Stream Sense



• Grade Level:

Lower Elementary, Upper Elementary

• Subject Areas;

Earth Science, Fine Arts, Language Arts

• Duration:
Preparation time: SOminutes

Activity time: two 50-ntinute periods

* Setting: A local stream
* Skills;

Gathering information (ob­serving, recording)

• Charting the Course

Have students explore what they think and feel about streams with an adapted version of "Idea Pools." In "Rainy-Day Hike," students study how their schoolyard may affect the health of neighboring streams. Ac­tivities on watersheds (e.g., "BranchingOut!") could fol­low this activity. Journaling (see "Water Log") could be introduced through this ac­tivity.

• Vocabulary

Observation- the act of noticing something through careful and direct attention

Senses-using sight, smell, hearing, taste, and touch

*What does your nose know and your ear hear about a stream?*

Students use their senses to observe a stream, learning there is more to flowing water than, meets the *eye,*

Objectives

Students will:

• recognize how their senses provide
them with details about stream
ecosystems.

Materials

* *Touch-and-feel bags* (a dark-colored bag
with sample materials that could be
found near a stream: a cattail, a
pebble, a shell, a twig, etc.)
* *Copies of the Sensory Observation
Sheet*
* *Pencils and crayons*
* *Journals* (optional)
* *Camera* (optional)
* *Tape recorder* (optional)
* *Binoculars* (optional)
* *Magnifying lenses* (optional)
* *Sample foods* (edible plants and seeds)
*that could be found near a stream* (op­
tional)
* *Spray bottle* (optional)
* *Collecting apparatus, such as buckets,
tweezers, nets, etc.* (optional)

Props:

Hornet nest – real example and facts with pictures

Track and Scat ID card set

Skull ID card set

Beaver chewed stick

Feathers - Turkey, pigeon, crow

Snapping turtle shell

Deer antler

Bird nest

Woodpecker pecked tree

Native Mussel (one of 13 found in Red River; freshwater mussels are one of the most endangered groups of animals)

Mussels used for buttons before plastic

Scat (fake) - cottontail rabbit, mouse, goose

Track molds - beaver, mink, porcupine, deer

Snake skin (garter snake?)

Bison bones - leg, horn, jaw and teeth

Rabbit pelts - White, dark brown, light brown, grey from different types of rabbits and different seasons (lighter for winter and darker for summer to help them blend into natural surroundings.)

Making Connections

Many people enjoy the sights and sounds of a babbling brook. People find comfort through the sense of touch and recall distant memories through certain smells. Often people depend on only their vision to gather details about their environment. By making careful obser­vations, students experience how their other senses (besides sight) provide them with additional information about the environment.

Background

Sense organs—eyes, ears, nose, tongue, and skin—are needed to detect the surrounding environment. With infor­mation it receives through the senses, the brain interprets what we see, hear, smell, taste, and feel. In addition to translating the information it receives, the brain also relates these details to memories and thought processes. In this way, recogni­tion and learning take place.

In most humans, sight is the predomi­nant sense organ. When an individual uses *all* of his or her senses to investigate the environment, the brain receives a broader range of information. This information provides the opportunity for more thorough learning.

A stream provides an ideal opportunity for people to use all their senses. People hear water rushing over rocks and lapping at the banks. They feel a breeze against their skin, and hear insects buzzing and chirping among the wil­lows. The air around the stream feels moist and carries a variety of particles from flowers, damp earth, and chemicals in the water to their noses. Along the banks and in shallow portions of the stream, a variety of materials of different shapes and

textures can be touched. It is important to protect the senses. Safety rules should be followed when students explore a stream.

Procedure

T *Warm Up*

Did they know they are already scientists?

* Playing with water in the tub while taking a bath/shower
* Playing in the backyard/nearby park; climbing a tree
* Playing with bugs, sticks and dirt

How are they all scientists? By noticing things. Help them enhance their inner-scientist-noticing-skills.

Noticing takes many forms:

* Count things. Counting forces you to pay attention to subtleties in landscapes, plants, critter, etc. (how many trees on hillside versus on the hilltop; how many leaves on the blue flower versus the yellow; how many different birdsongs are heard; etc.)
* Shapes, colors, and patterns (how do the rocks along the stream differ from the rocks found on the walking trails; are the cattails the same size, shape, color; etc.)
* Jot down findings/observations (what/how many birds seen, different mushrooms in the forest, what wildlife do you see, what does the wind sound, etc.)
* Draw a picture of what you see (leaf shape, difference in trees, bird on a branch, etc.)

A scientist ALWAYS asks – why, how, when. The answers are not as important as asking the questions.

Another way to be a scientist is to use your senses. Review the five senses (sight, sound, touch, smell, and taste). Discuss how they are used in daily life. Ask students about previous trips or visits to natural areas. How were their senses involved in these visits?

Ask students to describe how they observe things. Do they think it is possible to observe using all their senses?

V *The Activity*

1. Distribute touch-and-f eel bags to groups of students. Ask them to identify the objects inside by touch alone. Ask where they might find all these items.
2. Tell students they will be visiting a stream and will be record­ing how they use their senses to
observe the stream. Discuss the *Stream Walk Safety Rules.*
3. Hand out copies of the *Sensory Observation Sheet.* Explain that when they record their observa­tions, students should write things down or draw things as they per­ceive them. For example, when they look at things they should describe shapes and colors. When they hear things they can write down imita­tions of the sound (e.g., peep, peep, gurgle, gurgle, swish, swish, shoooosh!).
4. Throughout the trip, remind students about using their senses. Ask students to find a quiet spot near the stream and have them sit very still to look, smell, listen, and feel. Older children may want to sit for 15 minutes or more, while for younger students 2 or 3 minutes is probably enough. During this time, students can complete their observa­tion sheets. If they bring their journals, they may be inspired to write poems or draw pictures. Students may want to take photo­ graphs or tape record sounds.
5. Other sensory activities that students could do at the stream include the following:

 • Have them block one or more of their senses (e.g., close their eyes, cover their ears, plug their noses). How does this affect their other senses? Did students hear better when they could not see?

* Have a student guide a blind­
folded partner to his or her quiet
site. Have the partner recall
sounds, smells, and feelings he or
she experienced along the way.
* Supply students with ways to
improve the ability of their senses
(e.g., use binoculars, spray water
on their noses [moisture traps
scent particles], cup their hands
behind their ears).
1. Following are questions that could be asked of students before, during, or after the stream visit:

Sight: What plants and animals do they see? Does the appear­ance of the stream vary with location? Is the stream fast or slow moving? How can they determine its speed?

Sound: What sounds does the

stream make? Can they hear animals? What does the wind sound like?

Smell: How do smells near the

stream compare to those on a road or in a home? Does the water smell the same as tap water?

Touch: What does the stream water feel like? How does soil near the stream feel compared to soil in the woods or schoolyard? Are the rocks in the stream smooth or rough?

T *Wrap Up and Action* Have students share their *Sensory Observation Sheets* with the class. Ask them to create a mobile that includes things they observed with each of their senses at the stream. Have students create a display board titled

*Sensory Observations of a Stream.*

Assign students to create sensory guide sheets for other people who visit the stream. The brochure or sheet could identify specific locations where people could make observa­tions or it could be more general, listing sights, sounds, smells, and touchable objects near the stream.

Assessment

Have students:

* record observations (sights, sounds, smells, or textures) of a stream environment (steps 3 and 4).
* create a mobile that includes things perceived through their
senses at the stream site *(WrapUp).*
* create a sensory guide sheet to educate others about what theymight see, hear, touch, and smell at a stream *(Wrap Up).*

Extensions

Many state departments of natural resources, government agencies, water conservation agencies, educa­tion departments, and extension agencies have developed programs for studying and monitoring streams. Check the Resources section for a selected list of agencies and pro­grams. Following is a brief descrip­tion of some stream-related activities.

Other Things to Do at a Stream

Observations

What color is the water?

Is it always this color? Does it change throughout the day? What about during different seasons? Find an object that has a similar color to the water. Learn how water gets its color ... Hint: it has something to do with light!

Can you see the bottom?

Is the water clear or murky? Collect a jarful of water and time how long it takes material to settle. Try this at different times of the year. Is it the same each time?

What is on the bottom?

Look at the bottom. Obtain a sample and describe what it feels like. Is it sandy or rocky? Is it mushy or coarse? Record the size of the rocks or pebbles. Are they rough and angular or round and smooth? Can you tell where they came from?

What lives in the stream?

Look for big things and little things, plants and animals, fast movers and slow movers. Filter the water, look under logs and rocks, stir up the bottom and see what flows into a net. Keep a record of what you find. NOTE: Try not to disturb or harm living things. Return them after observation.

What's along the banks?

Look at the different plants and animals that live near the stream. Keep an inventory of trees, flowers, birds, mammals, and insects that you see. Remember to look and not touch. If samples are collected for classroom study, try to return them safely.

Describe the soil on the banks. Are the banks easy to walk on or are they slippery? Do you see signs of erosion or parts of the banks sliding into the river?

Take measurements!

Is the water cold or warm?

Measure its temperature with a thermometer. Check different locations along and within the river—are they all the same temperature? What about at different times of the day or year?

How fast is the water moving?

See how long it takes for an object to float a certain distance (e.g., 20 yards). Divide the time into the distance to determine how fast the water is moving (e.g., yards per second).

Water quality

(See list of water quality monitoring programs in Resources section.)

Many state agencies and biological supply companies have information and kits you can use to test water quality. Check out why and/or how to test for each of the following: dissolved oxygen, pH, nitrates, phos­phates, chlorine, hardness.

Taking action

Do you see any signs of pollution or litter? Talk with teachers or parents about organizing a stream cleanup. Collect and dispose of litter. (Be sure to wear heavy gloves.)

Design posters or make announcements on the radio about caring for the stream. (Ask local radio stations about making a public service announcement.)

Water Log

Record monthly observations in water journals to monitor changes over time.

Stream Walk Safety

*Notes for the Teacher:*

1. Visit the stream first to determine if it is safe for
students to visit. Check stream depth, velocity, and
temperature. Also look for walking conditions,
potentially dangerous wildlife, poisonous plants, etc.
2. Bring along a first-aid kit.
3. Define stream walk boundaries; make sure students
understand that staying within the boundaries protects
wildlife and students.
4. Locate a place where students can wash hands after the
visit.

*Rules for the Students:*

1. Students should stay with their assigned buddies.
2. Students should wear old athletic shoes or boots
because they will likely get wet and muddy.
3. Students should not enter the stream without
supervision.
4. Students should not touch wildlife or taste anything
(plants or water) unless permitted by teacher.

*Sensory Observation Sheet*

*Sights*

*Smells*

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*Touch*

*Sounds*

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