

Salmon and Trout Go to Preschool and Kindergarten

A Thematic Unit



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Your purchase of fishing
equipment and motor fuel
supports boating access and
Sport Fish Restoration.



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Salmonids in the Classroom is part of a statewide education program sponsored by the California Department of Fish and Game along with many community partners including fishing organizations and other government entities throughout the state. You may have heard it called Trout in the Classroom or Salmon in the Classroom depending on the region of the state that the program serves.

This program involves training teachers to hatch trout or salmon in their classrooms. The classes then take them to their local waterway to be released into the wild.

We encourage teachers to take part in this program but it is not necessary to take advantage of the lessons in this book. Only one ongoing lesson directly involves the students in observing the fish.

The first step is to teach the students about the life cycle of the salmon and trout. This is done best with the aid of pictures and, if available, videos. After they understand that concept, the other lessons will fall in place.

It is our hope that this unit, *Salmon and Trout Go To Preschool and Kindergarten*, will help you introduce and intrigue your students regarding the wonders of salmon, trout, and other life in their local rivers. We encourage you and your students to visit the local river or creek, either as a group or with their families. Even if a field trip is not possible, we hope you enjoy using this guide to open the children's eyes to the delights of nature.

If a child is to keep alive his inborn sense of wonder... he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in. — Rachel Carson

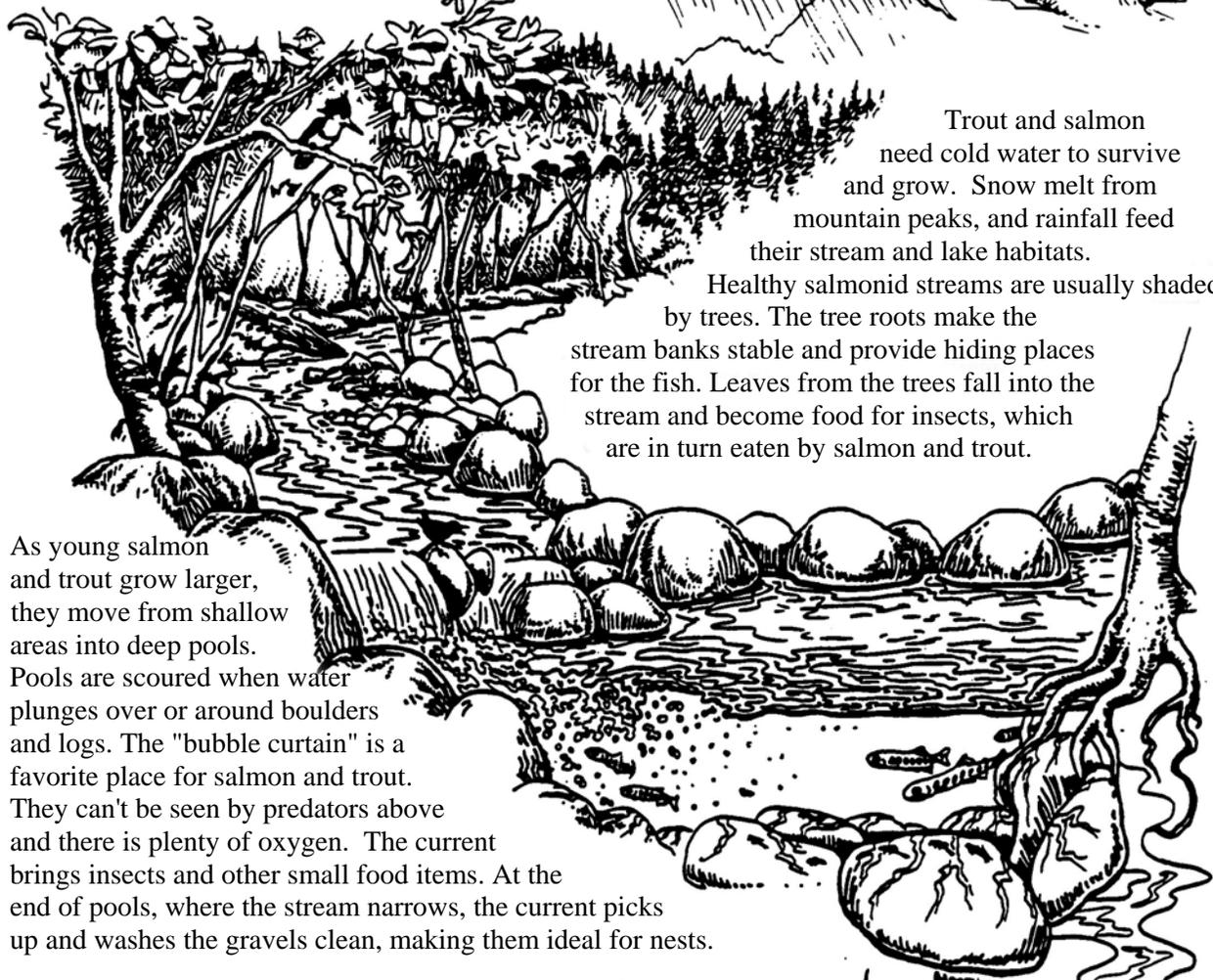


The California Department of Fish and Game maintains native fish, wildlife, plant species and natural communities for their intrinsic and ecological value and their benefits to people. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities. The Department is also responsible for the diversified use of fish and wildlife including recreational, commercial, scientific and educational uses.

This publication includes adaptations or material from the publications:

- *The Fish Hatchery Next Door, An Educator's Guide* by the Oregon Department of Fish and Wildlife
- *Salmonids in the Classroom*, curriculum resource materials for the study of Pacific salmonids in British Columbia, prepared by their federal Department of Fisheries and Oceans and the provincial Ministry of Environment, Lands, and Parks.
- *Salmon and Trout Go to School*, written by Diane Higgins and illustrated by Gary Bloomfield.
- Mazes were created with Discovery Channel School's Puzzlemaker.

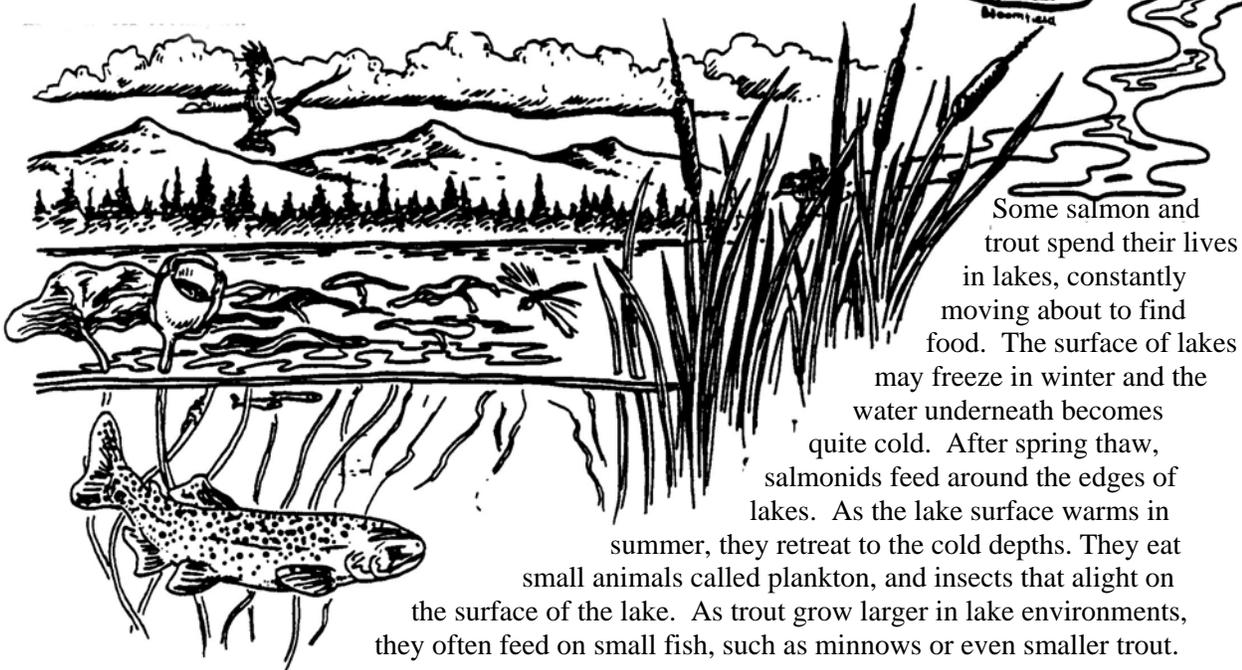
Habitats of Salmon And Trout



As young salmon and trout grow larger, they move from shallow areas into deep pools. Pools are scoured when water plunges over or around boulders and logs. The "bubble curtain" is a favorite place for salmon and trout. They can't be seen by predators above and there is plenty of oxygen. The current brings insects and other small food items. At the end of pools, where the stream narrows, the current picks up and washes the gravels clean, making them ideal for nests.

Trout and salmon need cold water to survive and grow. Snow melt from mountain peaks, and rainfall feed their stream and lake habitats.

Healthy salmonid streams are usually shaded by trees. The tree roots make the stream banks stable and provide hiding places for the fish. Leaves from the trees fall into the stream and become food for insects, which are in turn eaten by salmon and trout.



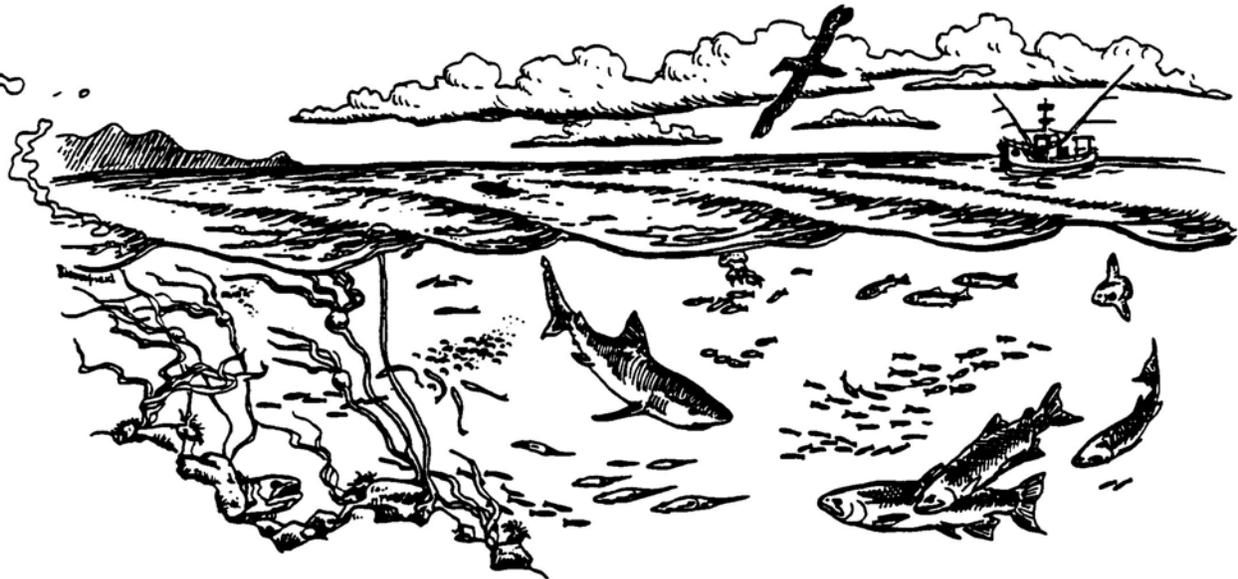
Some salmon and trout spend their lives in lakes, constantly moving about to find food. The surface of lakes may freeze in winter and the water underneath becomes quite cold. After spring thaw, salmonids feed around the edges of lakes. As the lake surface warms in summer, they retreat to the cold depths. They eat small animals called plankton, and insects that alight on the surface of the lake. As trout grow larger in lake environments, they often feed on small fish, such as minnows or even smaller trout.

Seagoing Salmon And Steelhead

Anadromous salmonids spend part of their lives in salt water. Chinook salmon, Coho salmon, steelhead trout and coastal cutthroat trout are all Anadromous. These fish leave their streams and migrate out to the ocean, where they grow much larger than salmonids that stay in the stream all the time. Chinook usually move into the estuary when they are several months old. The other anadromous fish all spend at least one year in the stream before migrating to sea.

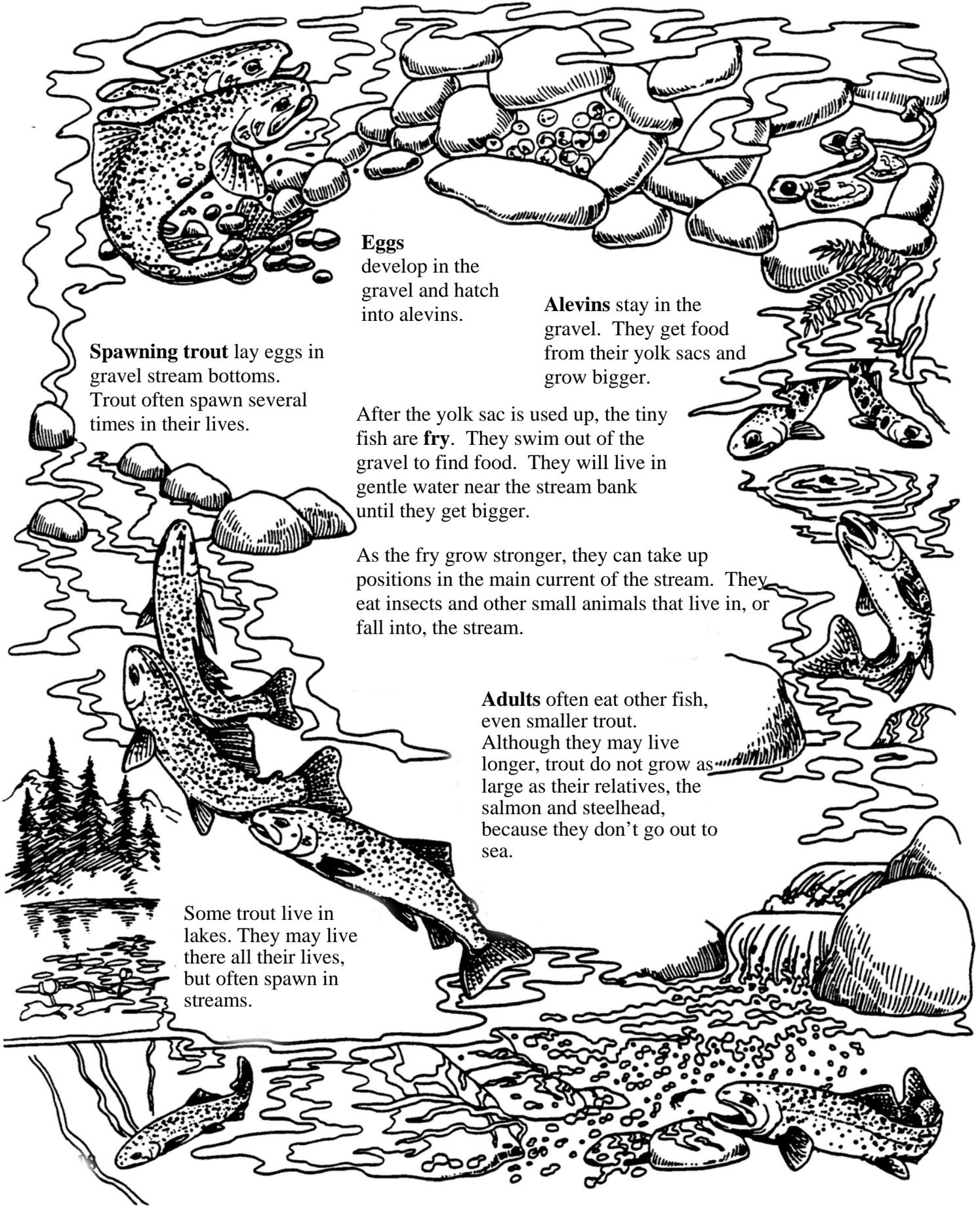


At the river's mouth, fresh water flows into the sea. The sea also surges into the river, and salt water mixes with fresh water. This area of brackish water is the estuary. Migrating fish stay in the estuary for a while before entering the ocean. They find new types of food to eat and grow larger, which helps them survive in the ocean. Their bodies also adjust to the salt water.



The ocean is a vast resource for the fish. They find much to eat, and they grow very large. Cutthroat trout usually keep close to the river's mouth, and stay for only a few months, so they remain fairly small. But salmon and steelhead stay in the ocean for several years and grow very large. They may swim many miles up and down the coast line. California's north coast is one of the places richest in food in the Pacific Ocean.

Trout Life Cycle



Spawning trout lay eggs in gravel stream bottoms. Trout often spawn several times in their lives.

Eggs develop in the gravel and hatch into alevins.

Alevins stay in the gravel. They get food from their yolk sacs and grow bigger.

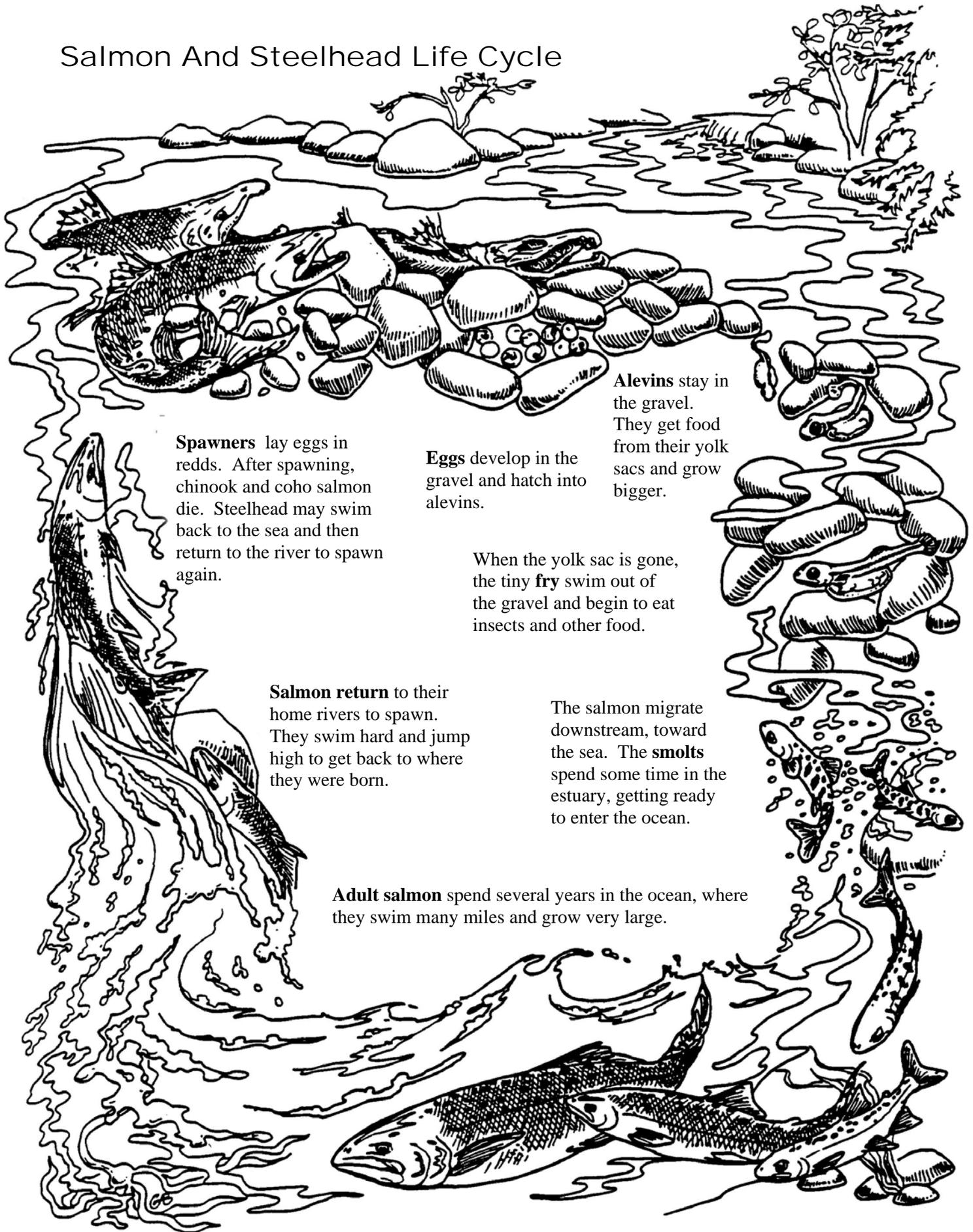
After the yolk sac is used up, the tiny fish are **fry**. They swim out of the gravel to find food. They will live in gentle water near the stream bank until they get bigger.

As the fry grow stronger, they can take up positions in the main current of the stream. They eat insects and other small animals that live in, or fall into, the stream.

Adults often eat other fish, even smaller trout. Although they may live longer, trout do not grow as large as their relatives, the salmon and steelhead, because they don't go out to sea.

Some trout live in lakes. They may live there all their lives, but often spawn in streams.

Salmon And Steelhead Life Cycle



Spawners lay eggs in redds. After spawning, chinook and coho salmon die. Steelhead may swim back to the sea and then return to the river to spawn again.

Eggs develop in the gravel and hatch into alevins.

Alevins stay in the gravel. They get food from their yolk sacs and grow bigger.

When the yolk sac is gone, the tiny **fry** swim out of the gravel and begin to eat insects and other food.

Salmon return to their home rivers to spawn. They swim hard and jump high to get back to where they were born.

The salmon migrate downstream, toward the sea. The **smolts** spend some time in the estuary, getting ready to enter the ocean.

Adult salmon spend several years in the ocean, where they swim many miles and grow very large.



Content Standards covered by this thematic unit

Kindergarten

Language Arts

Reading

1.0 Word Analysis, Fluency, and Systematic Vocabulary Development

Students know about letters, words, and sounds. They apply this knowledge to read simple sentences.

Concepts About Print

- 1.1 Identify the front cover, back cover, and title page of a book.
- 1.2 Follow words from left to right and from top to bottom on the printed page.
- 1.3 Understand that printed materials provide information.
- 1.4 Recognize that sentences in print are made up of separate words.
- 1.5 Distinguish letters from words.
- 1.6 Recognize and name all uppercase and lowercase letters of the alphabet.

Phonemic Awareness

- 1.9 Blend vowel-consonant sounds orally to make words or syllables.
- 1.12 Track auditorily each word in a sentence and each syllable in a word.

Decoding and Word Recognition

- 1.14 Match all consonant and short-vowel sounds to appropriate letters.
- 1.15 Read simple one-syllable and high-frequency words (i.e., sight words).
- 1.16 Understand that as letters of words change, so do the sounds (i.e., the alphabetic principle).

Vocabulary and Concept Development

- 1.17 Identify and sort common words in basic categories (e.g., colors, shapes, foods).
- 1.18 Describe common objects and events in both general and specific language.

2.0 Reading Comprehension

Students identify the basic facts and ideas in what they have read, heard, or viewed. They use comprehension strategies (e.g., generating and responding to questions, comparing new information to what is already known).

The selections in *Recommended Readings in Literature, Kindergarten Through Grade Eight* (California Department of Education, 1996) illustrate the quality and complexity of the materials to be read by students.

Structural Features of Informational Materials

- 2.1 Locate the title, table of contents, name of author, and name of illustrator.

Comprehension and Analysis of Grade-Level-Appropriate Text

- 2.2 Use pictures and context to make predictions about story content.
- 2.3 Connect to life experiences the information and events in texts.
- 2.4 Retell familiar stories.
- 2.5 Ask and answer questions about essential elements of a text.

3.0 Literary Response and Analysis

Students listen and respond to stories based on well-known characters, themes, plots, and settings. The selections in *Recommended Readings in Literature, Kindergarten Through Grade Eight* illustrate the quality and complexity of the materials to be read by students.

Narrative Analysis of Grade-Level-Appropriate Text

- 3.1 Distinguish fantasy from realistic text.

Writing

1.0 Writing Strategies

Students write words and brief sentences that are legible.

Organization and Focus

- 1.1 Use letters and phonetically spelled words to write about experiences, stories, people, objects, or events.
- 1.2 Write consonant-vowel-consonant words (i.e., demonstrate the alphabetic principle).
- 1.3 Write by moving from left to right and from top to bottom.

Penmanship

- 1.4 Write uppercase and lowercase letters of the alphabet independently, attending to the form and proper spacing of the letters.

Written and Oral English Language Conventions

The standards for written and oral English language conventions have been placed between those for writing and for listening and speaking because these conventions are essential to both sets of skills.

1.0 Written and Oral English Language Conventions

Students write and speak with a command of standard English conventions.

Spelling

- 1.2 Spell independently by using pre-phonetic knowledge, sounds of the alphabet, and knowledge of letter names.

Listening and Speaking

1.0. Listening and Speaking Strategies

Students listen and respond to oral communication. They speak in clear and coherent sentences.

Comprehension

- 1.1 Understand and follow one-and two-step oral directions.
- 1.2 Share information and ideas, speaking audibly in complete, coherent sentences.

2.0. Speaking Applications (Genres and Their Characteristics)

Students deliver brief recitations and oral presentations about familiar experiences or interests, demonstrating command of the organization and delivery strategies outlined in Listening and Speaking Standard 1.0.

Using the listening and speaking strategies of kindergarten outlined in Listening and Speaking Standard 1.0, students:

- 2.2 Recite short poems, rhymes, and songs.



Math

Number Sense

1.0 Students understand the relationship between numbers and quantities (i.e., that a set of objects has the same number of objects in different situations regardless of its position or arrangement):

- 1.2 Count, recognize, represent, name, and order a number of objects (up to 30).
- 1.3 Know that the larger numbers describe sets with more objects in them than the smaller numbers have.

2.0 Students understand and describe simple additions and subtractions:

- 2.1 Use concrete objects to determine the answers to addition and subtraction problems (for two numbers that are each less than 10).

Algebra and Functions

1.0 Students sort and classify objects:

- 1.1 Identify, sort, and classify objects by attribute and identify objects that do not belong to a particular group (e.g., all these balls are green, those are red).

Measurement and Geometry

1.0 Students understand the concept of time and units to measure it; they understand that objects have properties, such as length, weight, and capacity, and that comparisons may be made by referring to those properties:

- 1.1 Compare the length, weight, and capacity of objects by making direct comparisons with reference objects (e.g., note which object is shorter, longer, taller, lighter, heavier, or holds more).
- 1.2 Demonstrate an understanding of concepts of time (e.g., morning, afternoon, evening, today, yesterday, tomorrow, week, year) and tools that measure time (e.g., clock, calendar).

Statistics, Data Analysis, and Probability

1.0 Students collect information about objects and events in their environment:

- 1.1 Pose information questions; collect data; and record the results using objects, pictures, and picture graphs.

Mathematical Reasoning

1.0 Students make decisions about how to set up a problem:

- 1.1 Determine the approach, materials, and strategies to be used.
- 1.2 Use tools and strategies, such as manipulatives or sketches, to model problems.

2.0 Students solve problems in reasonable ways and justify their reasoning:

- 2.1 Explain the reasoning used with concrete objects and/ or pictorial representations.
- 2.2 Make precise calculations and check the validity of the results in the context of the problem.



Science

Physical Sciences

1. Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:
 - a. *Students know* objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).

Life Sciences

2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:
 - a. *Students know* how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).
 - b. *Students know* stories sometimes give plants and animals attributes they do not really have.
 - c. *Students know* how to identify major structures of common plants and animals (e.g., stems, leaves, roots, arms, wings, legs).

Earth Sciences

3. Earth is composed of land, air, and water. As a basis for understanding this concept:
 - a. *Students know* characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.

Investigation and Experimentation

4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:
 - a. Observe common objects by using the five senses.
 - b. Describe the properties of common objects.
 - c. Describe the relative position of objects by using one reference (e.g., above or below).
 - d. Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).
 - e. Communicate observations orally and through drawings.

Visual and Performing Arts

1.0 Artistic Perception

Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to the Visual Arts

Students perceive and respond to works of art, objects in nature, events, and the environment. They also use the vocabulary of the visual arts to express their observations.

Develop Perceptual Skills and Visual Arts Vocabulary

- 1.1 Recognize and describe simple patterns found in the environment and works of art.
- 1.2 Name art materials (e.g., clay, paint, and crayons) introduced in lessons.

Analyze Art Elements and Principles of Design

1.3 Identify the elements of art (line, color, shape/form, texture, value, space) in the environment and in works of art, emphasizing line, color, and shape/form.

2.0 Creative Expression

Creating, Performing, and Participating in the Visual Arts

Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.

Skills, Processes, Materials, and Tools

2.1 Use lines, shapes/forms, and colors to make patterns.

2.2 Demonstrate beginning skill in the use of tools and processes, such as the use of scissors, glue, and paper in creating a three-dimensional construction.

2.3 Make a collage with cut or torn paper shapes/forms.

Communication and Expression Through Original Works of Art

2.6 Use geometric shapes/forms (circle, triangle, square) in a work of art.

2.7 Create a three-dimensional form, such as a real or imaginary animal.

4.0 Aesthetic Valuing

Responding to, Analyzing, and Making Judgments About Works in the Visual Arts

Students analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.

Derive Meaning

4.1 Discuss their own works of art, using appropriate art vocabulary (e.g., color, shape/form, texture).



Music

2.0 Creative Expression

Creating, Performing, and Participating in Music

Students apply vocal and instrumental musical skills in performing a varied repertoire of music. They compose and arrange music and improvise melodies, variations, and accompaniments, using digital/electronic technology when appropriate.

Apply Vocal and Instrumental Skills

2.2 Use the voice to speak, chant, and sing.

4.0 Aesthetic Valuing

Responding to, Analyzing, and Making Judgments About Works of Music

Students critically assess and derive meaning from works of music and the performance of musicians according to the elements of music, aesthetic qualities, and human responses.

Derive Meaning

4.1 Create movements in response to music.

Prekindergarten

Visual and Performing Arts –

1.0 Artistic Perception

Processing, Analyzing, and Responding to Sensory Information Through the Language and Skills Unique to the Visual Arts

Students perceive and respond to works of art, objects in nature, events, and the environment. They also use the vocabulary of the visual arts to express their observations.

Develop Perceptual Skills and Visual Arts Vocabulary

- 1.1 Discuss visual and tactile perceptions of the natural and human-made world: what is seen and how objects feel.
- 1.2 Identify colors by name.
- 1.3 Name and describe objects by color and relative size.

2.0 Creative Expression

Creating, Performing, and Participating in the Visual Arts

Students apply artistic processes and skills, using a variety of media to communicate meaning and intent in original works of art.

Skills, Processes, Materials, and Tools

- 2.1 Create patterns and three-dimensional arrangements (using manipulatives or blocks).
- 2.2 Demonstrate beginning skill in the use of materials (such as pencils, paints, crayons, clay) to create works of art.
- 2.3 Experiment with colors through the use of a variety of drawing materials and paints.

Communication and Expression Through Original Works of Art

- 2.6 Use colors to draw or paint a picture of everyday objects.
- 2.7 Create a three-dimensional form.

4.0 Aesthetic Valuing

Responding to, Analyzing, and Making Judgments About Works in the Visual Arts

Students analyze, assess, and derive meaning from works of art, including their own, according to the elements of art, the principles of design, and aesthetic qualities.

Derive Meaning

- 4.1 Discuss what is seen in works of art.

Make Informed Judgments

- 4.3 Discuss what they like about their own works of art.
- 4.4 Select works of art by others and tell what they like about them.



Music

2.0 Creative Expression

Creating, Performing, and Participating in Music

Students apply vocal and instrumental musical skills in performing a varied repertoire of music. They compose and arrange music and improvise melodies, variations, and accompaniments, using digital/electronic technology when appropriate.

Apply Vocal and Instrumental Skills

- 2.2 Sing age-appropriate songs from memory.

Content Standards by activity

Kindergarten grade level unless otherwise noted

River View:

Visual Arts -- Artistic Perception: 1.1, 1.2, 1.3; Creative Expression: 2.1, 2.6; Aesthetic Valuing 4.1, 4.3, 4.4

Science -- Life Sciences: 2a, 2b; Earth Sciences: 3a; Investigation & Experimentation: 4a, 4b, 4c, 4e

How Many?:

Language Arts -- Listening and Speaking: 1.1

Math -- Number Sense: 1.2

Fishing game – colors, numbers, & letters:

Language Arts -- Reading: 1.6, 1.14, 1.15; Listening and Speaking: 1.1, 1.2

Math -- Number Sense: 1.2, 1.3

Visual Arts -- Artistic Perception: 1.2

Same and Different:

Language Arts -- Listening and Speaking: 1.1

Math -- Algebra and Functions: 1.1

Fantasy & Reality:

Language Arts -- Reading: 1.17, 2.3, 3.1; Listening and Speaking: 1.1

Science -- Life Sciences: 2b

My Salmon/Trout Book:

Language Arts -- Reading: 1.1, 1.2, 1.3, 1.4, 1.5, 1.9, 1.12, 1.15, 1.16, 1.18, 2.1, 2.2, 2.3; Listening and Speaking: 1.1

Science -- Life Sciences: 2a, 2c; Earth Sciences: 3a

My Salmon/Trout Observations:

Language Arts -- Reading: 1.1, 1.3, 1.4, 1.5; Writing: 1.1, 1.2, 1.3, 1.4; Written & Oral English Language Conventions: 1.2

Math -- Measurement & Geometry: 1.2

Science -- Life Sciences: 2a, 2c; Investigation & Experimentation: 4a, 4b, 4e

Visual Arts -- Artistic Perception: 1.1, 1.3; Creative Expression: 2.1, 2.6; Aesthetic Valuing 4.1, 4.4

Prekindergarten Visual Arts -- Artistic Perception: 1.1, 1.3; Creative Expression: 2.2, 2.3, 2.6; Aesthetic Valuing: 4.3

Trout Puzzles – 3 & 4 piece:

Science -- Physical Sciences: 1a; Life Sciences: 2a, 2c; Investigation & Experimentation: 4a, 4c, 4d, 4e

Visual Arts -- Artistic Perception: 1.3; Creative Expression: 2.2

Prekindergarten Visual Arts -- Artistic Perception: 1.1; Creative Expression: 2.2

Life Cycle Cut & Paste:

Language Arts -- Listening and Speaking: 1.1

Science -- Life Sciences: 2a; Earth Sciences: 3a

Visual Arts -- Artistic Perception: 1.2, 1.3; Creative Expression: 2.1, 2.2, 2.6

Prekindergarten Visual Arts -- Creative Expression: 2.1, 2.2

Stuffed Fish:

Visual Arts -- Artistic Perception: 1.3; Creative Expression: 2.2, 2.7; Aesthetic Valuing 4.1, 4.4

Prekindergarten Visual Arts -- Artistic Perception: 1.1; Creative Expression: 2.2, 2.3, 2.7; Aesthetic Valuing: 4.3

How Big Is It?:

Language Arts -- Listening and Speaking: 1.1

Math -- Number Sense: 1.2, 1.3; Measurement & Geometry: 1.1; Statistics, Data Analysis and Probability: 1.1; Mathematical Reasoning: 1.1, 2.1, 2.2

Science -- Physical Sciences: 1a; Investigation & Experimentation: 4d

Trout Song:

Language Arts -- Reading: 1.2, 1.3, 1.12, 1.15, 1.18; Listening and Speaking: 2.2

Science -- Life Sciences: 2a, 2c; Earth Sciences: 3a; Investigation & Experimentation: 4b, 4e

Music -- Creative Expression: 2.2; Aesthetic Valuing: 4.1; Connections, Relationships, Applications: 5.1

Prekindergarten Music -- Artistic Perception: 1.0; Creative Expression: 2.2

Fishy Problems:

Language Arts -- Listening and Speaking: 1.1

Math -- Number Sense: 1.2, 2.1; Statistics, Data Analysis and Probability: 1.1; Mathematical Reasoning: 1.1, 2.1, 2.2

Sequence Dot Game:

Language Arts -- Reading: 2.2, 2.3, 2.5; Listening and Speaking: 1.1

Math -- Mathematical Reasoning: 1.1, 1.2

Science -- Life Sciences: 2a, 2c; Investigation & Experimentation: 4d

What I know:

Language Arts -- Reading: 1.2, 1.3, 1.4, 1.5, 2.3, 2.4; Writing: 1.1, 1.2, 1.3, 1.4; Written & Oral English Language Conventions: 1.2; Listening and Speaking Strategies: 1.1, 1.2

Science -- Life Sciences: 2a, 2b, 2c; Earth Sciences: 3a; Investigation & Experimentation: 4a, 4b, 4c, 4d, 4e

Visual Arts -- Artistic Perception: 1.1, 1.3; Creative Expression: 2.1, 2.6; Aesthetic Valuing: 4.3, 4.4

Prekindergarten Visual Arts -- Artistic Perception: 1.1, 1.3; Creative Expression: 2.2, 2.3, 2.6; Aesthetic Valuing: 4.3

Fish Prints:

Language Arts -- Listening and Speaking: 1.1

Science -- Life Sciences: 2c

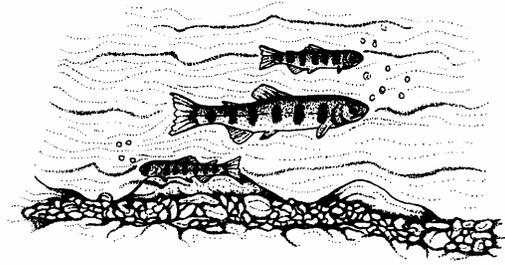
Visual Arts -- Artistic Perception: 1.1, 1.2; Creative Expression: 2.1; Aesthetic Valuing: 4.4

Prekindergarten Visual Arts -- Artistic Perception: 1.1, 1.2; Creative Expression: 2.2, 2.3; Aesthetic Valuing: 4.3

River View

Materials Needed:

-  one meat tray for each student
-  glue
-  sand and small pebbles
-  green paper
-  several goldfish crackers for each student



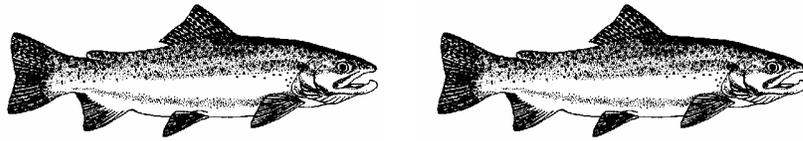
Procedure:

The students make a river scene by gluing sand and small pebbles on the meat tray. Next, use the green paper for plants in the river. Finally, glue on the goldfish crackers. Ask the student to compare how things look and feel in the natural world and his project: what is seen and how objects feel. Discuss what they like about their own works of art and the art of others.

Name _____

How Many ?

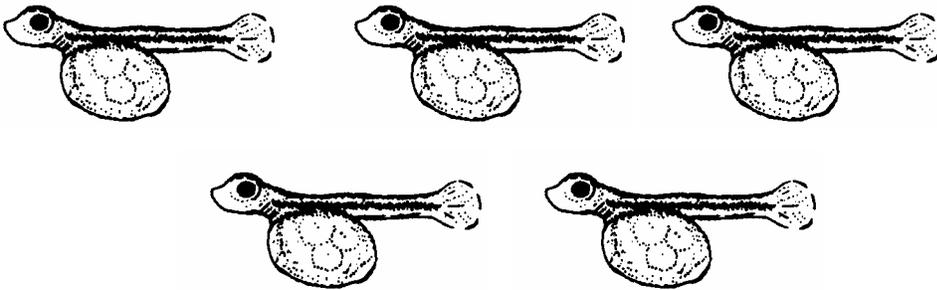
Count the fish in each row and write the number.



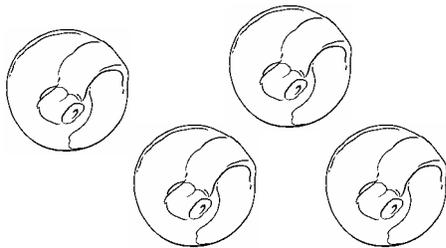
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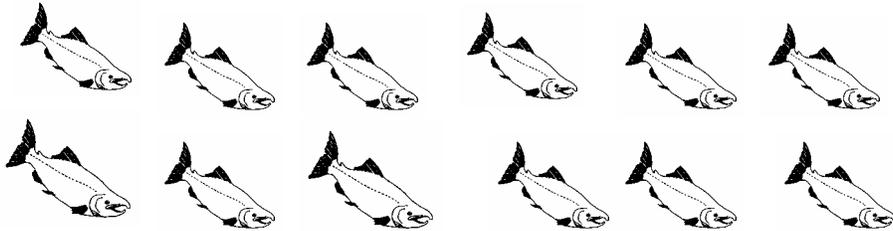


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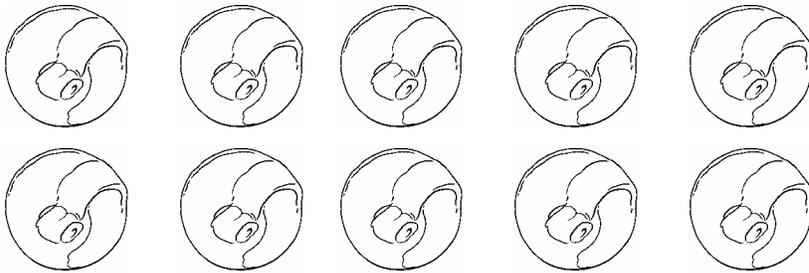
Name _____

How Many ?

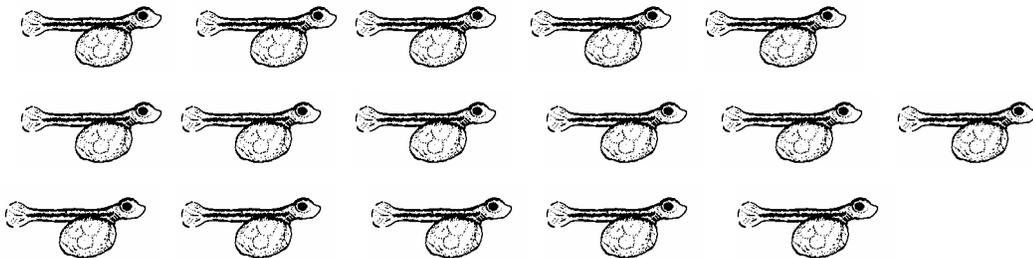
Count the fish in each row and write the number.



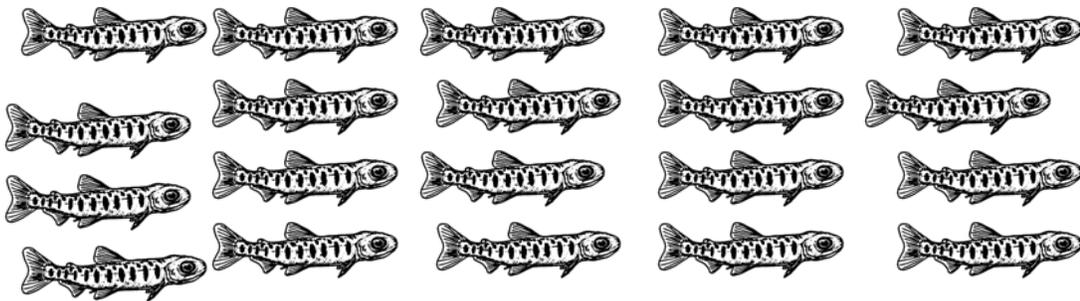
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The Fishing Game



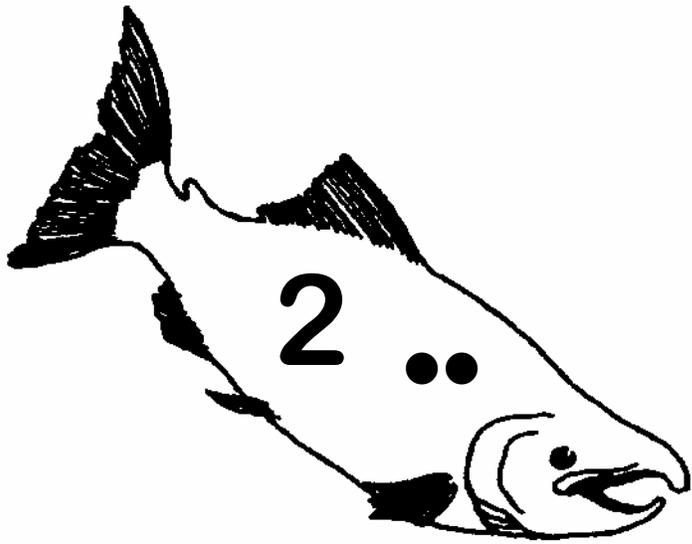
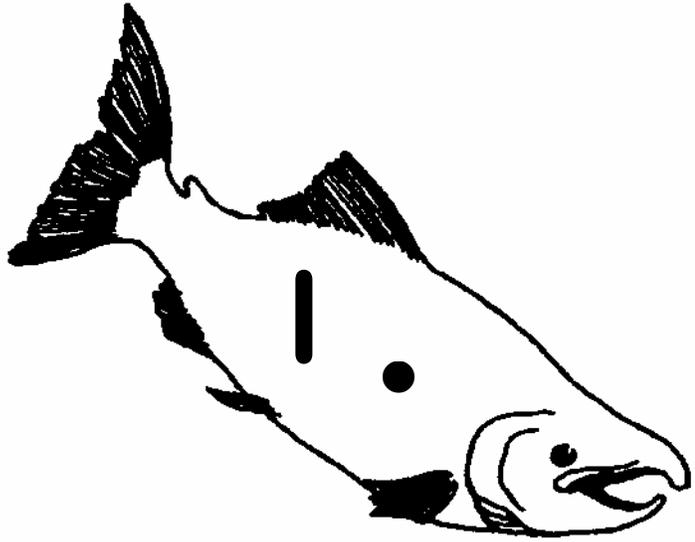
Materials needed:

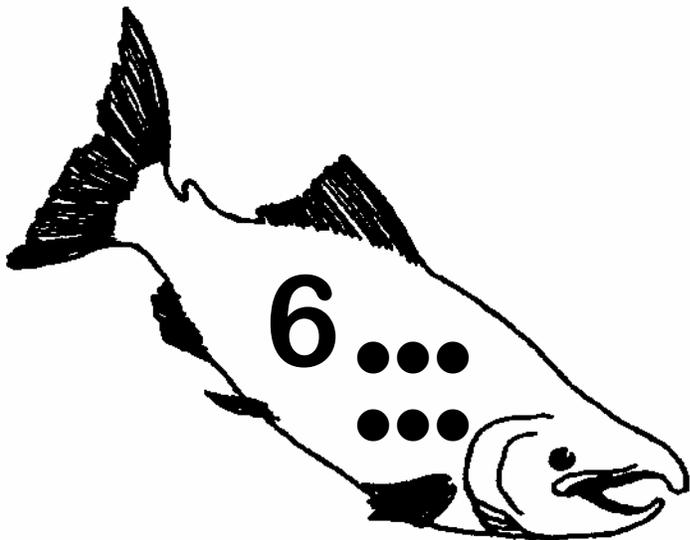
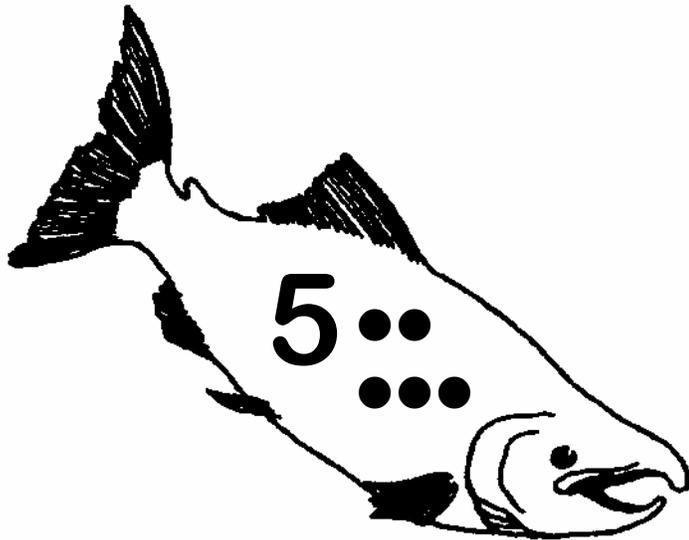
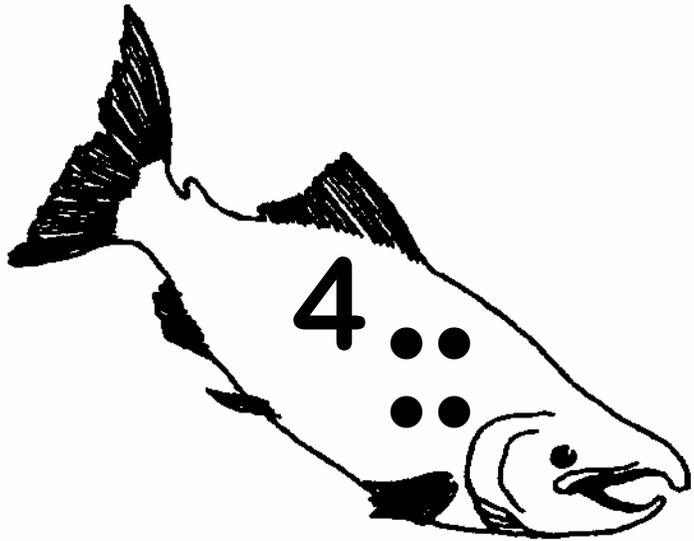
-  a "fishing rod" made of a stick (maybe an unsharpened pencil) with a 12"-18" string tied to one end. For the "hook", a magnet should be tied to the other end of the string.
-  Copies of the salmon pages you've selected on cardstock. Cut out the fish shapes and put a paperclip on each fish.

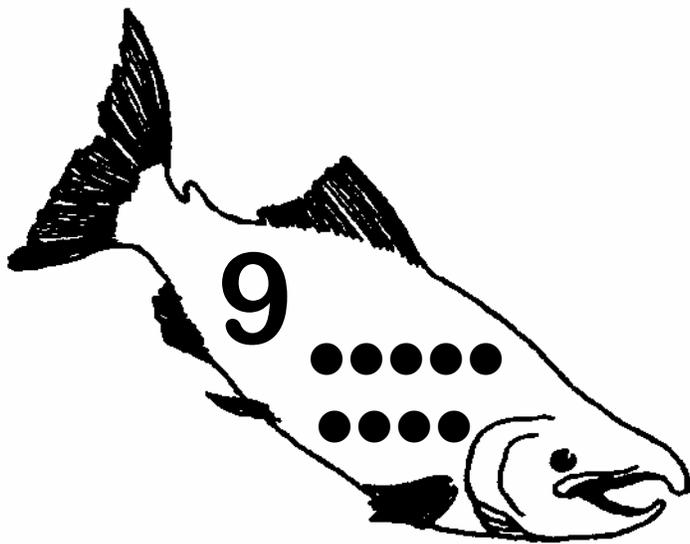
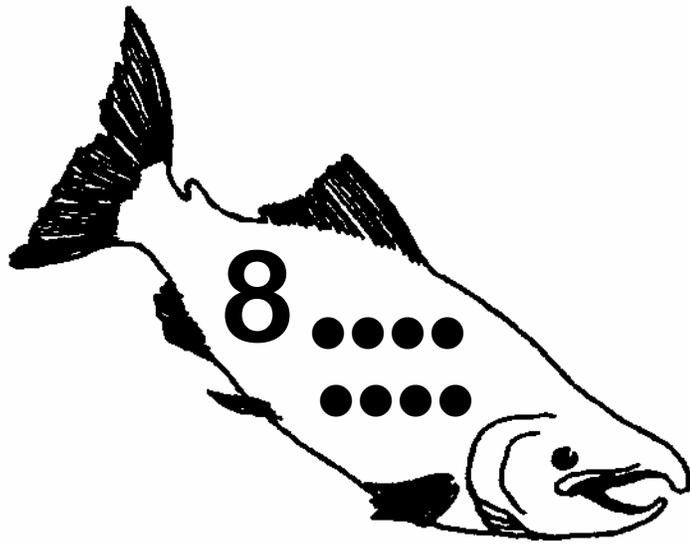
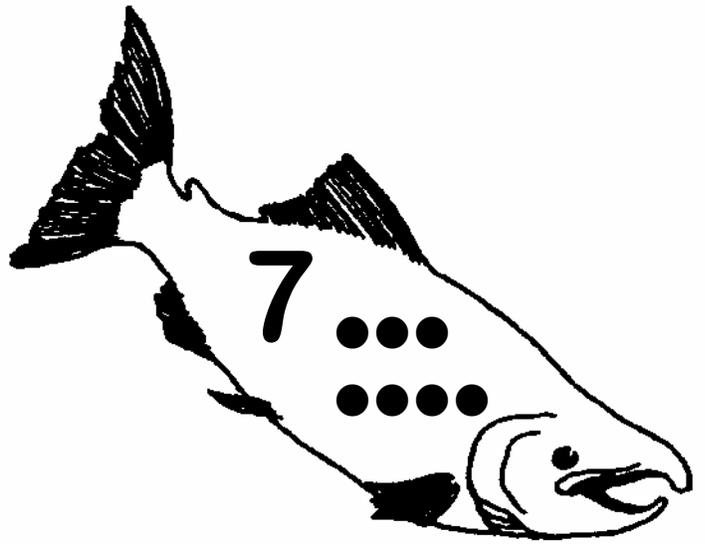
Procedure:

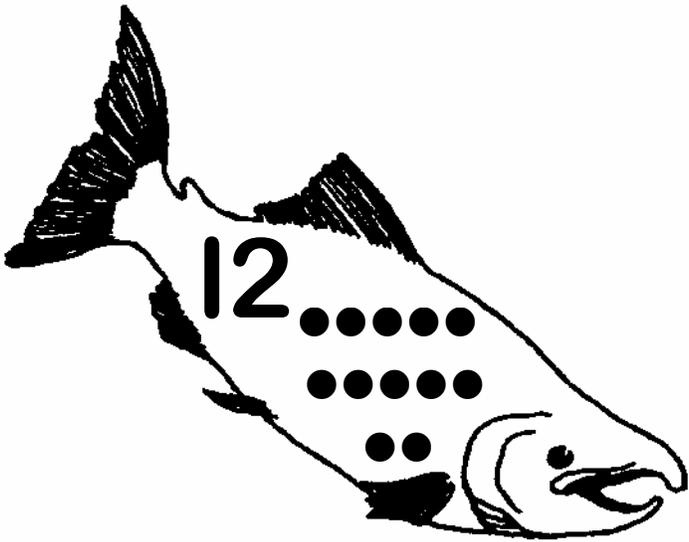
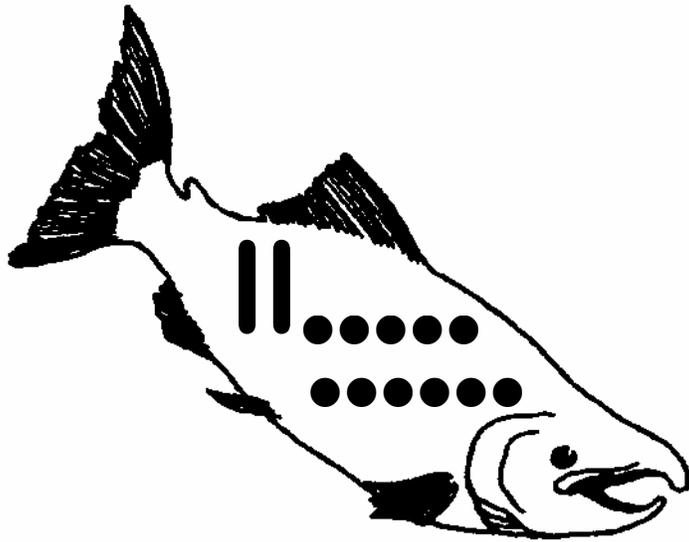
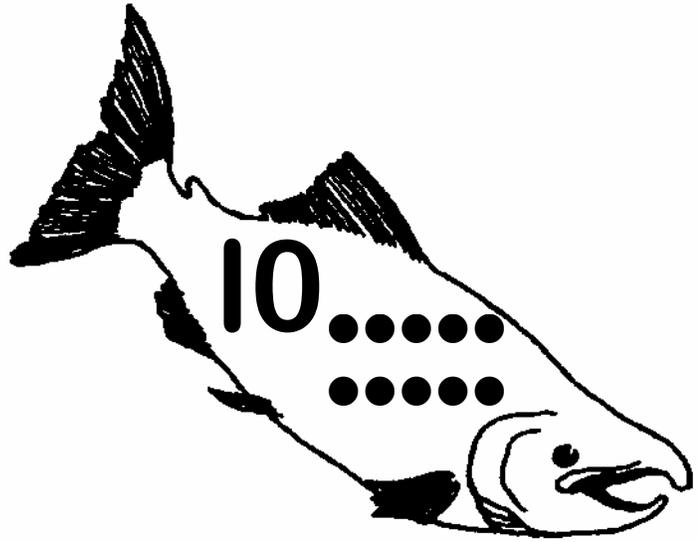
There are many ways the game can be played depending on the abilities of the participants. The basic game is to have students take turns fishing and if they can identify the concept on their caught fish, they get to keep the fish. The students take turns until all the fish are caught.

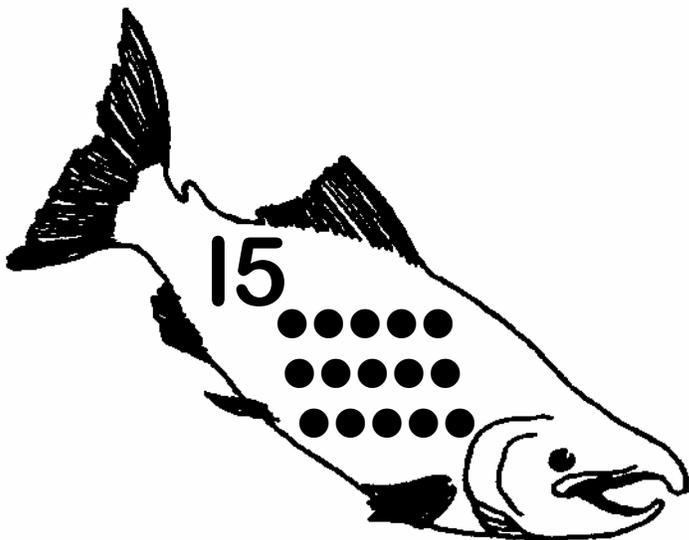
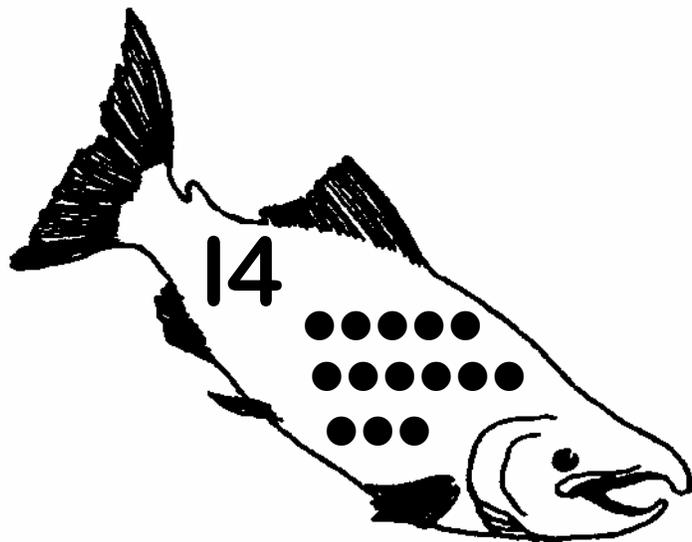
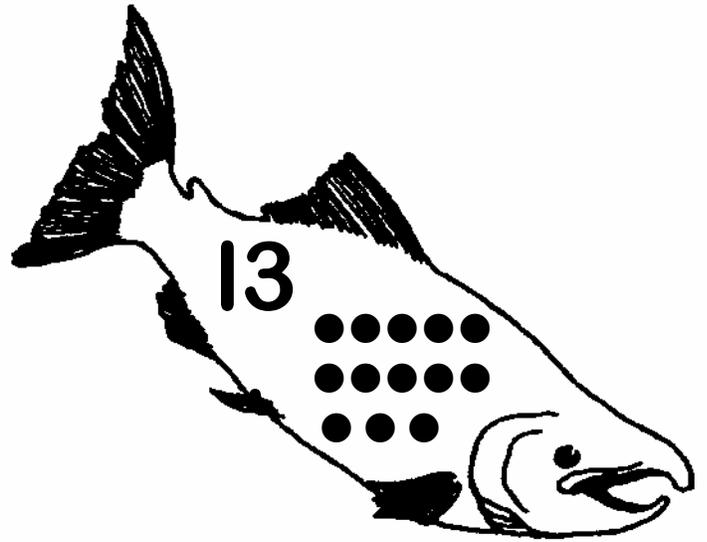
Several sets of fish have been provided to allow you to focus on different concepts and skills.

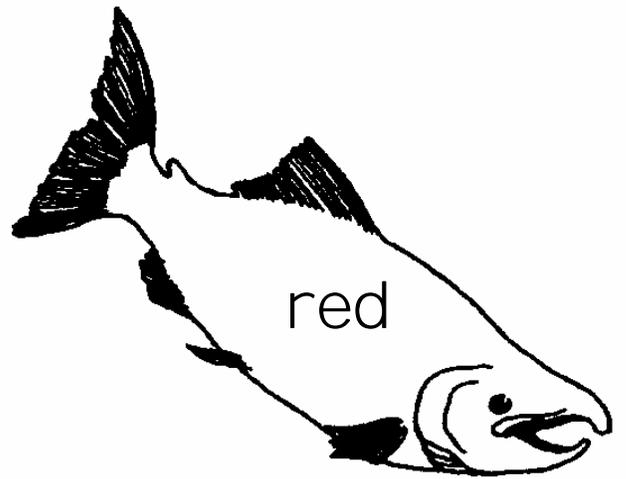
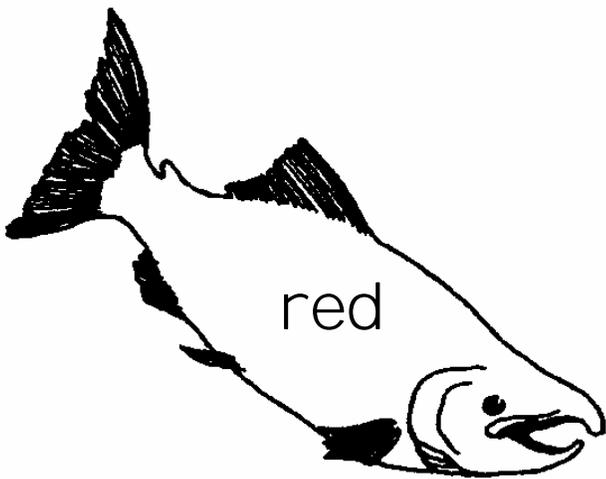
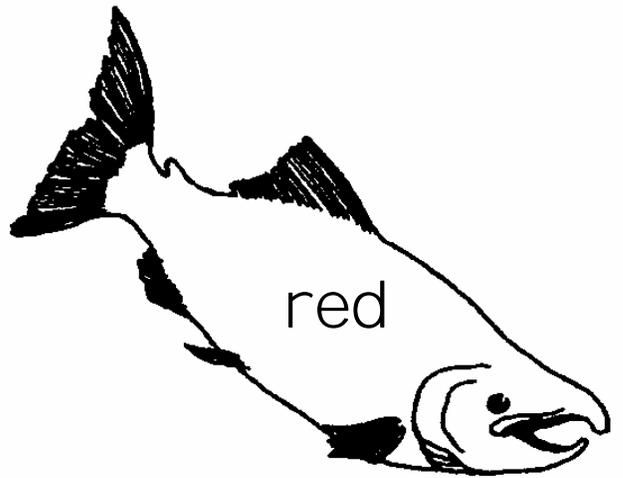
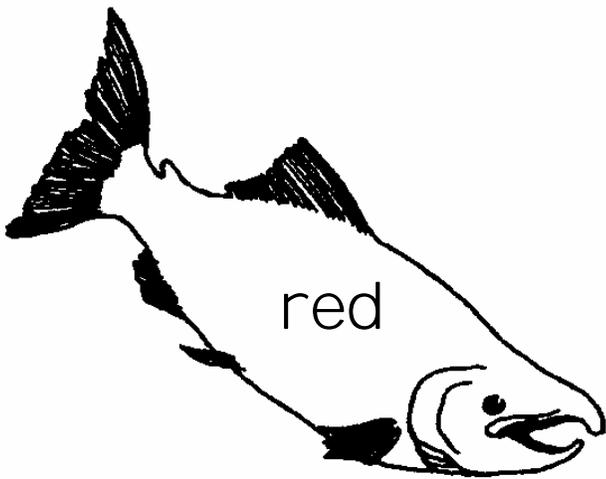
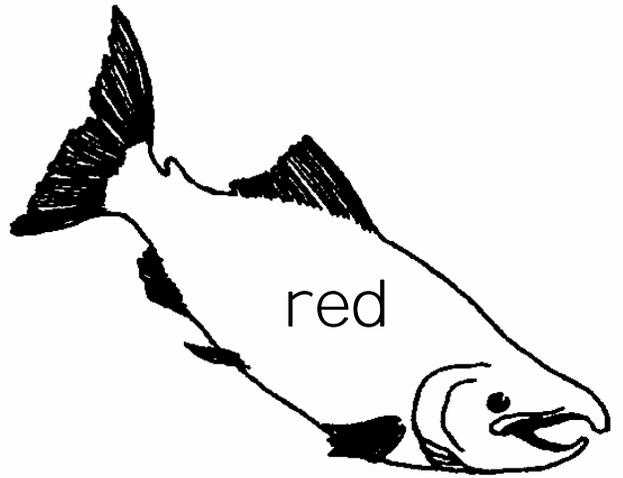
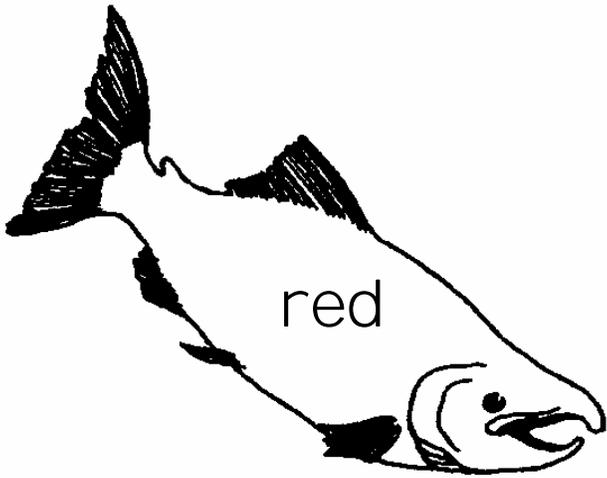


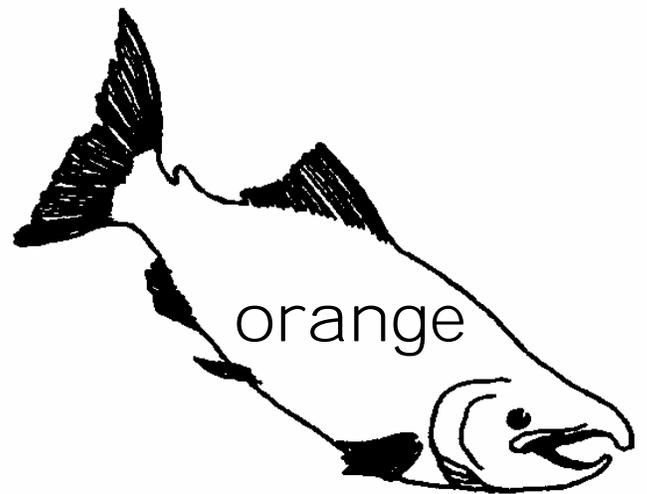
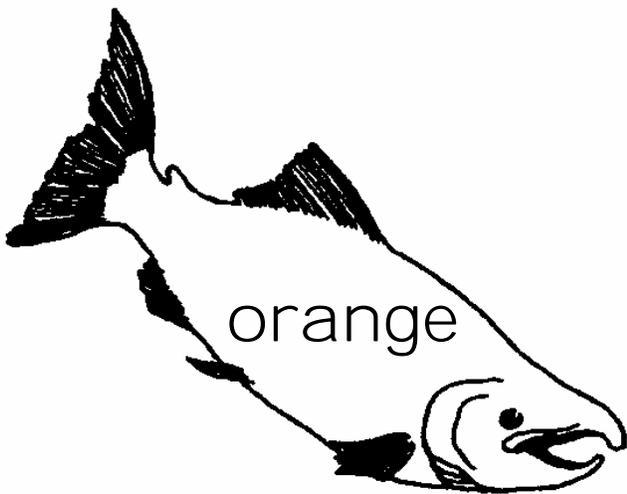
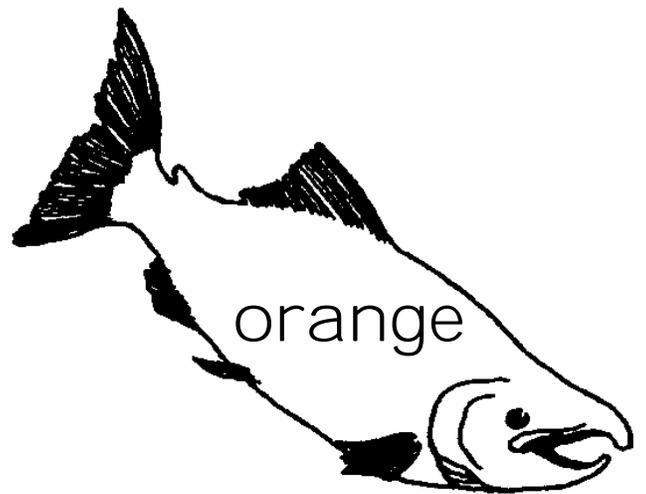
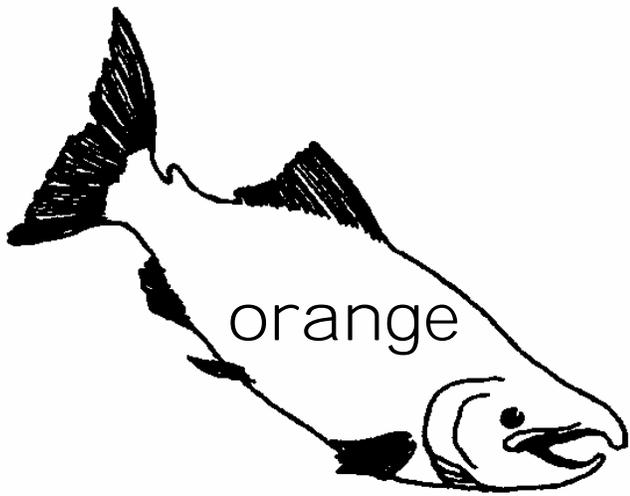
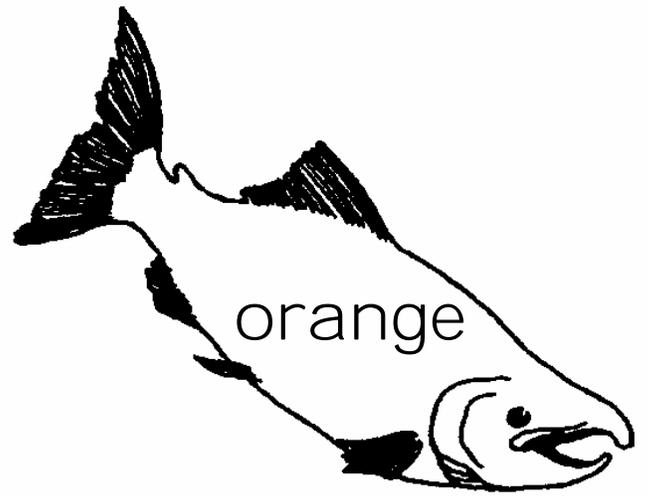
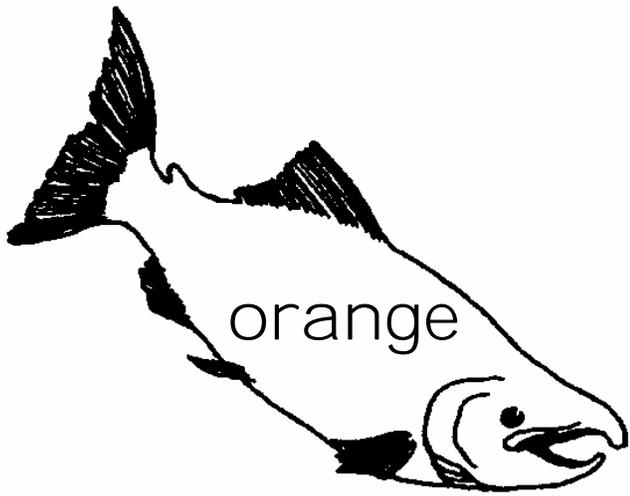


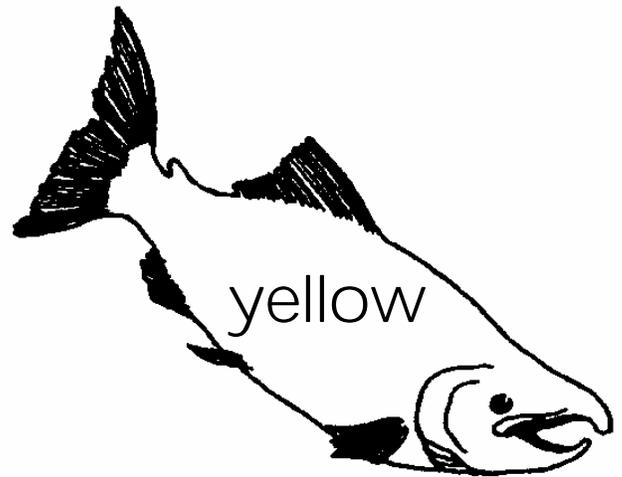
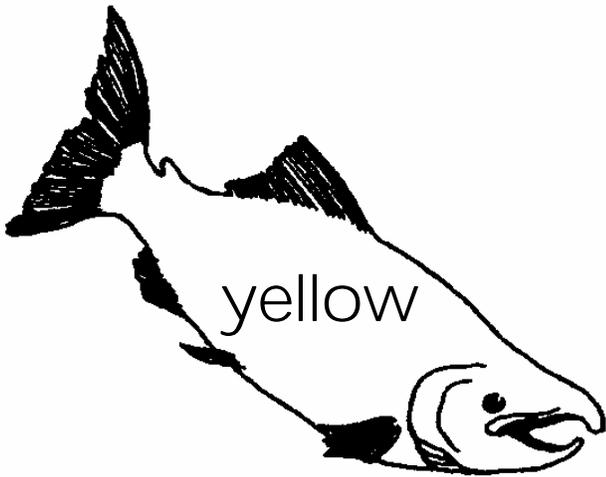
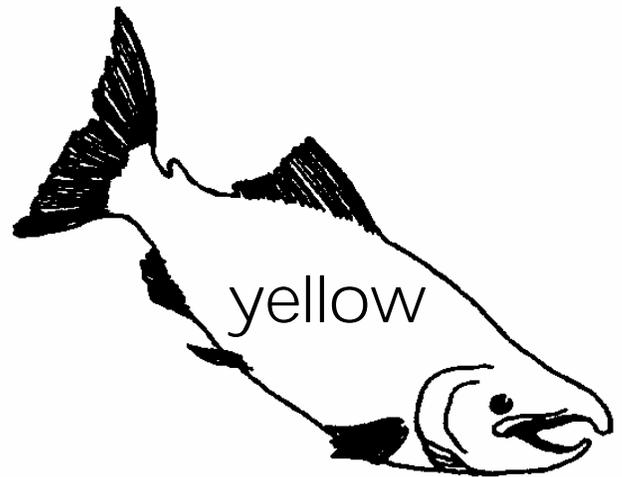
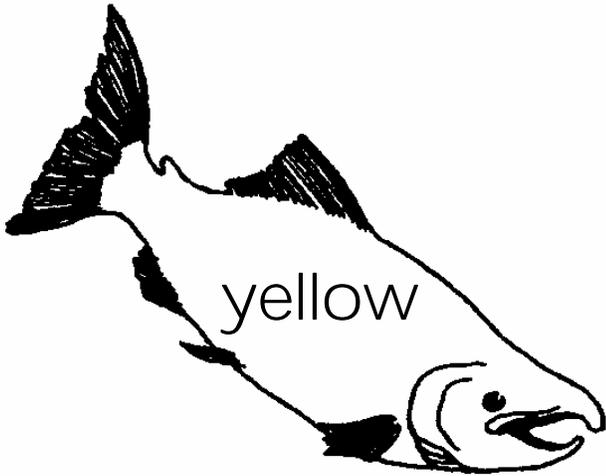
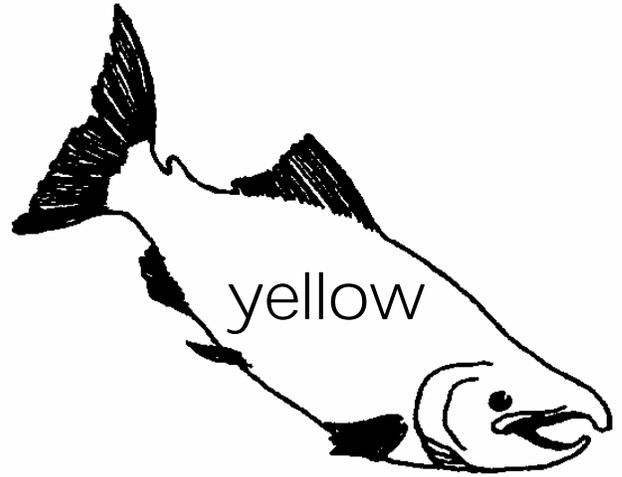
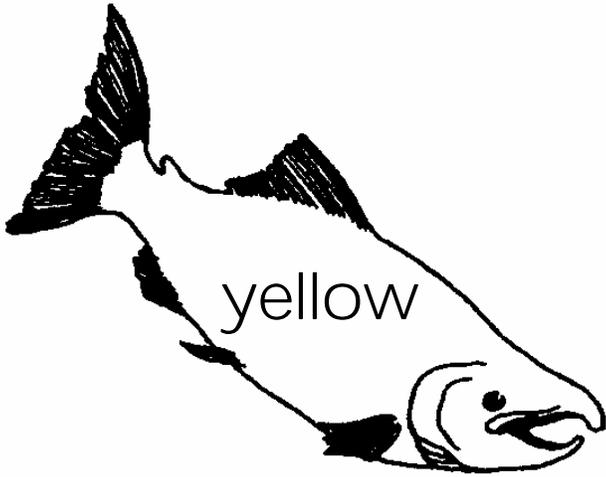


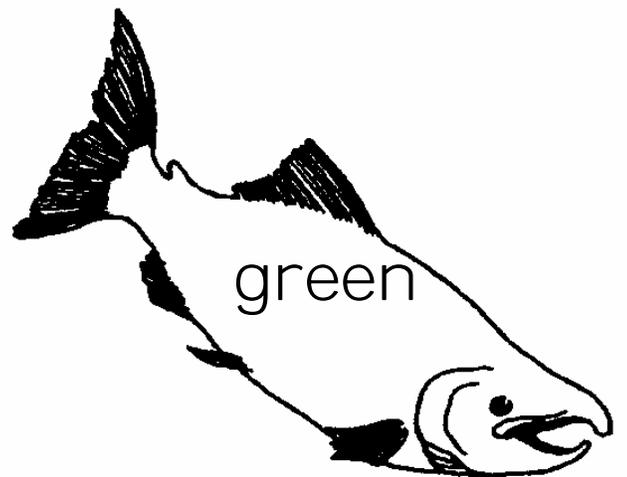
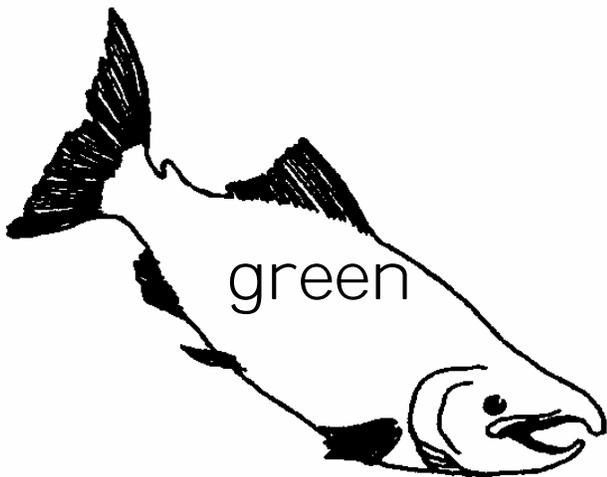
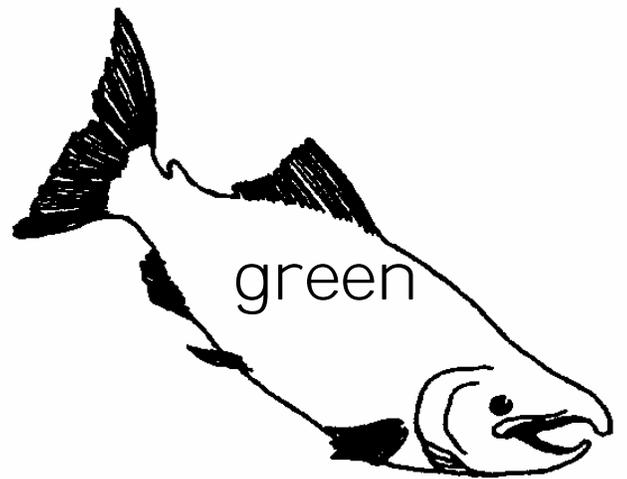
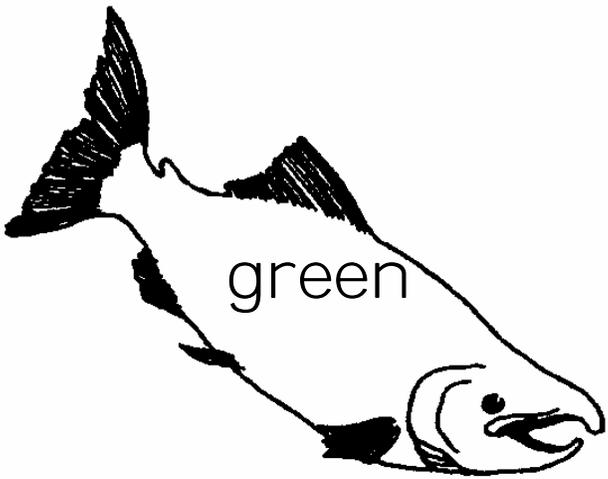
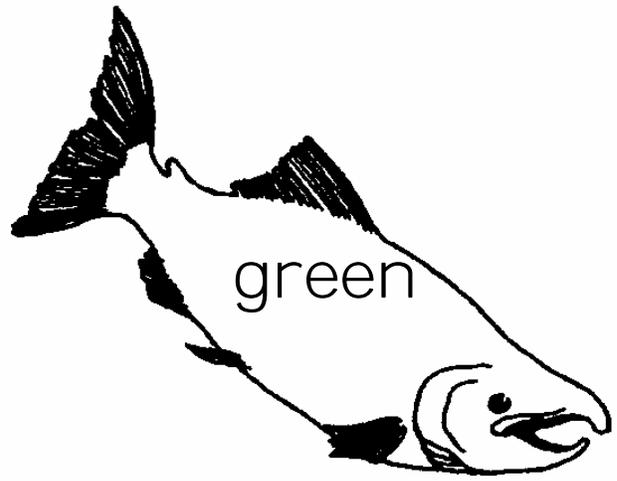
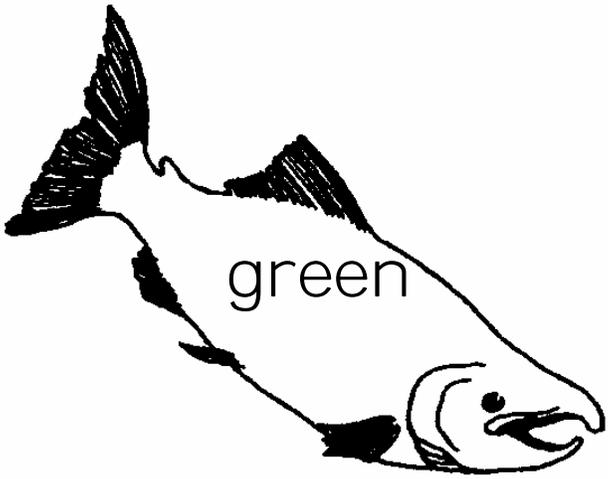


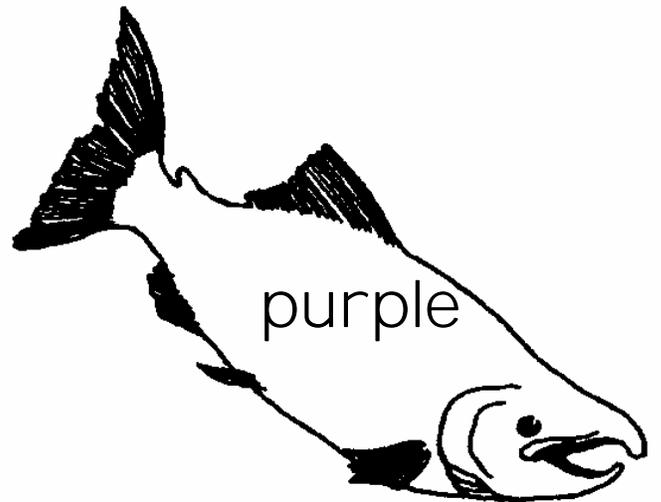
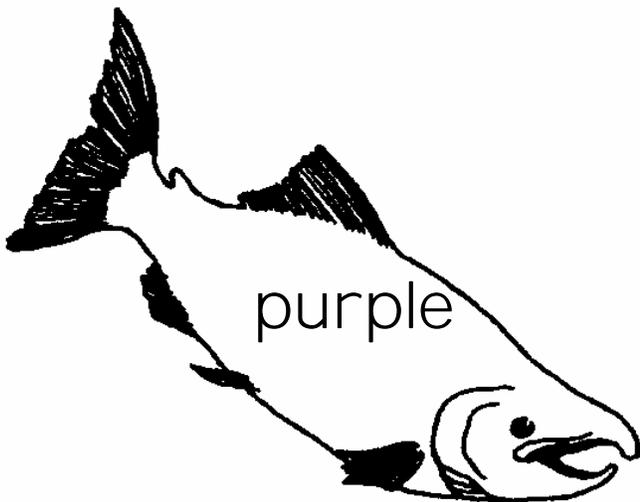
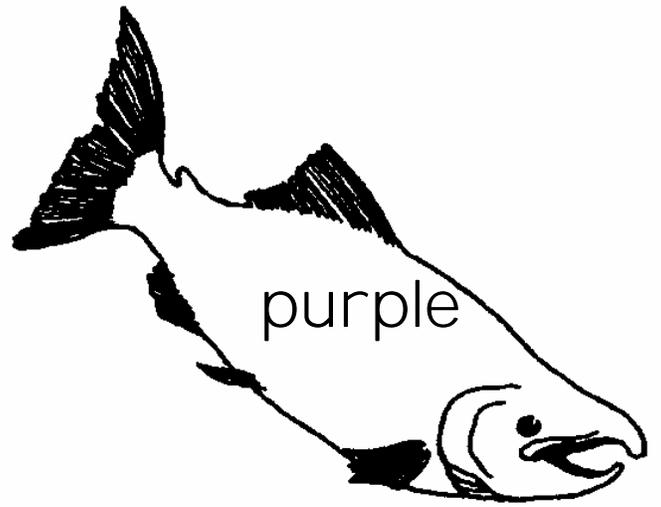
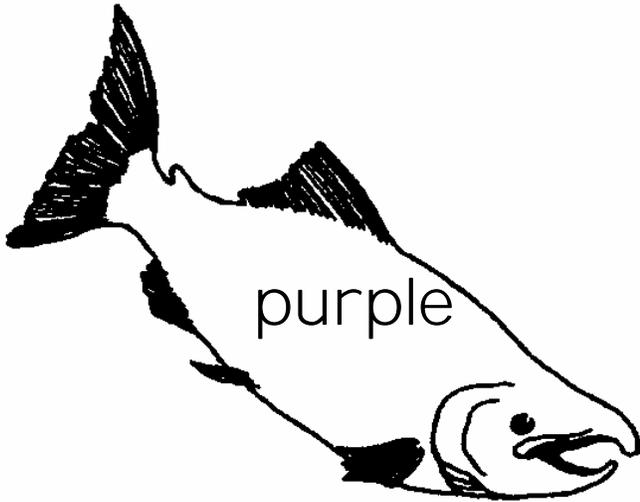
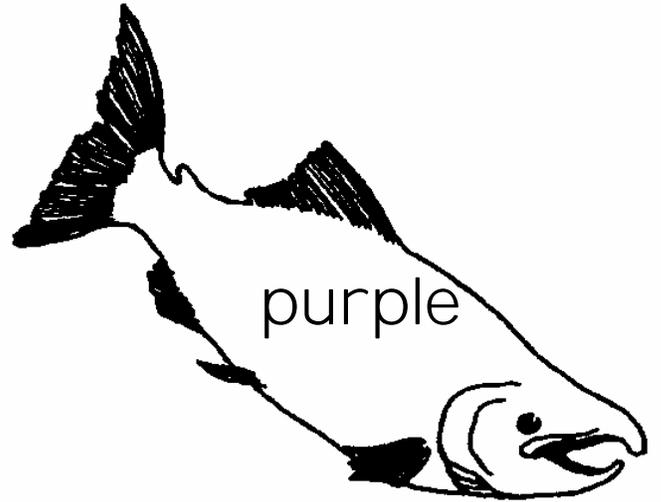
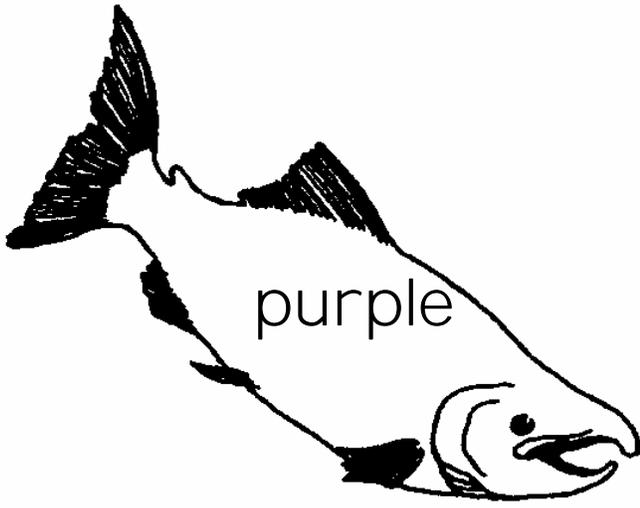


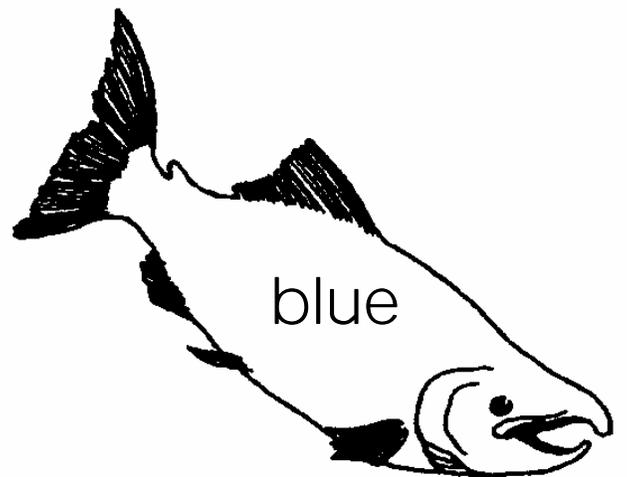
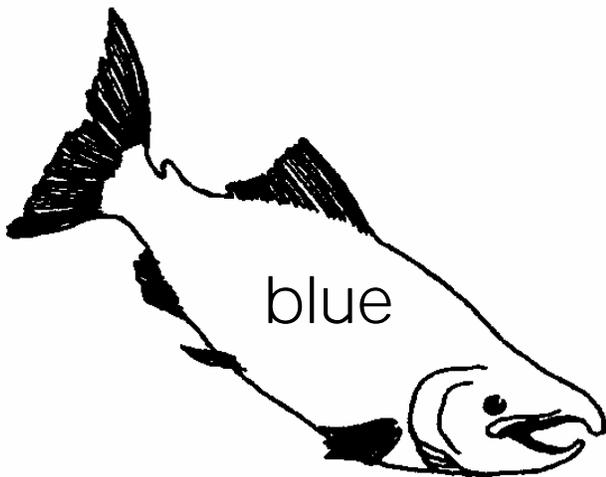
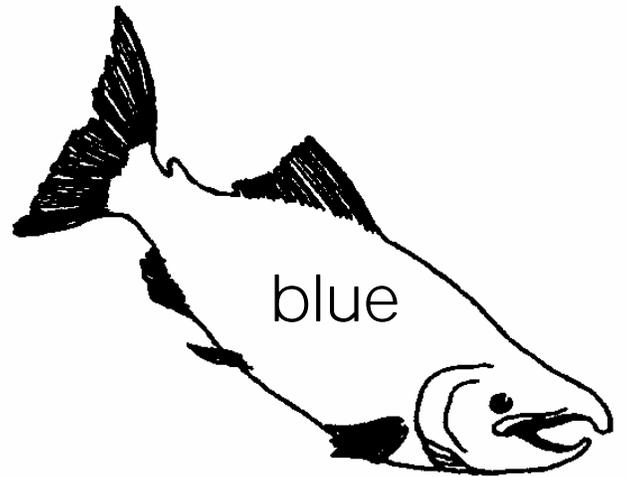
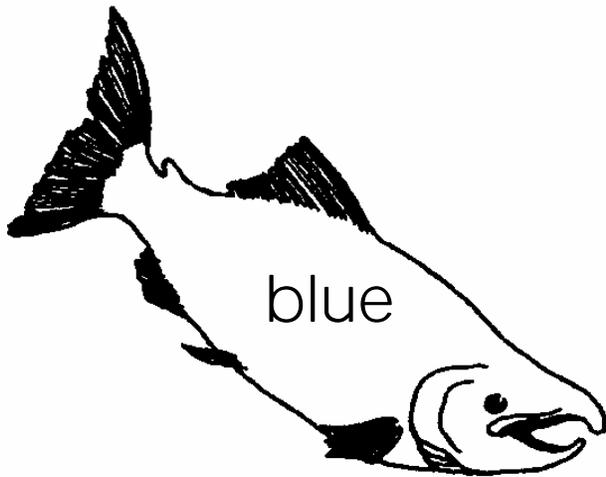
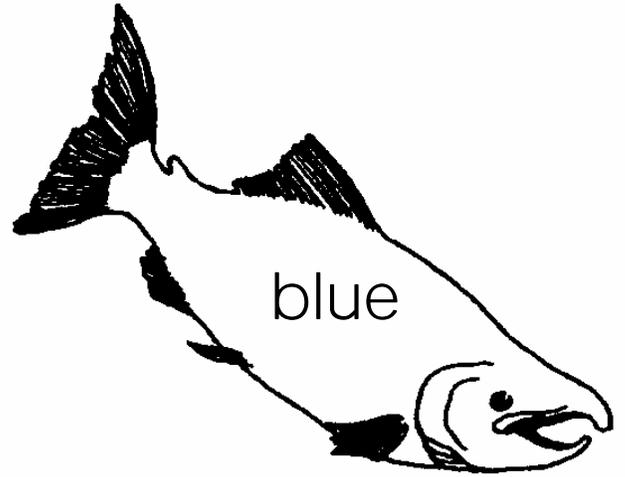
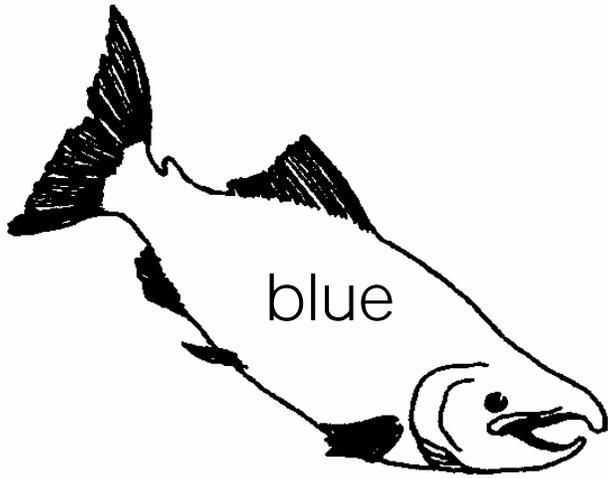


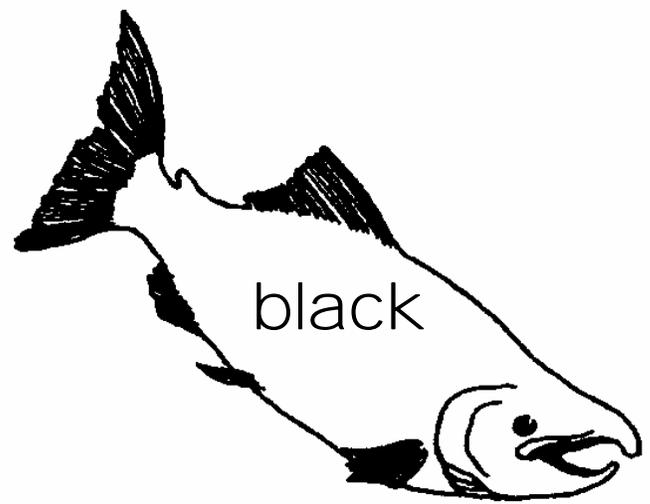
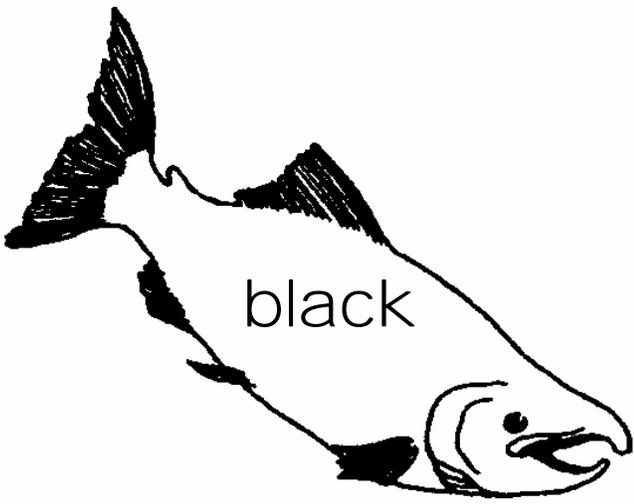
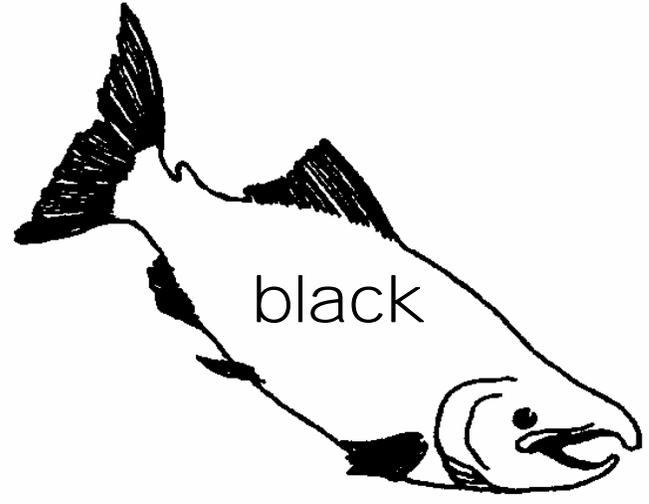
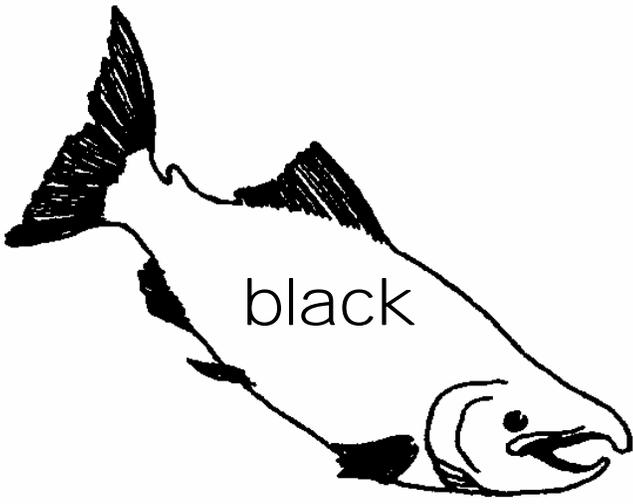
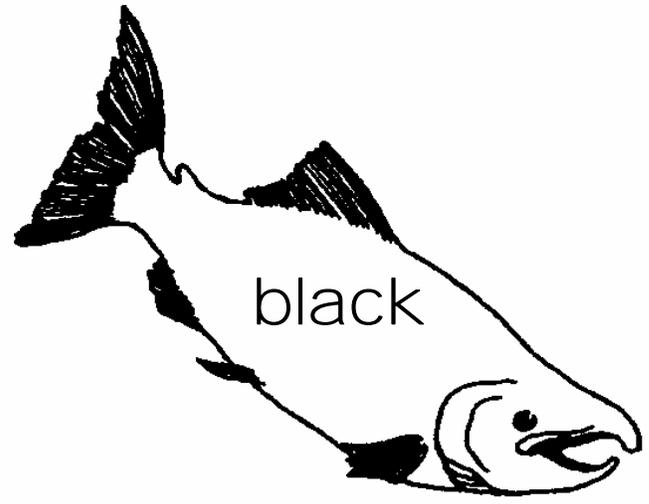
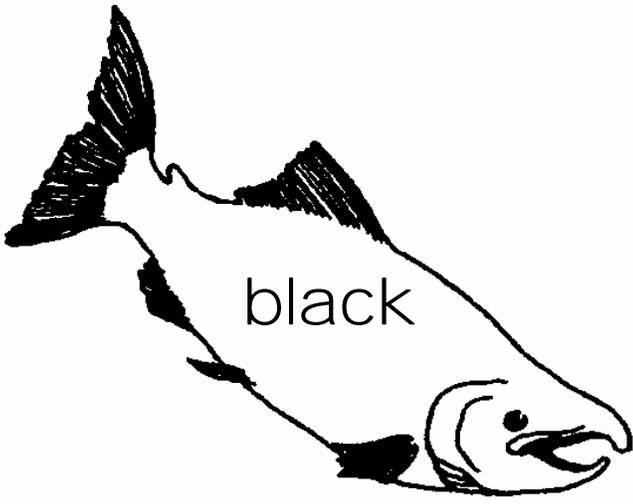


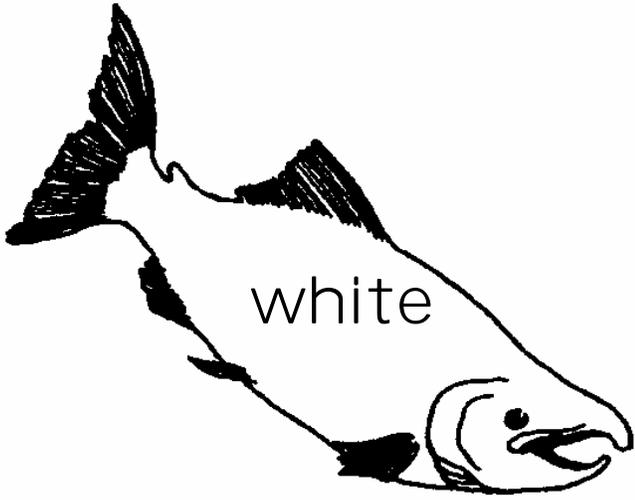


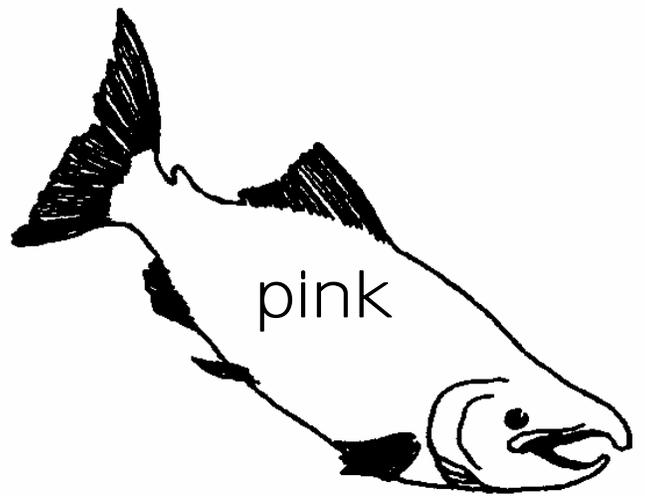
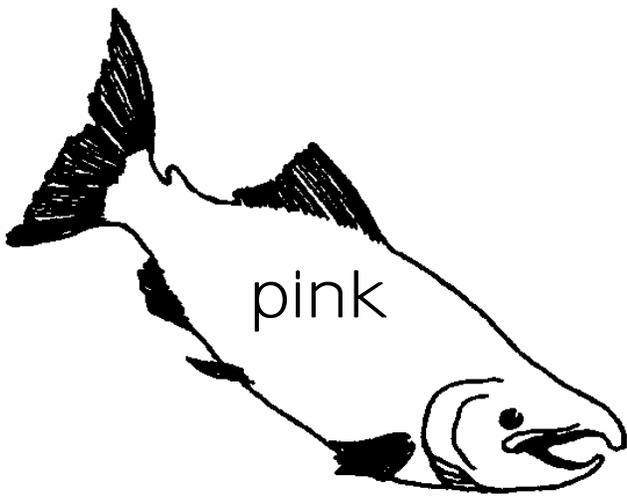
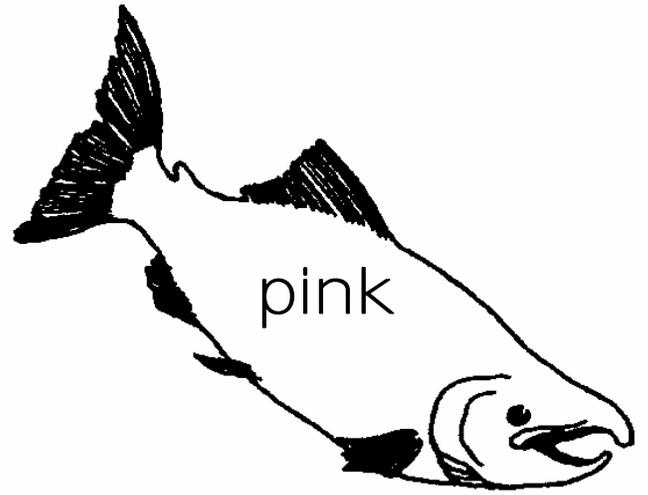
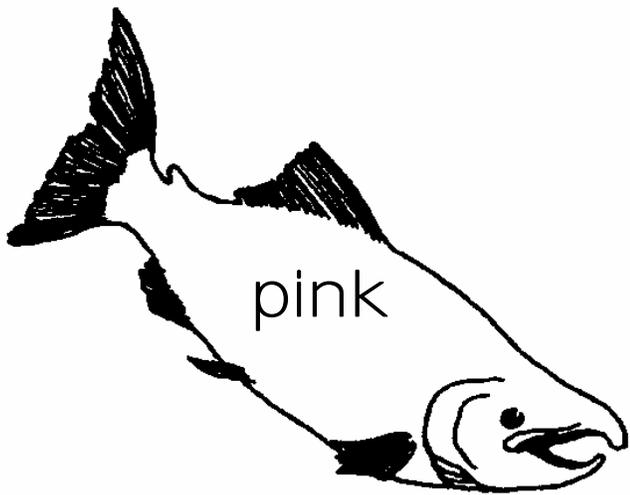
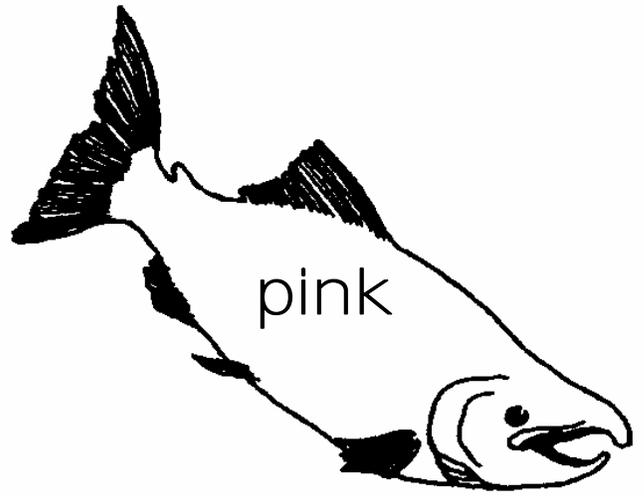
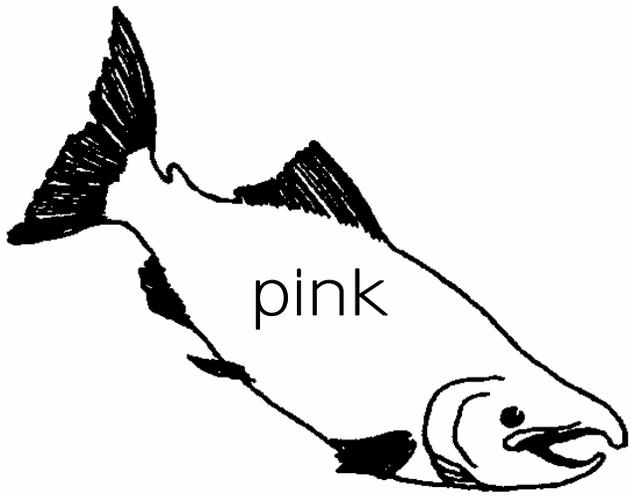


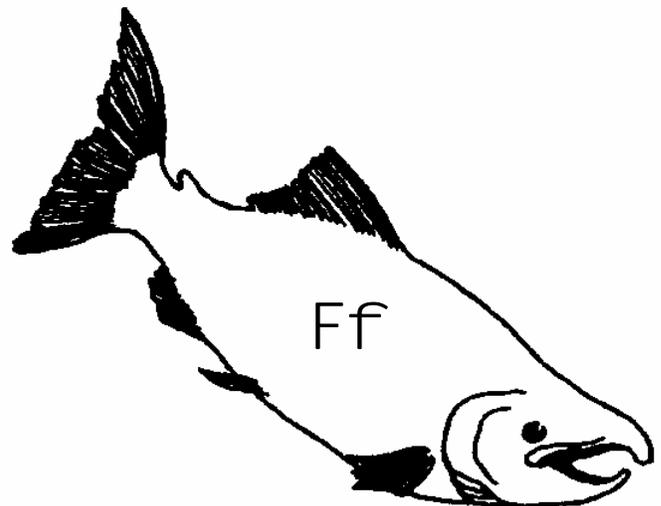
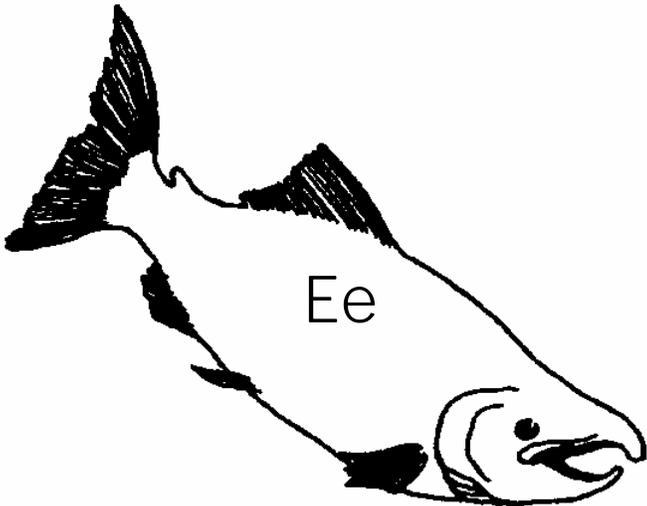
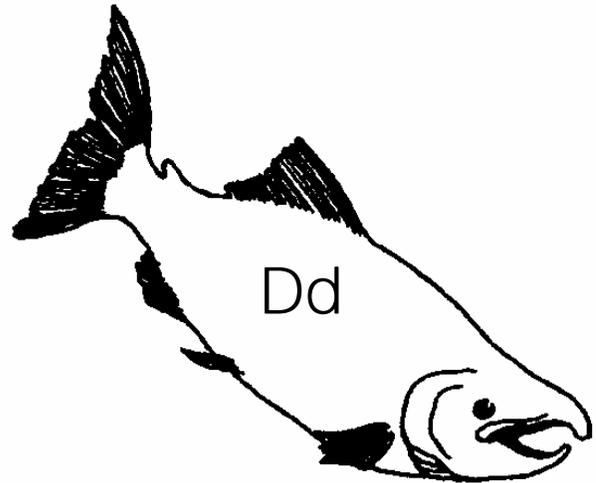
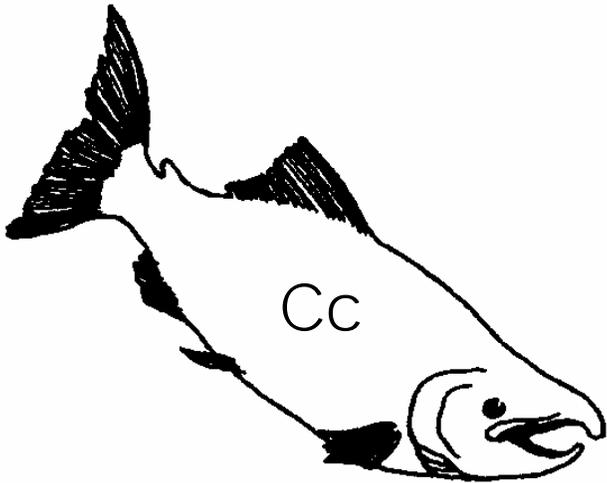
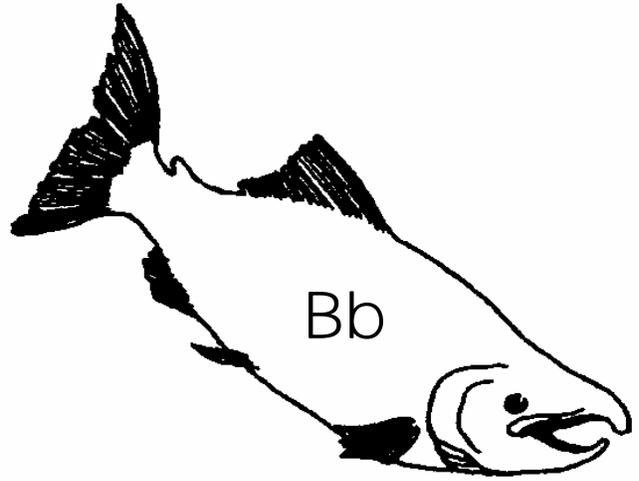
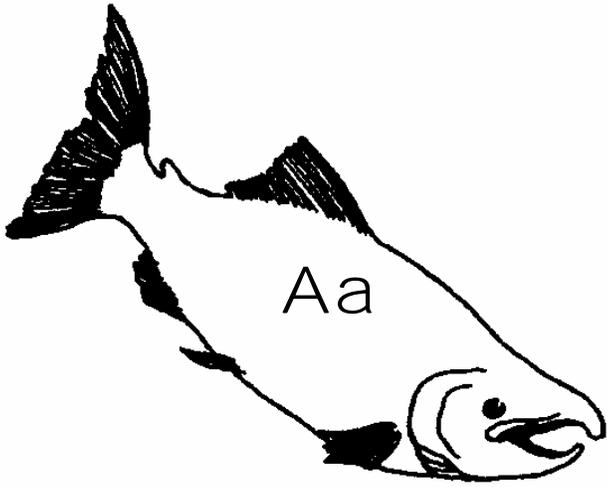


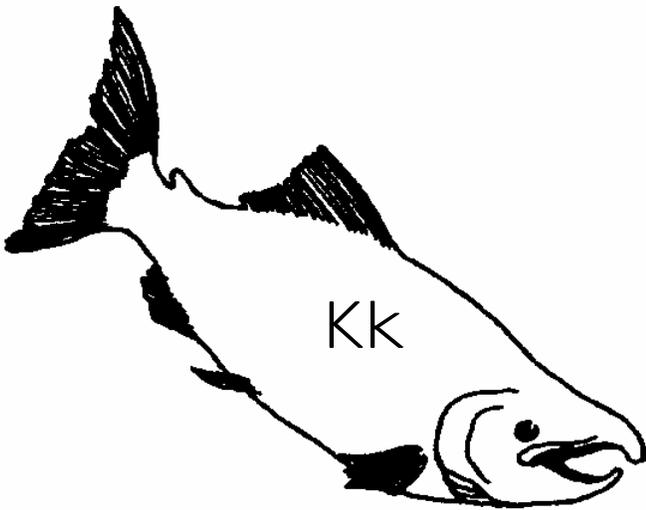
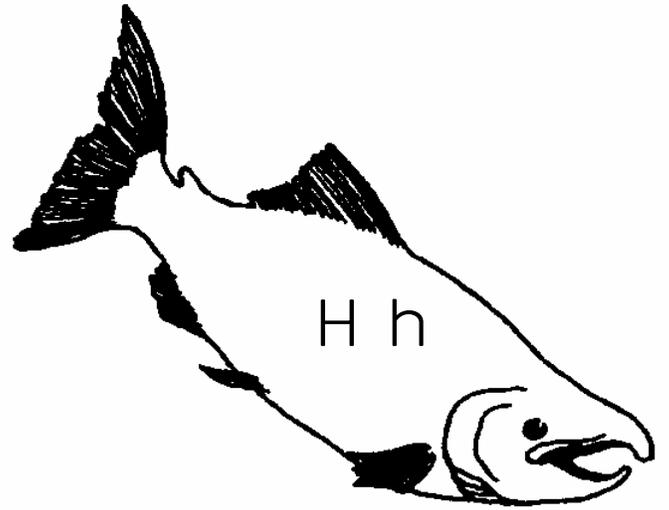


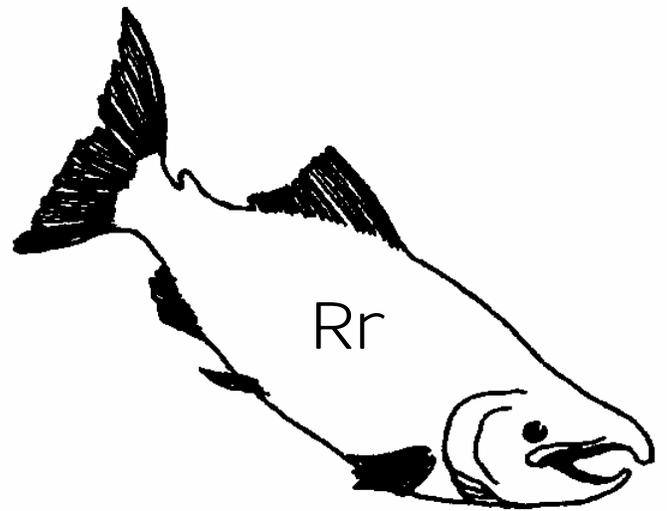
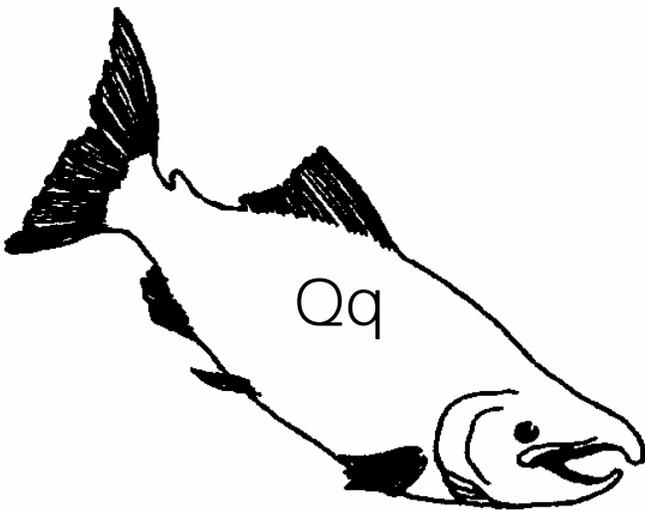
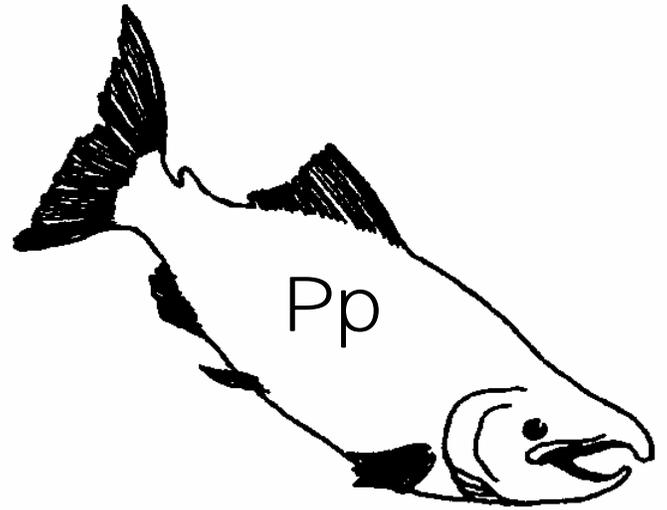
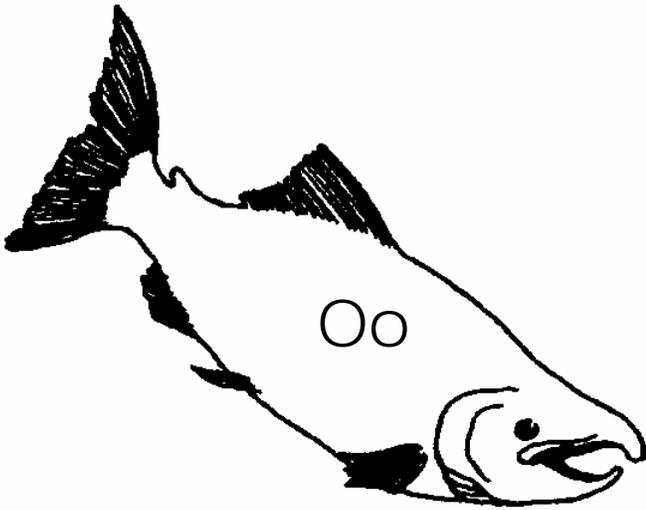
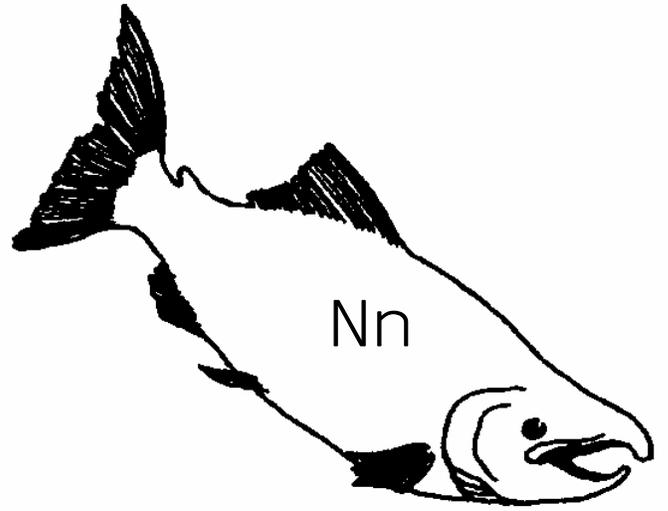
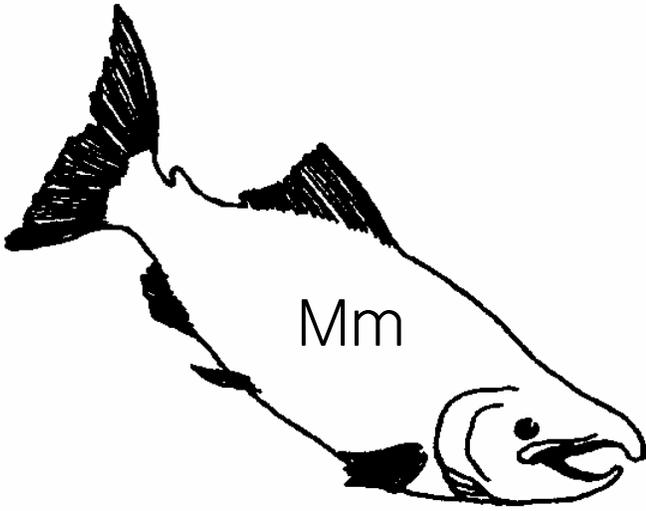


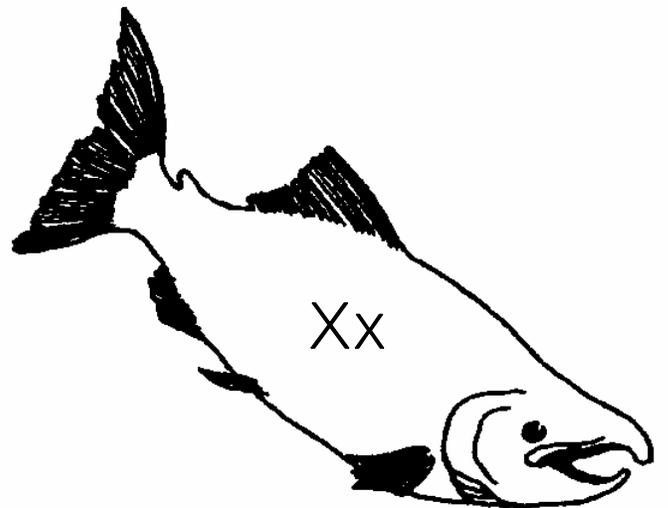
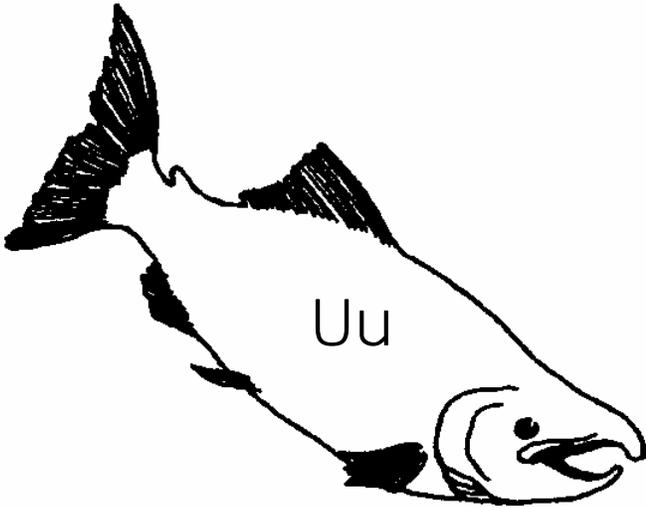
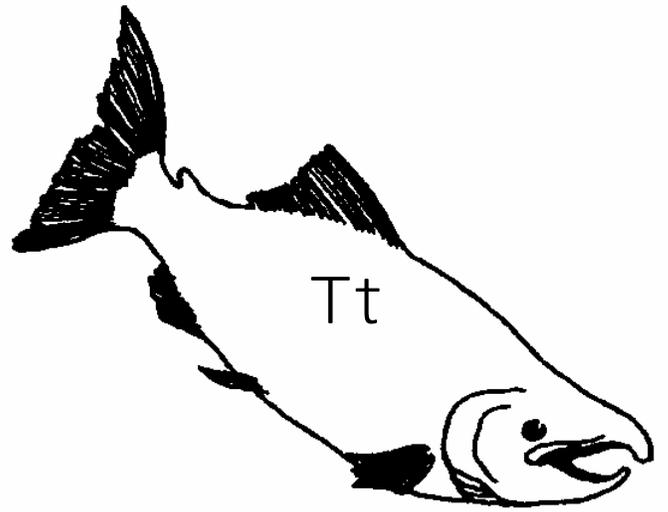
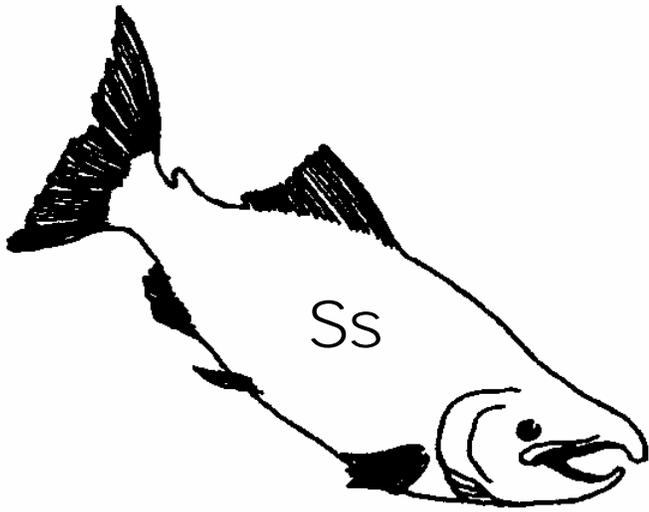


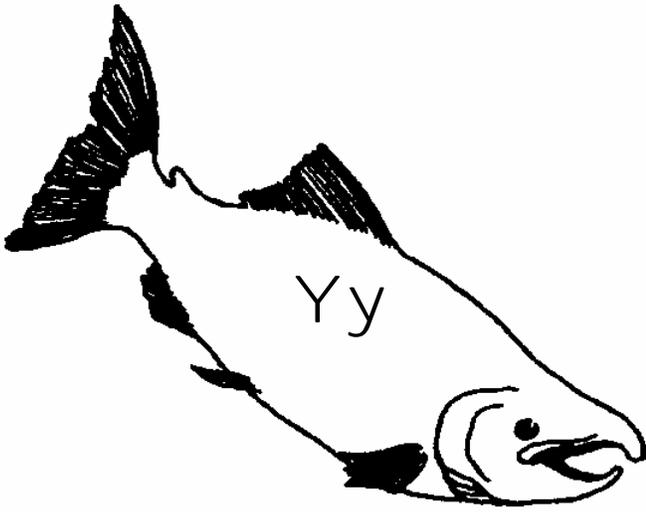








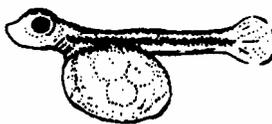
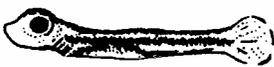
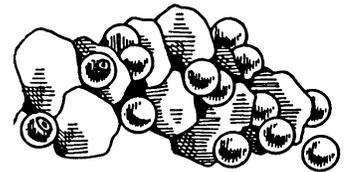
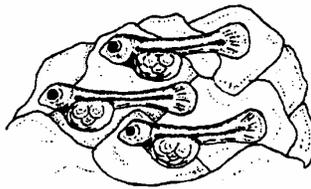
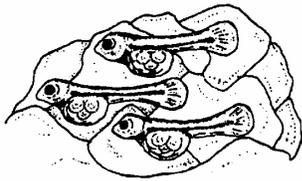
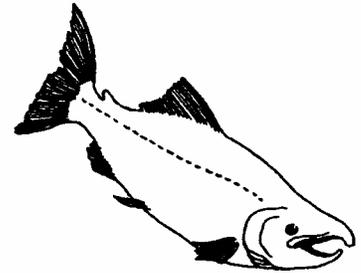
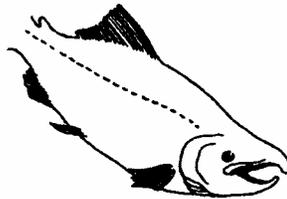
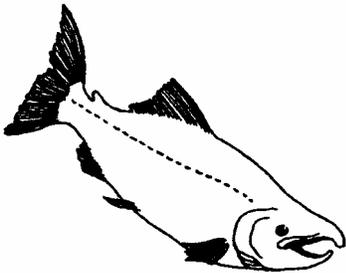
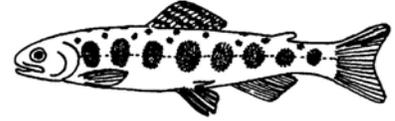
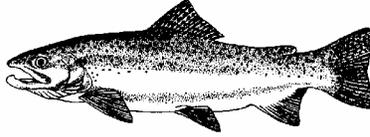
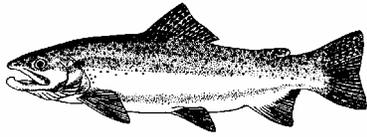




Name _____

Same and Different

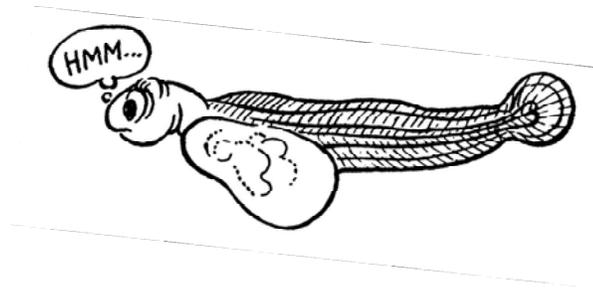
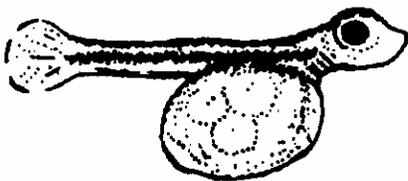
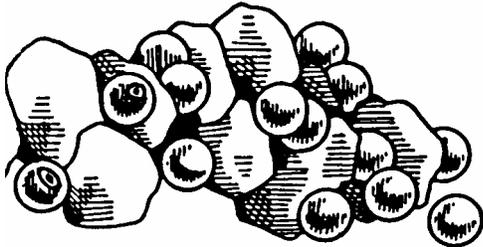
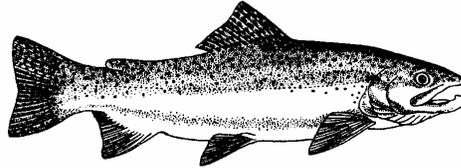
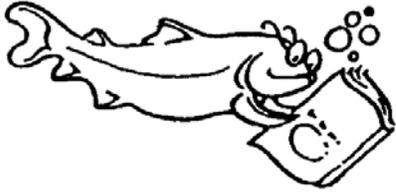
Circle the picture that is different in each row.



Name _____

Fantasy and Reality

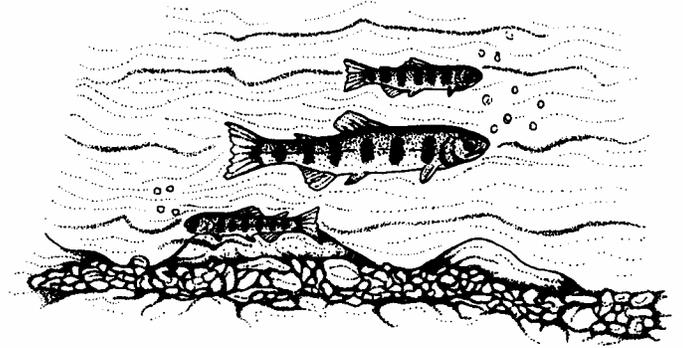
Circle the picture that shows a fantasy.



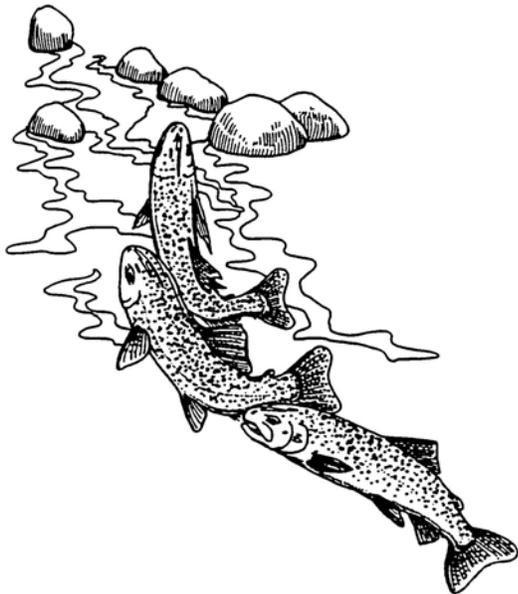


Your purchase of fishing equipment and motor boat fuel supports boating access and Sport Fish Restoration.

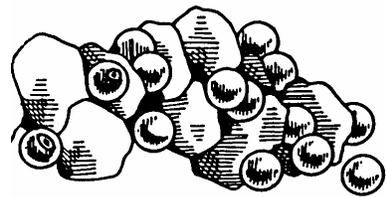
My Salmon Book



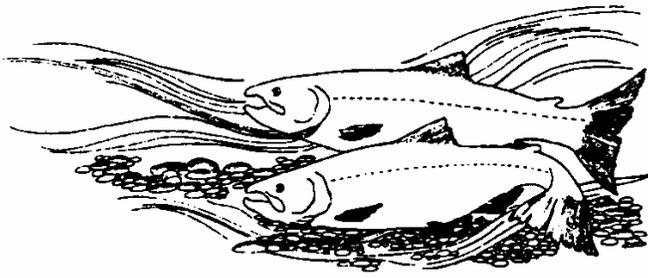
Name _____



The smolts grow up to be adults.

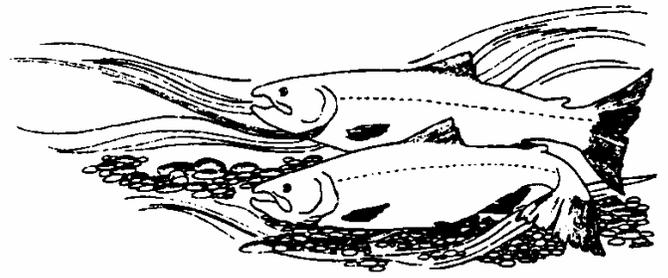


Eggs stay in the nest.



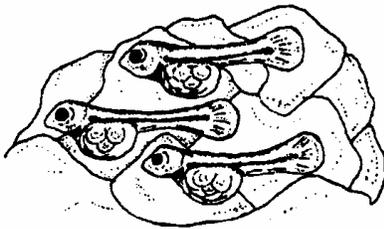
Adults lay eggs.

1



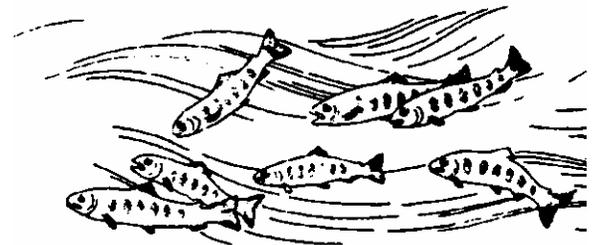
Adults lay eggs.

7



The alevins hide
in the gravel.

3



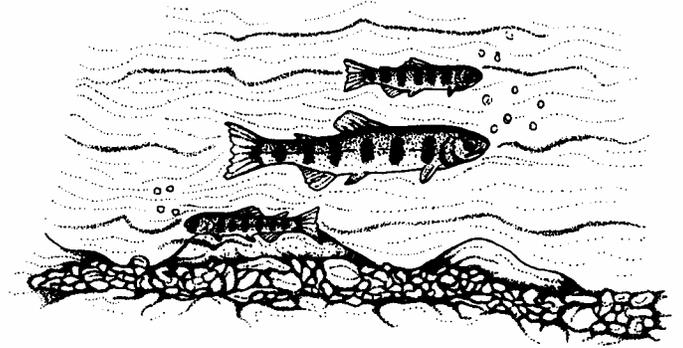
The fry look for food.

4

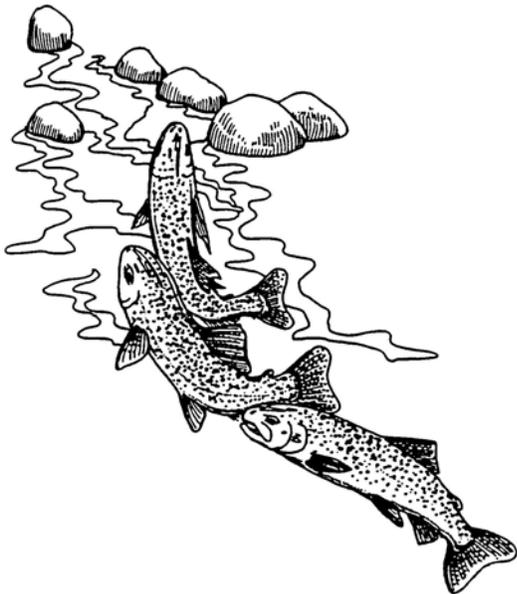


Your purchase of fishing equipment and motor boat fuel supports boating access and Sport Fish Restoration.

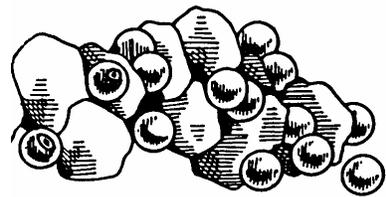
My Trout Book



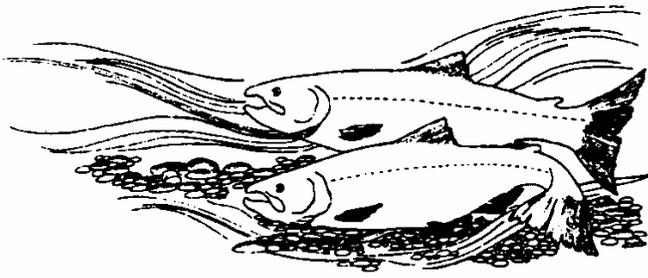
Name _____



The smolts grow up to be adults.

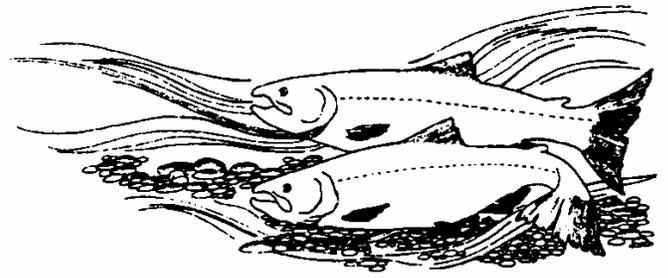


Eggs stay in the nest.



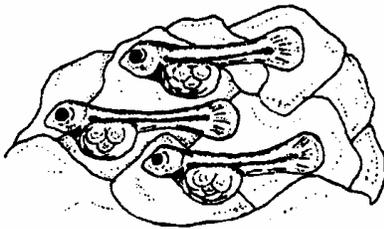
Adults lay eggs.

1



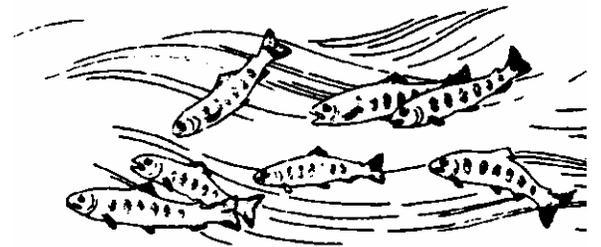
Adults lay eggs.

7



The alevins hide in the gravel.

3

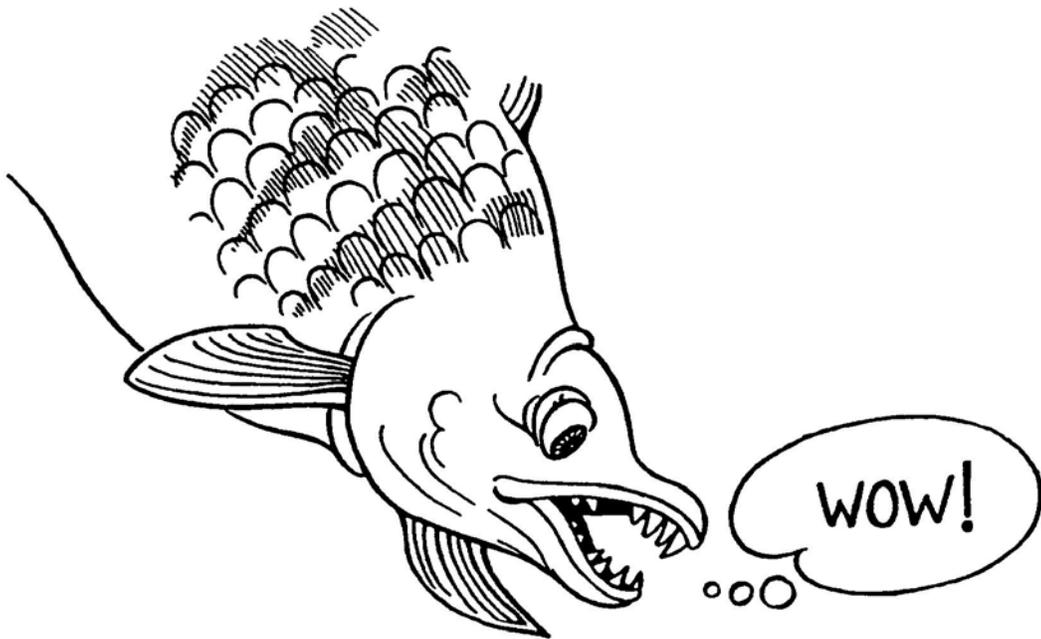


The fry look for food.

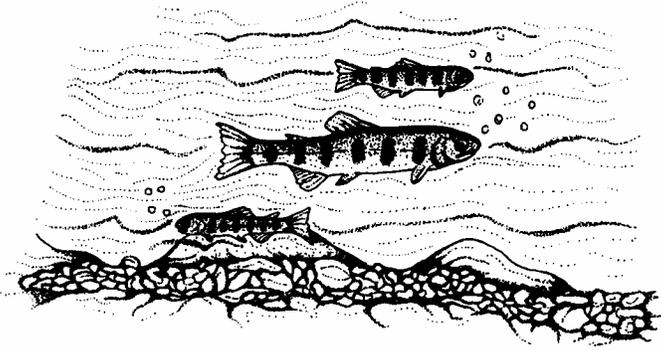
4

My Salmon/Trout Observations

The students will witness three main life stages of the trout or salmon during this project- the egg, alevin, and fry stages. This book is designed to give them space to observe and record those three stages. Of course, more pages can be added if the students record more observations. After the book is done or after each observation ask each observer to describe and discuss their own drawing and what they like about it.

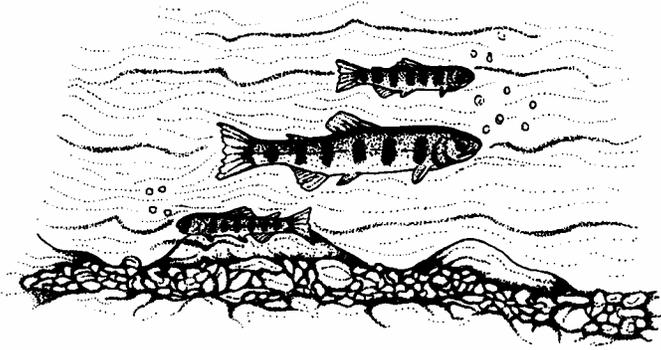


My Salmon Observations



Name _____

My Trout Observations



Name _____

1

2

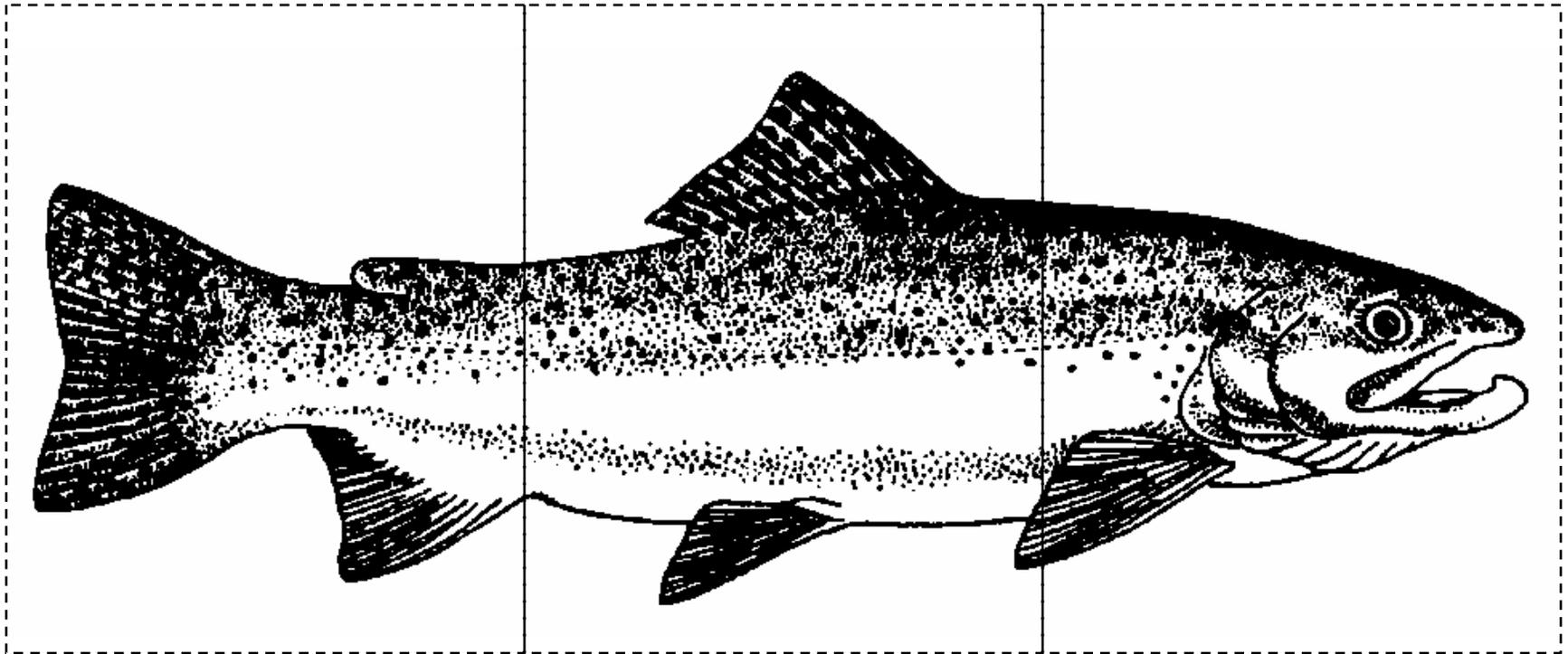
3

Name _____

Trout Puzzle

--	--	--

Cut the trout into 3 pieces along the dotted lines. Glue the pieces on the squares to make a picture of a trout.

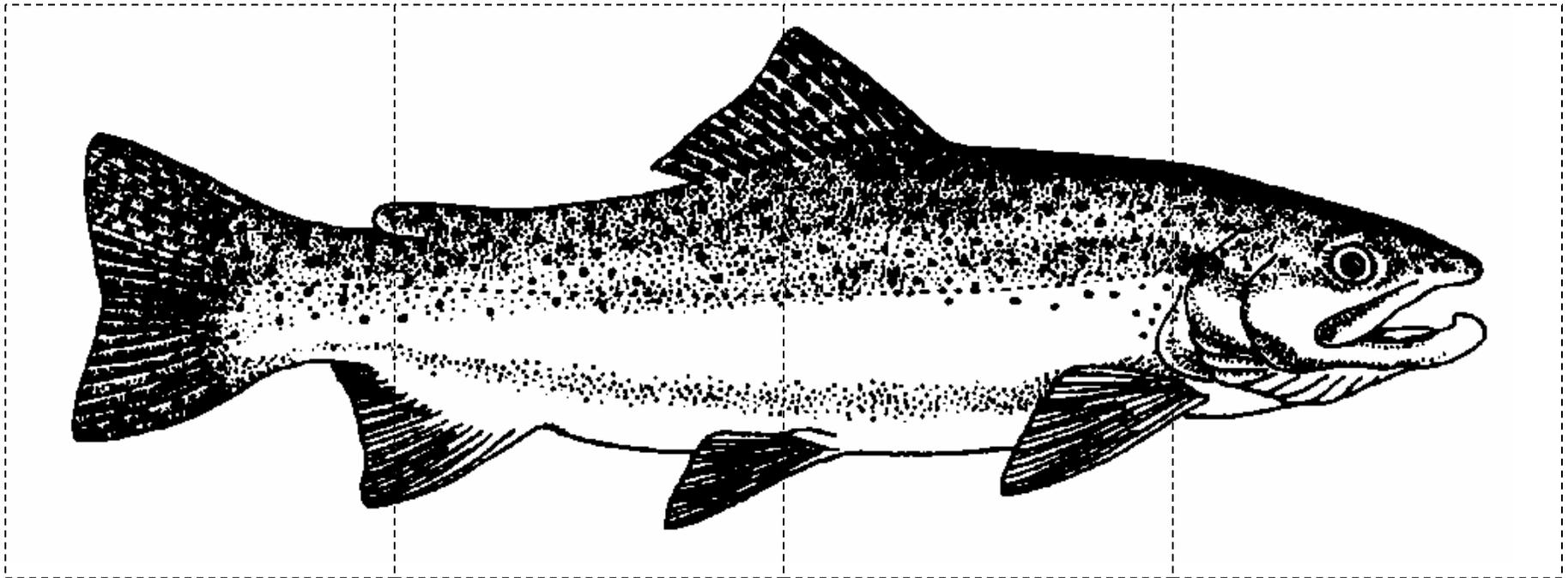


Name _____

Trout Puzzle

--	--	--	--

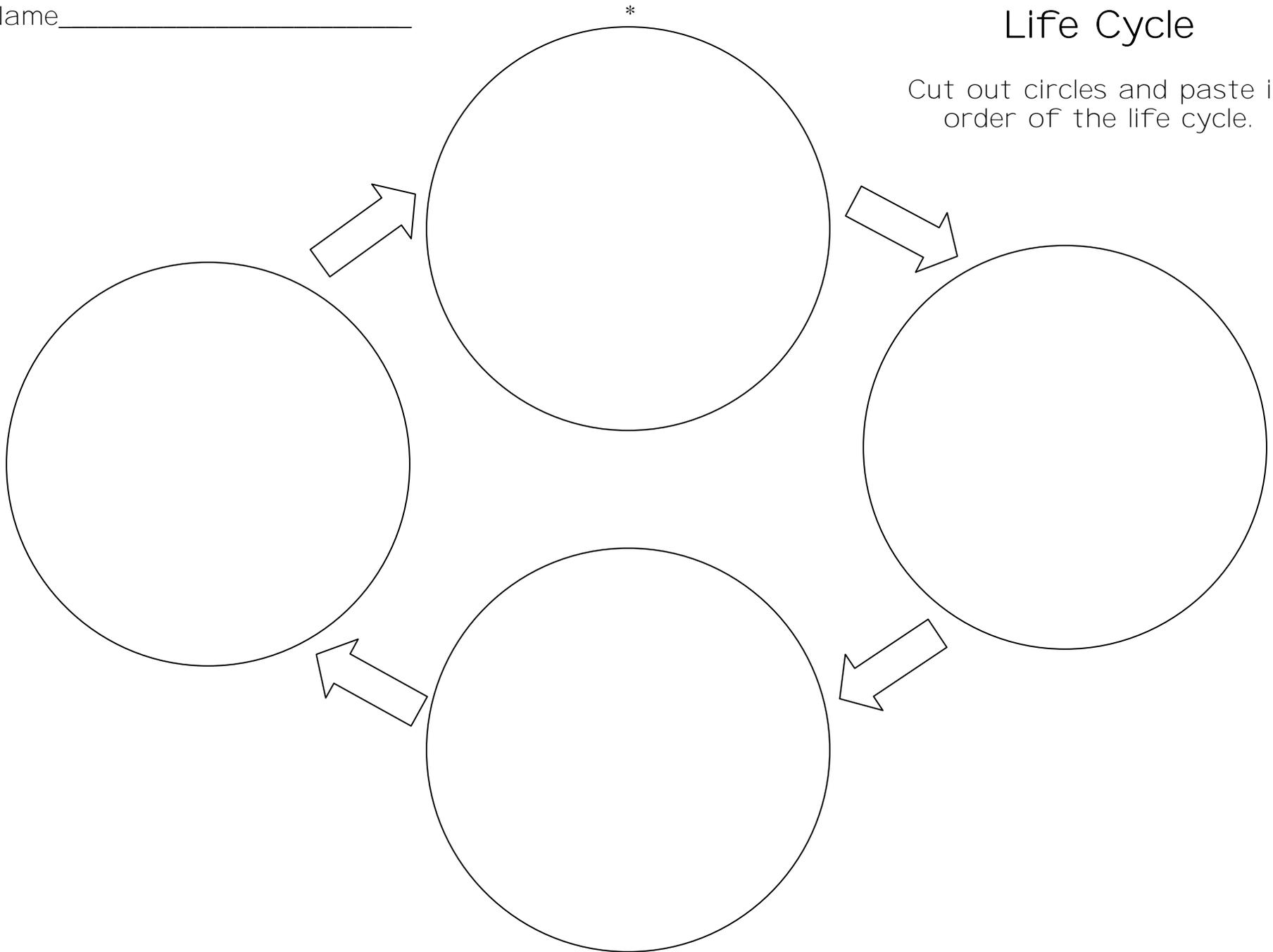
Cut the trout into 4 pieces along the dotted lines. Glue the pieces on the squares to make a picture of a trout.



Name _____

Salmon and Trout Life Cycle

Cut out circles and paste in
order of the life cycle.



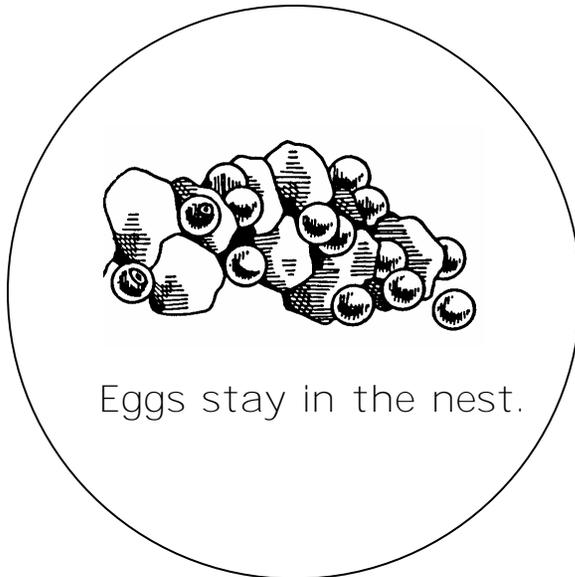
Salmon and Trout Life Cycle



Adults lay their eggs.



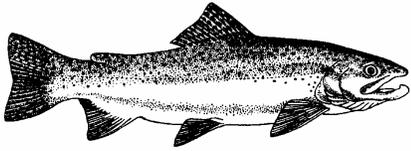
The alevins hide in the gravel.



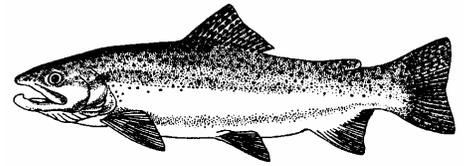
Eggs stay in the nest.



The young fish look for food.



Stuffed Fish



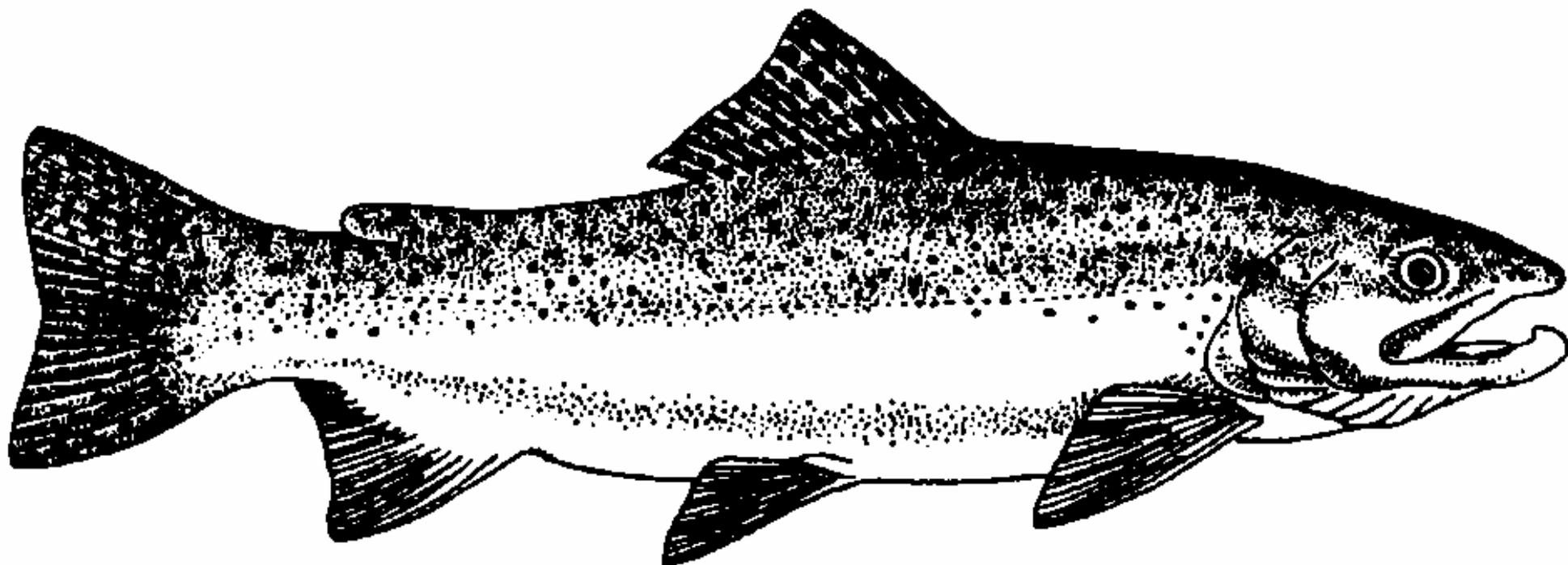
Materials Needed:

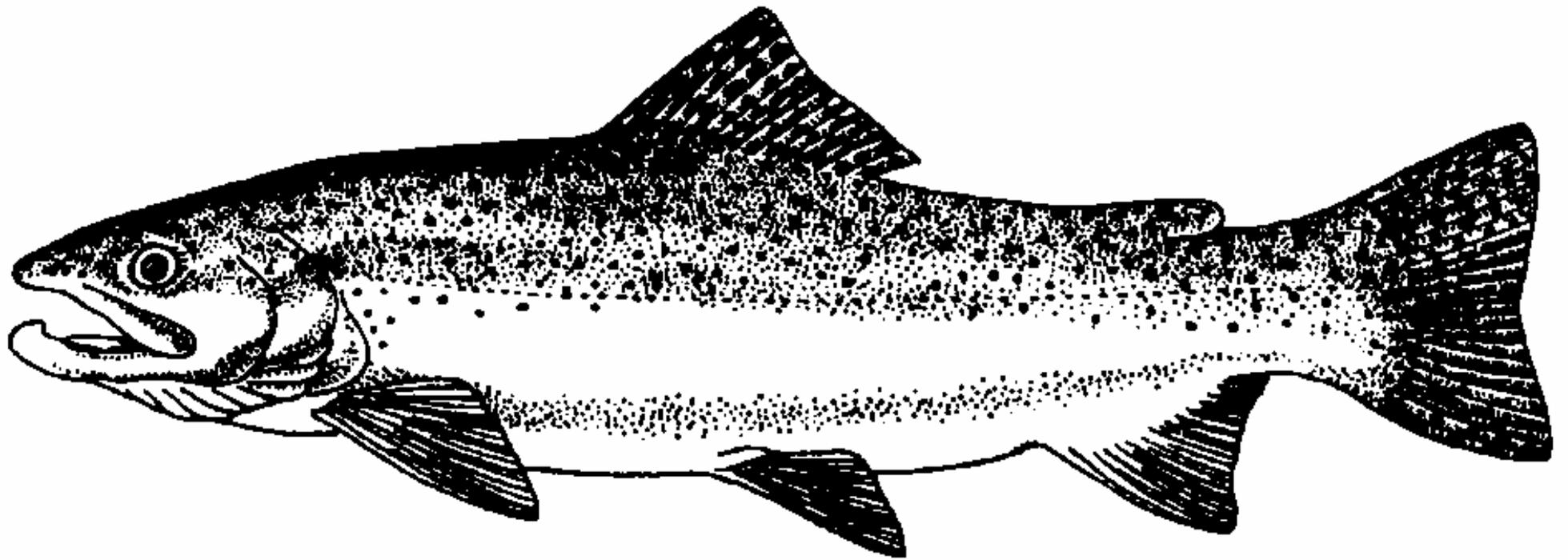
-  One copy of each side of the trout, enlarged to fit on a 8.5" x 14" or 11" x 17" piece of paper, for each student
-  Watercolors, crayons, markers
-  Hole punch
-  Stapler
-  Scissors (for older students)
-  String or yarn
-  Shredded paper

Procedure:

Each student should color both sides of a fish (one facing each way). Cut out the two fish. Staple them together around the bottom. Stuff the fish with shredded paper and staple along the top to hold the stuffing in. Punch 2 holes in the top and attach a piece of string and hang your fish. Ask each student artist to describe and discuss their own work of art and what they like about it.

Stuffed Fish

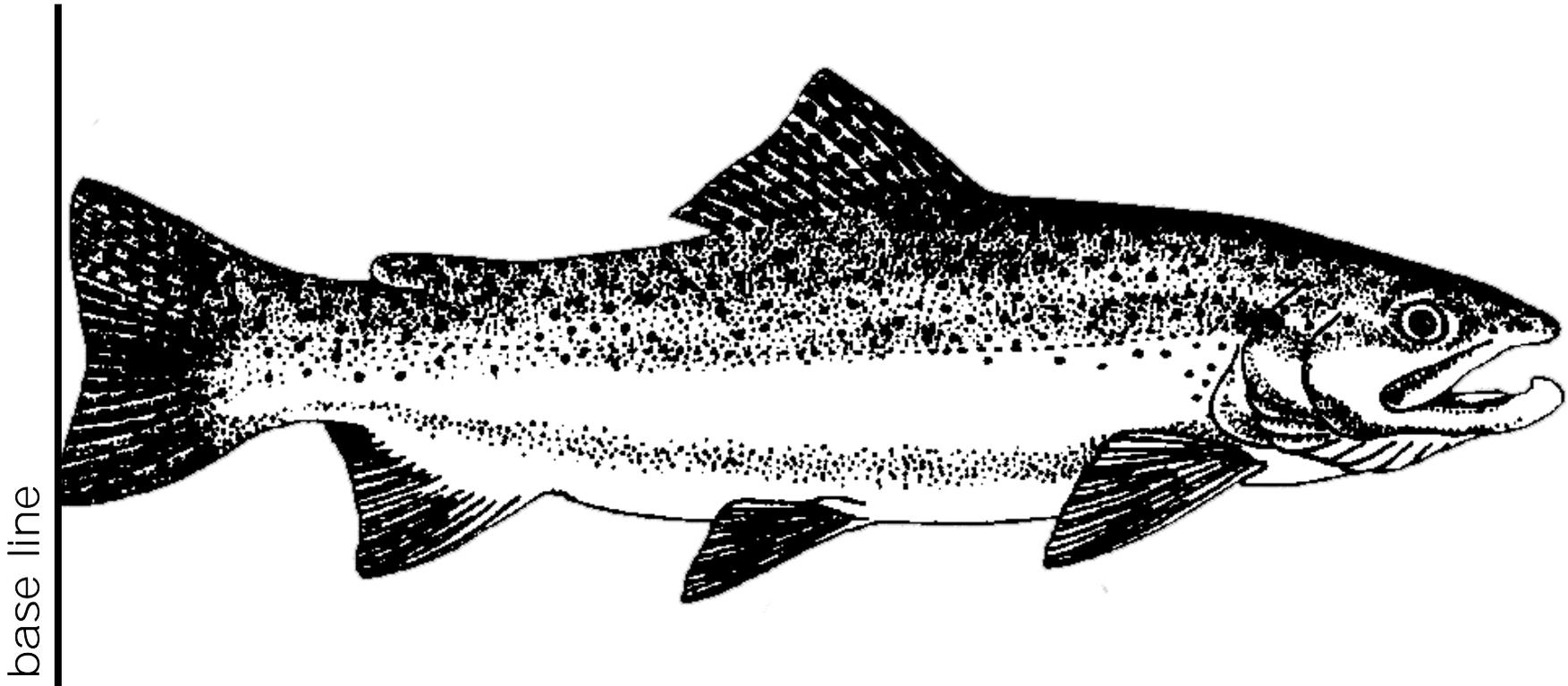




Name _____

How big is it?

This rainbow trout is one year old. Compare this trout to other things. Are they longer or shorter?





The Trout Fish Song

Sung to the tune of "Mary Had a Little Lamb"
Words by Susan King

Trout fish always
lay their eggs,
lay their eggs,
lay their eggs.
Trout fish always
lay their eggs and
they are very small.

Then they swim with
their yolk sacs,
their yolk sacs,
their yolk sacs.
Then they swim with their yolk sacs and
they are called alevins.

Then they need to
button up,
button up,
button up.
Then they need to button up and
then they swim so fast.

Then we take them
to the river,
to the river,
to the river.
Then we take them
to the river and then
they grow so big.

or

Then we take them
to the lake,
to the lake,
to the lake.
Then we take them
to the lake and then
they grow so big.

Then it starts all
over again,
over again,
over again,
Then it starts
all over again
just like it did before.

The Trout Fish Song

Sung to the tune of "Mary Had a Little Lamb"
Words by Susan King

Trout fish always

lay their eggs,

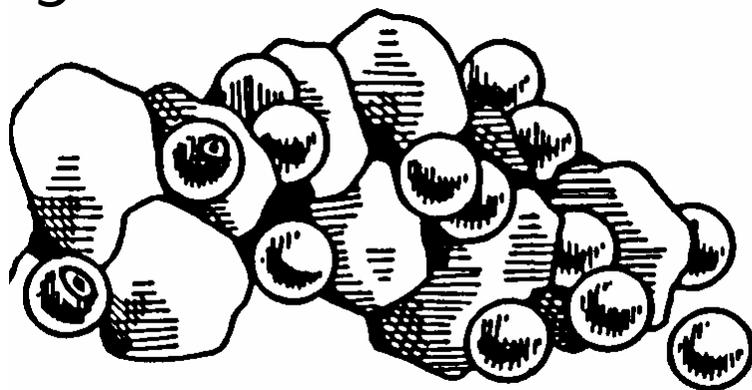
lay their eggs,

lay their eggs.

Trout fish always

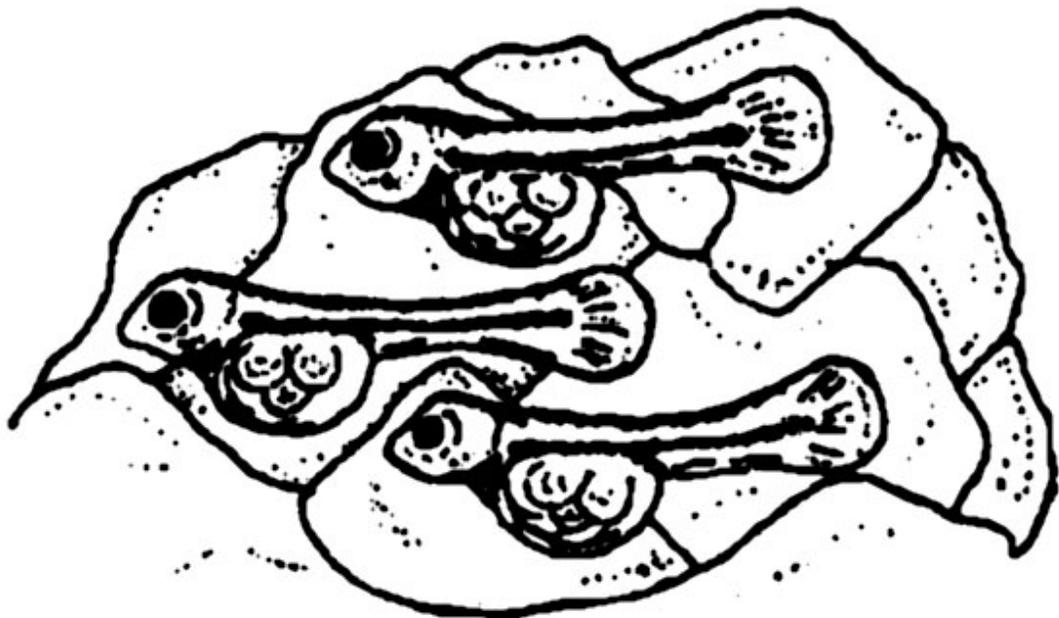
lay their eggs and

they are very small.



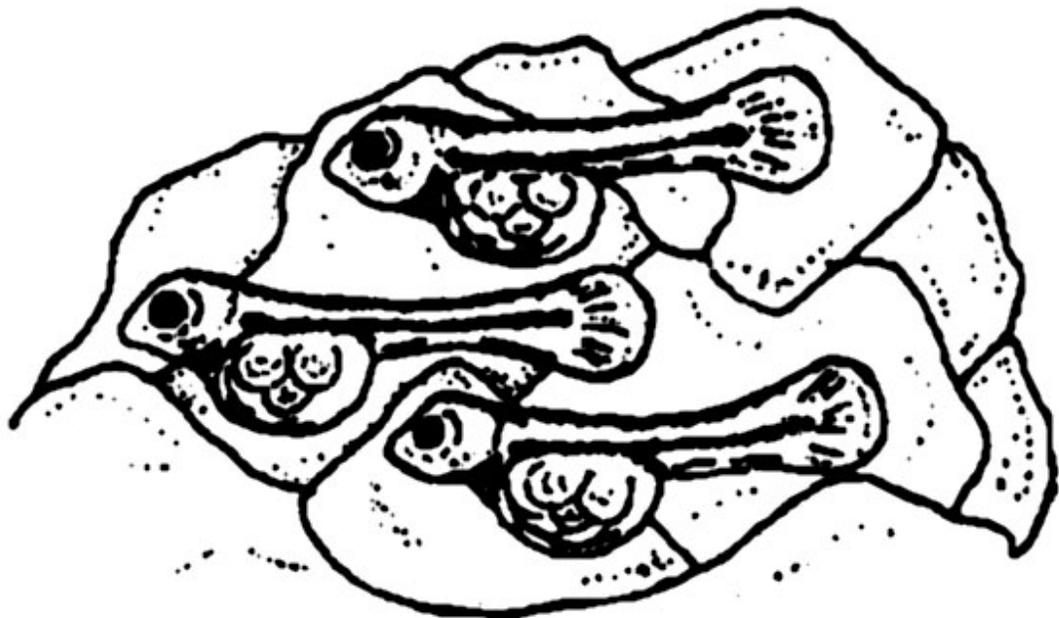
Then they swim with
their yolk sacs,
their yolk sacs,
their yolk sacs.

Then they swim with
their yolk sacs and
they are called alevins.



Then they need to
button up,
button up,
button up.

Then they need to
button up and then
they swim so fast.



Then we take them
to the lake,
to the lake,
to the lake.

Then we take them
to the lake and then
they grow so big.

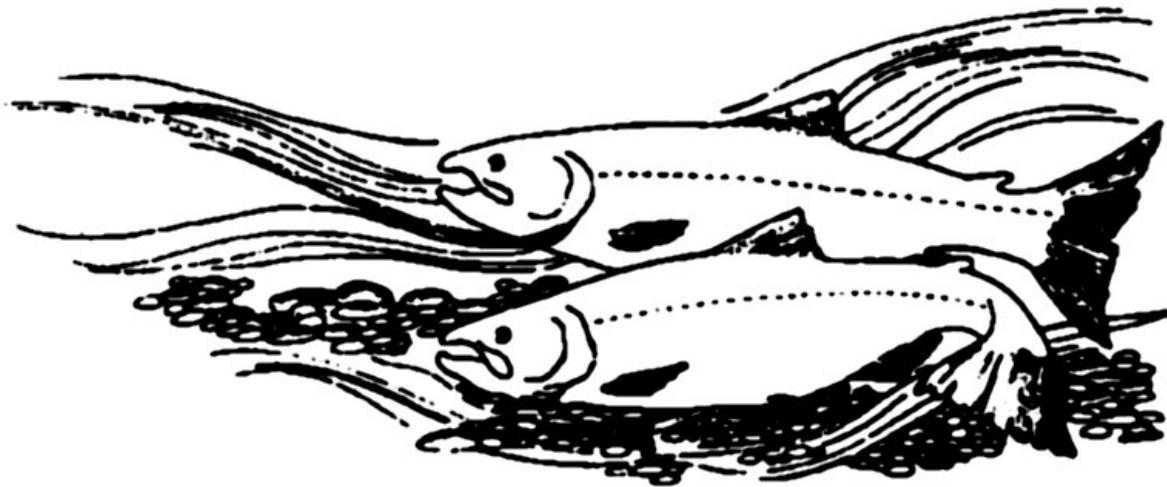


Then we take them
to the river,
to the river,
to the river.

Then we take them
to the river and then
they grow so big.

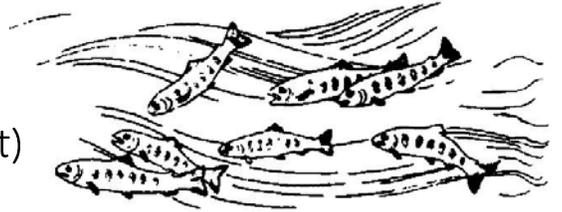


Then it starts all
over again,
over again,
over again
Then it starts
all over again
just like it did before.



I'm a Little Trout

sung to the tune of I'm a Little Teapot)



I'm a little trout, I like to swim

(put hands flat with palms together and fingers pointing away from you... they're the fish. Wiggle them back and forth like a fish swimming through the water.)

You can't catch me, 'cause I have fins

(shake finger back and forth "no no no")

When I swim past my friends, I hear them say

(put hand to ear like you're listening)

Stop your swimming and come and play!

(make a STOP gesture with hand and then jump up in the air)

I'm a Little Salmon

(to the tune of I'm a Little Teapot)

I'm a little salmon, I like to swim

(put hands flat with palms together facing away from you... they're the fish. Wiggle them back and forth like a fish swimming through the water.)

You can't catch me, 'cause I have fins

(shake finger back and forth "no no no")

When I swim past my friends, I hear them say

(put hand to ear like you're listening)

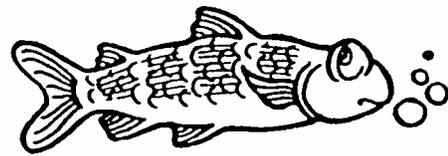
Stop your swimming and come and play!

(make a STOP gesture with hand and then jump up in the air)

Adapted from "I'm a Little Fish" from

<http://www.dltk-kids.com/animals/songs/fish.htm>

Fishy Problems



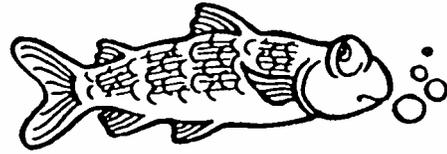
Materials Needed:

-  one underwater picture for each student or pair of students if they are working in teams (black & white or color)
-  several goldfish crackers for each student
-  one copy of the "Fishy Problems" worksheet for each student

Procedure:

For this lesson the students lay the underwater picture down on their desk. As they read the fishy problems from their worksheet they lay the goldfish crackers on the picture and use them as manipulatives to help them solve the math problem.

Name _____



Fishy Problems

Can you solve these fishy problems?

1. Seven chinook salmon were swimming together in the ocean. Two of them were eaten by a whale. How many chinook salmon were left swimming in the ocean?

2. Three rainbow trout were looking for food in the river. Two rainbow trout joined them in their search. How many trout were searching for food in the river?

3. Nine chinook salmon began to swim up the Tuolumne River. Suddenly there was a rock slide. Five chinook salmon survived. How many died in the rock slide?

4. A fisherman spied a school of ten rainbow trout. After a long day of fishing he had only caught three of them. How many of the trout escaped from the fisherman?

5. Make up a fishy problem and ask a friend to solve it.

illustration by Katie Delgado

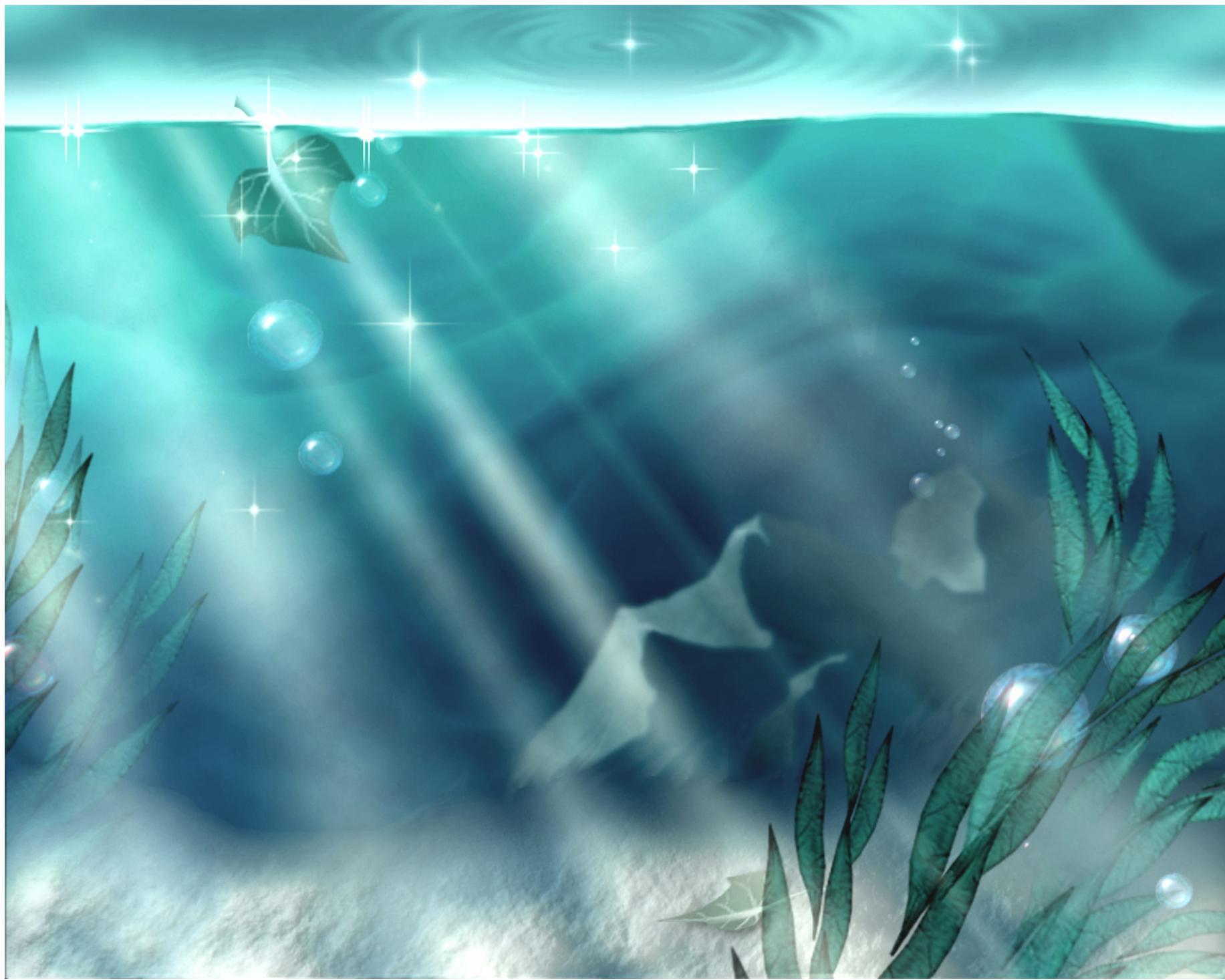


illustration by Katie Delgado



Sequence Dot Game



Materials Needed:

6 10" diameter circles cut from construction paper

5 life-cycle stage circles (included in this book), cut out

Time Needed: 10-20 minutes

Number of students: 8-20

Indoors or Outdoors

Introduction: This is an activity to improve strategic thinking skills. It is best to review the vocabulary and the pictures with the students before the game begins. A definition of a "strategy" is a thinking guess about what can help to achieve a goal.

Procedure: Have the children sit in a large circle. In the center of the circle place the 6 circles of construction paper (we'll call "colored circles") in a row. On top of these circles, randomly (not in the correct sequence) place the 5 life cycle circles. It does not matter which colored circle is not covered.

This is a perfectly quiet game. Instruct the students not to talk or make sounds or gestures during the game. If someone does something they don't agree with they should remain silent. No sounds should be made that can make someone feel badly. Only positive comments should be made after the game is over. This is a quiet game for the teacher too. The teacher should not talk during the game unless a student needs clarification of the rules.

The goal of the game is to put the life cycle pictures in the correct order. Each person will get a turn in order as you go around the circle. Each student gets one move of a life stage picture--only one life stage per colored circle.

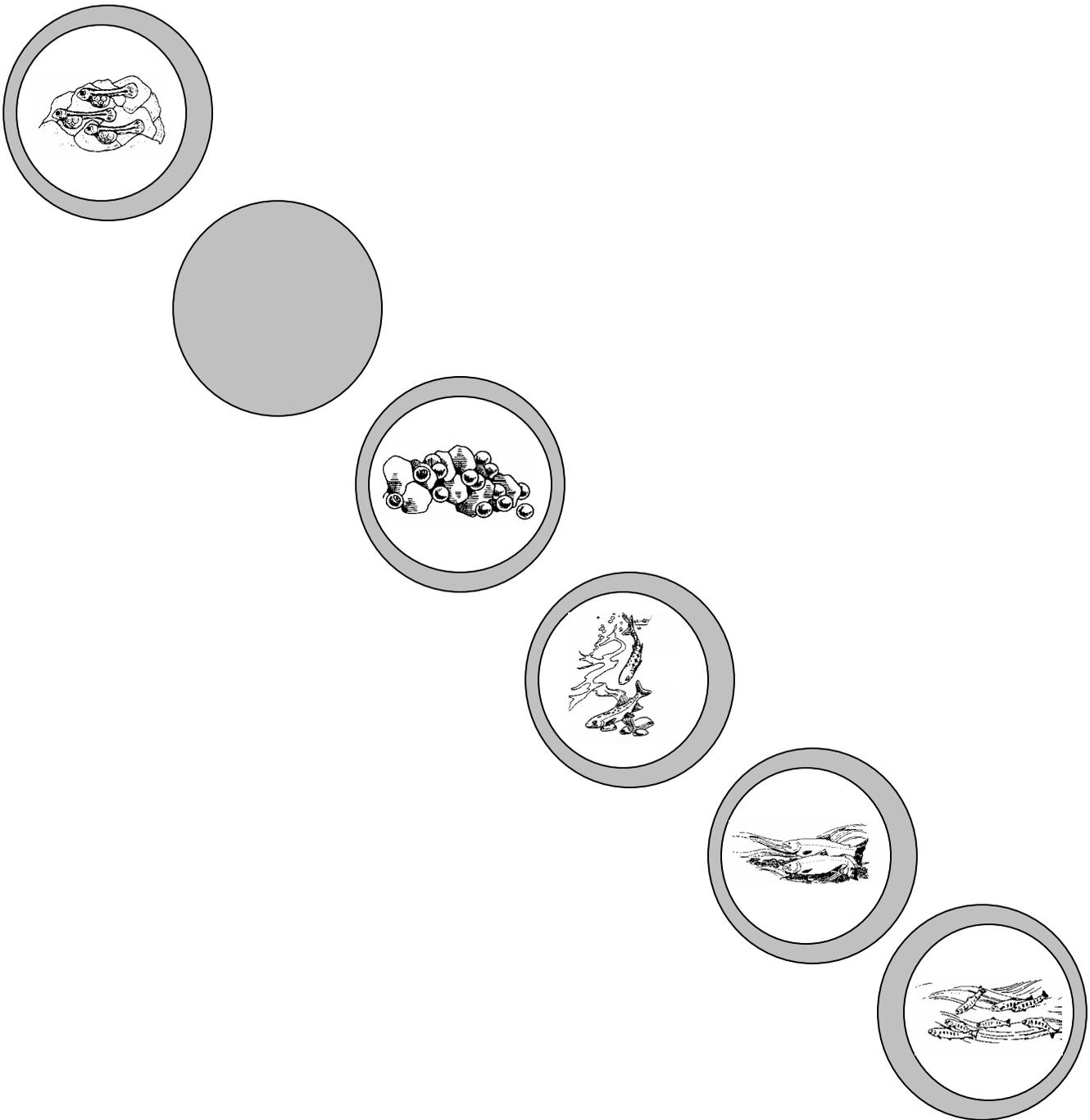
A life stage circle can jump over another or slide to an adjacent empty colored circle. This continues until the life stages are all in the correct order.

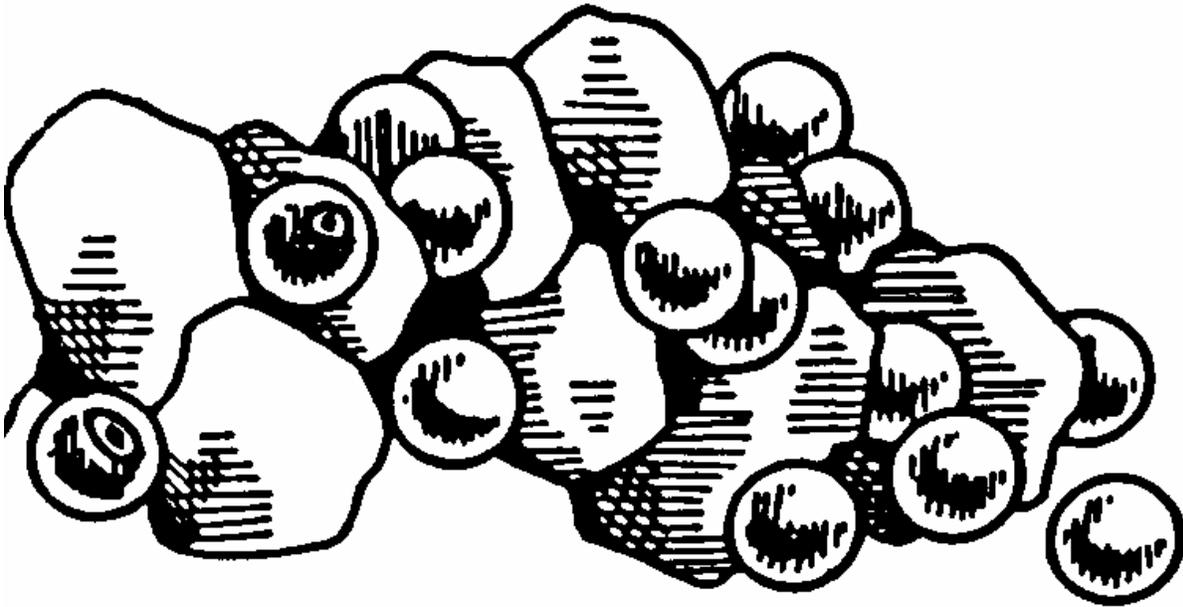
Afterwards you might have a short discussion with the students about what worked and share complements about the kids.

Note: You can change the rules to deep the interest up after the children are very familiar with the current rules. Never change the rules in the middle of the game.

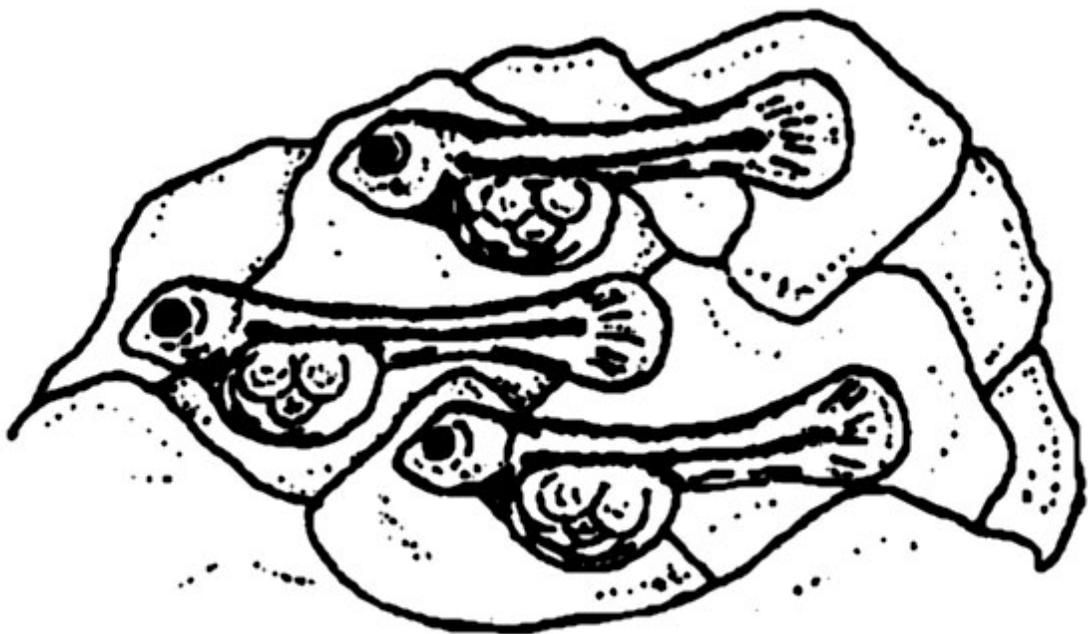
If you want the game to progress faster, the life cycle circles can jump over 2 or 3. The trade-off for this is that the game is not as challenging and some students may not get a turn.

This can be used for other life cycles. It is best not to use more than 8 or 9 stages.

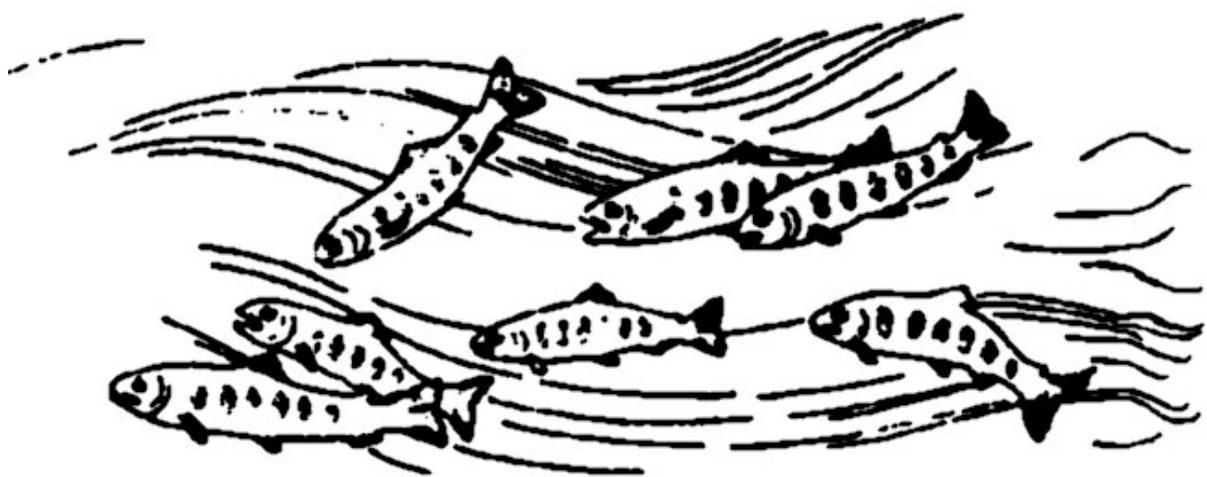




eggs

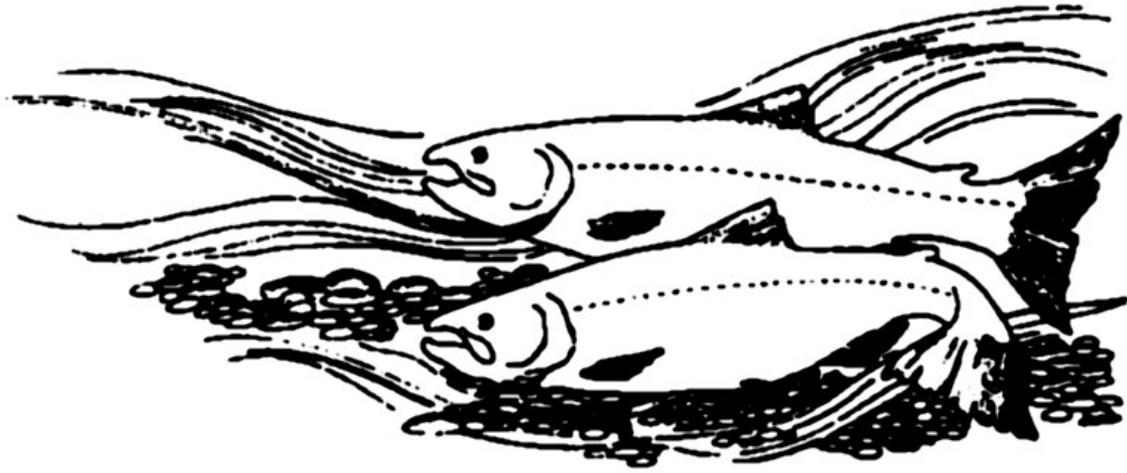


alevins



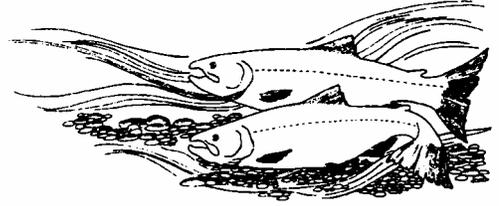
fry





Adults lay eggs.

Name _____



What I know!

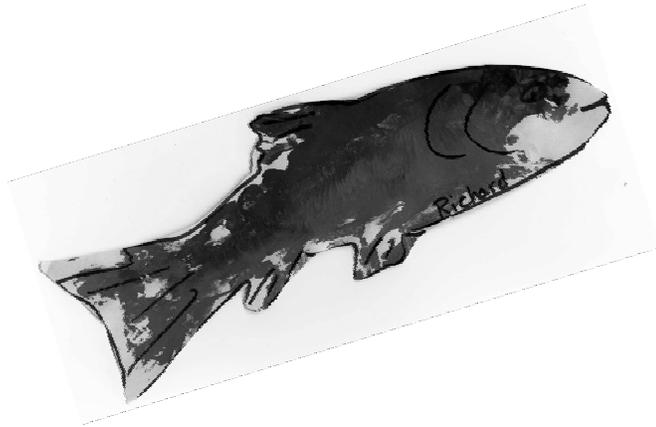
Four sets of handwriting practice lines. Each set consists of a solid top line, a dotted middle line, and a solid bottom line.

Fish Prints



Materials needed:

-  trout or salmon, approximately 12" long and dead, -- They can be purchased from a fish market or possibly a trout farm. Buy enough for the class to finish the project in a day. The fish won't last long under the conditions of this project. You can also use rubber fish cast from molds of real trout or salmon. Two sources for these are Acorn Naturalists at 1-800-422-8886 and www.acornnaturalists.com and Nasco at 1-800-558-9595 and www.enasco.com
-  tempera paint or liquid acrylic paint in a variety of colors
-  large pieces of paper (legal size works well) or cloth such as unbleached muslin
-  paintbrushes
-  plates or bowls for paint
-  art smocks
-  drying space



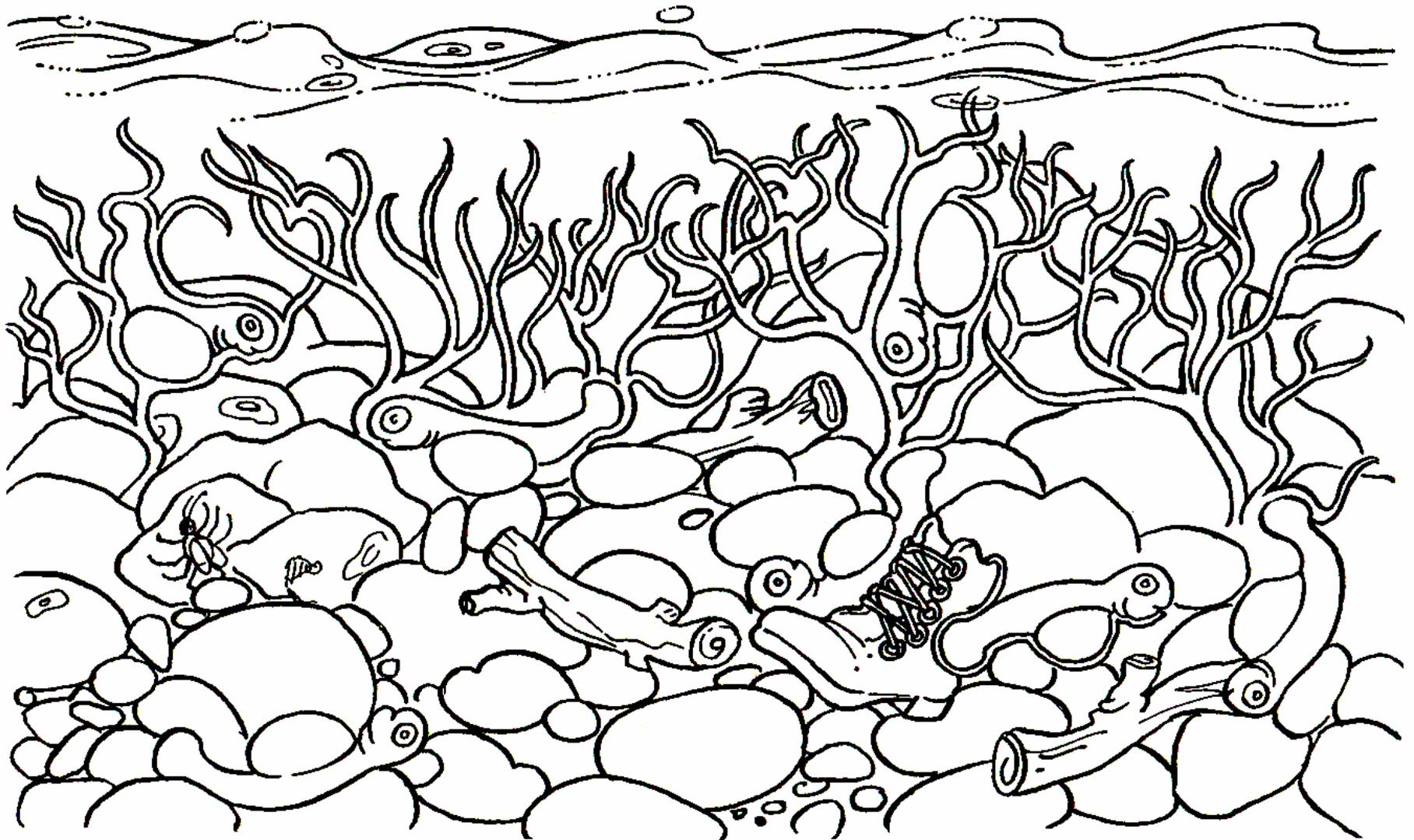
Procedure:

It works best for this age to lay the fish on the work table and leave it there. Have the students paint the fish. Remind them to paint the very tips of the fins and nose so the print will have a defined fish shape. They may want to add a dot of black paint on the eye after they are done painting the rest of the fish. Then have the students carefully lay the paper over the fish and gently rub the fish being careful not to let the paper slide around on the fish. Again, remind the students to make sure they rub the very tips of the fins, nose and tail. Lift the paper straight up off the fish. Lay it aside to dry.

Now or after the print has dried, ask the student what he or she likes about his or her own work of art. The answer can be recorded and displayed with the art.

Name _____

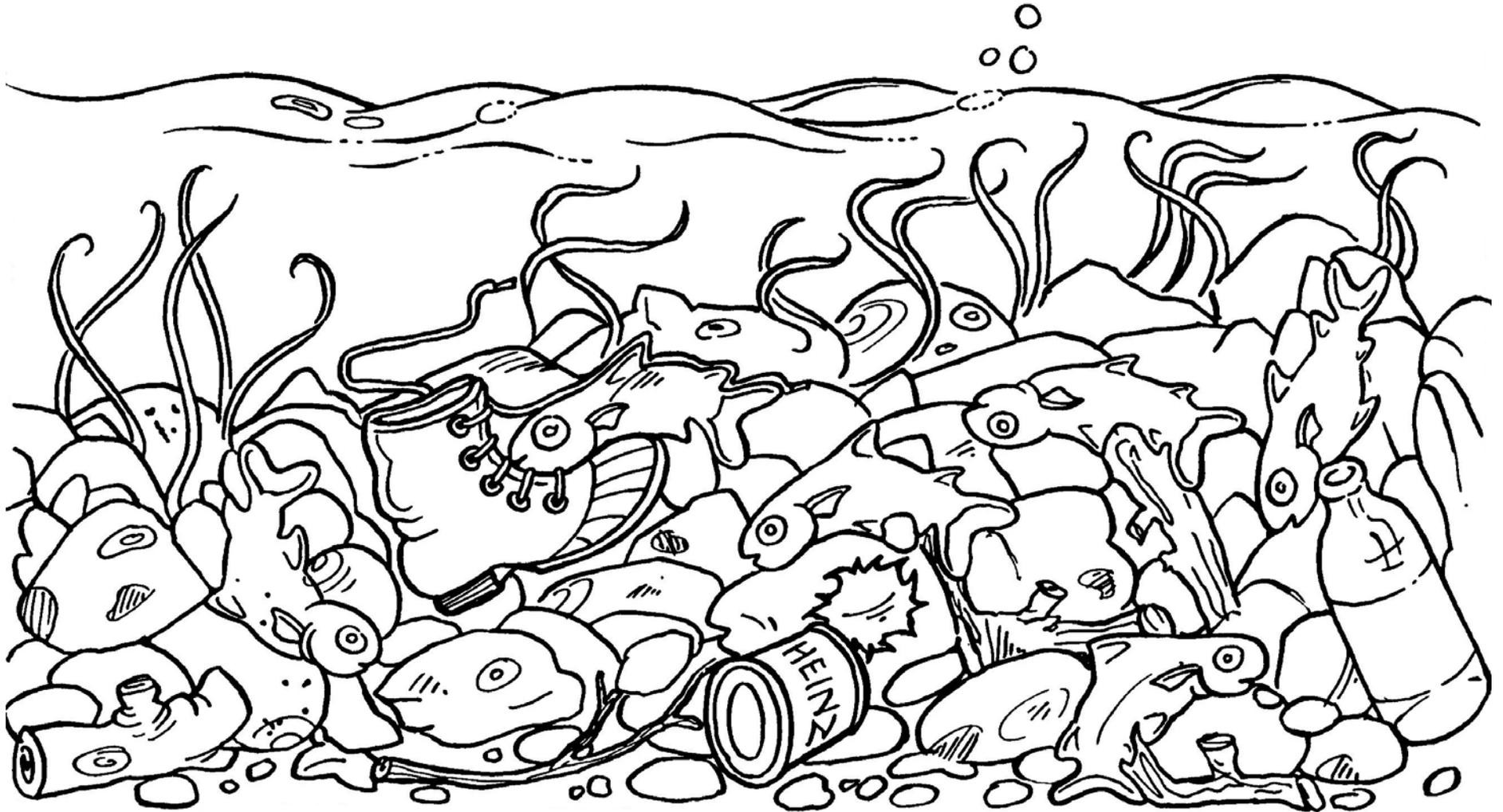
Find the hidden alevins.



Source: Salmonids In the Classroom, Primary level, produced by the Department of Fisheries and Oceans and the provincial Ministry of Environment, Lands, and Parks, British Columbia

Name _____

Find the hidden smolts.

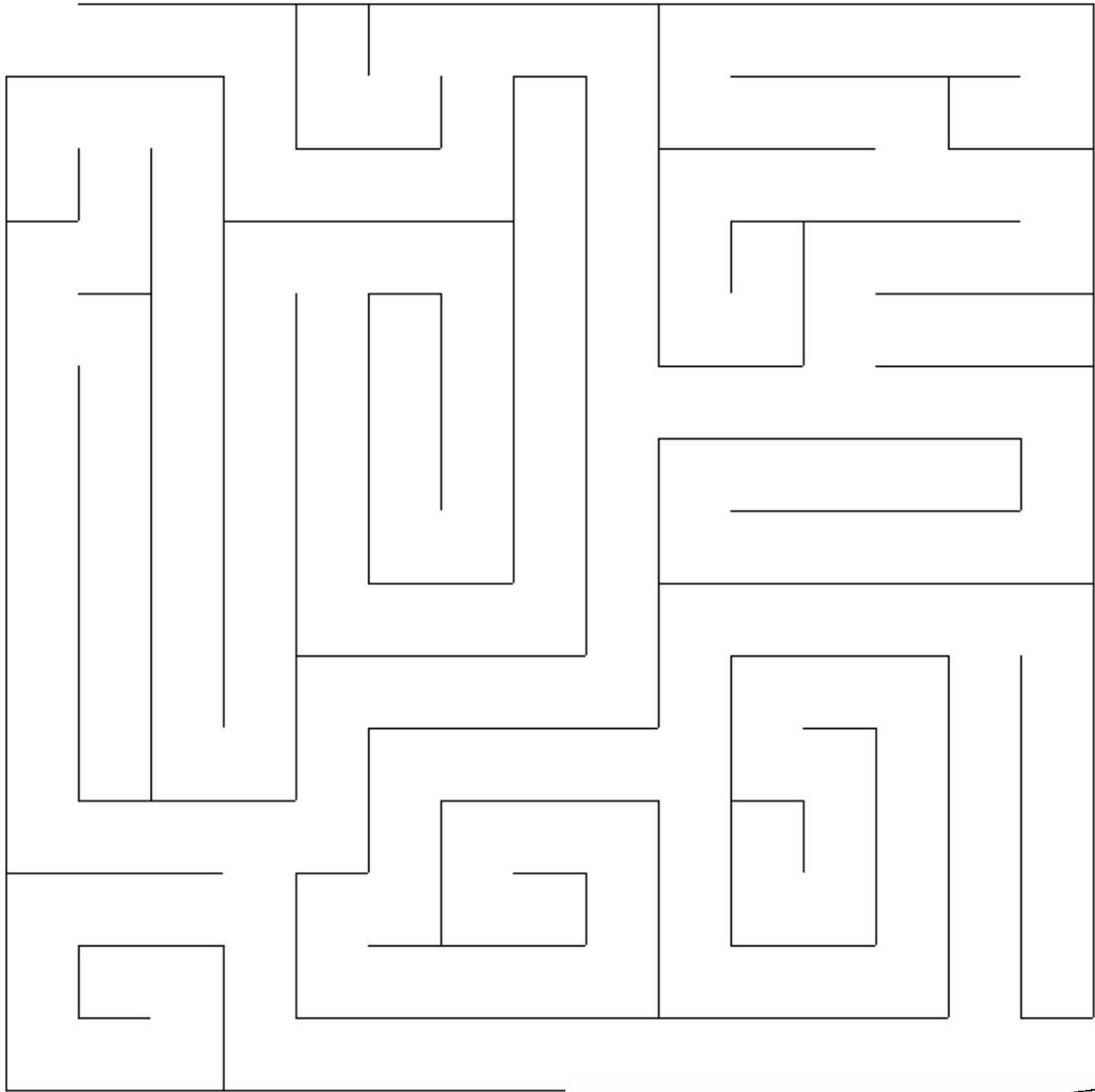
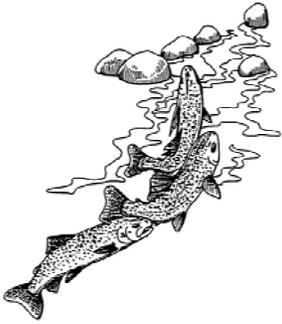


Source: Salmonids In the Classroom, Primary level, produced by the Department of Fisheries and Oceans and the provincial Ministry of Environment, Lands, and Parks, British Columbia

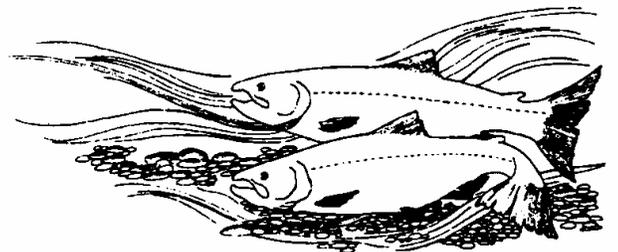
Name _____

Time to Lay Eggs

Can you help the trout find a place to lay eggs?



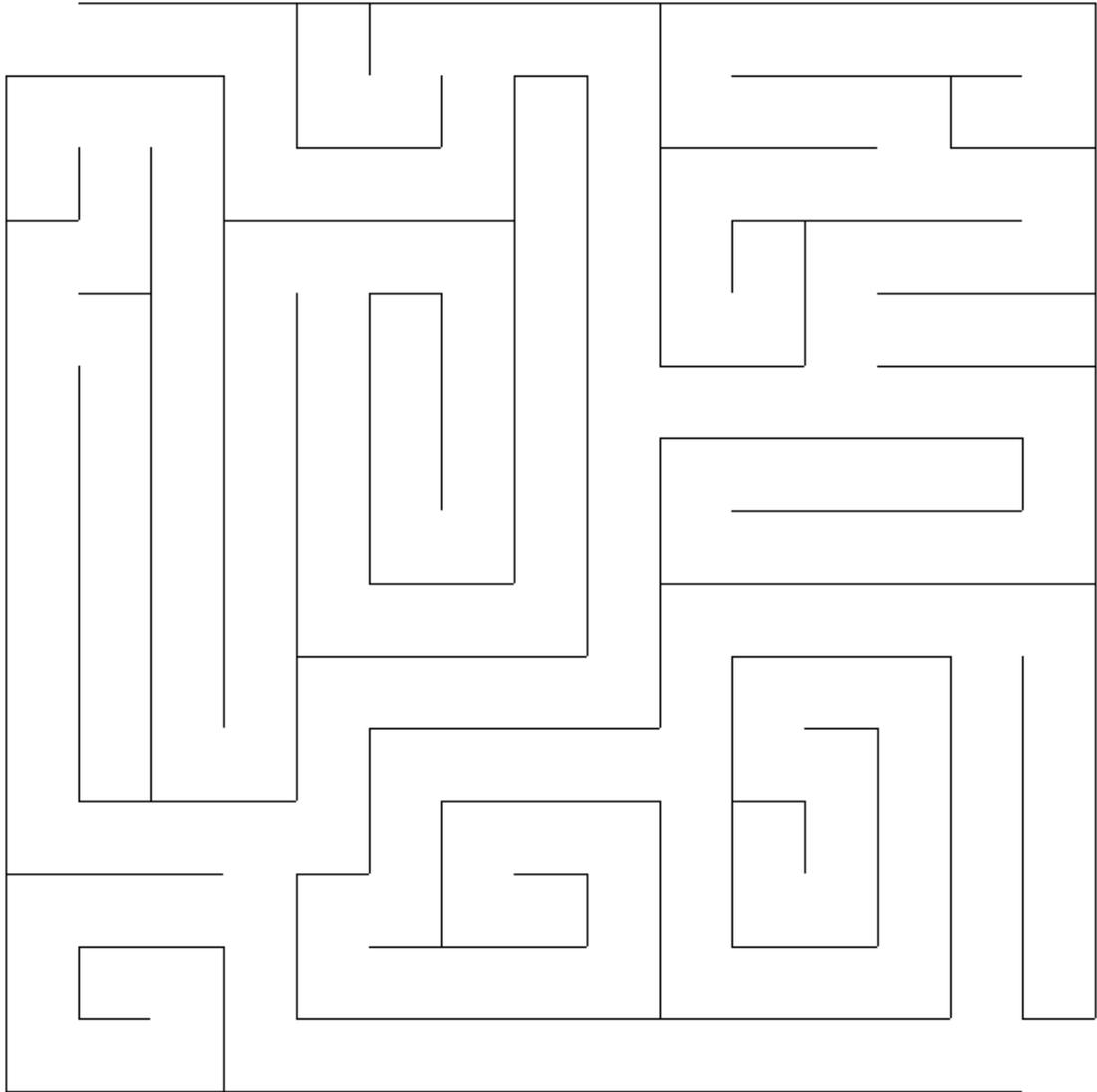
You did it!
You helped the trout find
a place to spawn.



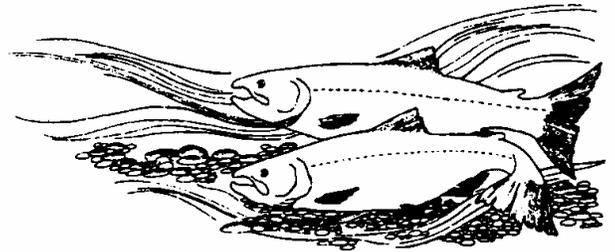
Name _____

Time to Lay Eggs

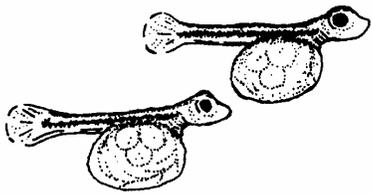
Can you help the trout find a place to lay eggs?



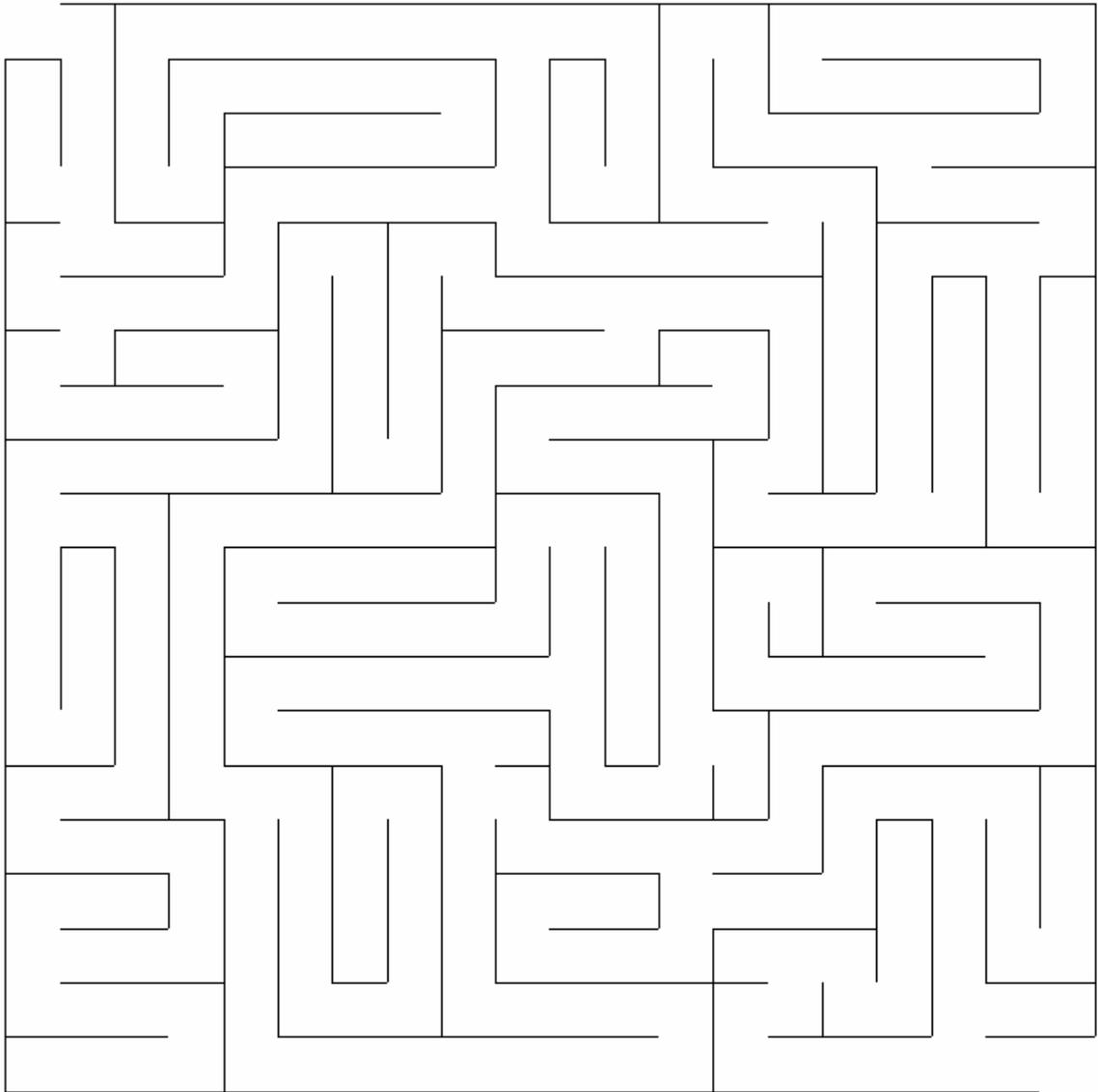
You did it!
You helped the trout find
a place to spawn.



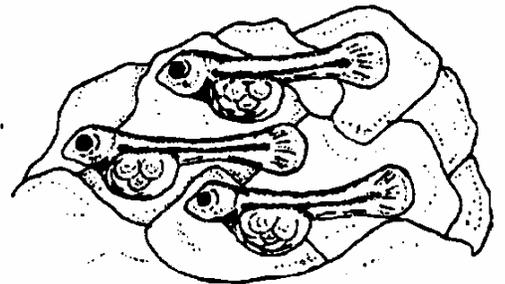
Name _____



Can you help the alevin get back into the gravel?



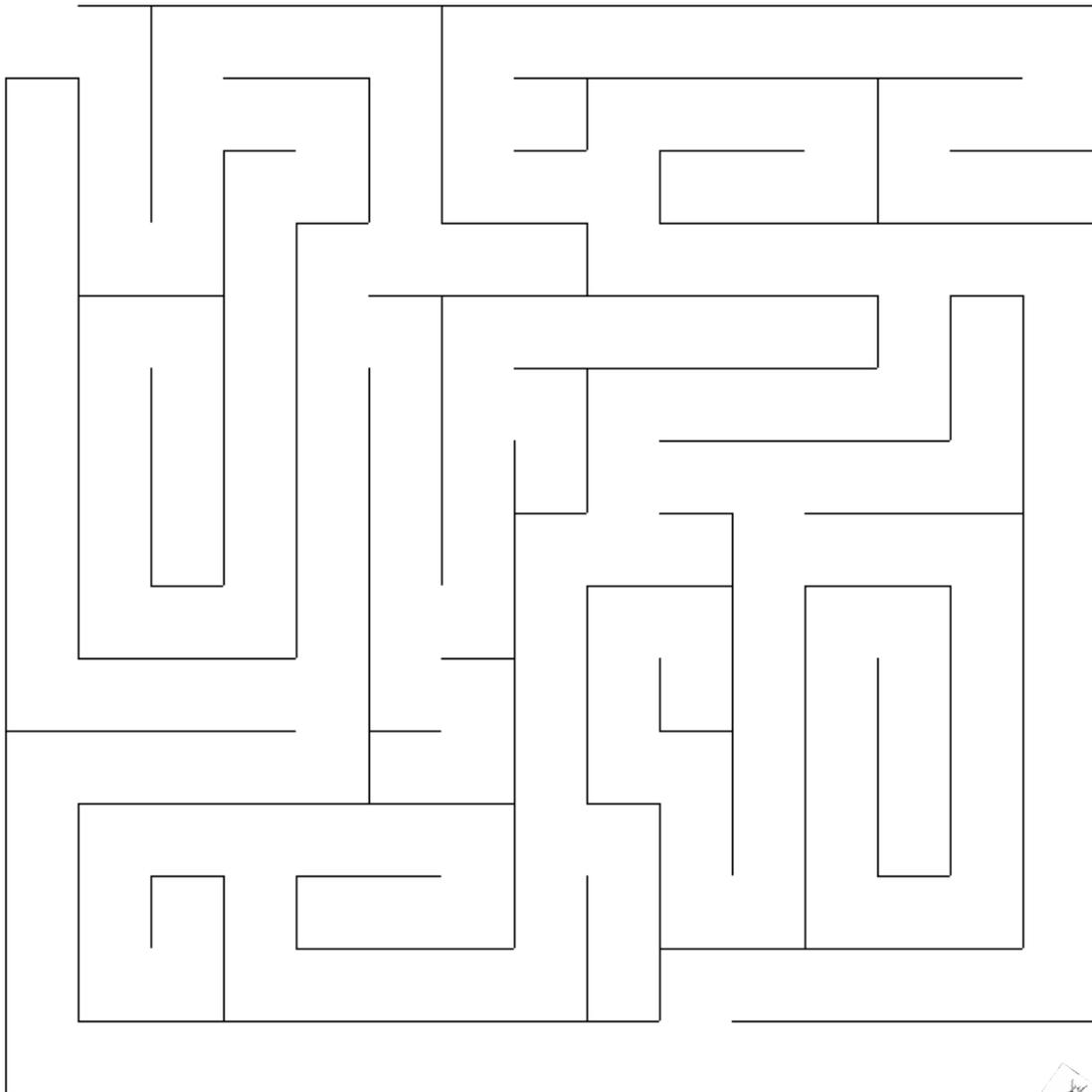
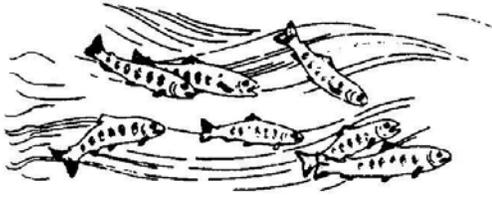
Thanks! Now they can hide.



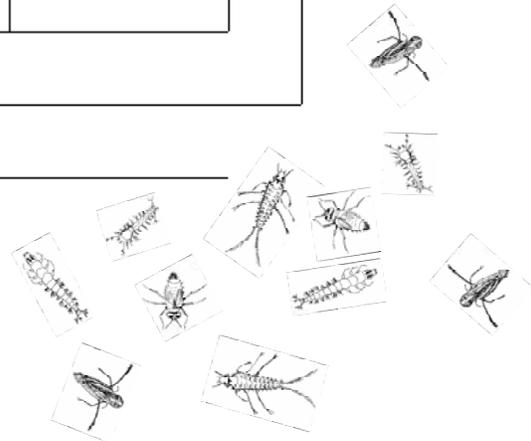
Name _____

Time to Eat

Can you help the fry find food?



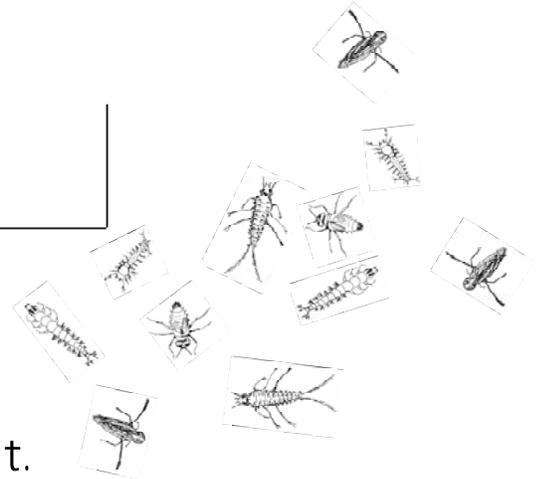
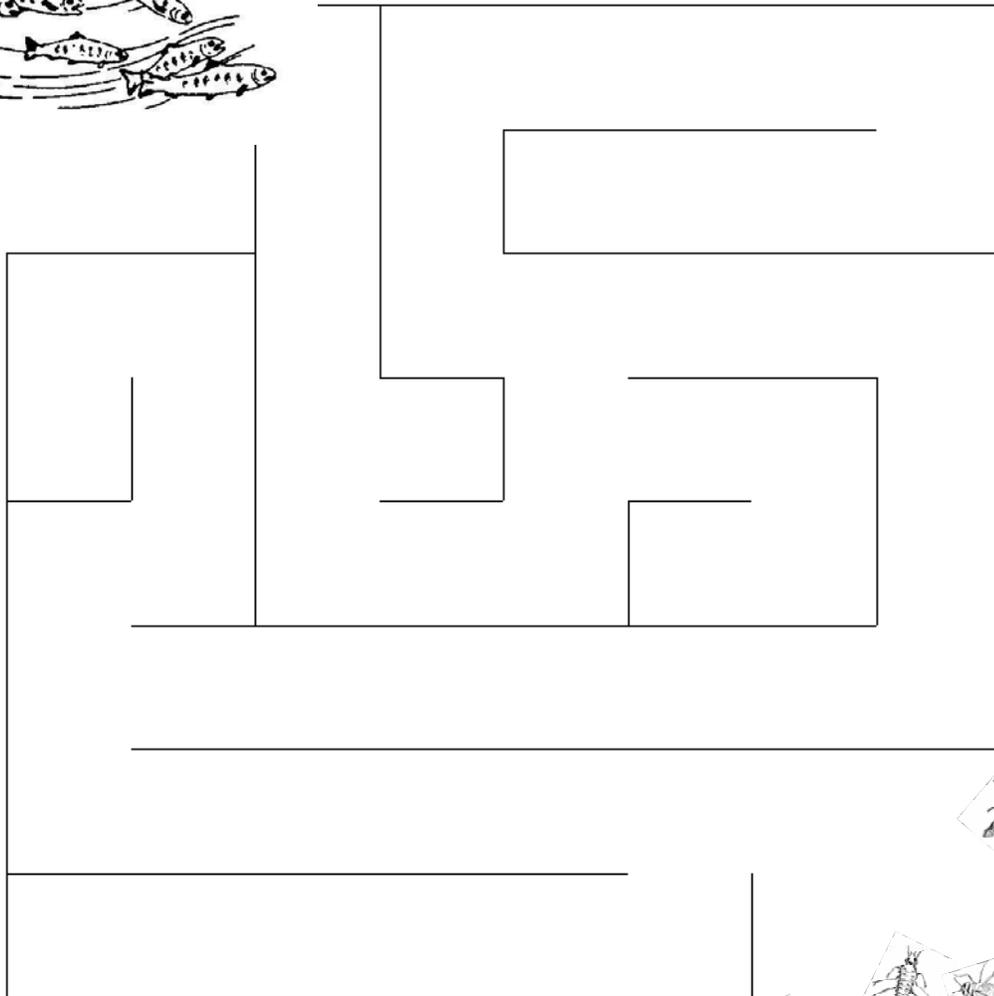
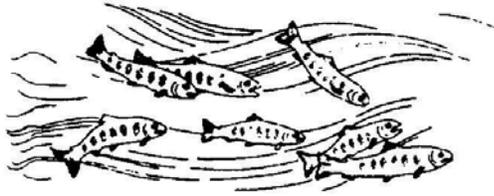
You did it!
The fry can eat.



Name _____

Time to Eat

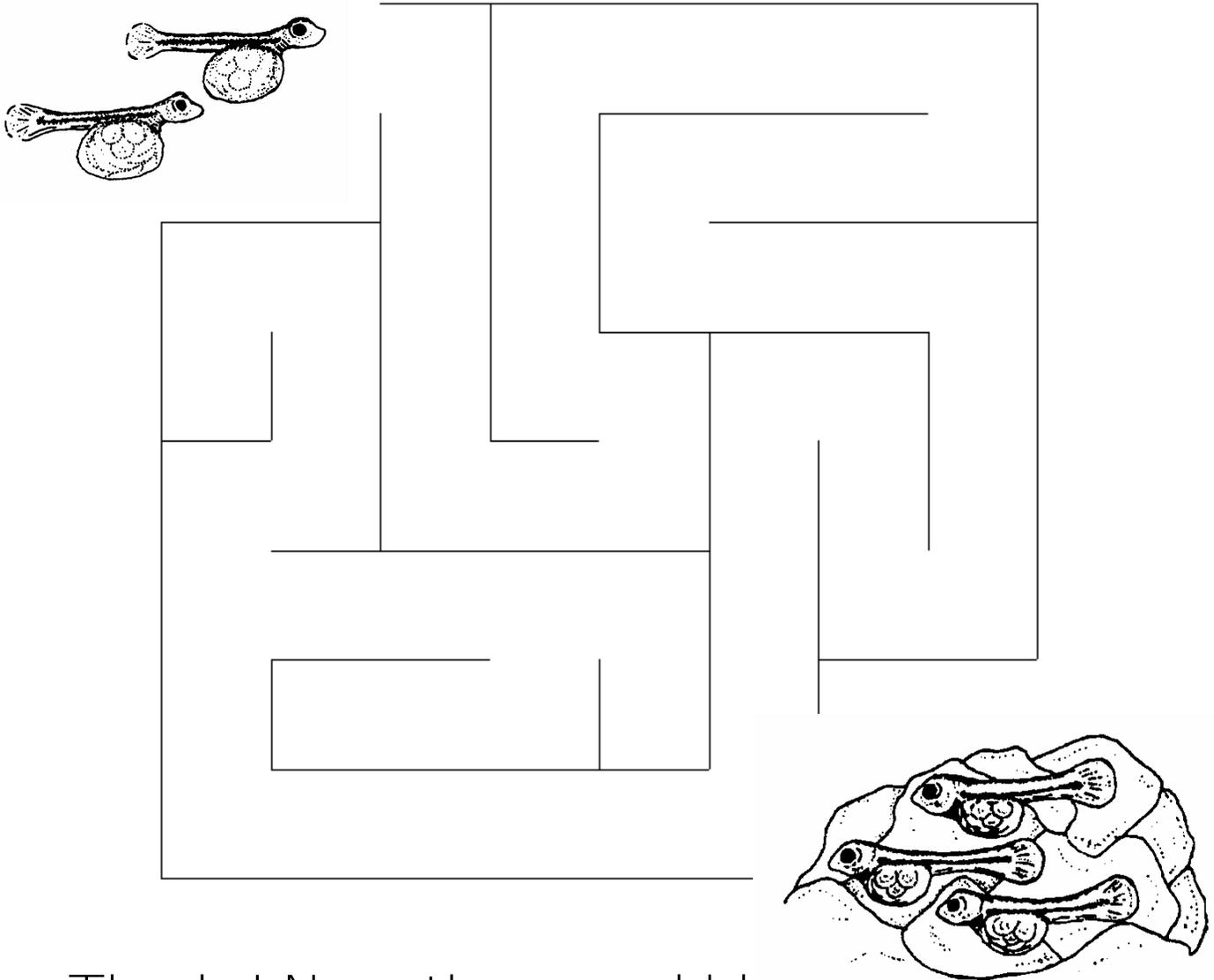
Can you help the fry find food?



You did it!
The fry can eat.

Name _____

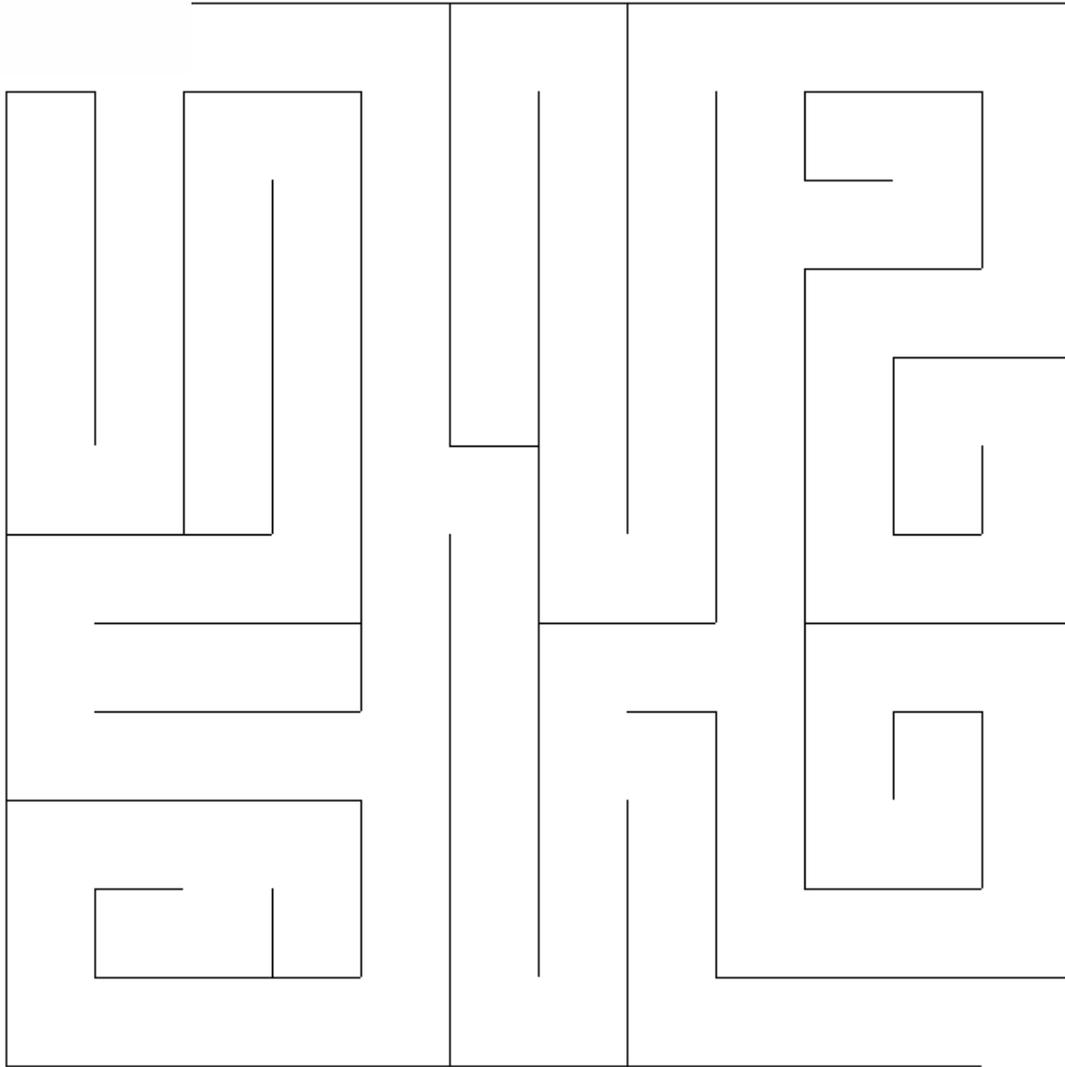
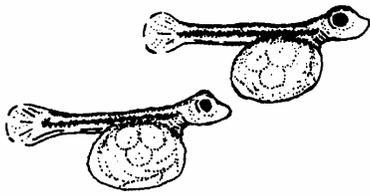
Can you help the alevin get back into the gravel?



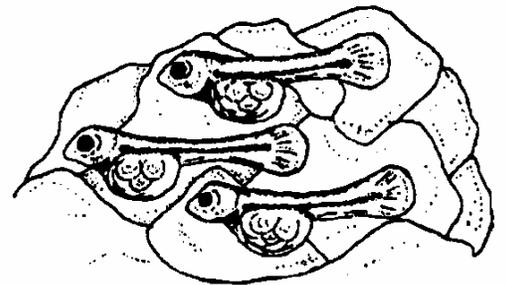
Thanks! Now they can hide.

Name _____

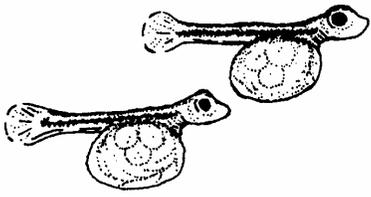
Can you help the alevin get back into the gravel?



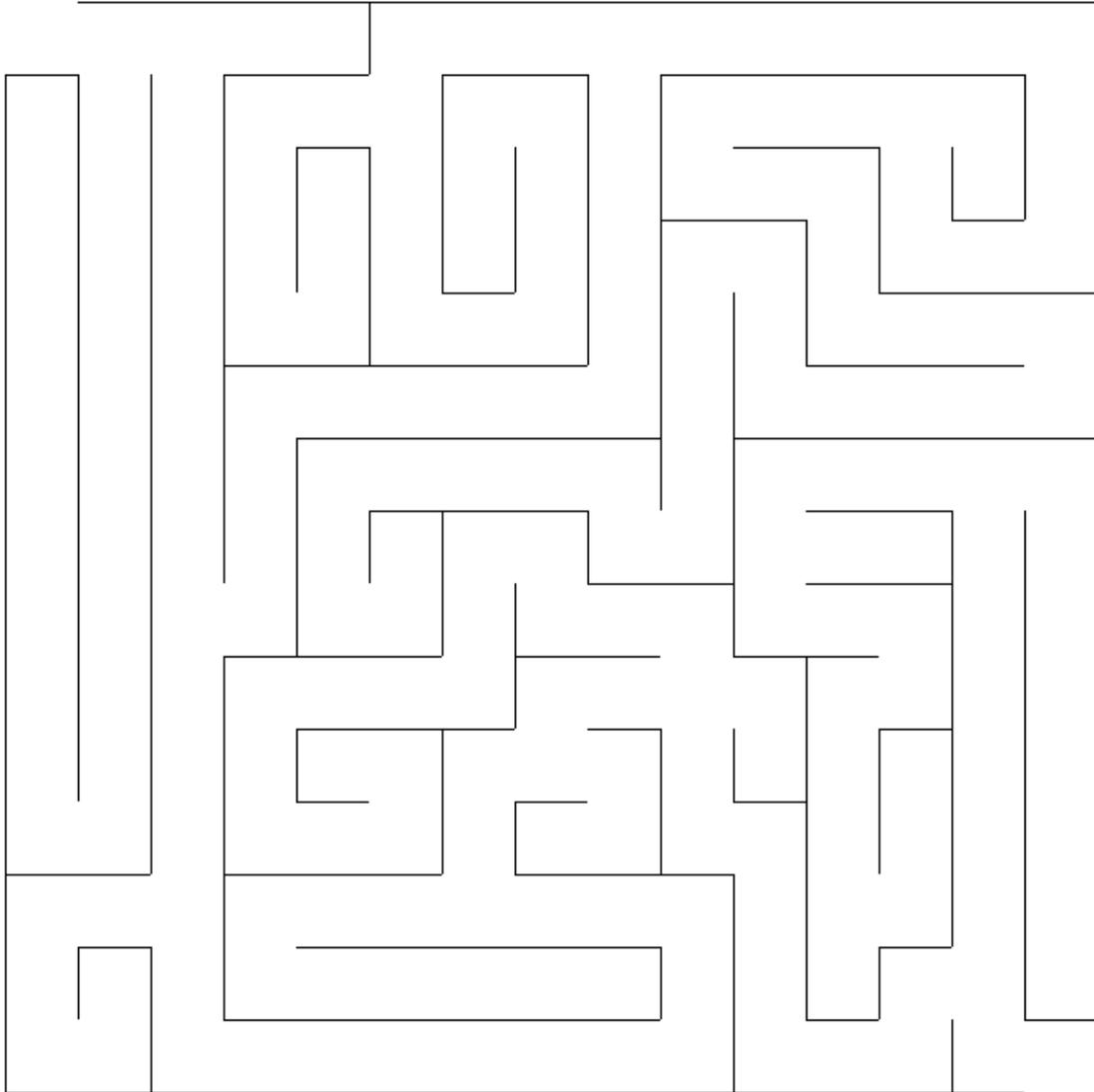
Thanks! Now they can hide.



Name _____



Can you help the alevin get back into the gravel?



Thanks! Now they can hide.

