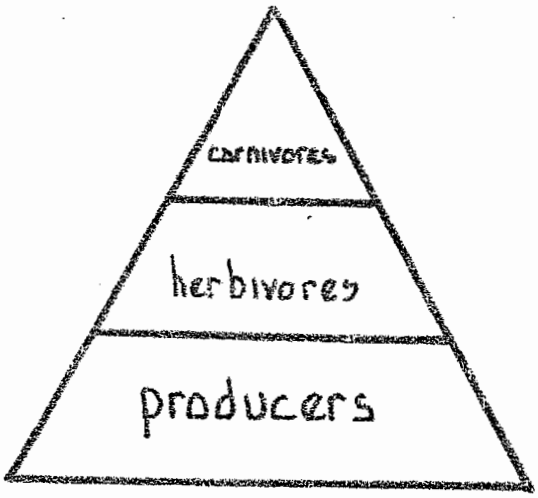
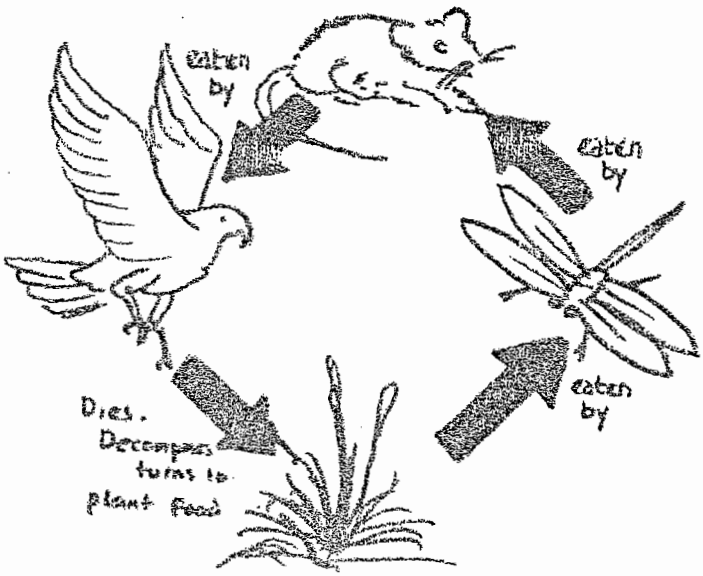
the ecosystem





G. Grambo

The Ecosystem

Grade 6

This unit has been designed using work sheets and hands on activities. If possible try to have live animals in your classroom so that the children can see the different types of ecosystems. There are two tests in this unit; one test is after experiment 5 the other is after experiment 10.

Gregory Grambo
The Louis Armstrong Middle School

A. Herman- Principal
B. Alfant- Asst. Principal
B. Wiesenfeld- Administrative Assistant
S. Trubowitz- Director, Queens College

Contents

Chapter One

Appendix

Log book cover sheet 23

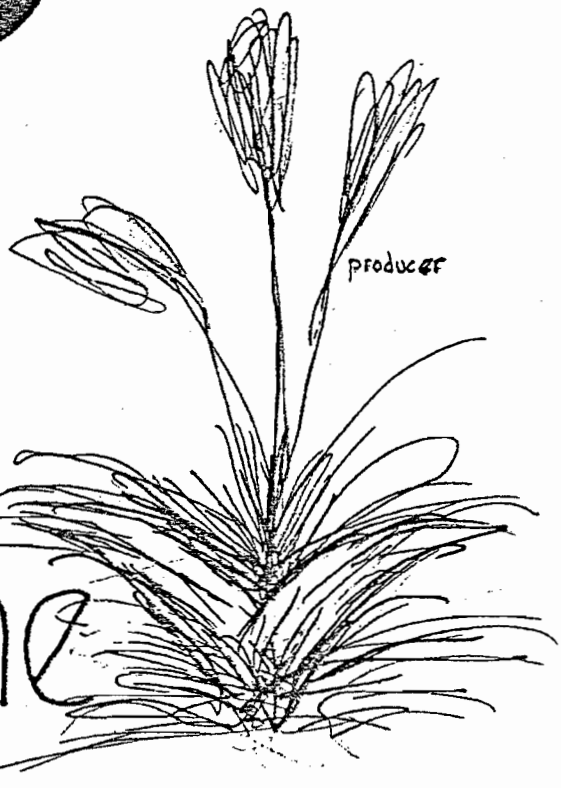
This unit is to be used with the filmstrip[all]

Protective Adaptations In Animals 591.57
A Coronet Sound Filmstrip Pro

4 Sound Filmstrips
4 Sound Cassettes

1) Colors That Camouflage
2) Patterns and Shapes
3) Warning Colors and Mimicry
4) Camouflage and Behavior

chapter 1



the experiments

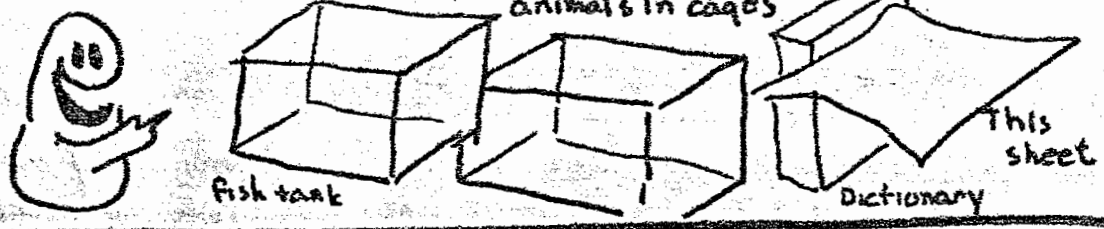
The Ecosystem

Name _____

Class _____ Box No _____

What is a community? Experiment 1

1) Begin With



2) Take a look at the animal cages and fish tanks in the room. These are ecosystems.

3) Define ecosystem -

4) What are 3 things that make these ecosystems similar?

5) How are they different from each other?

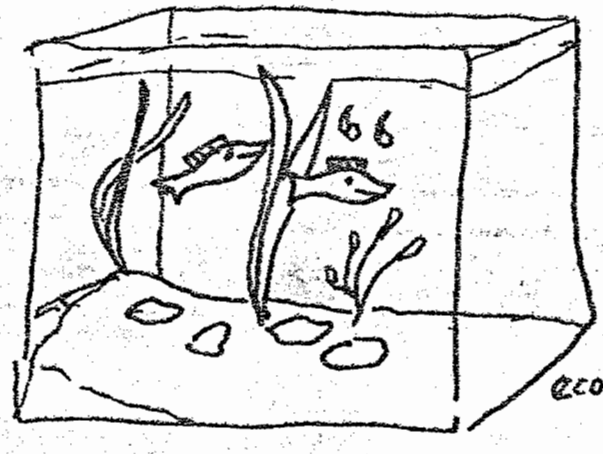
6) What do you feel is the most important thing to each ecosystem?

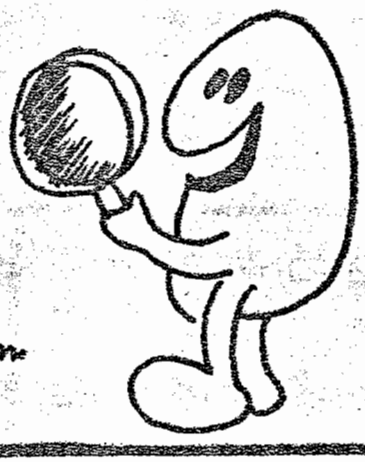
7) Look at these pictures.


organism


Population


Community


ecosystem



8) How is an organism different from a a poputation?

9) How can a population turn into a community?

10) What is the biggest difference between a community and an ecosystem?

Homework -

1- What is a community?

2- What is a population?

3- What things would be in a desert ecosystem?

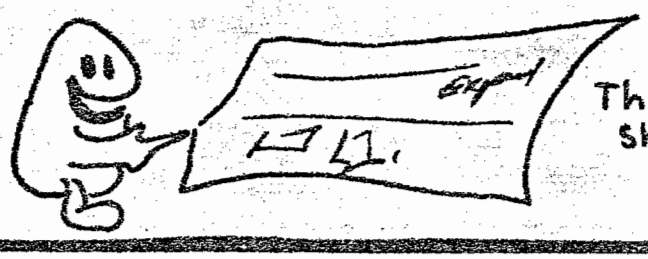
The Ecosystem

Name _____

Class _____ Box No ___

How do communities change?

Experiment 2

1. Begin With  This Sheet.

2. In a community we have producers which are green plants. Green plants produce food from sunlight. Animals which eat plants or other animals are called consumers. Consumers which eat only plants are called herbivores. Consumers which eat only animals are called carnivores. Consumers which eat both plants and animals are omnivores.

3. Why are people called omnivores?

4. How can producers get into a carnivore, if a carnivore only eats animals?

5) How would the population of herbivores, or other animals in a community, be affected if all the carnivores disappeared?

6) How would populations in a community be affected if all green plants died?

7) How will the population of plants be affected if all animals died?

8) In an ecosystem why are there more producers than consumers?

9) Why are consumers, producers, and herbivores, (all three) needed in order to maintain an ecosystem?

10) What happens if the population of one grows too large?

Homework -

1- What is a consumer?

2- Why are we called consumers?

3- Why is a lion a carniv

4- Why is a plant (green plant) called a producer

The Ecosystem

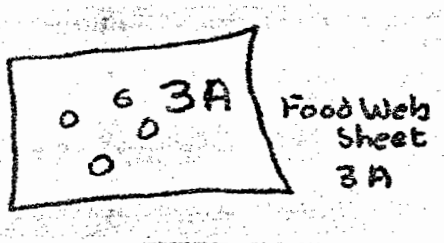
Name _____

Class _____ Box No _____

How do living things get food?

Experiment 3

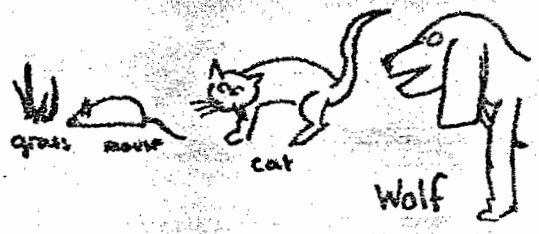
1) Begin With



2) What is a carnivore?

3) Describe how plants might get into the stomach of a carnivore?

4) look at this picture



We call this a food chain. the mouse a herbivore eats the producer. The cat eats the mouse. The wolf eats the cat.

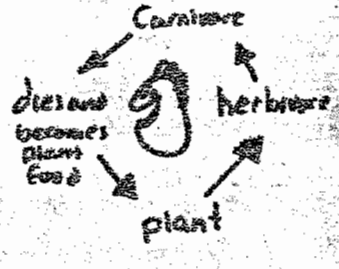
5) The wolf can be eaten by another carnivore or it can die and become fertilizer for the plants

6) How will the strength of a chain be affected if a link breaks?

7) The mouse and cat are links in the food chain. How would a food chain be affected if a link is missing?

8) Why are green plants called producers?

9) Food chains always end with a green plant. Why do you think they always end this way?



Do the food web sheet. This is experiment 3 A.

10) How is a food web different from a food chain?

11) How is it similar?

Homework-

1- What is a food chain?

2- What is a food web?

3- What happens in a food chain if one of the links break, or is removed from the chain?

The Ecosystem

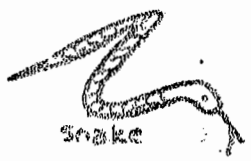
Name _____

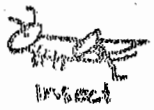
Class _____ Box No _____

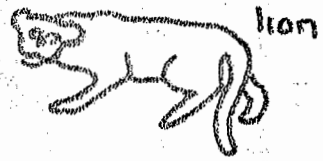
What is a food Web?

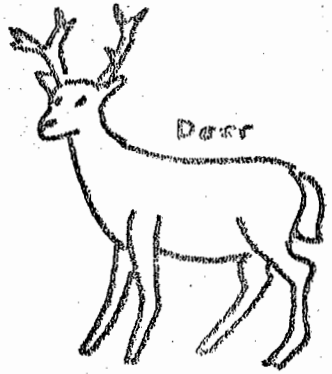
Experiment 3A

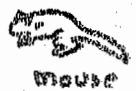
Draw as many arrows as you can to show as many food chains that these animals will form in a community.











1) What does the word web mean?

2) Why do we call this picture a food Web?

Grandpa

The Ecosystem

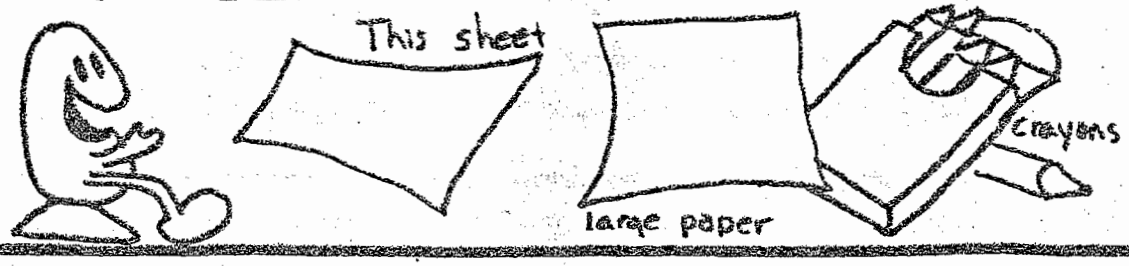
Name _____

Class _____ Box No _____

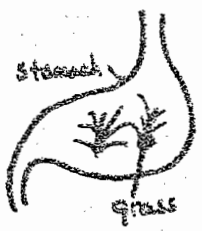
What happens to energy In a food chain?

Experiment 4

1) Begin With



2) How can plants and grass get into the stomach of a carnivore, a meat eating animal?



3) Plants take energy from the sun and make food from it through a process called photosynthesis.

The suns energy is now inside this food.

4) How does this energy move through a food chain?

5) What do animals do with energy?

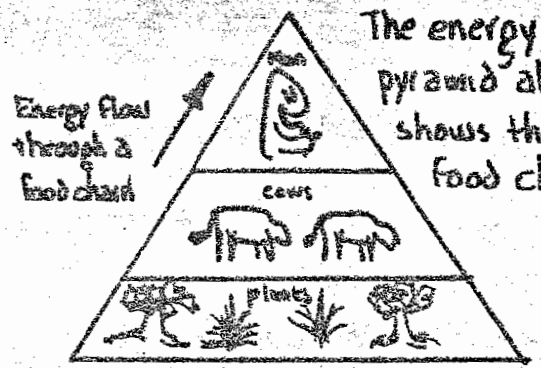
6) Why do you get tired?

7) How does food help you when you are tired?

8) What does your body do with the energy it gets from food?

9) Why does more energy go into something than comes out?

10) This is an <u>energy pyramid</u>. Producers are on bottom, consumers are on top. <u>Each level is smaller than the one under it</u>. Why do producers have such a large level and man has a small level?



11) On a sheet of large paper construct an energy pyramid. Make it have at least 5 levels. Color producers - green, herbivores - blue, carnivores - red, and omnivores - yellow.

Homework -

1- What is an energy pyram and how does it work?

2- Why are producers on th bottom of the pyramid?

The Ecosystem

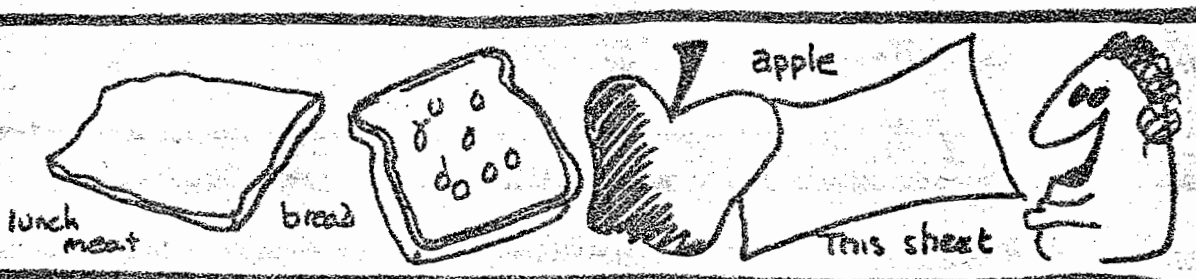
Name _____

Class _____ Box No _____

What else can we find out about a food chain?

Experiment 5

1 Begin With



2 There is this law in Physics. It says that energy can not be created or destroyed It can only be changed from one form of energy to another. Sound can be changed to heat or motion. Stored energy can be used. light can be changed into motion or electricity.

3 How is food, or chemical, energy used by the body?

4 What kind of energy can it be changed into?

5 What happens if we take in more food than we can use?

What must the body do with the extra energy?

Stored energy is called potential energy. Energy you use is called Kinetic energy. Fat is a form, or way, of storing the body's energy

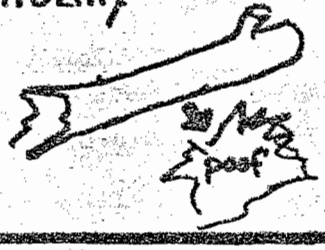
Grambo

6) What might happen to all the energy in an animal when it dies?

7) Rember we said energy can be <u>stored</u>. Millions of years ago plants died and fell. They became <u>coal</u>. We can burn coal to release the plants energy from it.

8) A tree falls in a forest. What happens to it over a few years?

9) Why will the tree eventually disappear?



10) <u>Decomposers</u> are organisms that cause decay in dead organisms.

11) Find a place <u>outside</u> your house which will not be disturbed. Place a piece of cold cuts or lunch meat on the ground. Watch it for a few days.

How is it being affected?

What were the first signs of decay?

12) Try this experiment again with bread and apple pieces.

What kind of consumers did each attract?

Decomposers help put energy and nutrients, things plants need in order to grow back in the ground.

Homework -

1- How are decomposers helpful?

Time for a St

The Ecosystem

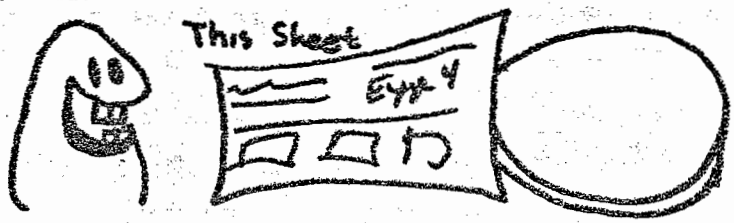
Name _____

Class____ Box No____

How are animals adapted to obtain food?

Experiment 6

1) Begin With

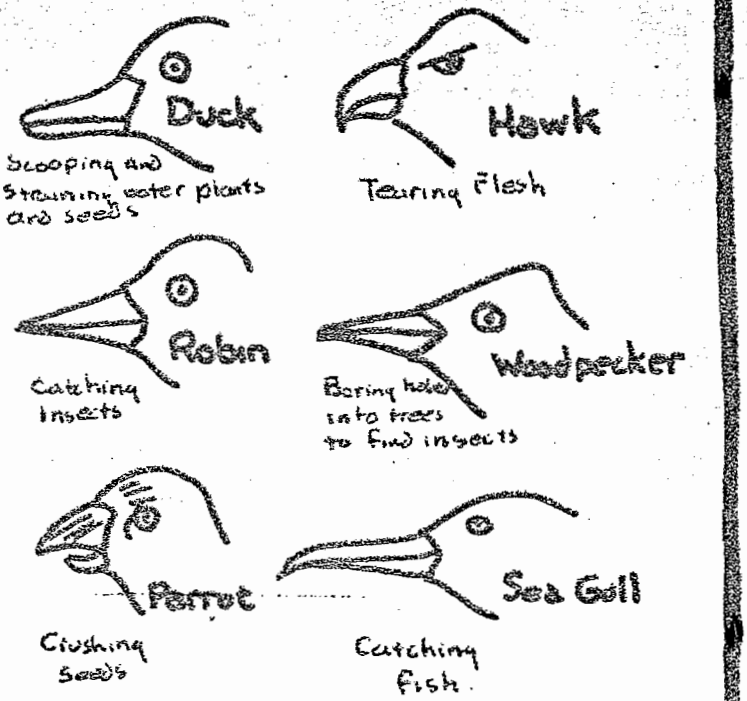


2) How do your hands help you to eat?

3) Why doesn't a dog or cat eat the same way you do?

4) Why are your hands more useful than their paws?

5) Bird beaks



6) Why do the beaks on the right have different shapes?

7) How does the shape of the beak tell us what it eats?

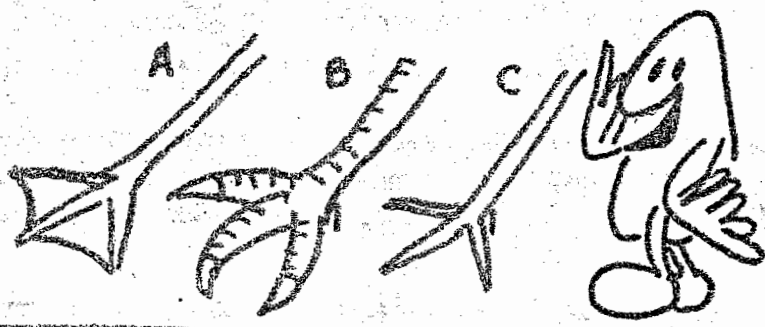
9) Describe how the shape of each beak would help the bird to catch and eat its food.

Other animals use teeth to catch and eat animals and plants

Birds also have special feet

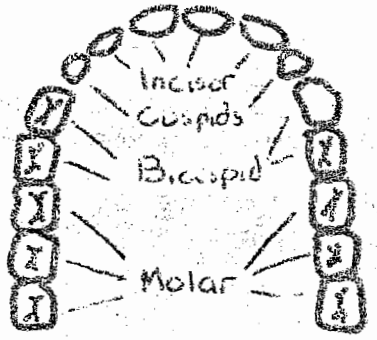
9) Which feet would be good for swimming? Why

Which are good for clutching a small animal? Why

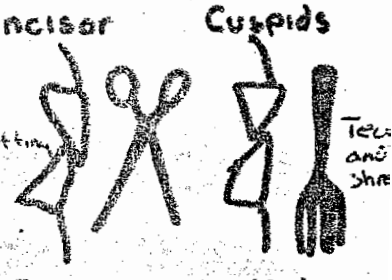


10) Look in your mouth using the mirror. How many different shaped teeth do you have?

11)



Upper dental arch



Cuspids are also called eye teeth

12) Why do cows and horses have alot of molars?

13) What kind of teeth would a lion have?

Why these teeth?

Homework -

1- How does the shape of the beak and teeth tell us what an animal eats?

The Ecosystem

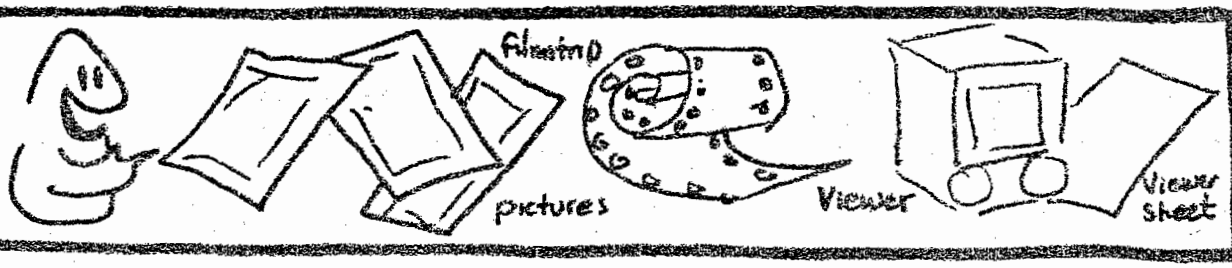
Name _____

Class _____ Box No _____

How are animals adapted to protect themselves?

Experiment 7

1) Begin With



2) look at the butterfly picture. The viceroy butterfly has a very nice taste that birds like. The Monarch on the other hand tastes awful. Why do you think that birds avoid the viceroy butterfly as well as the monarch butterfly ?

3) When one animal looks like another to avoid being eaten we call it Mimicry

4) look at the picture of the snake. How do you think its color helps it stay alive?

5) Blending into the background for protection is called protective coloration.

6) look at the turtle. Why does it pull it's head and legs into the shell when the teacher picks it up?

7) How would building tunnels help protect an animal?

8) Why do some animals like a clam have a hard shell?

Some animals like a squid even give off a blue ink to help protect it.

9) How might a skunk help protect itself?

10) Some animals do not have tricks for protection. They are so mean other animals just run away from them. One is a lion. Can you name 2 others.

11) You will now see a filmstrip at the viewer station. Answ the question sheet for th filmstrip you choose. Call tea if you have trouble. Only 4 people at the viewer.

Homework -

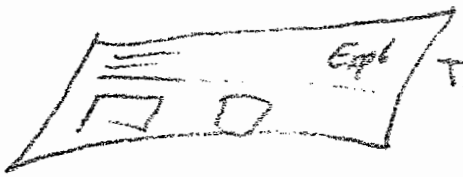
1- What are 4 different way an animal can protect itself Tell how each works

The Ecosystem

Name _____

Class _____ Box No _____

How else are living things adapted to thier environment? Experiment 8

1) Begin With   This sheet

2) Why can't a cow live in the ocean?

3) Why can't a fish (notalungfish) live on land?

4) How has a fish been adapted to a life in the ocean?

5) You are in a jungle and being followed by a lion how can you keep from being eaten?

How can the trees help you?

6) Why do you think monkeys climb trees in the jungle?

7) You are in a desert. What would you need in order to stay alive?

8) How can a camel or cactus survive the desert heat?

9) In a tropical rain forest it is very wet. Why can't a cactus live well there?

10) In a bog, the dirt is so bad plants can't get the food they need from the ground. How can they get the food they need to stay alive?

11) In the winter animals hibernate, trees loose their leaves, and other animals get thick fur. How can these things help keep these animals and plants alive?

Homework —

Pick an animal and describe how it adapt to its environment.

The Ecosystem

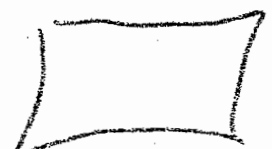
Name _____

Class _____ Box No _____

What are some special relationships among living things?

Experiment 9

1) Begin With



This Sheet

Barnacles

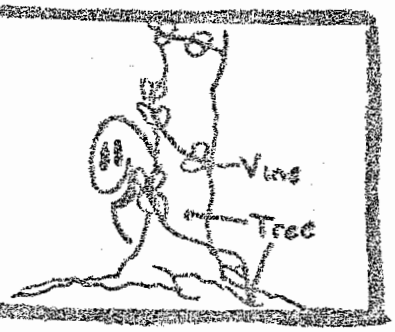
Have you ever had friends who would do favors for you when you did favors for him or her. You probably even had friends who used your work, asked your help but never helped you in return. These things also happen with animals and plants in nature.

2) Why are green plants called producers?

3) Why do green plants need the sun?

4) In a forest vines climb trees.

How do the trees help the vines?



5) Do the vines help the trees? Why or why not?

6. This type of relationship is called Commensalism. This is when one organism is helped and the other is not harmed.

7. lets look at two insects ants and aphids. Aphids produce a sweet juice called honeydew. Ants eat the extra juice aphids produce. Ants protect the aphids in return. They carry aphids in and out of their tunnels so they won't freeze in the winter.

8. In this relationship how are the ants helped?

9. How are the aphids helped?

Mutalism is a relationship between organisms where both organisms are helped

10. Look at the barnicles on the teachers desk. Barnicles need moving water to pass over them, so the can eat. They attach themselves to boats. How does the boat help them?

Do they help the boat?

Is this mutualism or commensalism?

Homework -

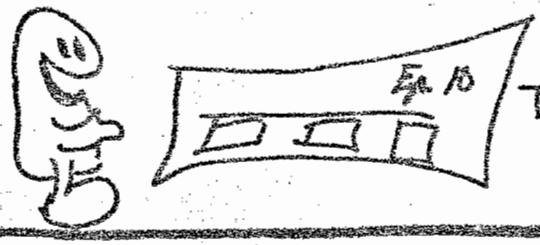
1. What is another example of mutualism and commensali

The Ecosystem

Name _____
Class ____ Box No ____

What are hosts and parasites?

Experiment 10

1) Begin With  This Sheet

2) A dog can live in an environment like a house or a yard.
How can a dog <u>act</u> as an environment?

3) Why would this dog scratch alot?


4) An organism like a flea, or tick sinks its mouth parts into a dog and sucks blood.

Flea
Disease and infection can spread to the dog from the blood of other animals, that the insect carries.

5) How does the dog help the flea?

6) How does the flea affect the dog?

Grambo

7) An organism that feeds on another living organism is a parasite. The organism on which it feeds is called a host.

8) Which is the parasite, th dog or the flea?

How do you know this?

9) How is this relationship similar to commensalism?

10) How is it different from commensalism?

11) Other forms of parasitism are tapeworms feeding from the intestines of animals; or micro organism feeding off of hosts, causing hosts to get malaria and sleeping sickness.

12) Why are parasites dangerous?

13) How can we get rid of parasites like fleas?

Homework—

1- What is a host?

2- Name three parasites which live on or in another organism?

time for a

appendix

The Ecosystem

Name _____

Class ___ Box No _____

Quiz - Experiments 1-5

1- What is an ecosystem?

2- How is an ecosystem different from a community?

3- Why are people called consumers?

4- How is a herbivore different from a carnivore?

5- Why are green plants called producers?

6- What is a food chain? What is a food web?

7- How is energy transfered through a food chain?

8- What are decomposers? Why are they important to food chains?

The Ecosystem

Name _____

Class ____ Box No _____

Quiz - Experiments 6-10

1- What does a <u>birds beak</u> tell you about what it eats?

2- In a set of teeth, what are <u>Incisors</u> used for?

3- What is <u>Mimicry</u>? Why do animals do this?

4- Why do some animals <u>change color</u>?

5- Name an animal or plant. Tell how it is <u>adapted to its environment</u>.

6- What is <u>mutualism</u> and <u>commensalism</u>?

7- How is commensalism different from <u>parasitism</u>?

The Ecosystem

Materials List

Your group is responsible for all materials in your box. Keep them neat and clean. Report missing materials to your teacher.

Crayons

Food Bits (from home)

mirror

Filmstrip and Viewer (at station A)

Barnicles

Assorted Pictures

Viceroy and Monarch butterfly

Sidewinder snake

Assorted Ecosystems (in fish tanks)

The Ecosystem

Materials List

Your group is responsible for all materials in your box. Keep them neat and clean. Report missing materials to your teacher.

Crayons

Food Bits (from home)

mirror

Filmstrip and Viewer (at station A)

Barnicles

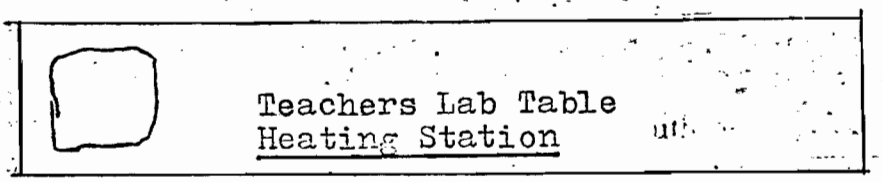
Assorted Pictures

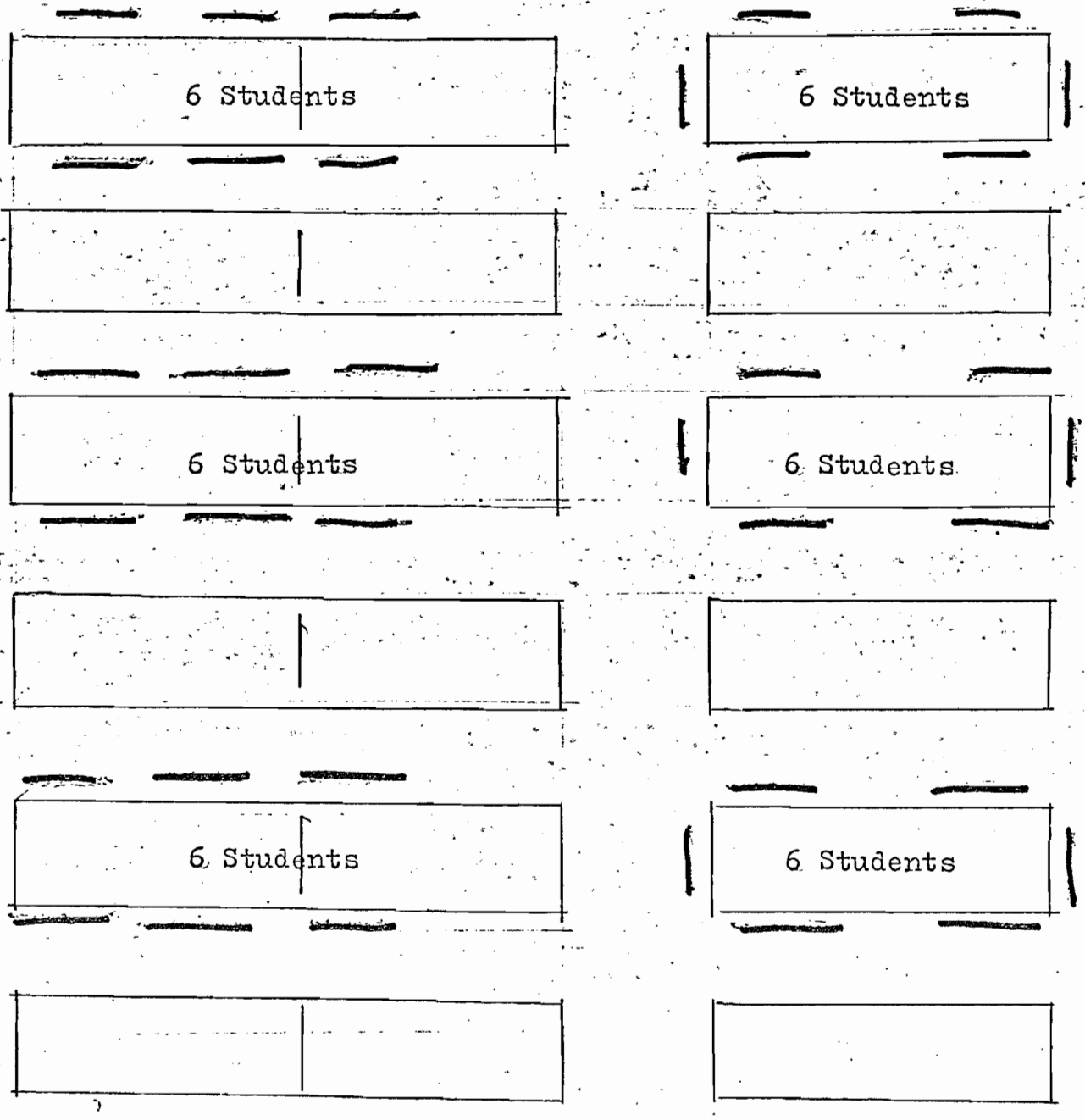
Viceroy and Monarch butterfly

Sidewinder snake

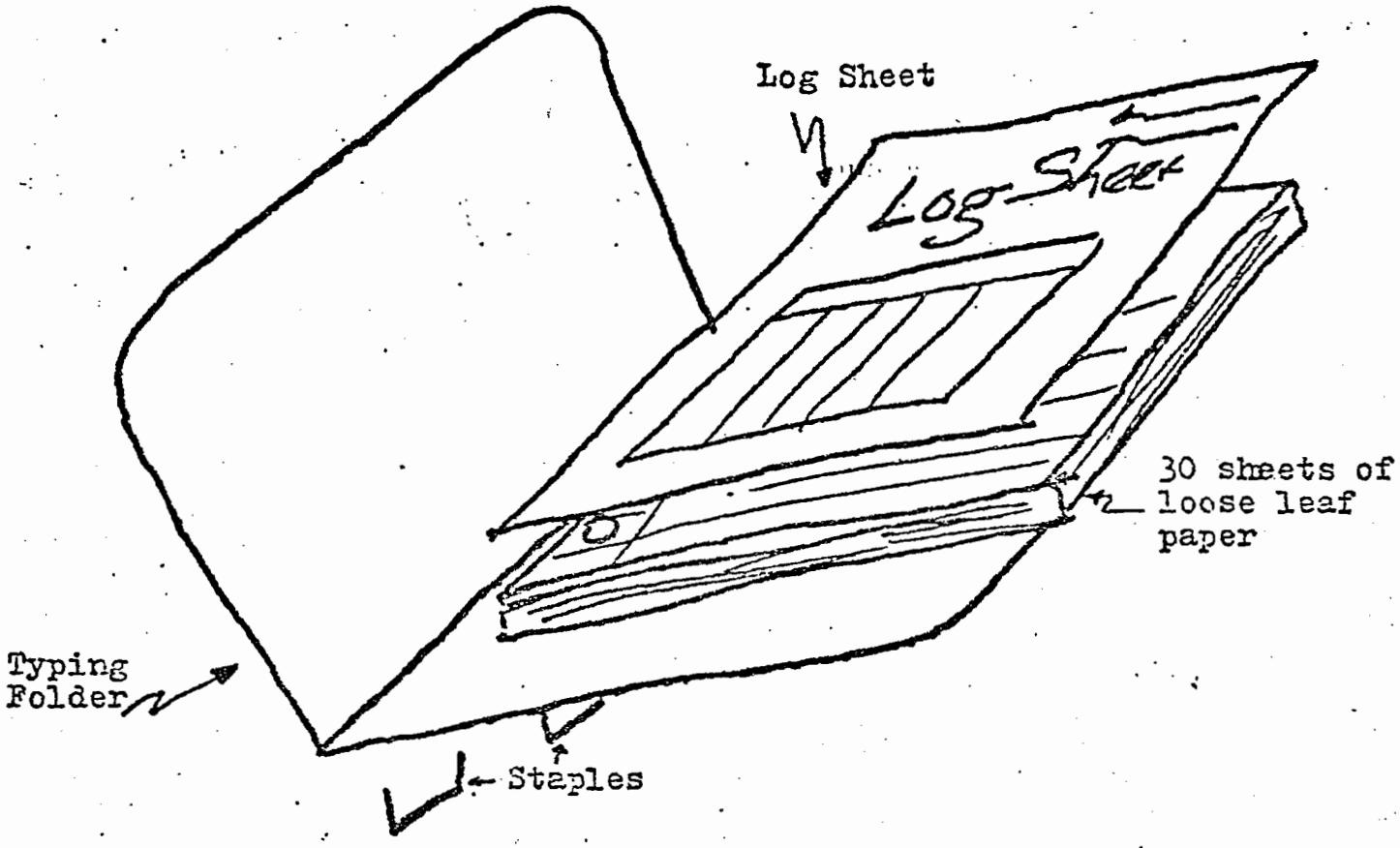
Assorted ecosystems (in fish tank)

How to Set Up Room For Group Work





How To Set Up A Log Book



Bind 30 sheets of paper along with the log sheet into a typing filder. Staple folder closed so papers will not fall out. Place students name and class at the top of the folder. Students may wish to decorate their folders. Pass out folders at the beginning of the period. and collect them at the end. Store folders in a milk crate of in a box. Students will write a summary of each days experiment into the log book. Periodically check log books.

Name _____

Class _____

Science Log Book

Dates From	To	Pages	Teacher's Comments	Checked By