PRE-VISIT LESSONS

GRADES 3 - 5

To prepare your students for the upcoming lesson on salmon, give your students the salmon smart survey. Record answers for later comparison; introduce the vocabulary words.

VOCABULARY

anadromous:
(hatches in fresh water then swims to the ocean)
ESA:
(Endangered Species Act - protects threatened & endangered plants & animals)
habitat:
(where an animal lives)
migration:
(animal movement)
redd:
(salmon nest)
riparian habitat:
(vegetation on river bank)
silt:
(fine dirt washed into streams and rivers)
spawn:
(salmon laying and fertilizing eggs)

SALMON SMART

Use the form below to survey your students about salmon in Washington. Put totals in the boxes.

This survey will give you and the EnviroChallenger coordinator an opportunity to assess student understanding.

1. I have seen a salmon before. ☐

2. I can name two species of salmon found in Washington. ☐

3. I would be willing to change my ways to help salmon. ☐

4. I would be willing to volunteer to help salmon. ☐

5. I think salmon are important to Tacoma. ☐

Have the class list two ways salmon are important to Tacoma or to the students themselves.

Name two ways that salmon may become endangered.

Name two ways that people can help salmon.

PRE-VISIT LESSON
GRADES 3 - 5

To prepare your students for the upcoming lesson on salmon, read the story to the class or make copies for group reading (try making copies on the back of used copy paper).

SOMETHING'S FISHY HERE
Adapted from Project Wild Aquatic

This lesson will help students think about how our actions affect salmon and habitat.

Read the following story to your class or assign the story to groups for reading.

After the students have finished with the story, facilitate a class discussion. Ask students to think about different endings to the story. Ask them if they think any of their actions may effect what happens down stream.

Give the students or each group time to develop an ending to the story.

Next, have each group or student share their ending to the story.

Finish up by asking students how our actions might effect salmon survival.

SOMETHING'S FISHY HERE

Charlie and Alex were true friends of the "forever" type. Rarely on different wavelengths, they lived as neighbors and played together in the same coastal community for all their young lives. Both were in 5th grade.

Spring fever attacked them with equal intensity, usually right before their school's spring vacation. This particular spring, they planned to liven up the Annual Pet Show with an unusual entry. Charlie (whose name was short for Charlotte) and Alex were going to produce a "surprise" entry--some crayfish!

For many springtimes the friends had regularly captured and observed these interesting creatures. Both loved the lively and fascinating crayfish. They both learned how to handle the animals with no harm to themselves or the crayfish. They could watch the crayfish for hours in the aquarium they made for them and then return them to their habitat, unharmed. The supply was seemingly endless. Winning the prize for the " Most Unusual Pet" was guaranteed.

Planning their adventure was easy as they walked from school. Charlie would bring the nets; Alex, the containers with the covers.

Their science class was dealing with the subject of environmental protection. Both students liked the topic so when it was announced, Charlie and Alex gave each other the eye. Not much of a problem here in our community, they agreed. Anyway, their minds were drifting somewhere away to their secret stream. They had dreams of zillions of crayfish crawling all over the pet show poodles, birds and fabulous felines. They could hardly wait to go to the stream.

As they walked down the woods trail, the familiar smells inspired the explorers as they anticipated their adventure. All the signs were there; the ground flowers had bloomed by the path, the willow buds were bursting, and green fuzz crowded the understory. It was “crayfish time” for sure!

They made their way down to the banks of the stream, near the deepwater pools and around the grassy rock ledges…what anticipation!

Charlie crept into the shallow water and started to probe in the rocky bottom to get the crayfish moving toward Alex. Alex was net-ready. Their adventure began to lose its luster when Charlie noticed several of the crayfish not moving at all. In fact, they were dead! In moments the companions were looking bewildered; there were more than a couple that were dead, there were hundreds!

It took a few moments to register. They forgot what this would mean for the pet show. They felt genuine concern. These fascinating animals that had provided them with hours of enjoyment were all dead! Bewilderment, puzzlement. What could have happened? It was moments before the team was working again. They both recognized at once that there was a mystery to be solved!

What would “Encyclopedia Brown” have done under similar circumstances? Right! Look for clues! Forget the “jokes,” this is important stuff right here. Hundreds of crayfish don’t keel over from fear of being over-exposed in public at a pet show! There has to be a really strong reason. The explorers [were] determined to discover what it was.

A quick glance over the surrounding area revealed little evidence of foul play. Alex did note that there was a condition common to all the dead crayfish. They were sticky to the touch. They seemed to be coated with a soapy substance. Charlie saw the foamy suds first. The suds clung to the rocks about the falls.

The two students went further upstream searching for more signs. Beyond the falls the suds were sparse. Then they noticed that on the flat marsh where the stream meanders from the town, there were none of the common spring flowers. Charlie noticed this because she had planned to decorate the biggest crayfish with a garland of violets, but none were to be found.

Another moment of sadness. Where were the violets? Closer to town the stream flowed through a gorge of sandstone embankments. Beyond this a new black-topped parking lot signaled the edge of the town, sprouting a brand new mini-shopping center. There they discovered something new. Under fresh packed soil, tucked beside the fence, storm drains were partially buried. They were opened to allow flow of water into the streams. That night at dinner Charlie and Alex consulted with Charlie's sister. She had a great sense of how things worked and always seemed ready to help these younger explorers. She advised mapping the area of the new shopping center and identifying the stores in the area that might have soap in their wastewater.

Alex and Charlie sat down and compiled a list of the shopping center's stores. They produced several possibilities—The Ritz Cleaners, The Wash and Dry Laundromat, Sparkie's Car Wash and Johnny's Auto Body. They decided to record observations on a daily basis for a week. They agreed to take turns looking for evidence. (Good detectives keep records, note patterns, and follow trails before they draw conclusions or make accusations.)

One evening when it was Charlie's turn to observe, her mother drove her to the shopping center, What she found out caused her to call Alex at once. Her voice rang with excitement. "We've got em!" she cried. "When mom drove me to the center we drove over a bump in the parking lot near the car wash. They have a big black hose running into the drain pipe. They connect it after dark! I saw it—I know it! They let if flow into the storm drains from their storage tanks. That's where the soap is coming from! We gotta do something Alex! Where do we go? What do we do? Who can we trust!? . . .

PRE-VISIT LESSON

GRADES 3 - 5

To prepare your students for the upcoming lesson on salmon, have the class teach one another about the salmon life cycle with this fun lesson.

MATERIALS

salmon flashcards with life cycle stages and descriptions (cards can be printed on the back of used paper to save resources)

SALMON LIFE CYCLE TALL TALES

Adapted from Wild Salmon by WDFW

This lesson will help students learn about the life cycle of salmon and generate ideas about why salmon may not survive to become adults.

Print out the salmon life cycle cards below and copy them to the back of some used copy paper.

Divide the class into groups of 3 or 4.

Give each group one of the life cycle cards.

Each group must present an explanation about their stage of the salmon life cycle. The group can either make up a true story about their life cycle stage or can tell a "tall tale."

Encourage students to draw on the board to add to their explanation. Groups could also act out their explanation.

Give each group 10 minutes for planning and 5 minutes for explaining.

The remainder of the class must try to guess if the story is true or a tall tale. **When all of the groups have presented their explanations, make sure that all of the life cycle stages are explained correctly.**

SALMON LIFE CYCLE CARDS

STAGE: EGG The eggs of most salmon are small (about the size of a pea), round and orange in color. Salmon eggs are laid in gravel nests called a redd in the river. The female digs the redd with her tail and then lays her eggs in the redd. A salmon may have several redds and lay 2,500 eggs total.	**STAGE: EYED EGG** When salmon eggs are developing, the first noticeable change is when the eggs "eye up." The eyes of the salmon appear as two black dots in the eggs. The egg continues to develop until it hatches into a small fish.
STAGE: ALEVIN Once the eggs finally hatch, the small salmon are called alevin. The alevin are about an inch long, have part of the egg sack attached to their belly and hide in the gravel until they absorb the rest of the egg or nutrient sack.	**STAGE: FRY** The yolk sack is gone and the young salmon is now a fry about an inch and a half long. At this stage, the tiny salmon may begin their journey to the ocean. Many other fish and other predators eat salmon fry.
STAGE: SMOLT The salmon are now called smolts. They are heading to the ocean, where they will stay for 2 – 5 years. Only about 90% of the eggs that hatch even reach the ocean. In the ocean there are many predators trying to eat the small salmon.	**STAGE: JUVENILE** The juvenile salmon are in the ocean and beginning their lives in salt water. The young salmon go through the "salt water challenge" when they move from fresh water to saltwater. Many do not survive this test of fitness. Those that survive, face habitat problems, food shortages and predators.
STAGE: ADULT Depending on the species, adult salmon spend from 2 to 5 years in the ocean. Sometimes the salmon may travel 2,000 miles in their lives. These salmon must find enough food, keep away from predators and start their long journey back to a freshwater river.	**STAGE: SPAWNER** These adults have made it through 2 – 5 years of life and challenges. When these salmon reenter the fresh water, their bodies begin to change, some grossly. They are now migrating upstream to complete their journey, where they will eventually die after laying and fertilizing eggs.