

# Word Search

These words may be used during your science activities.

P H G G U L S A N A N A B H W E T H U Q  
D M L X E S E E D F Z C A D I U R N A L  
A E W C Y R R P E L A I B M L R K G S S  
D R H O D O P S I N S T V P A I R A M E  
A S I N D I C A T O R H J L B S X B C N  
P E A E K O M B J P K N U Y M A D I A O  
T M A B J R N T S N H C R A T A J O E T  
A E R O S I O N Y C S B X M R C A T L L  
T V S N Y D A L E U R P H P C I K I K N  
I H T E S V K H P A K E A H K D T C V O  
O K E H C O P E D R M T R I F D V H F C  
N R X I O M R Y H Y T I A B I N I K H T  
H E U R Y C N N E J S R S I U O A K H U  
K O B N R M H Y B E L A Y A D M N V L R  
A K X E L A K F T B L Y O N Y Y N M A N  
R A Y M O N D B E L I T P E R A L T M A  
S N L R E K C A V U M F B A U R C P M L  
E R E T A L R M A V E R T E B R A T E R  
C A M B I U M C E I M I A J N T D G K Y

## Word Bank

Abiotic  
Adaptation  
Amphibian  
Belay  
Cambium

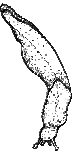
Crepuscular  
Diurnal  
Erosion  
Indicator  
Nocturnal

Nymph  
Reptile  
Rhodopsin  
Vertebrate  
Xylem

Can you find the answer to this riddle hidden in the word search?

You have no shell, yet slither through the rainforest's misty night  
As liquid gold you brightly glow in mountains' wondrous light.





# Nature Journal

These pages may be used during your science activities.



# Nature Journal

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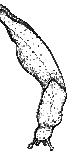


# Nature Journal

These pages may be used during your science activities.

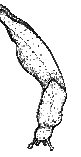
A large grid of dots for journaling, consisting of 20 rows and 40 columns of small black dots.





# Nature Journal

These pages may be used during your science activities.

# What is Ecology?



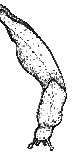
## WORD BREAKDOWN

*Ecology is the study of relationships between organisms and their environment.*

eco =

ology =

Draw or write about things that you rely on in your own habitat.

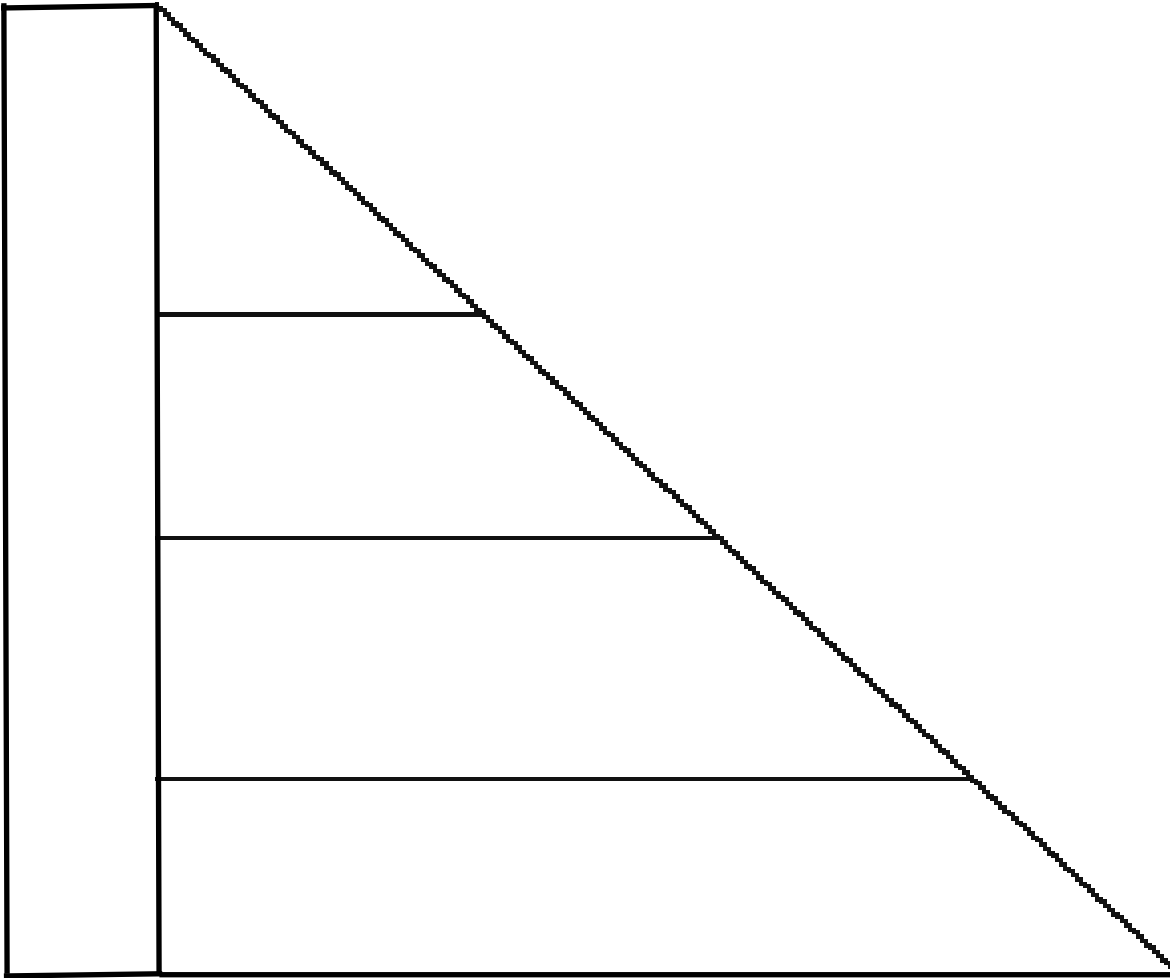


# Energy Pyramid

CONSUMERS are HETEROTROPHS.

Heterotrophs eat other organisms to gain energy.

Let's look at how **energy** moves through the ecosystem.  
Label and give an example of an organism at each level.



Where does all the energy in an ecosystem ultimately come from?

What role do decomposers play in an ecosystem?

## WORD BREAKDOWN

### Heterotroph

*hetero* = "other" *troph* = "food or nourishment"

### Autotroph

*auto* = "self" *troph* = "food or nourishment"





# Heterotrophs



Scientists use specific words to say what a consumer eats and when it is active. Fill in the blanks and draw an example for each.

\_\_\_\_\_ eat plants.

**Omnivores** eat \_\_\_\_\_.

\_\_\_\_\_ eat meat.

**Decomposers** eat \_\_\_\_\_.

What characteristics could be evidence of what a consumer eats?

**Diurnal** =  
awake \_\_\_\_\_  
\_\_\_\_\_

**Crepuscular** =  
awake \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ =  
awake at night

Why are consumers active at different times?

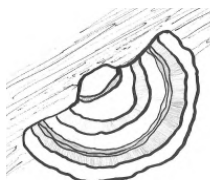


# Decomposers

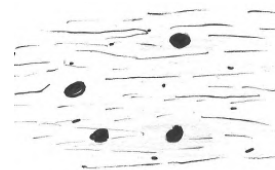


**Decomposers** are organisms that break down dead plants and animals.

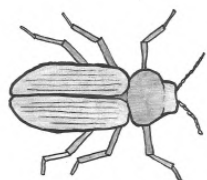
Match each decomposer to the evidence it would leave behind.



white rot fungus



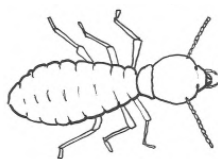
very small holes



boring beetle



stringy white wood



termite



ragged tunnels with wood bits inside

To help you remember what organisms can be decomposers, think of F. B. I.

F = Fungi, B = Bacteria, I = Invertebrates

Did you find any other decomposers or evidence of decomposers? If so, write or draw them here.

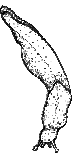
## WORD BREAKDOWN

### **Decomposer**

*de* is the Latin prefix = “opposite of-”

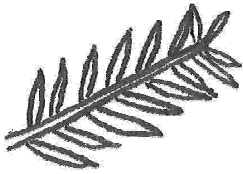
*composer* is an Old French compound word used to express the idea of uniting two things together



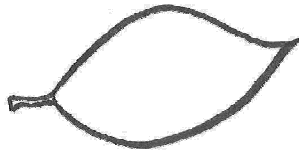


# Leaf Characteristics

## Type



needle leaf

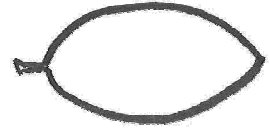


broadleaf

## Shape



linear



elliptical

## Edges



serrated

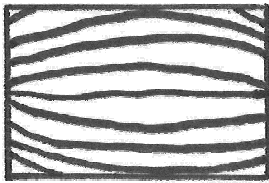


smooth

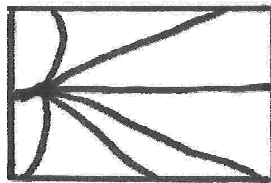


lobed

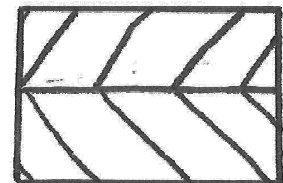
## Veins



parallel

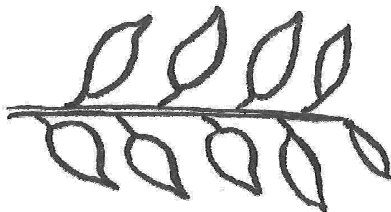


palmate

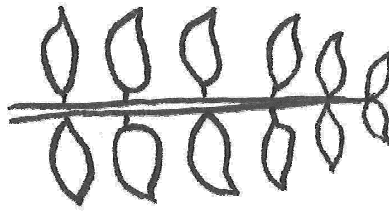


pinnate

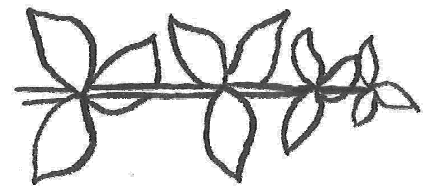
## Arrangement



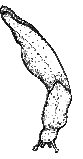
alternate



opposite



whorled



# Resources

Only 1 seed per million lives to become a mature redwood. Once the tree reaches maturity it can produce up to *five million seeds* every year!

*A seed needs the perfect circumstances to survive and grow into a mature tree.*

*Label the resources that a plant needs to survive.*

This is where the energy comes from to do photosynthesis.

\_\_\_\_\_

Plants need the carbon from this gas.

\_\_\_\_\_

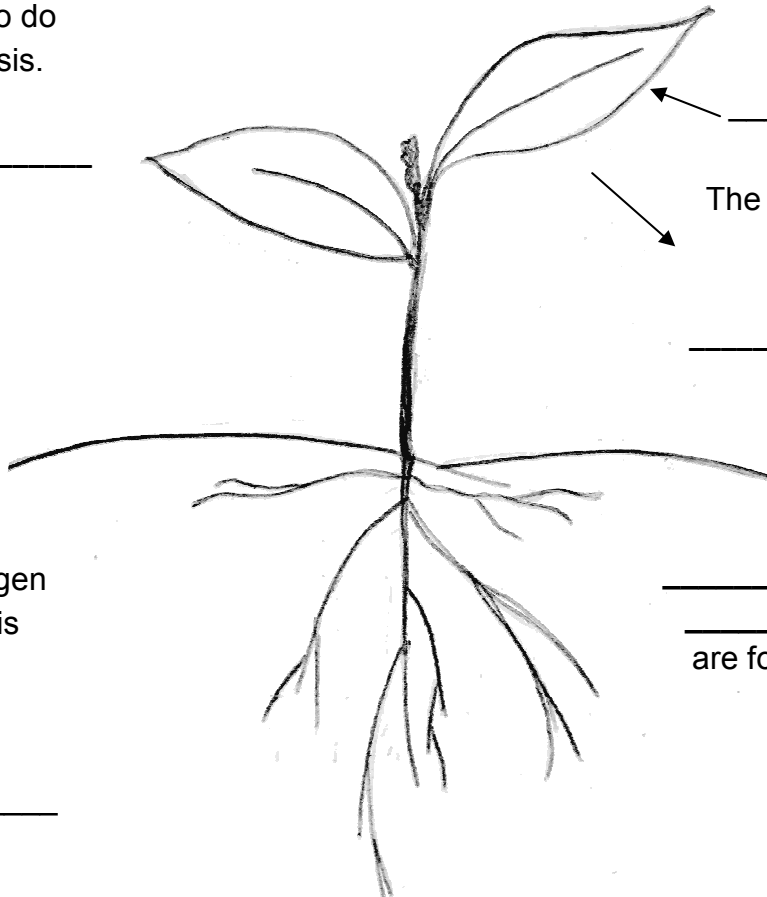
The plant releases this gas.

\_\_\_\_\_

The plant uses hydrogen and oxygen from this resource to make glucose.

\_\_\_\_\_

\_\_\_\_\_ and \_\_\_\_\_ are found in the soil.

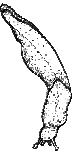


What can happen if a seed gets too much of a resource?

How can humans help preserve natural resources?



# Elements of a Healthy Forest



There are three main elements that create a healthy forest:  
RESOURCES, ADAPTABILITY, and DIVERSITY.  
Let's explore how those elements appear in our forest.

## **Diversity:**

Why would even small changes be harmful to an ecosystem with low diversity?

## **Adaptability:**

What are some things that could cause big changes in the forest?

How might the forest adapt to them afterward?

How have trees in your neighborhood adapted to this environment?







# Herpetology

**Herpetology** is the study of **reptiles** and **amphibians**.

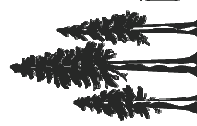
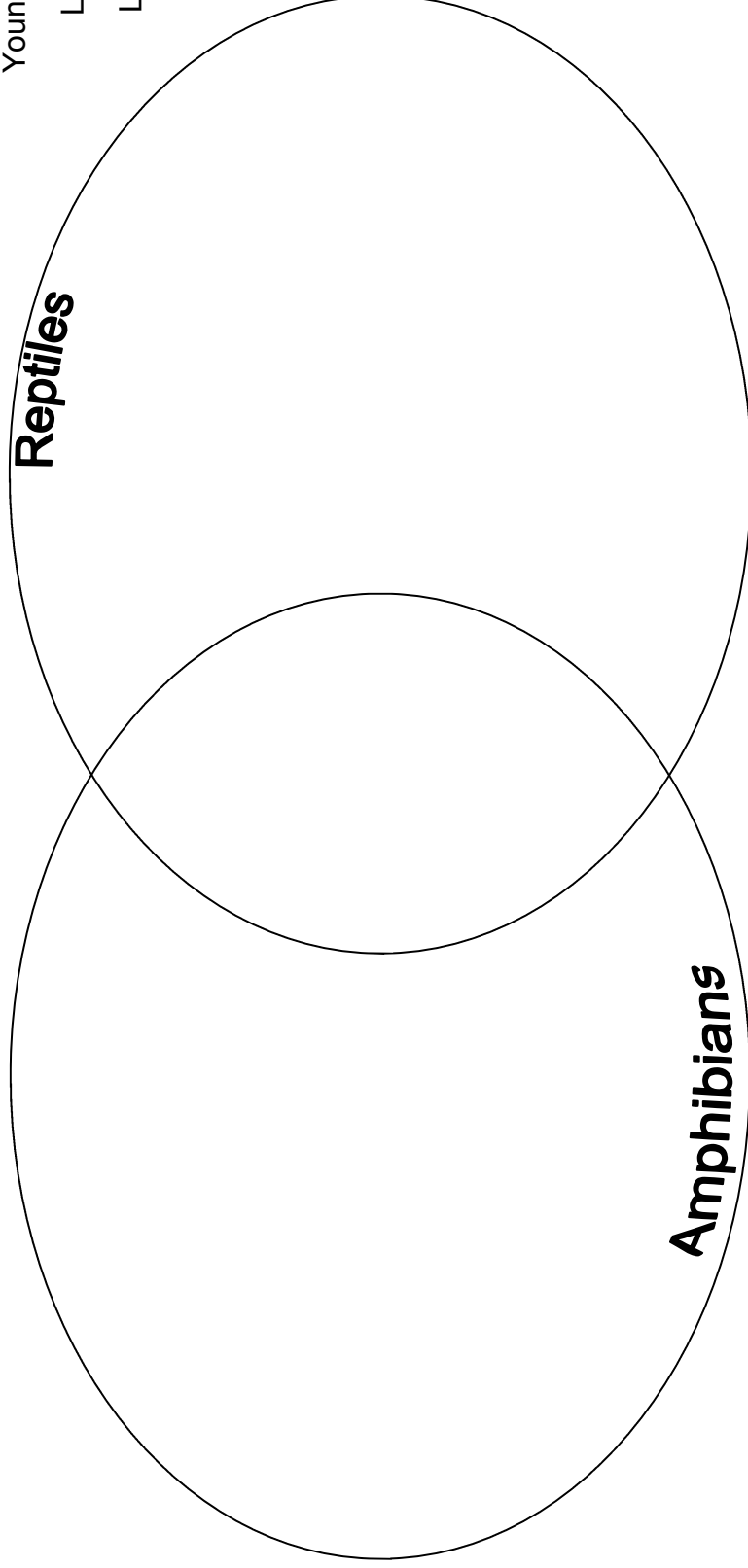
Studying reptiles and amphibians helps scientists see significant changes in the environment.

## Reptile or Amphibian?

Using the word bank below, fill out the **Venn Diagram** of key characteristics for reptiles and amphibians. You can add any others that you know.

### WORD BANK

Young Look Like Adults  
Lays Eggs in Water  
Lays Eggs on Land  
Metamorphosis  
Scales/Scutes  
Ectothermic  
Vertebrate  
Moist Skin  
No Claws  
Shed Skin  
Claws



**Alliance  
Redwoods**  
Outdoor Education

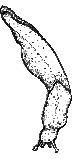
### WORD BREAKDOWN

**Herpetology** comes from the ancient Greek *herpeton*

When translated literally it means “creeping thing”

**Reptile** comes from the Latin *reptile* which shares the same meaning!



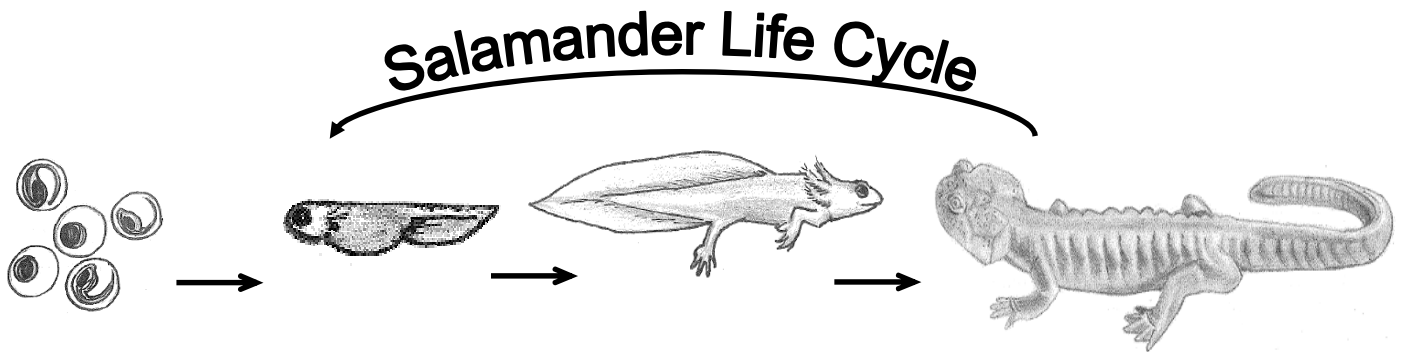
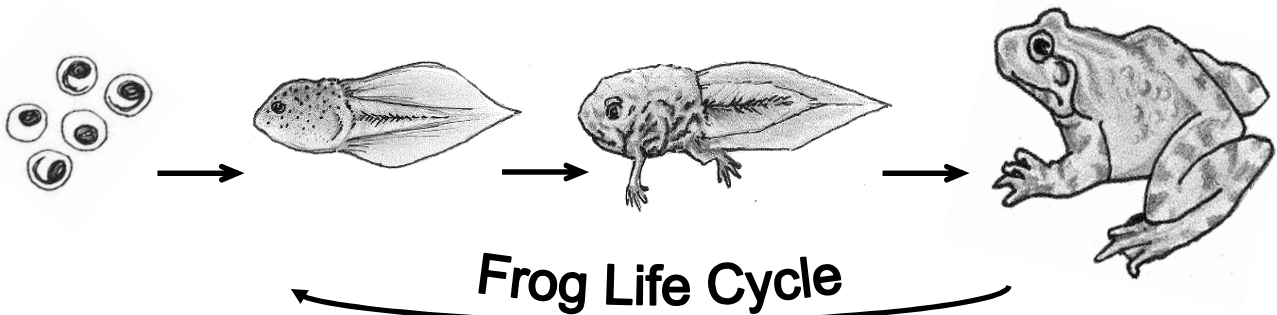


# Metamorphosis

Metamorphosis is the process of transformation from an immature form to an adult form in two or more distinct stages.

Fill in the correct terms for these two life cycles.

WORD BANK		
Eggs	Adult	Tadpole
Froglet	Juvenile	Larvae



## WORD BREAKDOWN

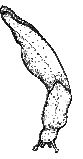
### Metamorphosis

*meta* = "big or significant" *morphosis* = "transformation"

### Amphibian

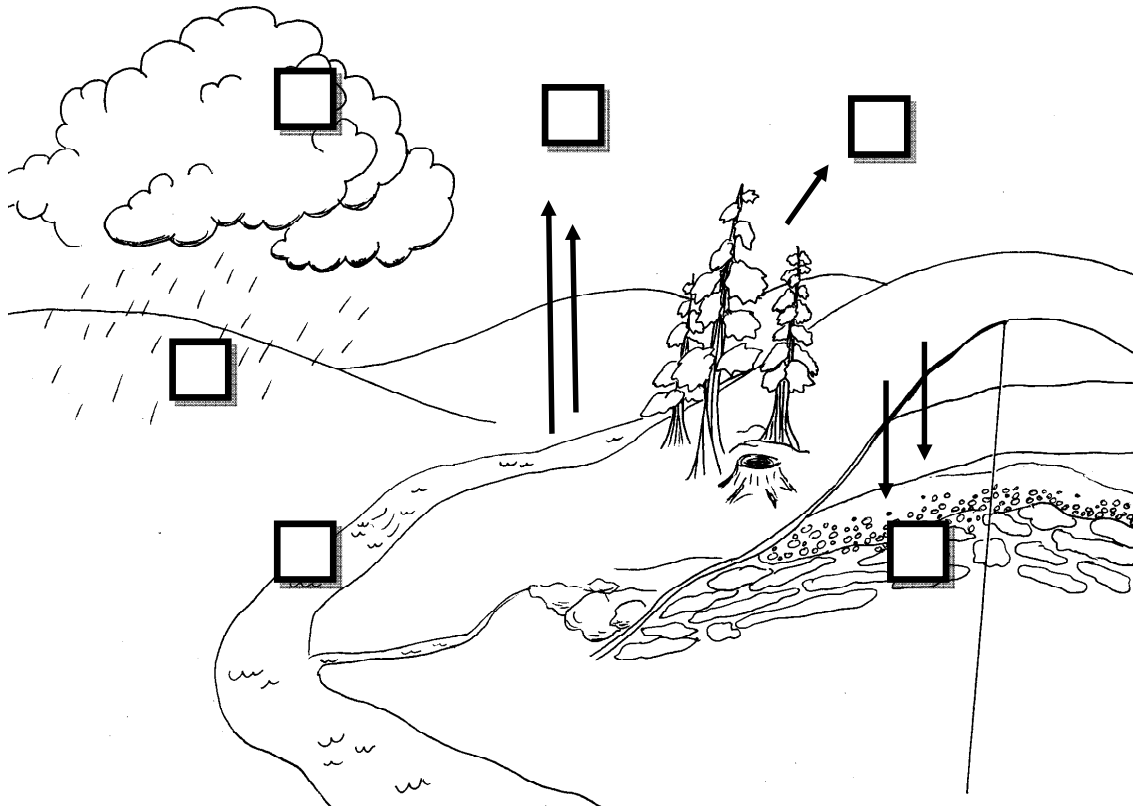
*amphi* = "of both kinds" *bios* = "life"





# Water Cycle

Number the parts of the water cycle.



1. Condensation  
2. Precipitation

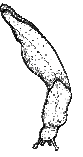
3. Run-off  
4. Evaporation

5. Transpiration  
6. Collection

## A Water Droplet's Journey

Tally how many times you visit these locations:

Location	# of Visits	%	Location	# of Visits	%
Cloud			Lake		
Glacier			River		
Groundwater			Ocean		
Plant			Animal		
			Soil		

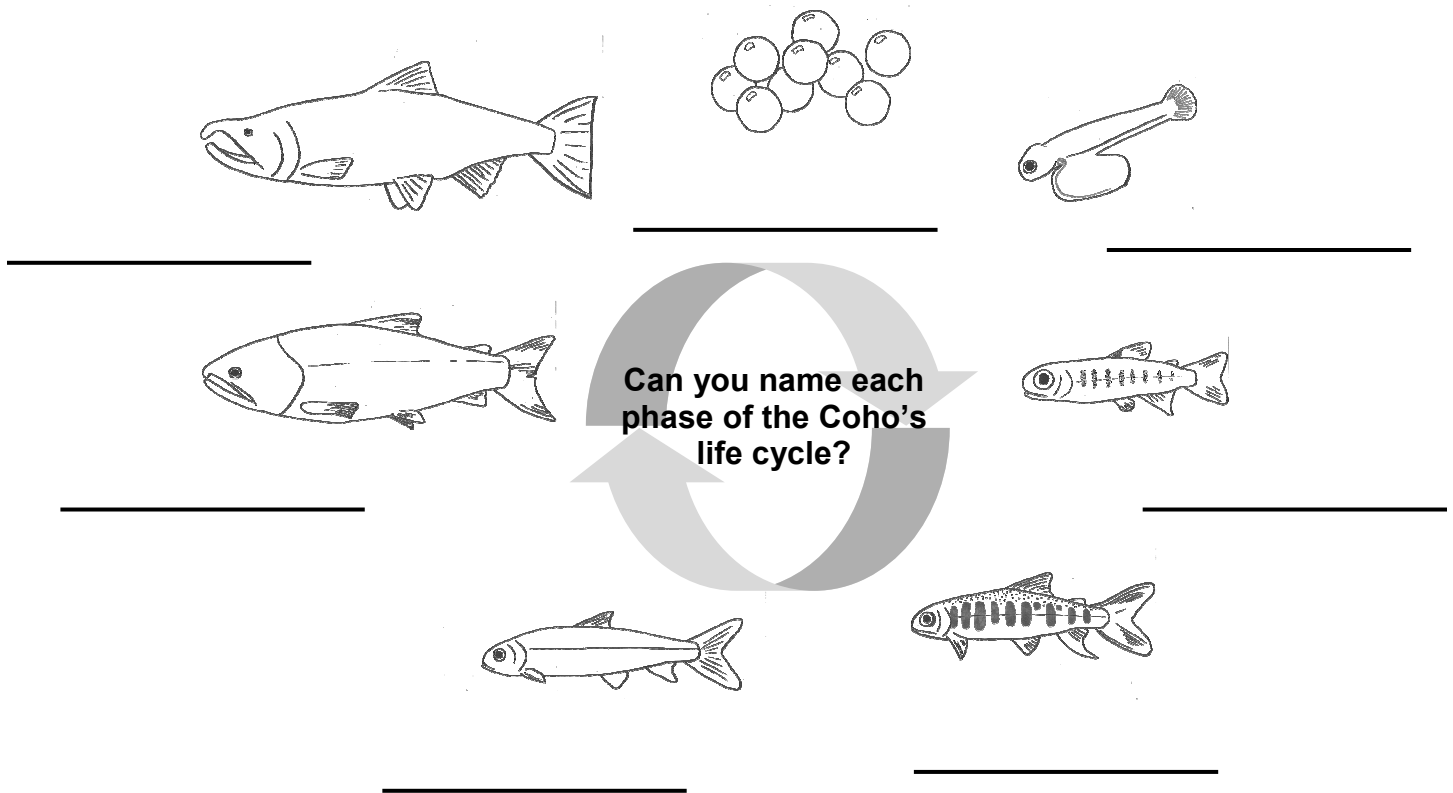


# The Story of Salmon

What is something that surprised you about the Coho salmon's journey?

What is a challenge that the Coho salmon must overcome in order to survive?

What is a challenge that you have overcome?



## Fish Facts...

Salmon prefer cool water, about 55°F.

Salmon prefer water that is neutral (7) on the pH scale.

Salmon prefer lots of oxygen in the water, about 8ppm (parts per million) or more.

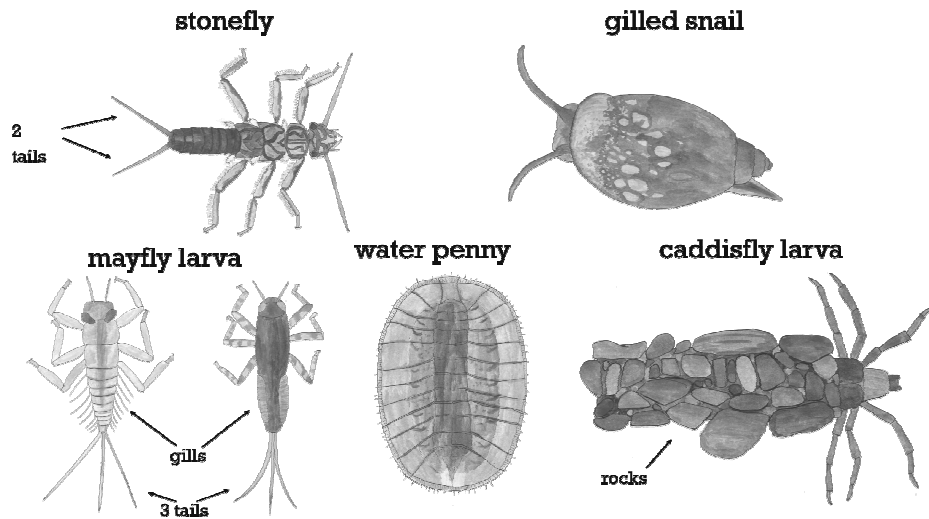




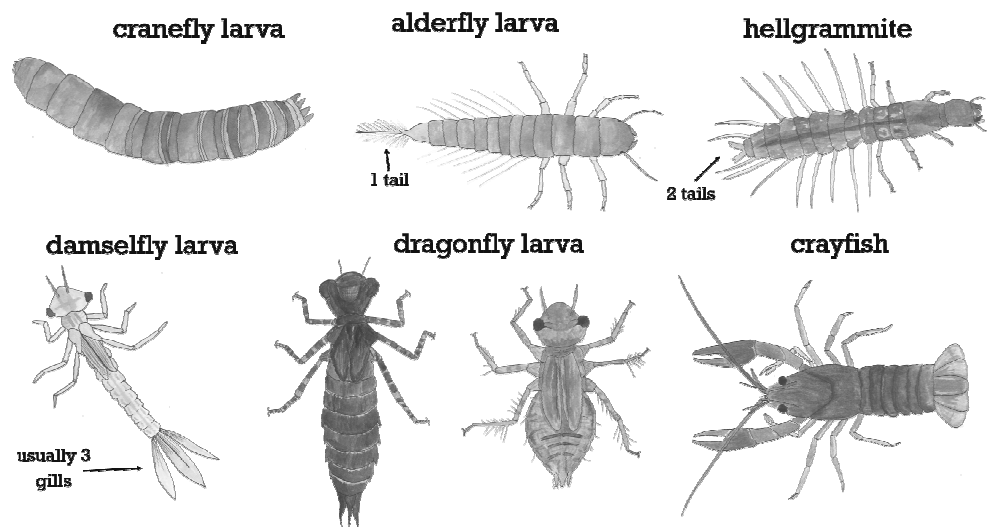
# Indicator Species

These aquatic macroinvertebrates can give us clues about the water quality at the pond and the stream. Mark down the species you find during you exploration.

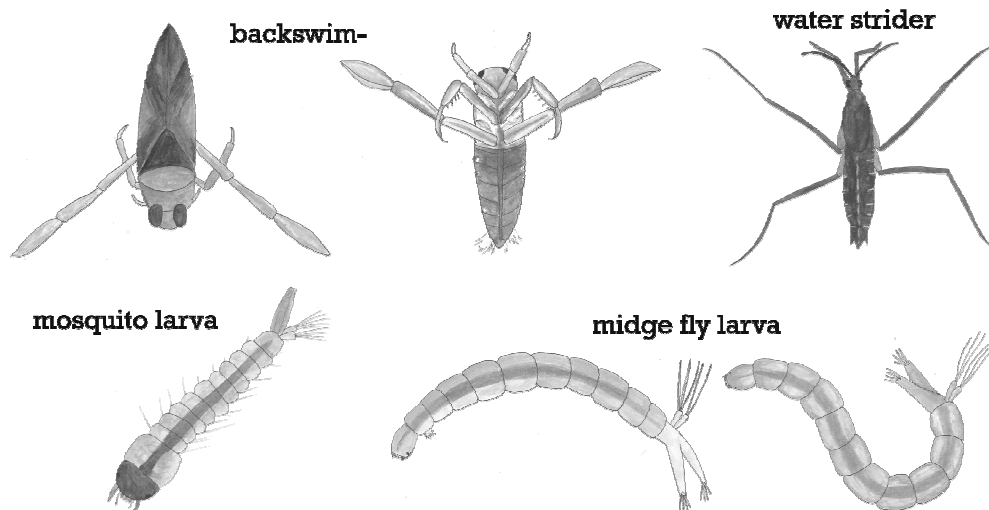
**Pollution  
Sensitive**

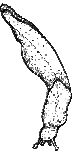


**Somewhat  
Sensitive**



**Pollution  
Tolerant**



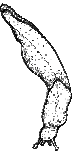


# Compare and Contrast

Mark down what you find at each location.

Aquatic Habitat (e.g. pond)			
Air Temperature		°F	°F
Water Temperature		°F	°F
Dissolved Oxygen		ppm	ppm
pH			
Sensitive	Pollution	Stonefly Nymph	
		Gilled Snail	
		Mayfly Nymph	
		Caddisfly Larva	
		Water Penny	
Sensitive	Somewhat	Damselfly Larva	
		Dragonfly Larva	
		Crayfish	
		Cranefly Larva	
		Alderfly Larva	
		Hellgrammite	
Tolerant	Pollution	Water Strider	
		Mosquito Larva	
		Midgefly Larva	
		Backswimmer	

What other similarities and differences are there between different aquatic habitats? What do these clues indicate about the habitat health?



# Geology Rocks!



## WORD BREAKDOWN

**Geology** is the study of Earth's  
physical composition and the forces that act on it.

geo =

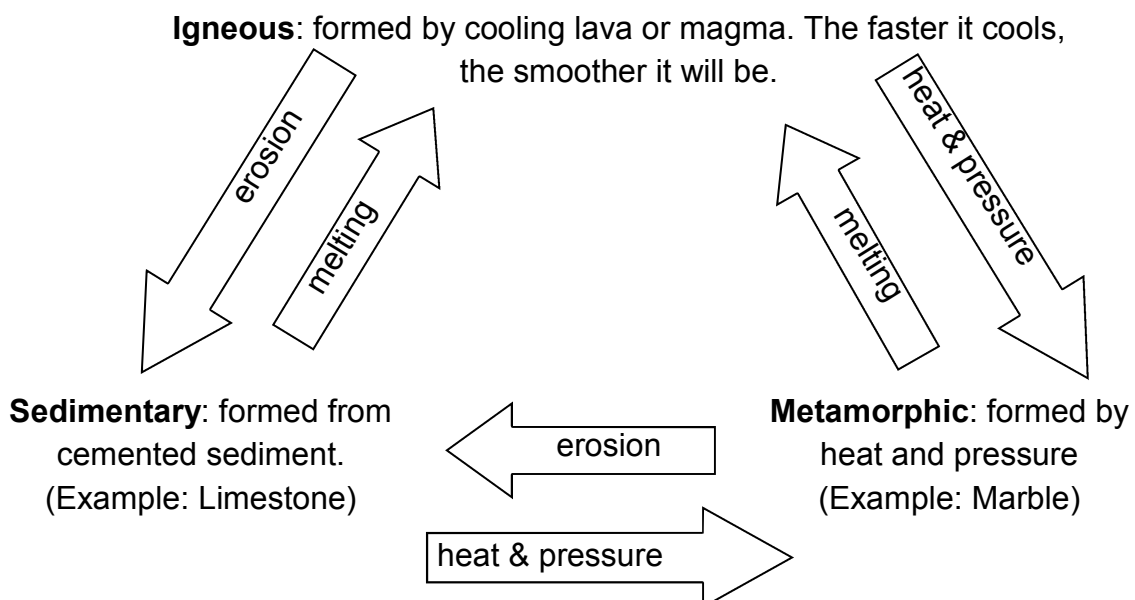
ology =

Why aren't all rocks the same?

What are some different characteristics you noticed about the rocks you found?

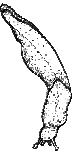
What methods did you use to determine differences between rocks?

## The Rock Cycle





# Rock Paint



Discover about rock hardness by experimenting with rock paint!  
Make a mark of rock paint on this page in each color you find. Be sure to label  
which rock it belongs to in your **Nature Journal** notes.





# Nature Journal

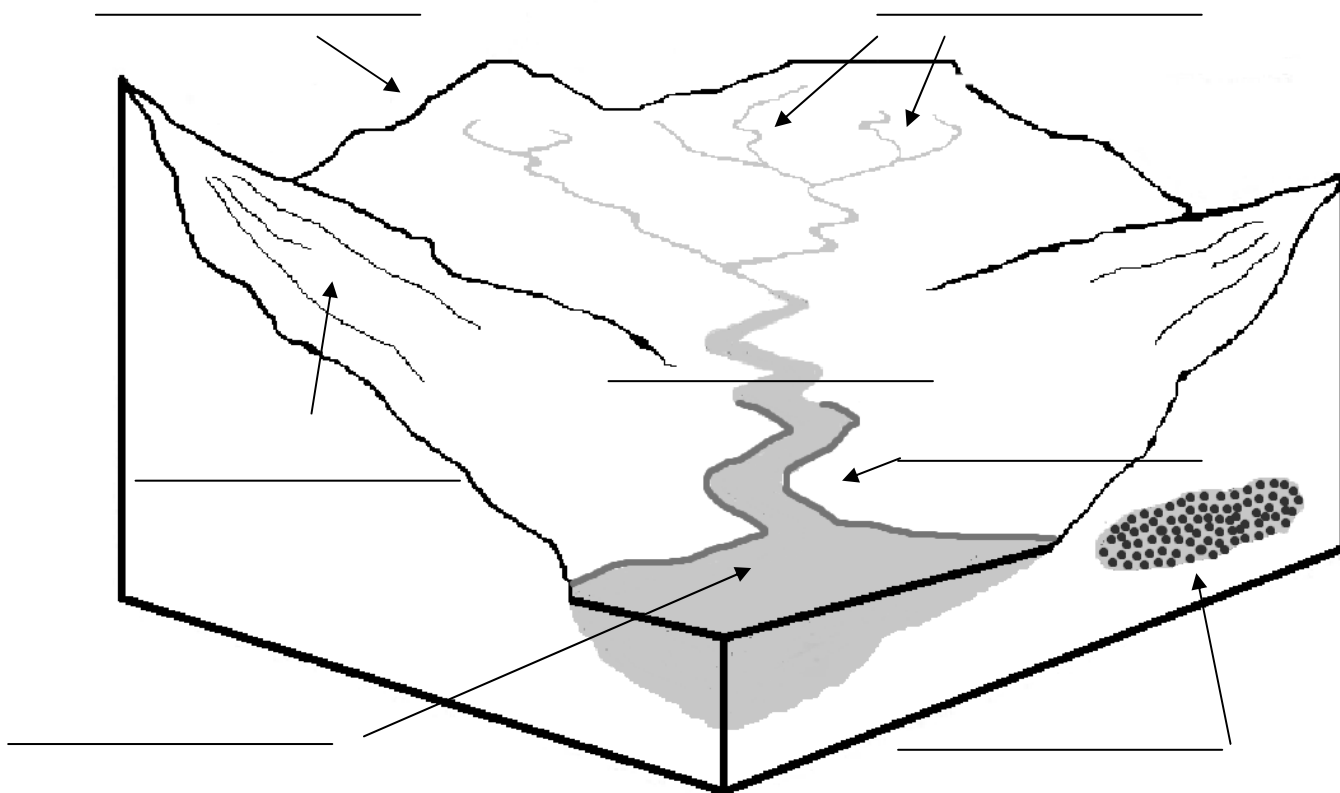
## Word Bank

Tributary  
Groundwater

Hill Slope  
Floodplain  
Ridgeline

Valley  
Estuary

Match the words above to the watershed diagram below.



What are some other features in a watershed not shown here? (ex. Trees, houses...)

Why is it important to know about watersheds?



# Challenge Zones



1. \_\_\_\_\_

This is the zone where you normally spend most of your time

2. \_\_\_\_\_

This is the zone where you are trying new things that you may or may not like. You may feel energized, scared, excited, or nervous.

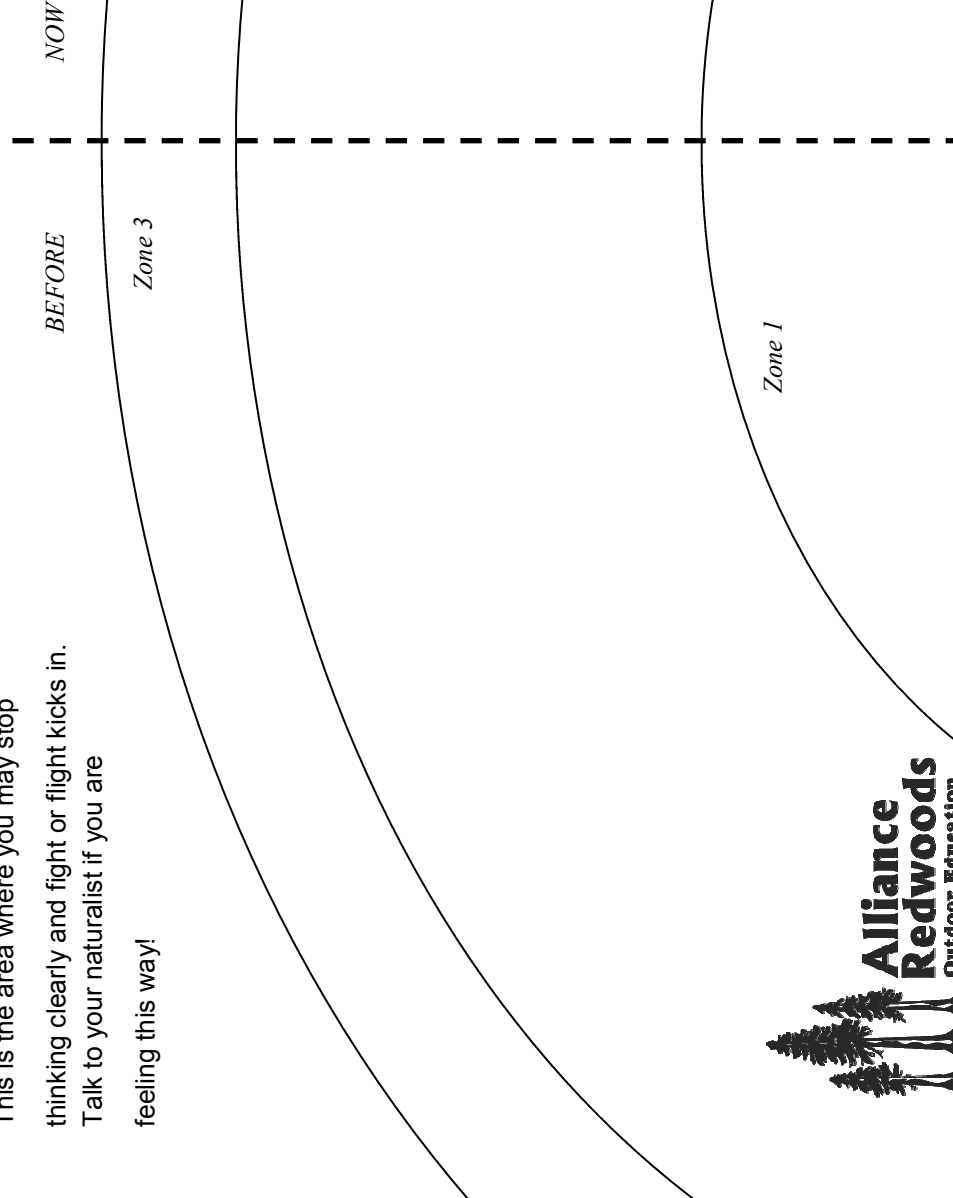
3. \_\_\_\_\_

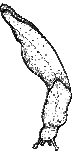
This is the area where you may stop thinking clearly and fight or flight kicks in. Talk to your naturalist if you are feeling this way!

## GROWTH

As you push into your stretchy zone, your comfort zone also grows. Use these two pages to compare how you felt at the beginning of the school year and now.

Did anything move into your comfort zone?





# Night Hike

How did you feel before your night hike?

What special adaptations do nocturnal animals have?

What did you smell?

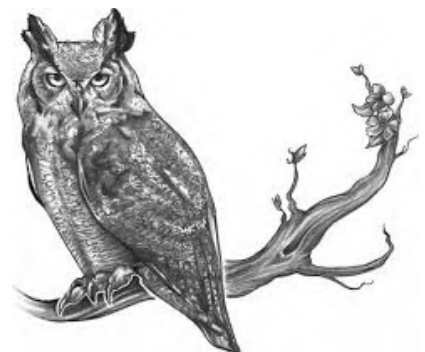
What did you see?

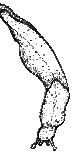
What did you hear?

What did you feel?

What else did you notice?

Describe how you felt before and after the solo time.





# Adaptation Transformation

Please have the following information ready to provide the following information.

Name:

Habitat:

Nocturnal, Diurnal or Crepuscular?

Carnivore, Herbivore, or Omnivore?

Food:

Locomotion: *How does your animal move?*

Adaptations: *How does your animal survive in its habitat?*