

Making Sense of Butterflies

Comparing Senses



Children begin to seek information for further understanding.

Children begin to use multiple strategies and all available senses to explore the environment.

Children begin to demonstrate the ability to remain engaged in an experiment.

Domain:

- Science

Objectives:

- Child will participate in simple investigations to test observations, discuss and draw conclusions, and form generalizations.
- Child will recognize that people use their five senses to explore their environment.
- Child will recognize a variety of earth materials by observing their properties (rocks, sand, dirt, grass, plants).
- Child will describe and discuss predictions, explanations and generalizations based on class experiments and activities.
- Child will develop skills to collect, describe and record information through a variety of methods such as discussion, drawings, maps and charts.

Materials:

- variety of objects that have an odor:
lemons, oranges, garlic, onions
- variety of objects that have different size, forms and textures:
rough: bricks, sandpaper, uncut pineapple, tree bark
smooth: a rock, bar of soap, apple, plum
- Feely box (large shoe box or small cardboard box with a lid)
- Smelly jars (small jars with a lid)
- variety of foods to sample with distinct tastes such as:
pickles, watermelon, strawberries, oranges, apples
- plastic spoons for tasting and knives for cutting and preparing foods
- objects that make recognizable sounds such as:
drum, bell or timer, phone ringing, knock at the door, whistle,
guitar or auto harp
- scarf to be used as a blindfold
- *Making Sense of Butterflies Comparing Senses Diagram (pp.313)*

Instructions:

- Explain to the children that humans have senses that tell us about the world around us. We will be talking about sight, touch, smell, hearing and taste. Butterflies also have the same senses that tell them about their world. We are going to compare how our senses are alike and different.

**Sight**

1. Refer to the “Comparing Senses” diagram to show children that we see with our eyes. Everyone has eyes. Some eyes are different colors, some are different shapes, but they all do the same job. The activities listed below will help children be aware of how we use the sense of sight to help define the world around us. Just as we see with our eyes, butterflies also use their eyes to see and gather information about their world.

2. Magnifying Fun: Explain to children that the purpose of the magnifying glass is to help our eyes see tiny details on small objects. Provide a magnifying glass and a variety of objects such as leaves, caterpillars, butterflies, bugs, and fruits from the story. Ask them to choose one object, look at it and describe what they see when they are using just their eyes. Now ask them to put a magnifying glass over the same object and describe what they see as they look into the magnifying glass. Ask them to describe or use Science Journals to draw the details they were able to observe. Add your magnifying glass to your science table.

3. Binoculars to See: Explain that a magnifying glass is used to see details on objects already close to us. Binoculars are used to see details in objects far away. Allow children to experiment using a real set of binoculars. Ask them to choose one object, look at it and describe what they see when they are using just their eyes. Now ask them to focus on the same object looking through the binoculars. Ask them to describe or use Science Journals to draw the details they were able to observe. You can extend this activity by creating toilet paper roll binoculars for each child. You will need two rolls for each child. The rolls can be decorated using markers or crayons. Attach the two rolls together with clear tape and punch holes to string yarn and make a necklace so that they can wear the binoculars around their necks. Add your real or created binoculars to your science table.

4. Mirror, Mirror, What Do You See? Gather a variety of small unbreakable mirrors as well a larger mirror for demonstration. Ask each child to stand in front of the large mirror and describe what he/she sees. A mirror gives a reflection of a real object and you must be able to use your eyes to see that reflection. Give children small mirrors and ask them to do a "Reflection Walk" around the classroom. Experiment with holding the mirrors at different angles to capture different reflections. Find other objects in the classroom that also give reflections such as metal spoon, shiny appliances, foil, water etc.

You may encourage children to use their Science Journals to record and predict which objects will have a reflection.

5. The "Take Away Game": Collect several items from the story for example, strawberry, apple, plum, pear, lollipop, pickle, leaf, butterfly, and caterpillar. Choose a few items and put them on a tray. Ask the children to look at the items. Now ask them to cover their eyes. Take one item away and ask if they can tell you which one is missing.

6. My World Without Sight: Ask children what they think it would be like if they could not see. Explain that all people have eyes, but not all eyes see properly. Some people need to wear glasses to correct the problem, while some people cannot see at all. Introduce the word blind referring to "People who are not able to see". How might your life change if you could not see? Let children experiment wearing a blindfold to help them understand how their world would be without the sense of sight. (**caution:** Use blindfold only with older children or those who agree to be blindfolded. Do not force children to wear a blindfold. Some may prefer to cover their eyes with their hands). Ask them to describe in words or use their Science Journals to draw the details about their experience.

7. Experiencing Braille: Ask children how people who are blind might be able to read. Explain that people without sight can use Braille to read by using the sense of touch with their fingers.

Acquire samples of Braille words and numbers. Check lending libraries to find a Braille version of "The Very Hungry Caterpillar". Allow children to explore their sense of touch instead of using their eyes to read.

8. My World is So Bright: Acquire several pairs of old sunglasses. If possible have many different shades of darkness. Allow children to see how their vision changes when they try on the different colored glasses.



Touch

1. Refer to the "*Comparing Senses*" diagram to show children that we feel with our skin. The skin on our fingers and hands often feel and touch many different objects each day. Butterflies have tiny hairs called setae that touch and feel. Setae hairs are found all over the butterfly's body. Setae are even found on the wings.

2. **Caterpillar Touches His World:** Just like a butterfly, the caterpillar has setae on his body that helps him to use the sense of touch to discover his world. Read *The Very Hungry Caterpillar*. Stop on each page to discuss what object the caterpillar may have touched. What do they think that object might feel like to the caterpillar?

3. **Feely Hands:** Accumulate a variety of objects of different textures such as sandpaper, cotton balls, fake fur, tree bark, sponge pieces, leaves, feathers, etc...

Trace each child's hand on a piece of poster board. Ask each child to glue a different textured item into the finger outline. Ask them to describe each item by color, size, or texture.

4. **Mystery Box:** Create a feely box, (bag or sock may also be used). Make sure that the box, bag or sock may be closed so that the child cannot see the item inside. Acquire a wide assortment of objects of different textures, shapes, weights, and sizes. Tell children that it is their job to identify the hidden object using only their sense of touch on their hands or fingers.

5. **Touching Words:** Using a "Mystery Box" is a perfect activity to help children become aware of words that are used to convey information about objects that they are touching. Encourage children to use some of these words to describe the objects they are touching in the Mystery Box. As children are touching some of these textures, ask them how they feel about touching that object?

light/heavy	cold/hot	sharp/smooth/rough
dry/wet/moist	big/little	one piece/many pieces
long/short	gooey/slimy	hard/soft
sticky		lumpy/bumpy

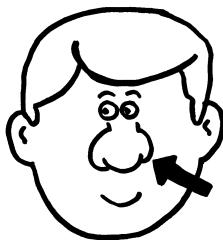
6. **What Makes Me Say "Ouch"?** Discuss that the sense of touch can also protect us. It lets us know when things are sharp, such as broken glass. Our sense of touch tells us when things are too hot such as fire or a stove. The sensation of pain comes from our sense of touch and signals that we may be in danger.

7. Fun Art Activities: To help children experience the sense of touch, try some of these art activities: finger painting, shaving cream painting, play dough, or goop (2 cups of cornstarch 1 cup of water).

8. Fuzzy Fingers: Create a "Sensory Walk" by assembling a variety of objects of different textures, shapes, weights, and sizes. Blindfold the child and ask him/her to identify the objects by touching, feeling and lifting the object. Now ask the child to put on a pair of gloves and repeat the "Sensory Walk". How did the gloves affect the sense of touch? You may also use the "Mystery Box" instead of creating a "Sensory Walk".

9. Water Table Science: Use your water table to house objects that help to teach sensations such as wet, dry, hot, cold, or warm. You can also use the water table for messy items such as goop or slime concoctions.

Other water table objects to experience the sense of touch may be: adding food coloring and soap to water, ice or snow, noodles, rice, beans, leaves, dirt, feathers, pine cones, twigs, or Easter grass.



Smell

1. Refer to the "Comparing Senses" diagram to show children that we smell with our nose. A butterfly uses his antennae to smell.

2. Caterpillar Smells His Food: Just like a butterfly, the caterpillar has antennae on his body that help him to use the sense of smell to discover his world. Read *The Very Hungry Caterpillar*. Stop on each page to discuss what object or food the caterpillar may have smelled. The main job of the caterpillar is to find food, eat and grow. Could his sense of smell help him to find food?

3. What Would Caterpillar Eat? Assemble the foods listed in the story. Blindfold each child to see if they can identify each food by smell. Do some foods have an odor that is more easily identifiable? Which ones? Ask them to predict which foods might be easier to identify by smell. Have them record their predictions in their Science Journals. After concluding the activities, ask them to write or draw about their experience.

4. Fun Art Activities: To help children experience the sense of smell, try some of these art projects with pudding.

shaving cream painting, play dough with extract added (such as vanilla, peppermint, orange, maple etc.).

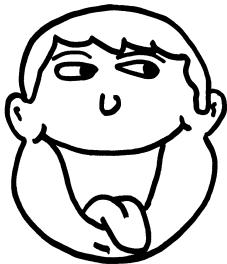
5. Oranges Smell So Good: Remind children that the caterpillar ate 5 oranges. In this activity, we are going to use an orange to make an air freshener that will smell so good. Give each child an orange and a handful of whole cloves. Allow the children to identify the smells. Have children stick the cloves into the oranges. You may hang your sweet smelling oranges by taking a small piece of ribbon or yarn and attaching it to a stickpin at the top of the orange.

6. Smelly Jars: Collect several small baby food jars with lids. Poke holes in the lid to let the fragrance out. In each jar put in a few pieces of cotton. Use extracts (for example vanilla, lemon, and peppermint), fruit juice or scented oils to soak the cotton. Other possible scents to use are: onions, vinegar, cinnamon, rubbing alcohol, perfume, lemon oil, and mothballs.

7. Popcorn Delight: Popcorn is one food that has a delightful aroma that is recognizable by most people. While children are outside or out of the room, make fresh popcorn and remove it from sight. When children come back to the room, tell them that they are going to have a special snack. Can they guess what it is? How did they know?

What sense did they use to guess that it might be popcorn?

(Popcorn is not recommended for very young children, as it may be a choking hazard).



Taste

1. Refer to the "Comparing Senses" diagram to show children that we taste with our tongues. Butterflies have sensory organs in their feet that taste food. Caterpillars also can taste food. Near their mouthparts they have two **maxillae**, which contain taste cells that tell the caterpillar what to eat.

2. Caterpillar Tastes His Food: Read *The Very Hungry Caterpillar*. Stop on each page to discuss what object or food the caterpillar may have tasted with his **maxillae**. The main job of the caterpillar is to find food, eat and grow. A real caterpillar is very limited in his diet. Many species will only eat the leaves of a single type of plant.

3. Tasty Facts: Taste buds are found on our tongues. They are grouped on the front, sides and back of our tongues. Provide children

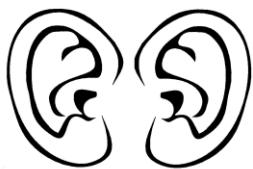
with a small hand held mirror so that they can examine their own tongues.

4. Tasty Words: These four words typically describe the taste of most foods; sweet, sour, bitter and salty. Encourage children to taste a variety of foods and determine which of these words best describes the food they taste. Record other word choices used by your children.

5. Tasting With My Toes: The butterfly has sensors in his feet that help him to detect taste. Do we have any other parts of our body that can detect taste? Use some of the foods found in the story such as apple slices, orange sections, or strawberries. Give children an orange slice and ask them to pick it up with their fingers. Are they able to taste the orange through their fingers? Instruct them to put the orange slice on other parts of their body (arm, wrist, knee etc...) to see if they are able to taste the orange. Finally, ask them to place a fresh orange slice on their tongue. Ask them to describe what they are feeling or what they can taste. How did it feel compared to when they placed the orange on their arm? Talk about other senses (smell or touch) that their body used. Repeat the activity using other foods. Compare the tastes of different foods.

7. Taste Testers: Gather a variety of foods in each of these categories: sweet (cookie, candy, sugar), salty (potato chips, olives, french fries), sour (lemon, lime), bitter (vinegar). Start with one category (for example sweet) and encourage each child to sample a piece of candy or other sweet food. Use the word sweet to describe the taste sensation. Now switch to another category such as salty and do another taste test. Use the word salty to describe the food. Now compare sweet to salty foods. Continue until the children have sampled all different food tastes. For a snack activity on another day, have a taste testing party. Provide a variety of finger foods and ask them to tell you about the different tastes using the words sweet, salty, sour or bitter.

6. Food Collage: Give each child a paper plate. Using food magazines, instruct the children to find pictures of their favorite foods and glue them onto their plates. Extend the activity by asking them to describe the foods as being sweet, salty, sour, or bitter.



Hearing

1. Refer to the "*Comparing Senses*" diagram to show children that we hear with our ears. A butterfly senses loud sounds through its wings.
2. **What Did the Caterpillar Hear?** Read *The Very Hungry Caterpillar*. Stop on each page to see if the caterpillar heard any sounds? Were there other senses that he used instead of hearing?
3. **I Can't Hear You:** Ask children what they think it would be like if they could not hear. Explain that all people have ears, but sometimes the ears do not hear properly. Some people need to wear hearing aids to correct the problem. There are some people that can not hear at all. Introduce the word deaf referring to "People who are not able to hear". How might your life change if you could not hear? Let children experiment placing their hands tightly over their ears to muffle soft sounds.
4. **A Sign for You:** Ask children how people who are deaf might be able to talk with each other. Explain that people who can not hear voices can use sign language to communicate with others.
Acquire samples of familiar words and numbers represented by sign language. Read or ask a signing expert to read "*The Very Hungry Caterpillar*" using sign language. Make a signing chart for familiar words and phrases used in the story so that children can experiment telling the story using signs.
5. **Caterpillar Band:** Give each child a musical rhythm instrument such as bells, kazoos, drums, wood blocks, etc. Allow each child to play his instrument individually. Discuss the different type of sound made by each. Ask the children to play instruments together in time to music or a steady beat. Play the instruments loudly and softly. Ask them to repeat a specific rhythm.
6. **Sound Jars:** Accumulate several small boxes or solid colored medicine jars. Gather pennies, marbles, paper clips, etc. Put one object in each jar and seal the lid. Make sure children cannot see the contents of the jar. Have children shake the jar and guess what is in the jar by listening to the sound. Make a matching game by making two of each jar and having the children match the sounds.

7. Whistle Hide and Seek: Create a fun game during recess time by giving one child a whistle. The rest of the class has to cover their eyes while the child with the whistle hides. The game begins when the hidden child begins blowing the whistle. The remaining children should uncover their eyes and use their sense of hearing to find their hidden classmate.

8. What a Beautiful Voice: Challenge children to identify each other by listening to only their classmate's voice. Ask a child to sit in a chair with his/her back to the rest of the class. Select one child to stand behind the chair and say this phrase from the story: "but he was still hungry". A blindfold may be used in addition to sitting in the chair. Once the children are familiar with the game, you may encourage children to disguise their voice to see if they can fool their classmates.

9. Journal Walk: Tell children that they will be taking a walk outdoors. Pass out their science journals. Instruct them to write or draw pictures showing what they predict they will hear while they are outdoors. Will it be birds, airplanes, cars, trucks, etc? Take a tablet of paper and a pencil with you on your walk so that you can record the things your children hear. Remind them that they need to be quiet so that they can hear the smallest of sounds. Once back in the classroom, review the sounds that they actually heard outdoors. Complete the activity by having them write or draw pictures about what they actually heard.

10. Do You Hear What I Hear? Collect objects that make recognizable sounds such as: drum, bell or timer, phone ringing, knock at the door, whistle, guitar or auto harp, etc. You may also use a recording of a variety of sounds. Challenge children to listen (without seeing the object) and identify the object making that sound.



Movement and Balance

1. **Refer to the "Comparing Senses" diagram** to show that children use their feet and legs to move from place to place. Butterflies can use their legs to walk. It is more effective to use their wings to move from place to place. The base of the butterfly's antennae is responsible for maintaining the butterfly's sense of balance during flight.
2. **A Balancing Act:** Use a low balance beam or wide strip of tape on the floor to help children acquire a sense of balance. Encourage them to walk on the beam or tape putting one foot in front of the other. Demonstrate that by putting their arms straight out to their side, they are better able to maintain their balance. Once the children are comfortable going forward and maintaining their balance, challenge them to walk sideways. Use the tape on the floor for safety. After they have mastered sideways walking, have them try walking backwards.
3. **Fly Like a Butterfly:** Encourage children to move gracefully like a butterfly. Observe how butterflies seem to float through the air using their wings to move them along. Children can hold colorful scarves or other flowing material that will appear to be graceful and float as they gently fly around the classroom. Play soothing butterfly music to encourage movement.
4. **Caterpillar Wiggle Walk:** Ask children to stand up tall with both feet on the ground. Demonstrate how to bend at the waist and put both hands on the floor. Put hands on the floor and walk them forward until you can't go any further. Walk your feet up to meet your hands. Ask children to imitate your movements to do the caterpillar wiggle walk. Encourage children to practice walking around the room using the caterpillar wiggle walk. Provide music to encourage wiggle walk movement. If children have difficulty mastering the wiggle walk, break the activity into four steps and practice each step before moving to the next one. (Bend at waist, hands on floor, walk hands forward, walk feet forward to meet hands.)



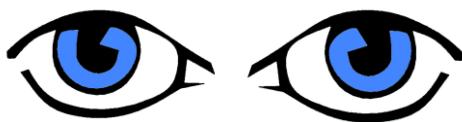


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Comparing Senses

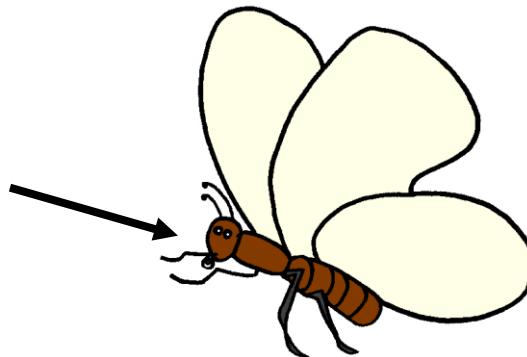


Humans

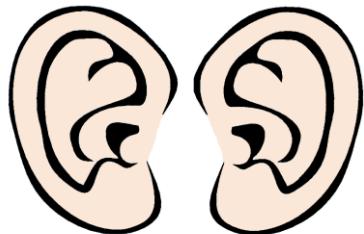


We see with our eyes.

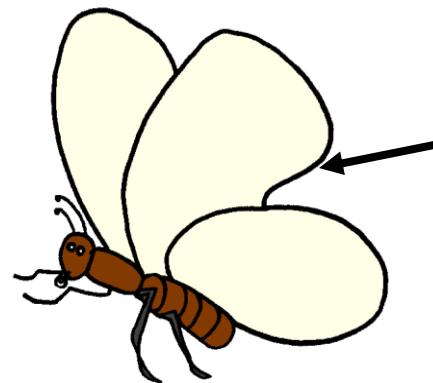
Butterfly



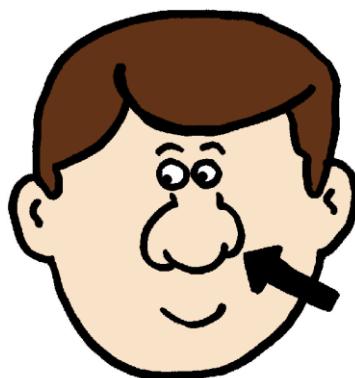
A butterfly sees with its eyes.



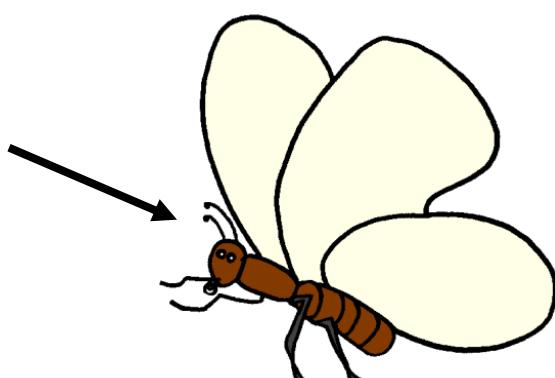
We hear with our ears.



A butterfly hears sounds through its wings.



We use our nose to smell.



A butterfly uses his antennae to smell.



Making Sense of Butterflies

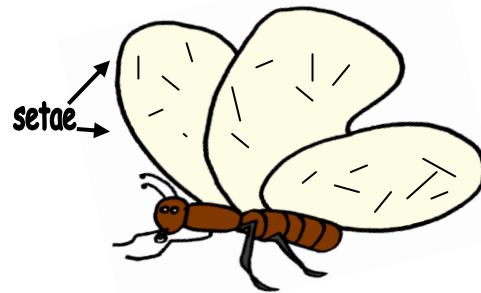
Comparing Senses

Humans

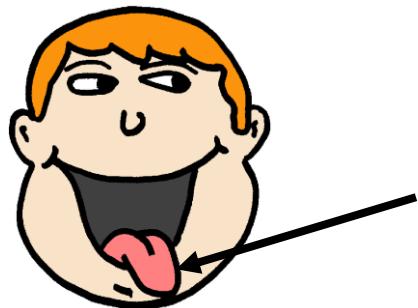
Butterfly



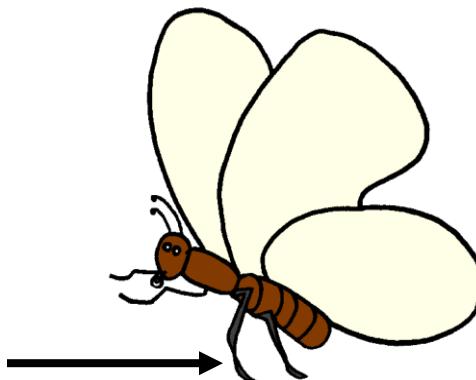
We use our skin to touch and feel.



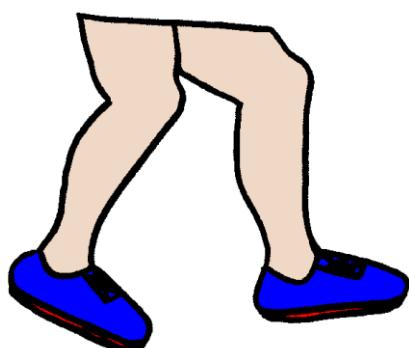
Butterflies have tiny hairs called setae that touch and feel. Setae are even found on the wings.



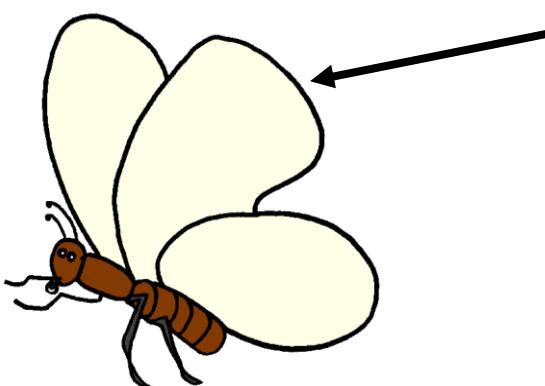
We use our tongue to taste.



Butterflies have sensory organs in their feet that taste food.



We use our legs and feet to move.



Butterflies use their wings to move.