

# Water Ecology

According to the Macroinvertebrates found during class, how polluted is the Rock River?

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What are some ways that you can help your local rivers and waters to stay clean?












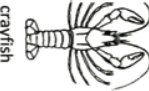








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Index Value		Pollution Tolerance Categories	
Number of Circled Organisms ____ X 4 = ____ index value (ex: 5 mayflies count as 1 circled organism)	GROUP 1: SENSITIVE (These organisms are generally pollution-intolerant. Their dominance generally signifies GOOD WATER QUALITY.)	 riffle beetle adult  dobsonfly larva  other snails  caddis fly larvae  stonefly larvae  water penny larvae  mayfly larva	(Macroinvertebrates are not to scale)
Number of Circled Organisms ____ X 2 = ____ index value	GROUP 2: SOMEWHAT SENSITIVE (These organisms can exist in a wide range of water quality conditions.)	 damselfly nymph  sowbug  beetle larva  clams  crayfish  crane fly larva  scud  dragonfly nymphs	
Number of Circled Organisms ____ X 1 = ____ index value	GROUP 3: TOLERANT (These organisms are generally tolerant of pollution. Their dominance usually signifies POOR WATER QUALITY.)	 leeches  aquatic worms  pouch snails  midge larva  black fly larva	
WATER QUALITY RATING Total Index Value = ____	Water Quality Rating Indices <input type="checkbox"/> Excellent (>22) <input type="checkbox"/> Good (17-22) <input type="checkbox"/> Fair (11-16) <input type="checkbox"/> Poor (<11)		

## Survival



What are the three objects that you didn't know could be used to help you survive and how would you use them?

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

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

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

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How long can you survive without each of these things?

Air \_\_\_\_\_ Shelter \_\_\_\_\_

Water \_\_\_\_\_ Food \_\_\_\_\_

Positive Mental Attitude \_\_\_\_\_

Draw an example of your shelter and label it with what kind of shelter it is.

A large empty rectangular box with a thick black border, intended for drawing a shelter.

# Instincts for Survival

What kind of animal were you? \_\_\_\_\_

Were you a predator, prey or both? \_\_\_\_\_

What were some strategies that you used to survive?

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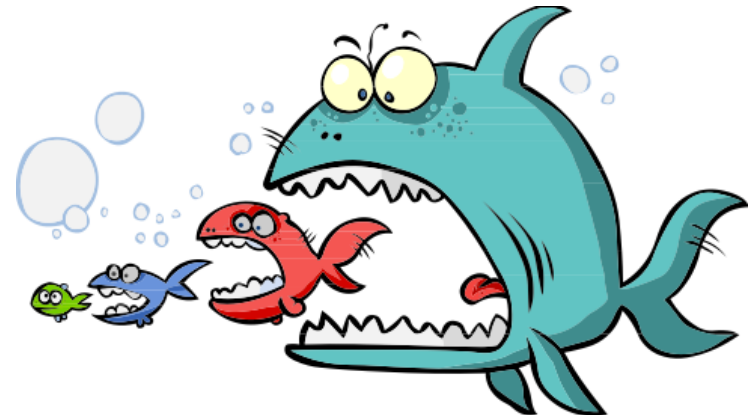
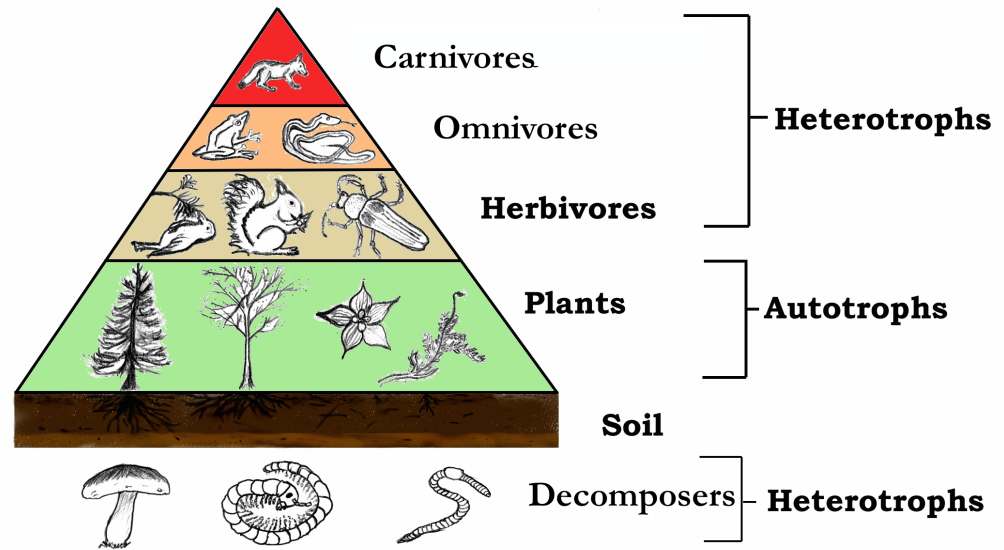
Compare those strategies or other things that happened while you played the game to what animals actually do in the wild.

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List three animals that fit together into a food chain:

\_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_

## Teambuilding

What were some of the challenges that you had to overcome?

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Which activity helped your group work together the most and how?

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## Night Hikes

What was something new you learned about being in the dark?

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What senses did you use to help get around in the dark and why?

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## Orienteering

What is Orienteering?

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What cardinal direction is:

0° or 360°? \_\_\_\_\_

90°? \_\_\_\_\_

180°? \_\_\_\_\_

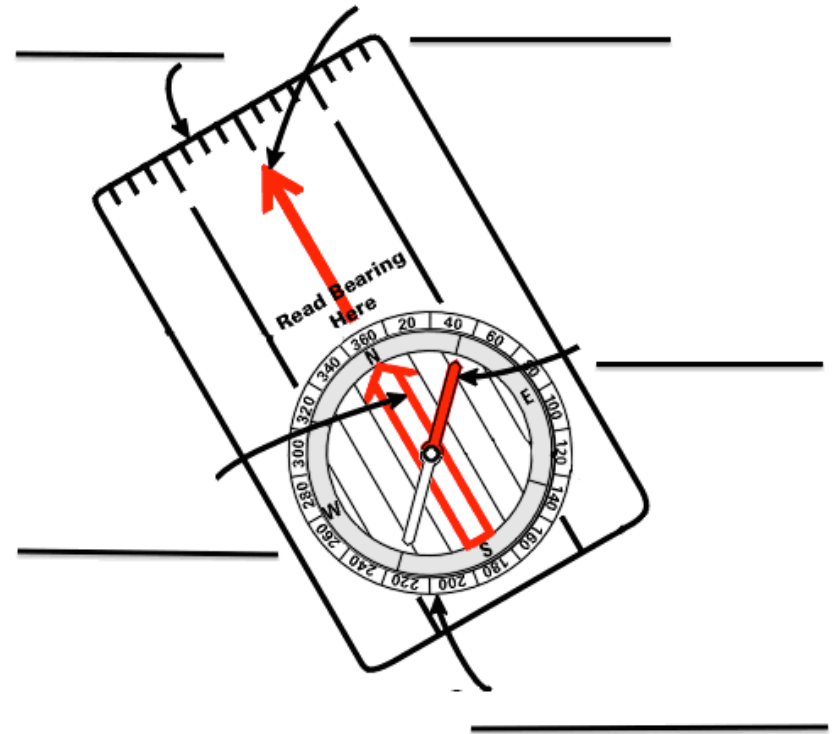
270°? \_\_\_\_\_

Which direction does the red needle always point?

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## Parts of the Compass



## Forest Ecology



Define Ecology:

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What role do decomposers play in an environment?

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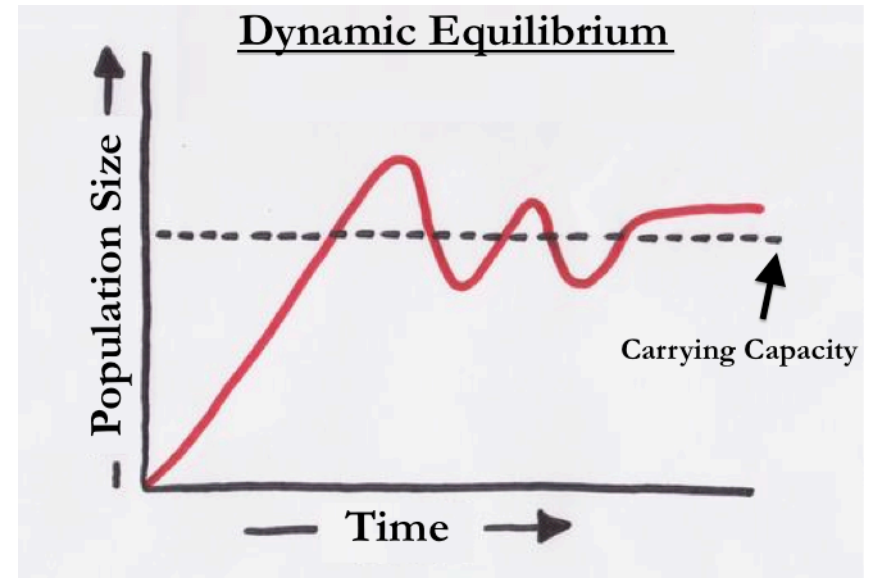
What would the world look like without them?

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Draw and label two decomposers that you found during class.

## Oh Deer!



What is Carrying Capacity?

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What was the Carrying Capacity of the deer in your game?

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# Geology

Define Geology:

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Name three types of rocks you found in the gully and what they looked like:

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

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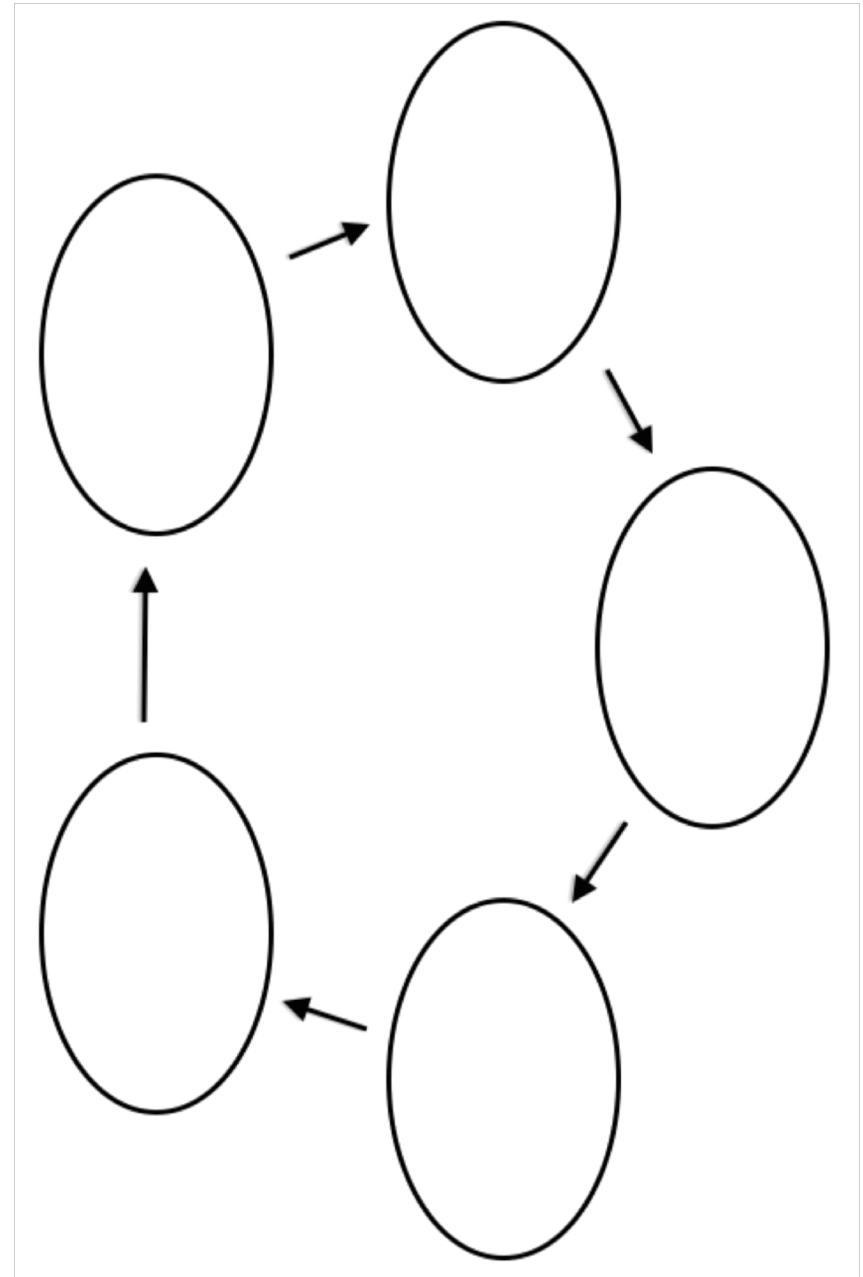
2. \_\_\_\_\_ : \_\_\_\_\_

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

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# The Rock Cycle



## Pioneering

What is a Pioneer?

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Name three of the tools you used during class and what they could help create:

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

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

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

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What item, from that time, do you think would be most important to bring with you as a pioneer in the 1800's?

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Draw and label some of the items that you learned about in the cabin:





# Winter Ecology

Define Ecology:

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What are four methods that organisms use to survive the cold winter months?

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What did you use as insulation for your capsule animal?

Did it help keep it warm? What would you do differently if you were able to try again?

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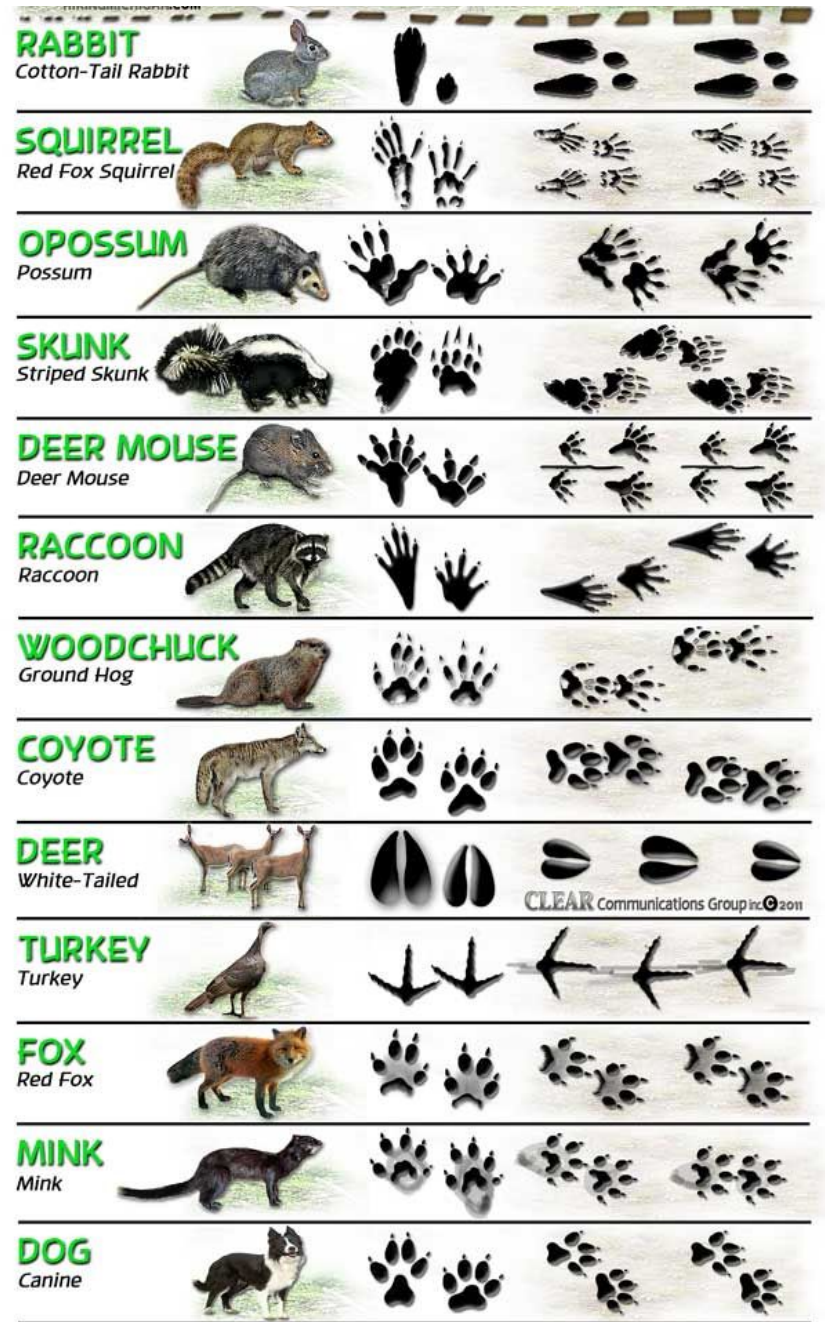
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# Tracks



# Native American History

What were the local Native American tribes that used to live in this area?

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In what order were these weapons invented?

Atl Atl, Rabbit Stick, Spear

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



Native hunter throwing a dart with an atlatl (dart-thrower). Illustration by Donald Monkman in Pettipas (1996).

What is coup?

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What are some reasons that Native Americans played games?

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What is a bowdrill and how is it used?

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# Birding

Define adaptation:

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What kinds of birds did you see and how many of them?

Bird	Feeder	Number Seen

Connect each beak to its matching tool and adaptation



**Hawk**



**Woodpecker**



**Cardinal**



**Hummingbird**



**Flycatcher**



**Heron**



**Duck**



Cracking Seeds



Sipping Nectar



Catching Flies



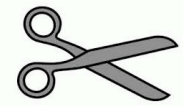
Stabbing at Fish



Filtering Water



Picking up Insects



Tearing Flesh

## Endeavors in Engineering



What was your job title and what were you in charge of?

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If you could have picked a different job, which one would it have been and why would you have picked it?

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## Alpha Wolf

What does it mean to be the alpha of the pack?

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How did you communicate with the rest of your team on the rope without talking?

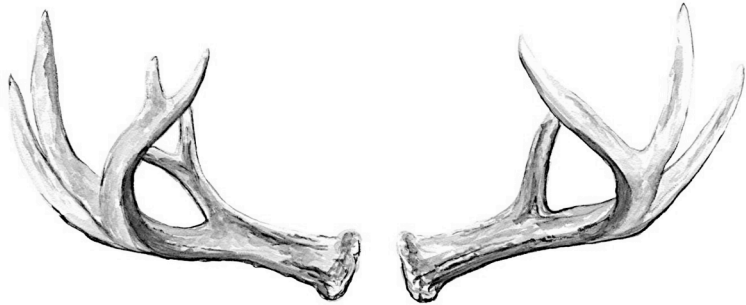
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## Osteology

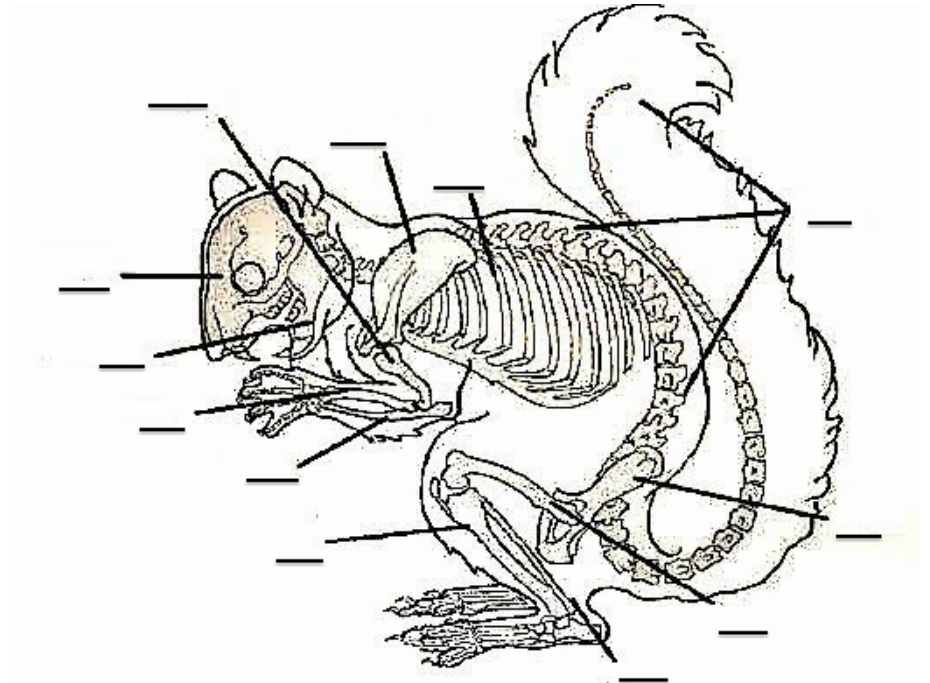


What are five things that bones can tell us about the animal that lived?

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

## Anatomy of a Squirrel

Label the diagram of the squirrels bones:

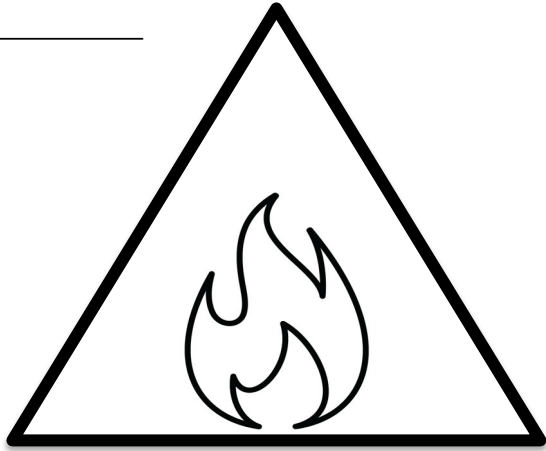


- |              |             |
|--------------|-------------|
| A. Humerus   | G. Pelvis   |
| B. Scapula   | H. Femur    |
| C. Ribs      | I. Fibula   |
| D. Vertebrae | J. Tibia    |
| E. Ulna      | K. Radius   |
| F. Skull     | L. Mandible |

## Fire

What are the three things needed to create fire?

\_\_\_\_\_



\_\_\_\_\_

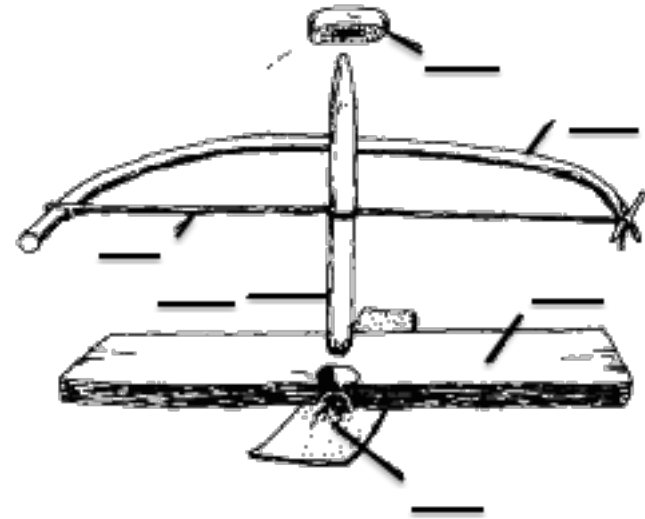
Name three things you can use to start a fire other than matches or a lighter:

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

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

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

## Parts of the Bowdrill



A. Bow

B. Fireboard

C. Spindle

A. Socket

B. Tinder

C. Cord

# Water Town Meeting

What roll did you play in the water town meeting?

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Who's fault do you think it was for polluting the lake?

Circle one:

- 1. Chemical Company    2. Electrical Company
- 3. Farmer    4. Homeowner    5. Tourists

Why?

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What plans did you make to help clean up the lake?

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Why should we care about what happens to the lake and other natural places like it in the real world?



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What issues like these are happening in your community?

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What could you do to help fix those issues?

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## Garbology

What is Garbology?

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What is a “Chocolate Jacuzzi”?

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What are three different methods of disposal that could avoid the use of landfills?

1. 

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2. 

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3. 

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Create and draw a city along your river:

River



## Mycology



How do fungi obtain nutrients?

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What are the three ways Fungi obtain their food?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

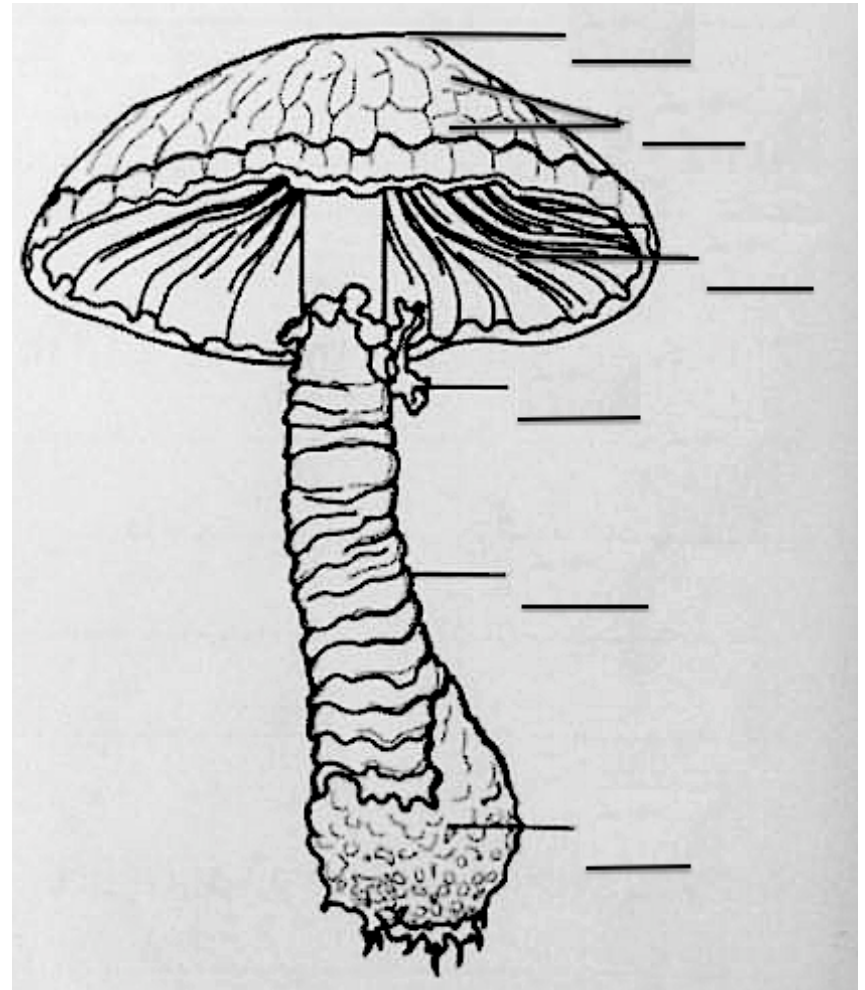
What is Myccorhizal Symbiosis?

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## Anatomy of a Fungus



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|-----------|----------|----------|
| A. Cap    | C. Gills | E. Stalk |
| B. Scales | D. Ring  | F. Cup   |