

Water Connects Us All

Russian River Journal

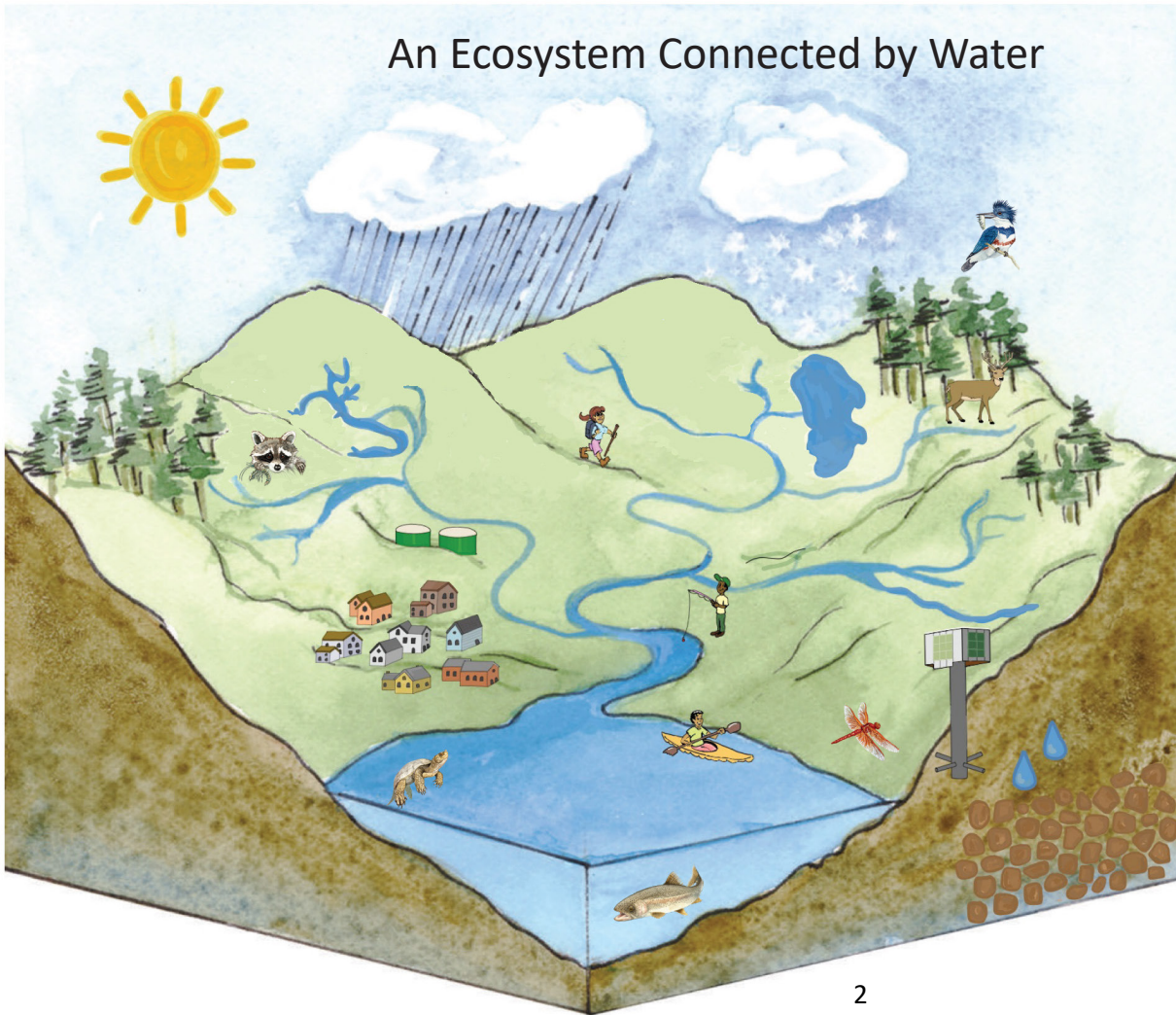


Name: _____

Teacher: _____



An Ecosystem Connected by Water



Can you find evidence of ecosystem interactions?

An **ecosystem** is a community of interacting organisms and their physical environment.

Think Like A Scientist

I notice

-
-
-

It reminds me of

-
-
-

I wonder

-
-
-

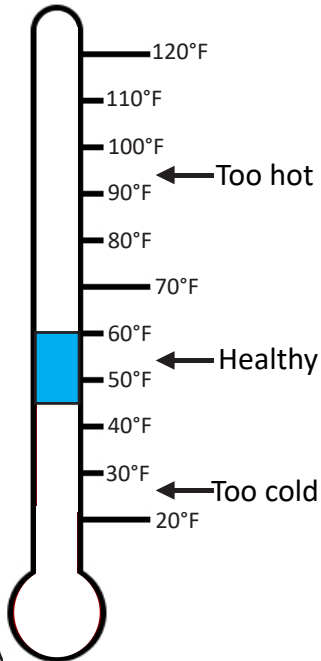
Sketch

Water Quality Instructions - Ideal Conditions for Salmon

Temperature

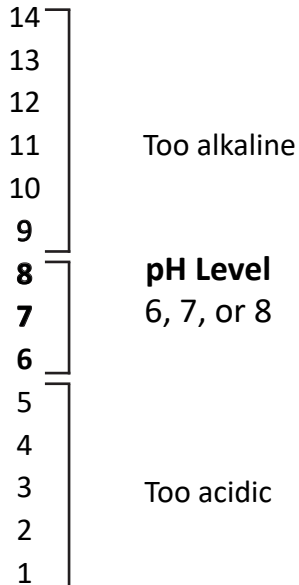
45°F to 60°F

Thermometer
30 secs in water



pH strip

5 seconds in water



Turbidity - low

Low means the water is clear.

Medium means the water is a little murky.

High means the water is difficult to see through.

(low) medium high



Water Quality Tests for Salmon

Sample	Temperature °F	pH Level	Turbidity
Ideal	45°F to 60°F	6, 7, or 8	Low
Creek A		1 2 3 4 5 6 7 8 9 10 11 12 13 14	low medium high
Creek B		1 2 3 4 5 6 7 8 9 10 11 12 13 14	low medium high
Creek C		1 2 3 4 5 6 7 8 9 10 11 12 13 14	low medium high
Creek D		1 2 3 4 5 6 7 8 9 10 11 12 13 14	low medium high
Field Trip Data			
At the Russian River		1 2 3 4 5 6 7 8 9 10 11 12 13 14	low medium high

Land Acknowledgement

Sonoma Water operates on the lands of the Coast Miwok, Pomo, and Wappo. They are the first people in this area. Indigenous people have been taking care of the land, the water, and practicing their culture here for thousands of years. Today, we want to give thanks to these communities for the care they have shown to the place we call home. We also want to think about how we can show similar care in our actions.

In what ways do you care for and steward the land?

Pre-Lesson Creek Model Questions

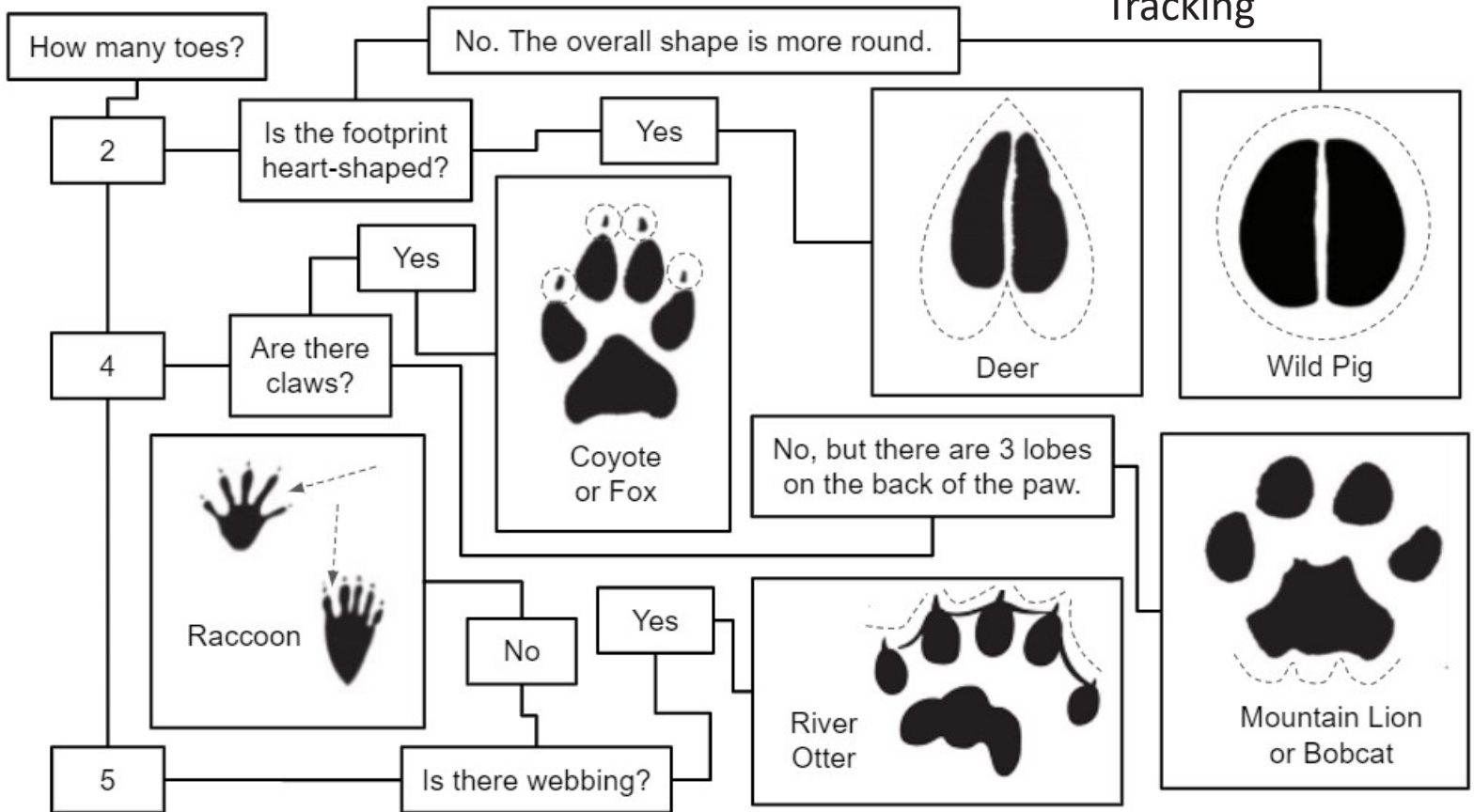


1. What might cause sediment to run into the creek?
2. Why did we add ice to the creek? What might the ice represent?
3. Where do storm drains lead? _____. What effect might the trash/pollution have on the ecosystem if it goes down the storm drain?
4. Make a prediction about what creek in your model would be the healthiest for animals to live in. Why?

Vocabulary

Vocabulary Word	Definition	Draw a picture or give an example from the field trip
Ecosystem	An ecosystem is a community of interacting organisms and their physical environment.	
Biodiversity	The number and kinds of Earth's organisms.	
Aquatic Macroinvertebrates	Are small animals that live in water, are big enough to see with your eyes, and have no backbone.	

Tracking



Scientific Sketches

Use the **ABCDE** guidelines in your notes and sketches:

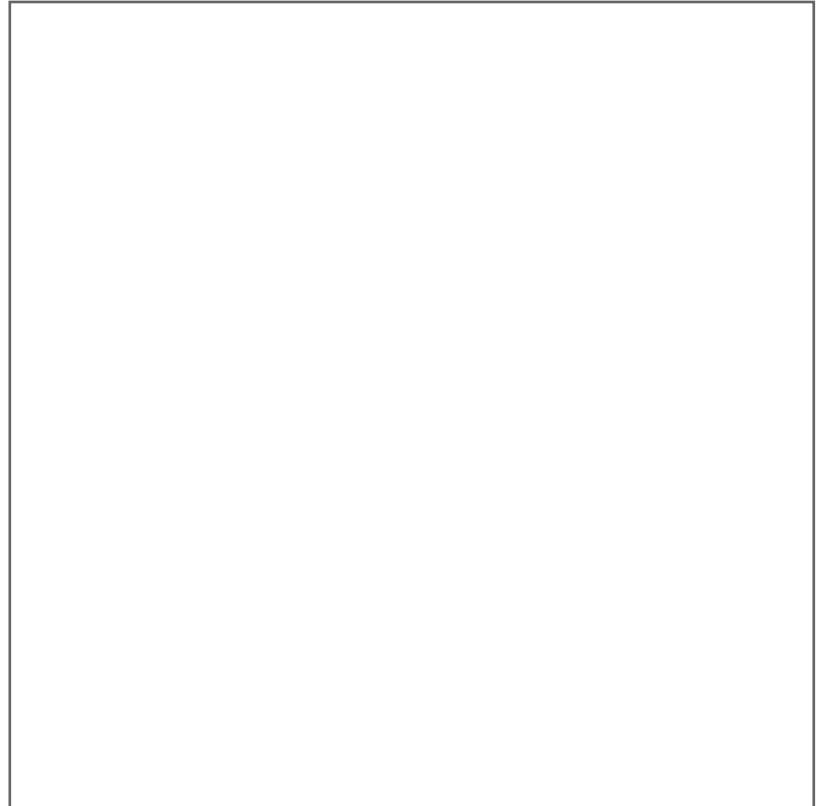
A = Accurate (All notes and sketches are as correct as possible)

B = Big (Drawings and notes are big enough to see and read)

C = Colorful (identify the colors of your object)

D = Detailed (focus on the small things you notice and add them to your drawing or writing)

E = Explained (label any sketches using descriptive words and arrows. Use complete sentences when appropriate)









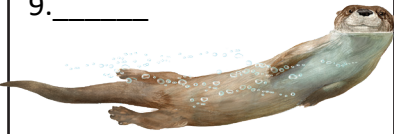

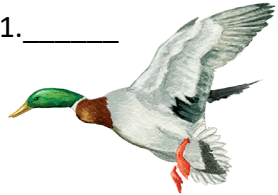







Write the number of the correct name on the line.

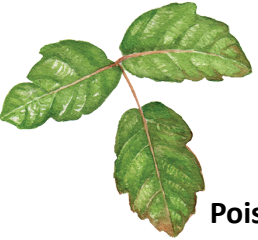











Answers on page 19.

- A. Kingfisher
- B. River Otter
- C. Boxelder Bug
- D. Western Fence Lizard
- E. Centipede
- F. Millipede
- G. Snowy Egret
- H. Mallard Duck
- I. Western Pond Turtle
- J. Slender Salamander
- K. Steelhead
- L. Chinook (King) Salmon
- M. Raccoon
- N. Stickleback Fish
- O. Crayfish
- P. Dragonfly

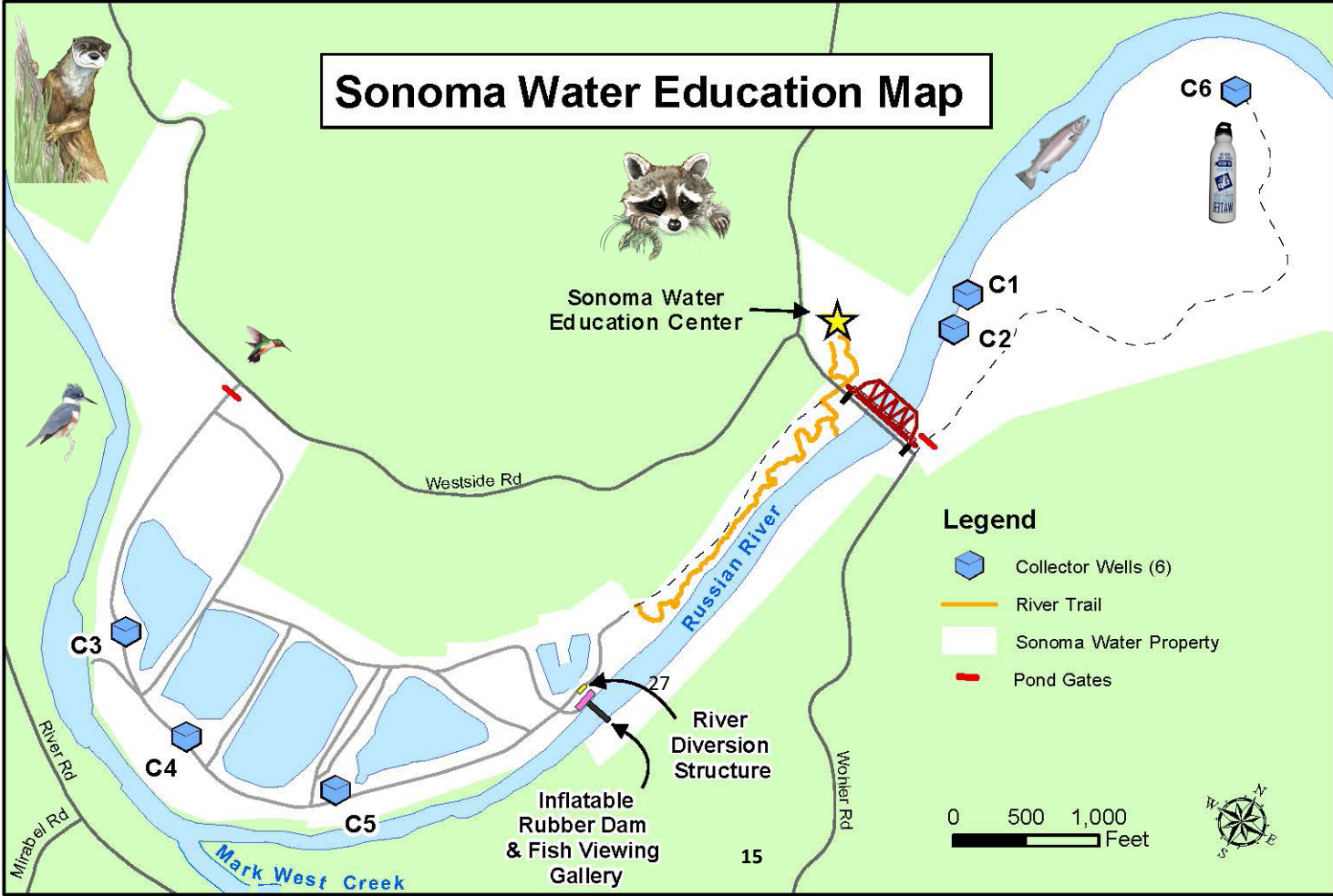
Animals of the Russian River Watershed

1. _____ 	2. _____ 	3. _____ 	4. _____ 
5. _____ 	6. _____ 	7. _____ 	8. _____ 
9. _____ 	10. _____ 	11. _____ 	12. _____ 
13. _____ 	14. _____ 	15. _____ 	16. _____ 

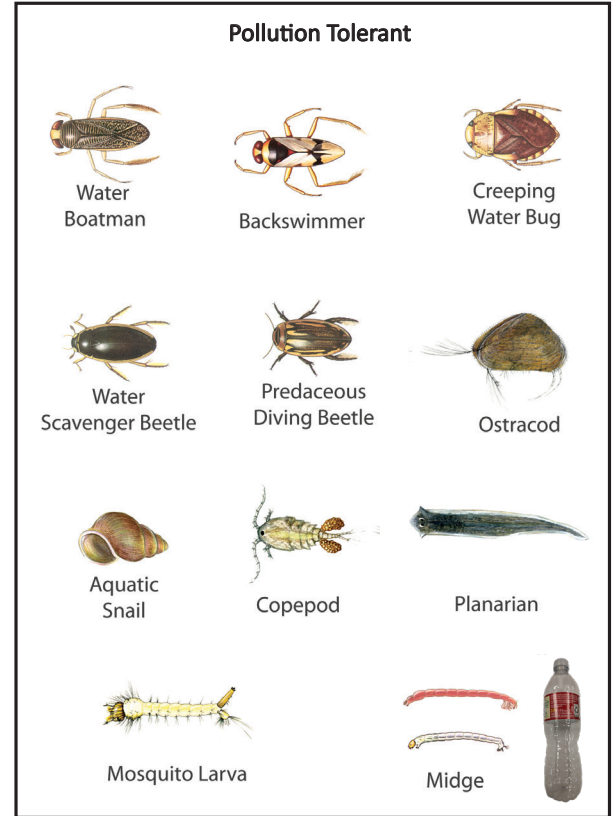
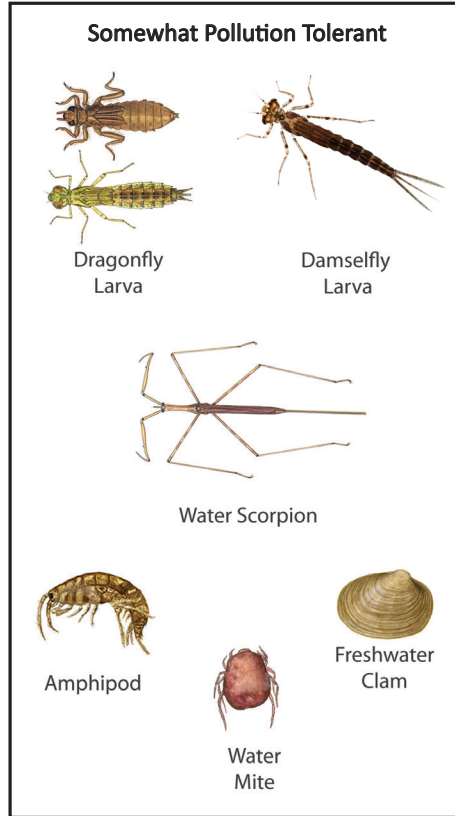
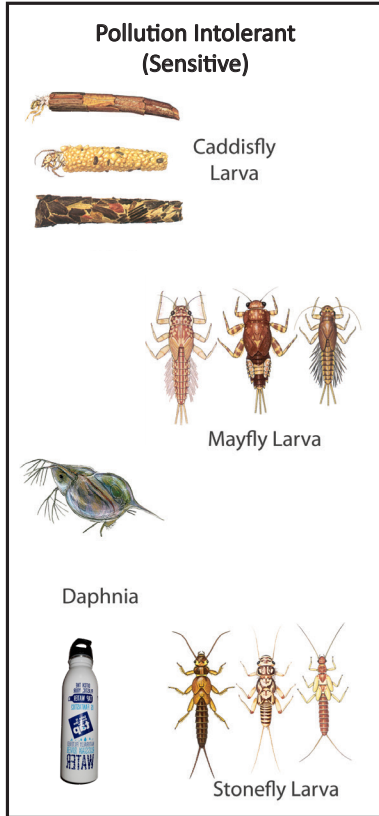
Plants and Patterns *Plantas y patrones*

 <p>Poison Oak Hiedra</p>	 <p>Stinging Nettle Ortiga</p>	 <p>Himalayan Blackberry Mora</p>	 <p>California Wild Grape Uva Silvestre</p>
 <p>Dutchman's Pipe Vid de Tubería de Dutchman</p>	 <p>Coast Redwood Secuoya roja</p>	 <p>Fremont Cottonwood Alamo</p>	 <p>Willow Sauce</p>
 <p>Boxelder Arce Negundo</p>	 <p>Elderberry Saúco</p>	 <p>Bay Laurel Laurel</p>	 <p>Black Walnut Nogal Negro</p>

Sonoma Water Education Map



Aquatic Macroinvertebrates

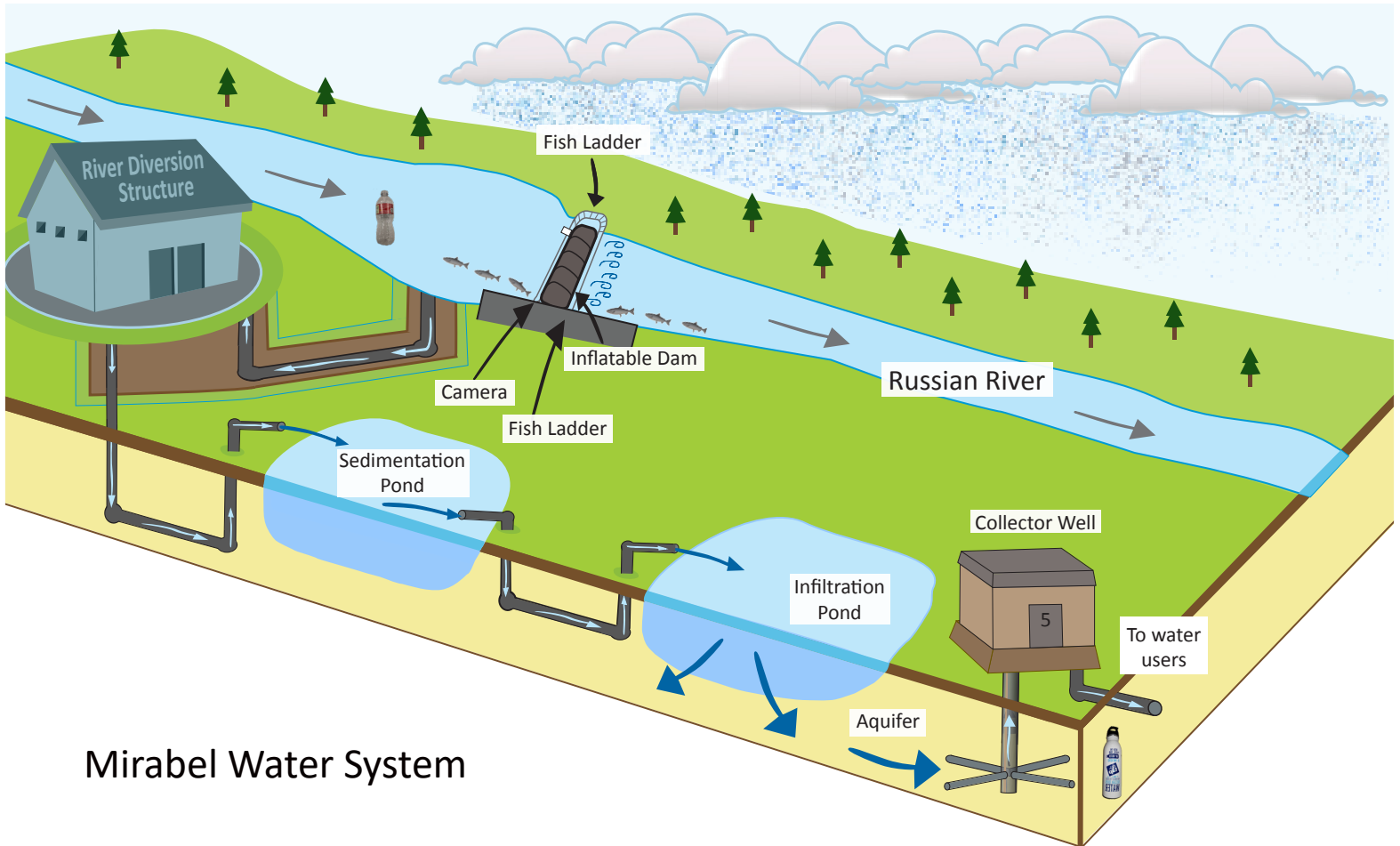


Images Not To Scale. Illustrations: Arwin Provonsha, *Aquatic Entomology*

Biodiversity of Aquatic Macroinvertebrates (AMI)

Find evidence of who lives in the Russian River ecosystem.

Circle the species you find on page 16. Draw any unknown species below. Write down one question you have about your AMI exploration.



Mirabel Water System

Safety Guidelines

Safe:

1. Water safety – feet stay dry and no swimming
2. Sticks and rocks stay on the ground

Respectful:

3. Listen to your educator
4. Respect plants, animals, and other people

Responsible:

5. Always walk
6. Stay on trails
7. Stay hydrated



p. 26

1. H
2. C
3. F
4. E
5. D
6. A
7. B
8. G

p. 12

1. F
2. E
3. C
4. P
5. J
6. D
7. I
8. M
9. B
10. A
11. H
12. G
13. O
14. L
15. K
16. N



Scavenger Hunts

In the Forest...

Can you find:

- Evidence of a flood
- A feather
- A stick as long as your pinky finger**
- A hole
- Something really cool**
- An animal track
- A spider web
- Something that smells spicy**
- Something shaped like a heart**
- 2 pieces of litter (Thanks for keeping the river clean!)**

On the Gravel Bar...

Can you find:

- 5 different colored rocks
- Something smooth
- Something that reminds you of yourself**
- A feather
- A shell
- Something made by a human**
- 2 pieces of litter (Thanks for keeping the river clean!)**
- Something decomposing**
- Something round**

In the Exhibit...

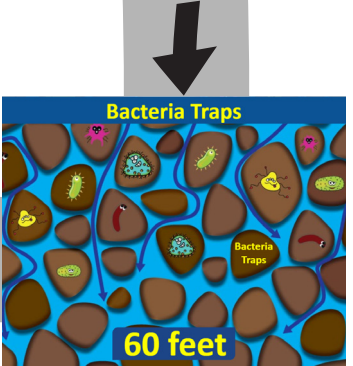
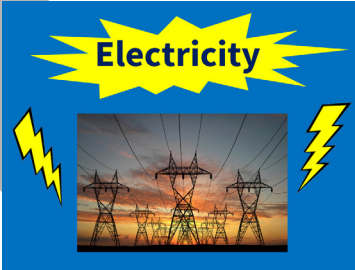
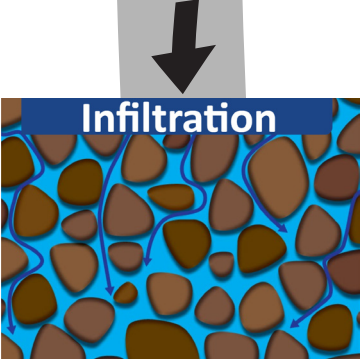
Can you find:

- A part of a plant
- An animal track
- Salmon eggs**
- 3 different lifes stages of salmon**
- A collector well**
- An insect
- A river
- 3 different types of salmon**
- Rocks
- A dam



Please leave your treasures where you found them, except litter.

How does water get to your home?



Energy and Water

Did you know?

It takes a lot of energy to pump water from underground next to the Russian River and send it to your home and community.

List five ways you can save water and therefore save energy:

1. _____

2. _____

3. _____

4. _____

5. _____

To find out ways to save water and energy visit our website at www.sonomawater.org

Saving water, saves energy!

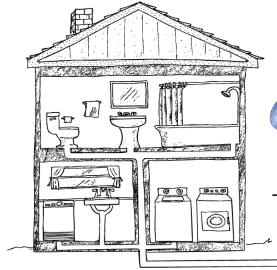
A Storm Drain Is Not A Sewer



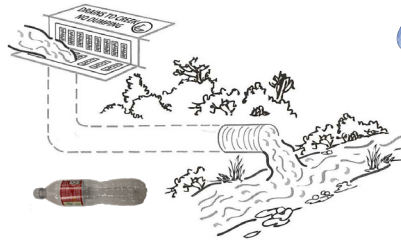
A storm drain and a sewer are two very different things.

Storm drains collect runoff from our streets and deliver it into nearby creeks, rivers, and the ocean. Any pollution that is in our streets can go down storm drains. Only rain should go down storm drains.

Sanitary sewer systems take water that flows down the drains and toilets inside our homes, schools, and businesses into underground pipes that lead to a wastewater treatment plant. There the water will be cleaned and then reused or released. It takes energy and clean water to run these systems.



1.) Sewer water goes to the: _____.



2.) Storm drain systems drain directly to: _____, _____, and _____.

3.) What can you do to prevent pollution from entering a nearby creek?



Water & Energy Education Program

Sonoma Water's Water and Energy Education Program is designed to teach students the value of water as an important natural resource and to promote stewardship of our watershed.

The Water and Energy Education Program is made possible through Sonoma Water, the Sonoma-Marín Saving Water Partnership, Sonoma Clean Power, the Russian River Watershed Association, and the following local water providers: the cities of Santa Rosa, Rohnert Park, Cotati, Petaluma, Sonoma, Cloverdale, Healdsburg; the Town of Windsor; California American Water; and the North Marin and Valley of the Moon Water Districts.

Reusable
water bottle



Can you find ten of each of these
water bottles hidden in the journal?

Cross out the single use bottles
and circle the reusable bottles.

Single-use
water bottle



www.sonomawater.org

Salmon Life Cycle

Match the letter to the correct life stage.

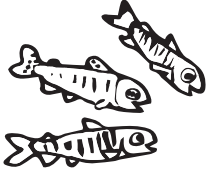
1.) Eggs ____



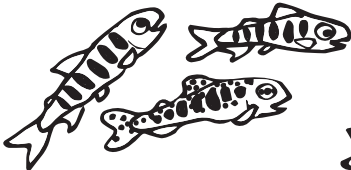
2.) Alevins ____



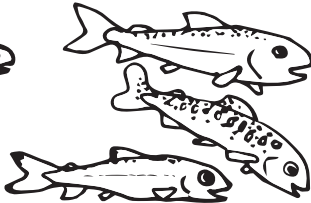
3.) Fry ____



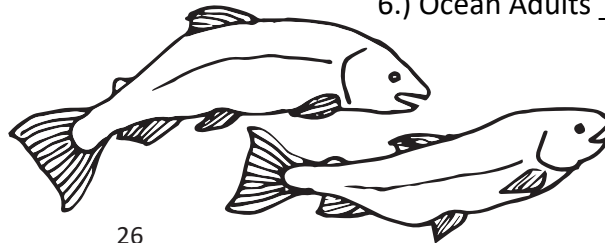
4.) Parr ____



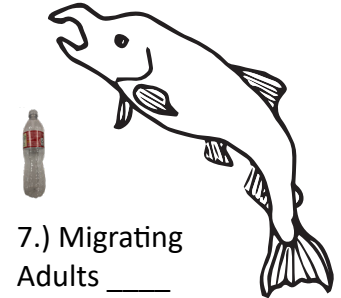
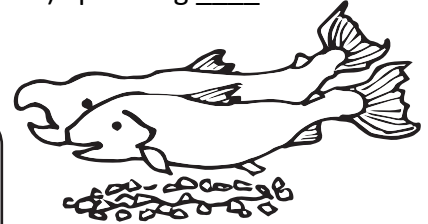
5.) Smolts ____



6.) Ocean Adults ____



8.) Spawning ____



7.) Migrating Adults ____

A.) Live in the ocean

B.) Swim many miles upstream

C.) Still have their egg sacs attached

D.) Change their bodies from freshwater to salt water

E.) Dark marks for camouflage

F.) Depend on macroinvertebrates for food

G.) Salmon find a mate and build a redd

H.) Fragile; needs clean, well oxygenated water

Russian River Salmonids

Chinook
(King)



Coho



Steelhead



Life Stages



Eggs/Alevins



Fry



Smolt



Sonoma
Water

www.sonomawater.org