past week's lesson. **"What sense did we talk about last week that can help in making observations?"** Take kids answers and have them share some observations they made this week. **"Did anyone make notes in their journal about observations they made with their eyes?"**
- 2.) Introduce the new sense for the week. **"I am going to read a short book to you that will tell us all about our next sense we will be learning about. Can anyone infer what that sense is by looking at the cover of my book?"** Hold book (Sounds All Around) so class can see the title and cover page. Take answers and then read the book to the class.
- 3.) **Activity 1: See Some Sound**
  - a. Pass out materials to students for activity.
  - b. **"In our first activity of the day, we will be "seeing" sound. How can one see sound?"** Take answers. It is ok if their first predictions are incorrect. The activity will help them to learn more.

- c. **“Take your pot and put the plastic over the top. With a large rubber band, secure the plastic to the top of the pot. Place a small handful of rice on the plastic. Bang (not super loudly) your spoon on the other pot next to the rice. What happens? Jot down in your journal what your experiment set up looks like and then perform your experiment. Jot down what happens to the rice.”**  
The students will see the rice jump! This is due to the sound traveling in waves and moving the plastic. Venture around the classroom to help students and instruct them on the loudness of the classroom (the banging may get out of control, so it is important to keep it reasonable).
- d. Come together as a class to discuss what happened.

#### 4.) Activity 2: Tuning Forks

- a. **“A tuning fork is a tool we can use to demonstrate how sound travels and makes things vibrate. I will hit the tuning fork to make a sound and if you watch carefully you will notice something.”** Pass out the sets of tuning forks to the groups. Each group should have 3 different pitches and a tuning fork hammer to each tuning fork.
- b. **“Touch the tuning fork after you strike it. Notice what happens!”** Allow students to feel the vibrations. This will help them to grasp the concept of waves and vibrations in sound.
- c. Ask the class, **“What would happen if you placed the tuning fork in the water when it was ringing?”** Take predictions from the students. Pass out beakers full of water to each group of students. Allow students to use water if they wish to place their tuning fork in water.
- d. Gather the students’ attention for a whole class discussion. Make notes on the board and have them draw and write what they saw during the experiment.

#### 5.) Activity 3: How the Ear Works

- a. During the students snack time, set up the next activity. The stations should be around the room and complete for students to walk up to and explore.
- b. Once snack time is finished, have the students get ready for the next activity. **“Let’s review what we have learned thus far about sound.”** Jot notes down on the board of the students comments on what they have learned thus far.
- c. **“Our next activity will demonstrate the ear. You will speak into the cardboard tube. Observe what happens to the light! Please go to a station in the back and begin your exploration.”**
- d. Have volunteers helping the students with you at each station. Ask the students what they observe!
- e. Gather the students back at their seats. **“Let’s go back to our tables and discuss what we saw. Can anyone explain what they saw?”** Listen for answers and jot notes down on the board.
- f. Show a picture of the ear on the projector and teach about the parts of the ear they just learned about through the activity.

6.) Snack Time!!! Have students line up for a bathroom break. When they return, snack time will begin.

#### 7.) Activity 4: Outside Adventure

- a. Have the students line up at the door to get ready to go outside. **“For our next activity, we will be going outside. It is very important that you listen and**

**follow directions because we do not want anyone to get lost or get hurt. Once outside, I will explain our activity.”**

- b. Once outside, prompt for activity. “Imagine if you could not see. How would you be able to tell where you were?” Wait for answers. “Our ears help us to hear and make different observations that eyes cannot make. Find a buddy to complete this activity with. Once you have your buddy, raise your hand. We will give you a blind fold for one person to wear. It is important that you stay with your buddy so that he or she does not hurt themselves when blind folded. The person without the blindfold will lead the other person to a spot outside. There the blindfolded person will sit quietly and make observations with their sense of hearing. Once directed, you can switch roles. Enjoy your sense of hearing!”**
  - c. Walk around helping and keeping students on track. Have volunteers monitoring as well. After about 5 minutes, switch the roles of the buddies.**
  - d. Gather everyone outside and sit together. Ask the students about their observations. “What observations did you make today with your ears?” Make sure everyone gets a chance to share.**
  - e. Once everyone has shared, line the students up and return to the classroom.**
- 8.) Assessment Activity/Closure: Egg Shake**
- a. Have the students take out their journals. “For our last activity, you will be making notes in your journal. Title the page “What’s in my egg?” We will be passing out an egg to everyone. Your job is to make observations of your egg. After you have made your observations, infer what’s inside!”**
  - b. Pass out the eggs.**
  - c. Make sure the students are using their sense of hearing instead of opening the egg!**



# Saturday Science Week 3 (K-2)

## Sense #3: Touch

October 10, 2009

### **Materials:**

Science Journal – Composition notebook (one for each student - 24)

7 Blindfolds

15 Sheets of large white paper

Paintbrushes or something with a small, circular point

Tape

Glue

Braille Alphabet (3)

Braille practice sheets for students to write their name on

Black marker (3)

Items for touch board (feather, wood, sand paper, rock, string, etc.)

Mystery Boxes

Items for myster boxes (rock, ball, etc.)

5 socks

Items for mystery socks (golf ball, eraser, pen, etc.)

Items for senses activity (apple, eraser, sponge, candle, etc.)

### **Benchmarks (for unit):**

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens. 1B/P1

Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1B/P3

When people give different descriptions of the same thing, it is usually a good idea to make some fresh observations instead of just arguing about who is right. 1B/P4

Everybody can do science and invent things and ideas. 1C/P1

In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean. 1C/P2

People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

## **Standards:**

K.1.2 Begin to demonstrate that everyone can do science.

K.2.2 Draw pictures and write words to describe objects and experiences.

1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.

1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.

2.1.4 Make new observations when there is disagreement among initial observations.

### **BIG IDEA(S)**

Touch is one my five senses.

I can make observations by touching objects. I can observe by touch that objects are rough, smooth, soft, or hard (as examples).

People who cannot read can use their sense of touch to read Braille letters.

### **Lesson Plan**

1.) Begin today's lesson with a recap of last week's lesson, allowing students to share their observations they made at home and noted in their science journal.

2.) Introduce today's new topic. **“The sense we will be discussing today is touch. Let's start out by making list of describing words that we may use when using our sense of touch.”** Wait for students' responses and write them on the board. This word bank can help them later when they are having trouble spelling or thinking of words to use in their science journal when noting their observations in the activities.

3.) Next, read the story of the day. **“To start out our lesson today, we will read this book together.”** Allow students to look at cover and predict what the story may be about. (Topic: Braille)

4.) After the story, gather students' attention and discuss the story. They may not have heard of Braille before, so it is important to discuss what it is and its importance to people who cannot see and must rely on their sense of touch to read.

## 5.) Activity 1: My name in Braille

a.) Pass out Braille examples. Allow the students to use their sense of touch to see what Braille feels like.

b.) Have the students close their eyes and then pass out Braille books. Have them make observations about what they feel when running their fingers over the Braille letters/words.

c.) Pass out Braille alphabet sheets and blank sheets for children.

d.) Explain the activity to the students. **“In front of you is the Braille alphabet. Like our alphabet, letters make up words. However, in Braille, tiny bumps represent a letter. Notice the black dots. Wherever you see a black dot, a tiny bump should be there. On your blank sheet, you will be writing your name in Braille. In the blank spots, take a marker and make a dot in the slots where they are supposed to be. Use the alphabet sheet to help you. You will dip the end of the brush that does not have the brush hair into the glue very carefully! With this, you will then recreate the Braille letters onto your blank sheet. We will let the glue dry, and after snack, we will try out our Braille names!!! If you have time, you can also make more words on your sheet.”**

e.) Pass out materials and help students with their letter making. Reinforce the idea that they do not need lots of glue! All they need is a dot or else the letter won't feel like Braille.

f.) Once each student has written their name in Braille, sit them in the back on the empty counters to dry.

g.) Ask students what they thought of the activity and have them express what feelings they have or may have if they were blind and had to read in this way.

## 6.) Activity 2: Touch Board Making Activity

a.) Start the next activity by explaining what they will be doing. **“Next, each of you will get a bag. In this bag, you will secretly place items in your bag that have interesting textures. Once we get back inside, you will be putting these objects on a piece of paper and have the other students guess what your objects are while they are blind folded! We will be doing this outside, so make sure you have your jacket on. Try to collect at least 5 objects!”** Some students may not collect 5 objects, so have things ready for them to use in case they do not have enough objects.

b.) Line the students up and go outside.

c.) Once outside, have the volunteers and yourself walk around to keep students on task. Gather the students back to return inside once they have collected their items.

d.) Once inside, split the students in half and have half on one side of the room

and the other half on the other side. Pass out paper for them to tape their items on. Say, **"Now, you will be taping your objects to your paper. Once done, we will blindfold one half and give you a touch board from another person in the other group. It is your job then to make observations and determine what is on their board."**

e.) Allow each student to make sure they get the opportunity to guess and have their board items guessed.

7.) Snack time! Line up students to allow them to wash their hands and use the restroom in necessary. After they return, pass out snacks and drinks. When they are done, throw away trash and get ready to resume the lesson.

### 8.) Activity 3: Mystery Box

a.) Start the next activity by explaining what they are going to do. **"The next activity is called the Mystery Box. Each group will have a box on their table with a spot cut out so you can place your hand in the box. A teacher or helper will place something in the box. One student will then place a hand in the box and make observations. The student will tell their other table members what their observations are/what they feel in order to have their table mates guess what's in the box. Each student will have the opportunity to put their hands in the mystery box."**

b.) Pass out the boxes and bags of mystery items to each table. Assign a volunteer to be in charge of the box and bag of items. Have them place one item in the box. Have a student come up and begin the activity then at each station.

c.) Have the students come together after they have each had a turn at the mystery box.

### 9.) Activity 4: Match the Bag Items!

a.) Start the activity by explaining what they will be doing. **"Next, each table will get two bags. Inside each bag are items. There are matching items, one in each bag. It is your job to put your hands in each bag and find the matching item in the other bag. Make observations out loud to your table mates so they know what you are feeling in the bags. Once you have found a match, pull the items out to see if you are correct. Keep the matched items on the table. Pass the bags around then to your other classmates."**

b.) Pass out the bags to each table, and have the students begin the activity.

c.) Gather the students back after the activity to discuss what they observed during the activity.

### 10.) Activity 5: Senses all over!

a.) **"In this next activity, you will be taking items and touching them to a partner in order to see if they can guess the object. Try places like arm, wrist, leg,**

**head, and hands. You will need a partner."**

b.) Once they have found their partner, blind fold the partner that will have their eyes closed and give the other partner an object to use on the other. Make sure that students are staying on track by walking around and helping those who are confused.

c.) Make sure each student has the opportunity to be play each role.

d.) Once the students have each played each role, gather the students back to a class discussion. The goal of this activity is to see that different parts of the body have different abilities of the sense of touch. Some places are better than others at telling what the object is.

11.) NOS Conversation: What aspects of NOS were discussed/used today?

12.) Assessment: Have the students write in their journal the following sentence and complete. **"I can use my sense of touch to \_\_\_\_\_  
because\_\_\_\_\_."**

# Saturday Science Week 4 (K-2)

## Sense #3 & 4: Touch (cont.) & Smell

October 17, 2009

### Materials:

Science Journal – Composition notebook (one for each student - 24)

7 Blindfolds

15 Sheets of large white paper

Tape

Black marker

Items for mystery smells board (vinegar, water, vanilla, pickle juice, cinnamon, etc.)

Items for mystery bags (rock, ball, etc.)

4 Paper bags for mystery bags

Items for senses activity (apple, eraser, sponge, candle, etc.)

Cottonballs

Mystery Sprays (clear liquids with fragrances)

### Benchmarks (for unit):

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

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People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

**Standards:**

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1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.



2.1.4 Make new observations when there is disagreement among initial observations.

## **BIG IDEA(S)**

Smell/Smelling is one my five senses.

I can make observations by smelling objects. My observations can help me determine what the object is and what the object may be used for.

## **Lesson Plan**

1.) Begin today's lesson with a recap of last week's lesson, allowing students to share their observations they made at home and noted in their science journal. Encourage each student who completed the assignment to share what they observed. Share observations you made as well.

2.) Last week's lesson was over the sense of touch and not all of the planned activities were completed. The beginning of the day's lesson will be with finishing and working through more touch sense activities.

### **3.) Activity 1: Match the Bag Items!**

a.) Start the activity by explaining what they will be doing. **"Each table will get two bags. Inside each bag are items. There are matching items, one in each bag. It is your job to put your hands in each bag and find the matching item in the other bag. Make observations out loud to your table mates so they know what you are feeling in the bags. Make sure you are making both observations and inferences. Once you have believe you have found a match, pull the items out to see if you are correct. Keep the matched items on the table. Pass the bags around then to your other classmates."**

b.) Pass out the bags to each table, and have the students begin the activity.

c.) Gather the students back after the activity to discuss what they observed during the activity.

d.) Invite students to challenge themselves by only using one finger to make observations. By doing this, they will discover how your sense of touch can be limited by how you are using it.

### **4.) Activity 5: Senses all over!**

a.) **"In this next activity, you will be taking items and touching them to a**

**partner in order to see if they can guess the object. Try places like arm, wrist, leg, head, and hands. You will need a partner."**

b.) Once they have found their partner, blind fold the partner that will have their eyes closed and give the other partner an object to use on the other. Make sure that students are staying on track by walking around and helping those who are confused.

c.) Make sure each student has the opportunity to be play each role.

d.) Once the students have each played each role, gather the students back to a class discussion. The goal of this activity is to see that different parts of the body have different abilities of the sense of touch. Some places are better than others at telling what the object is.

5.) Snack time! Line up students to allow them to wash their hands and use the restroom in necessary. After they return, pass out snacks and drinks. When they are done, throw away trash and get ready to resume the lesson.

6.) Introduce today's new topic. **"The new sense we will be discussing today is smell. Let's start out by making list of describing words that we may use when using our sense of smell."** Wait for students' responses and write them on the board. This word bank can help them later when they are having trouble spelling or thinking of words to use in their science journal when noting their observations in the activities.

7.) Next, read the story of the day. **"To start out our lesson today, we will read this book together."**

8.) **Activity 3: Mystery Smells...What are you smelling?**

a.) For this activity, the students will be making observations about smells that are "colorless". Since they cannot make observations about what color the odor comes from, they will only be relying on what they smell.

b.) Model the behavior they will be doing. **"You will be smelling mystery smells. However, as scientists, we do not always know what we are smelling. Because of this, we must be very careful when we use our noses to smell. Scientists have a special way of smelling. They wave their hand in front of them to push the air to their nostrils. This helps because it breaks apart the smell and allows you to get a less strong smell in case the smell is horrible or dangerous. For this first experiment, you will be spraying the smell onto a paper. Instead of wafting the air to your face, you can simply wave the paper in front of your face to obtain a safe smell. Please use this technique as you make observations because you are not sure what you are smelling."** Spray some fragrance on the paper and wave it in front of your face to show them how they are to do it.

c.)Next, explain that you will be giving each of them a small cup of coffee beans as well. Explain how these help to clear your nose of smells because sometimes smells run together when you are smelling multiple things.

d.) After that, show them that they will be taping the smells into their journal and will write observations in their science journal about each smell. They may also make an inference as to what it is.

e.) Pass out the materials and begin the investigation with the students.

f.) Walk around making sure students stay on task and get help when they need it. Also, ask students assessment questions to note their progress. Some examples are:

Why is the sense of smell so important?

If a person is blind, how can the sense of smell warn them of a fire?

What is the best smell and the worst smell you've experienced?

How does the sense of smell help us to enjoy life?

g.) Once students all have made observations about each smell, gather the class together and share observations and inferences.

#### **9.) Activity 9: "Eww! That stinks!": Using Sense of Smell to learn about everyday common liquids/foods/items**

a.) Begin by explaining the next activity. **"The next smelling investigation will have you smelling things again, but this time, you will jotting down feelings or memories along with your observations in your science journal. Not all of the smells will remind you of something, but if something does, journal a few notes or ask for help in writing about that memory. Memory is often tied to memory, and smelling certain things can trigger memories."**

b.) Next, discuss again the proper procedure for smelling objects in the investigation. **"You will have plastic baggies with a smell in each bag. The cotton balls are there to absorb the liquid if the smell was from something in liquid form. You will open the baggies and take out the ball from the bag with tweezers and help from an adult, and use the technique of using your hand to push the air to your face."**

c.) Set up their journal page for them on the white board. This will help them to keep track of their observations, inferences, and memories.

d.) Next, pass out materials to students to begin the smelling!

e.) Walk around and help students as they are working on the investigation and in their journals. Ask questions (like mentioned above) to monitor learning and assess if they are learning from the investigations.

f.) After each student has smelled all the smells and has a memory in mind from one smell, pass out one pre-cut circle to each student. On this circle, the student will write the number associated with the scent that triggered a memory. As a class, we will

graph the results to see which smell triggered the most memories. Also, the students may share their memory as they are placing their circle on the class graph.

\*Note: No assessment activity because I want to get practice on assessing through oral responses rather than written work.

# Saturday Science Week 5 (K-2)

## Sense #5: Taste

October 24, 2009

### Materials:

Science Journal – Composition notebook (one for each student)

Juice: Pineapple, Water, Apple, Pear, and White Grape

Darker Dixie Cups

Straws

Jelly Bellys (lots!!!)

Crayons/Colored Pencils

Salt, Lemon Juice, Unsweetened Baking Cocoa, Honey

Q-tips

Sour Candies

Crackers

PTC Paper

### Benchmarks (for unit):

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens. 1B/P1

Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1B/P3

When people give different descriptions of the same thing, it is usually a good idea to make some fresh observations instead of just arguing about who is right. 1B/P4

Everybody can do science and invent things and ideas. 1C/P1

In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean. 1C/P2

People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

**Standards:**

K.1.2 Begin to demonstrate that everyone can do science.

K.2.2 Draw pictures and write words to describe objects and experiences.

1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.

1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.

2.1.4 Make new observations when there is disagreement among initial observations.

## **BIG IDEA(S)**

Taste is one my five senses.

I can make observations by tasting objects.

My tongue has taste receptors that can taste different flavors.

## **Lesson Plan**

1.) Begin today's lesson with a recap of last week's lesson, allowing students to share their observations they made at home and noted in their science journal. Encourage each student who has completed the assignment to share what they observed. Share observations you made as well.

2.) Next, make the word list for the day. **"Today we will be talking about our sense of taste. Let's make our list of describing words that we may use when using our sense of taste."** Wait for students' responses and write them on the board. This word bank can help them later when they are having trouble spelling or thinking of words to use in their science journal when noting their observations in the activities.

3.) **Activity 1: How do my sense of taste and sense of smell work together?**

a.) Recap a bit from last week. **"In our first exploration, we are going to be taste testing different juices. You will be getting 4 different liquid drinks to drink. At first, you will try them with your nose plugged. After you have drank the liquid, jot down in your journal your observation!"** Show them how this will work by drinking one of the juices with your nose plugged. Do not tell them what you taste though because you want them to not get ideas from what you say about how it tasted. **"Next, smell the drink as you taste it. Write down your observation!"**

b.) Pass out the drinks one at a time to each of the students. By doing it this way, they will not be overwhelmed by all the cups all over the table. Also, there is a less chance of something spilling if there are less cups on the tables.

c.) Walk around and make sure students are on task.

d.) Once all students have observed their liquid, change the liquid. Make sure the different tables are working on different liquids so that they do not take answers from other tables. (ex. Give table 1 grape juice 1<sup>st</sup> and table 2 grape juice 3<sup>rd</sup>.)

e.) Once all students have observed each liquid, bring them back together as a class for discussion.

f.) For discussion, teach about how the sense of taste and smell work together. Have the anatomy portion of the lesson at this moment. Explain about nose and tongue, why taste works, why we have receptors, how we have different taste. Talk about Ron's mom and no sense of

smell.

#### 4.) Activity 2: “PTC Paper: What kind of tongue do I have?”

a.) For this activity, the students will be testing to see if they can taste/are sensitive to the chemical PTC. Some people inherit this trait, while others will not taste anything. Say, **“Everyone is born with certain characteristics or things different than them. Most of us resemble our parents in some way, and it is from them we get these characteristics. These characteristics are called traits. In this exploration, we will testing to see if you can taste a certain taste. You will be first tasting paper one (hold up example of control paper) and recording your observation. Next, you will be tasting paper two (hold up example of PTC paper) and recording your observation.”**

b.) Pass around one control paper to each student. Have them taste it and write down at least one observation.

c.) Pass around one PTC paper to each student. Have them taste it and write down at least one observation.

d.) Once students have each tasted the PTC paper, have candy on hand to pass out because many students may have an awful taste in their mouth and would appreciate something that tastes better.

e.) Gather the students and discuss results as a class. Have students explain why they can taste it perhaps and others cannot.

5.) Snack time! Line up students to allow them to wash their hands and use the restroom in necessary. After they return, pass out snacks and drinks. When they are done, throw away trash and get ready to resume the lesson.

#### 6.) Activity 3: “Why do I have saliva?”

a.) For this activity, the students will be discovering why saliva is important. Say, **“Have you ever wondered why we have saliva? What does it do and why is it important? In this next activity, we will be discovering why it is so important, and to do that, we will be taking it away! You will need to dry your tongue with a paper towel, and then place a cheerio or cracker on your tongue. What do you observe and why do you infer saliva is important? Try this a few times with no saliva, and with saliva. Don’t chew the food, just try and taste it with your tongue.”**

b.) Pass out paper towels and dry food for them to taste to each of the students. Show them how to do it by gently wiping the towel on your tongue and then place a cheerio on your tongue.

c.) Walk around to both groups and question them to discover the answer as to why saliva is important.



d.) After the students are done tasting, gather the whole class back for discussion. Have students think out loud as to what is going on and why they can taste with saliva and not without.

#### 7.) Activity 4: Mapping out your tongue!

a.) For this activity, students will be exploring the different parts of their tongue. Say, **“While the tongue is covered with many taste buds, not all taste buds taste the same thing. The different taste buds are all over your tongue, but some are grouped together on certain parts of your tongue. Because of this, sometimes certain tastes are easier to taste on certain parts of your tongue. The four basic tastes most of us taste are sweetness, bitterness, saltiness, and sourness. We will test for one at a time by dipping one cotton swab into a cup and placing it on the back of our tongue. After that, take a sip of water so that you can rinse your mouth. Next, take a new swab and dip it in the liquid and then to the right side of your tongue (make sure by that each student knows right from left by having them hold up their right hand). Repeat for all sides and all liquids. We will be walking around to help you. You will be noting in your journals what you are observing for each of the liquids.”**

b.) Start with one liquid at each table. It may be a good idea for an adult to be in charge of the liquid cup and passing out new swabs to the students to allow them to dip. This will help make sure that no “double-dipping” is going on.

c.) Once both groups are done, gather the students together and take a poll as to what each student tasted and where. Discuss why these differences are occurring.

#### 8.) Activity 5: Jelly Bellies!

a.) The next activity will be the concluding activity to practice more observation and inferences. Say to the students, **“You will each be handed a certain type of candy. Do not eat the candy yet, but make observations. You can use multiple senses at first to make observations. What senses do you think we could make about these at first?”** Wait for answers. **“In your journal, I want you to pick out 3 of your jelly bellies to take notes on. Make observations and an inference about what flavor your jelly belly is. After you have been cleared to eat, you may eat your jelly bellies you took notes down on in your journal. Were your observations correct?”**

b.) Pass out napkins/paper towels to each student, followed by someone with jelly bellies. Pass out 5 candies to each student. In passing out a few at a time, they will be less likely to eat all of them at once because they know they at least have to keep 3 for their journal before they eat them. Also, 5 gives them an option to pick out the candies they want to use for their journal writing.

c.) Once the students all have their jelly bellies, monitor and make sure they are on task by helping them fill out their science journals. Be there to support the ones who are less comfortable with writing especially because they may just want to eat and not partake in the activity. Help them by writing for them or helping them spell. Also, have the classroom volunteers working with each table.

d.) Once students have completed their journal, pass out a few more that they can verbally make observations and inferences about.

e.) Once all students are finished, gather the class together for discussion. Some questions that could be asked to facilitate the discussion could be:

- What colors were harder to make inferences on?
- Did any of the flavors surprise you?
  
- Did you taste anything you have never tasted before?

9.) Assessment: Gather the students attention and have them answer the following sentence in their science journal. **“My tongue is special because ...”** They could answer many things (it helps me taste, it tastes different parts, it helps me make observations...) that could show their engagement and learning with today’s lesson.

Resources:

<http://pbskids.org/zoom/activities/sci/tonguemap.html>

<http://www.pbs.org/wgbh/aso/resources/campcurr/survey.html>

<http://faculty.washington.edu/chudler/chtaste.html>

# Saturday Science Week 6 (K-2)

## Using All of Our Senses Together

October 31, 2009

Katie Derloshon

### **Materials:**

Science Journal – Composition notebook (one for each student)

Mystery Objects (enough for each student) – could be citrus peeler, different science equipment, etc.

Corn Starch

Water

Dr. Seuss's "Oobleck" book

Mystery Box

Cooked Spaghetti and other items for mystery box

Flash lights

Paper

Magnifying glass

Fish bowl

Clay

Plastic Wrap

### **Benchmarks (for unit):**

<http://www.project2061.org/publications/bsl/online/index.php?home=true>

People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens. 1B/P1

Describing things as accurately as possible is important in science because it enables people to compare their observations with those of others. 1B/P3

When people give different descriptions of the same thing, it is usually a good idea to make some fresh observations instead of just arguing about who is right. 1B/P4

Everybody can do science and invent things and ideas. 1C/P1

In doing science, it is often helpful to work with a team and to share findings with others. All team members should reach their own individual conclusions, however, about what the findings mean. 1C/P2

People use their senses to find out about their surroundings and themselves. Different senses give different information. 6D/P1\*

## **Standards:**

K.1.2 Begin to demonstrate that everyone can do science.

K.2.2 Draw pictures and write words to describe objects and experiences.

1.1.1 Observe, describe, draw, and sort objects carefully to learn about them.

1.2.7 Write brief informational descriptions of a real object, person, place, or event using information from observations.

2.1.3 Describe, both in writing and verbally, objects as accurately as possible and compare observations with those of other people.

2.1.4 Make new observations when there is disagreement among initial observations.

## **BIG IDEA(S)**

The students will be able to ...

Say or write, "I have 5 senses that help me make observations."

Say or write, "These senses are sight, hearing, taste, smell, and touch."

Say or write, "These senses can work together to help me make more informed inferences."

## **Lesson Plan**

- 1.) Begin today's lesson with a recap of last week's lesson, allowing students to share their observations they made at home and noted in their science journal. Encourage each student who has completed the assignment to share what they observed. Share observations you made as well.
- 2.) Next, introduce today's lesson. **"Today we will be reviewing our five senses and how they work, along with then using them to make observations about mystery objects. To review some of the senses, you will be visiting three stations that are previous Saturday Science activities to refresh your memory about that sense."** Walk around the room showing where each of the stations are located, and explain the work needed to be done at each station. Also show them the journal sheet they will be completing at each station. They are to tape the sheet into their journal once completed.
- 3.) Have the students rotate throughout the stations. Grouping with this will be important. Group students with others they have not worked with or do not sit by so that behavior issues may be minimized. Walk around and help students with the stations. Have volunteers assigned to one station to guide students and answer questions.
- 4.) After students have visited each station (each station should be approximately 5 – 10 minutes), gather class back and have an entire class station. Go through each station and have students explain what they did and the meaning behind each station.

## **5.) Activity 1: Mystery Object**

a.) Have enough mystery objects for each student to have a different object.

b.) Explain the activity. **“Each of you is going to get a different object. Some of you may know what an object is, even if it is not yours’, but do not give any answers away. Once you have your object, you are to make observations using at least 3 of your senses. None of them are food, so your sense of taste should not be used for this object. It is important to only taste items when you know it is safe to taste them; however, for this activity, you will not need to taste any of the objects. You will need to choose 3 other senses for this activity.”**

c.) Explain their note taking/observing and inferring. **“In your journal, you will be making at least 10 observations, but the more, the better. You will be making only ONE inference! You will be inferring what the object is called and what it is used for. Only make one inference for each of the themes: name and use. After every one has made their observations and one inference, you will place your item in a bag and pair up with someone. You will then tell them your observations and have them make one inference as to what the object is and is used for.”**

d.) Pass out the objects. Monitor students by walking around and asking them why they are using what senses they are using. Give students plenty of time to make their observations and to make inference as to what their object is and what it does. Invite students to use their creativity.

e.) Once students have made their observations, have them share them with a partner. Ask them what senses they used and why.

f.) NOS discussion: Introduce the concept of creativity and how it is very important in science.

6.) Snack time! Line up students to allow them to wash their hands and use the restroom in necessary. After they return, pass out snacks and drinks. When they are done, throw away trash and get ready to resume the lesson.

## 7.) Activity 2: Dr. Seuss’s Oobleck

a.) Have a brief discussion about the main states of matter. **“Let’s have a talk about the ways you can find water. How would one describe water? What happens when you freeze it? What happens when it “dries””? (With this, the three main states of matter found here on Earth can be discussed.) Let’s make a list of descriptive words that can be used when talking about each of these states.”**

b.) Make a list on the board of words that the students say when describing each state of matter.

c.) Introduce the book. **“Next we will be reading the Dr. Seuss book about oobleck. We will then play with oobleck.”**

d.) Read story. It may need to be shortened if the students are getting antsy in their seats

due to the length of the story.

e.) Pass out the oobleck. Each student should get their own bag of oobleck. Ask the students to use their senses (it is safe to taste) to determine the nature of oobleck. Is it solid, liquid, gas, or something else? Why?

f.) Allow the students plenty of time to play and observe the oobleck. Their inference is whether or not it is solid, liquid, gas, or something else and what it is made of/what it could be used for.

g.) Once students are ready to discuss, have a class discussion as to what oobleck is and why they think that way. Ask them to share their observations that support their inferences.

## **8.) Closure to Saturday Science**

a.) Congratulate the students for completing this semester of Saturday Science.

b.) Pass out shirts and certificates.

## Resources for Saturday Science Unit (K – 2)

### WEEK 1:

“101 Great Science Experiments: A step-by-step guide”

Written By: Neil Ardley

[www.youtube.com](http://www.youtube.com) (for video shown of a flipbook)

### WEEK 2:

“101 Great Science Experiments: A step-by-step guide”

Written By: Neil Ardley

### WEEK 3 and 4:

<http://faculty.washington.edu/chudler/chsense.html>

### WEEK 5:

<http://pbskids.org/zoom/activities/sci/tonguemap.html>

<http://www.pbs.org/wgbh/aso/resources/campcurr/survey.html>

<http://faculty.washington.edu/chudler/chsense.html>

### WEEK 6:

“101 Great Science Experiments: A step-by-step guide”

Written By: Neil Ardley

<http://faculty.washington.edu/chudler/chsense.html>