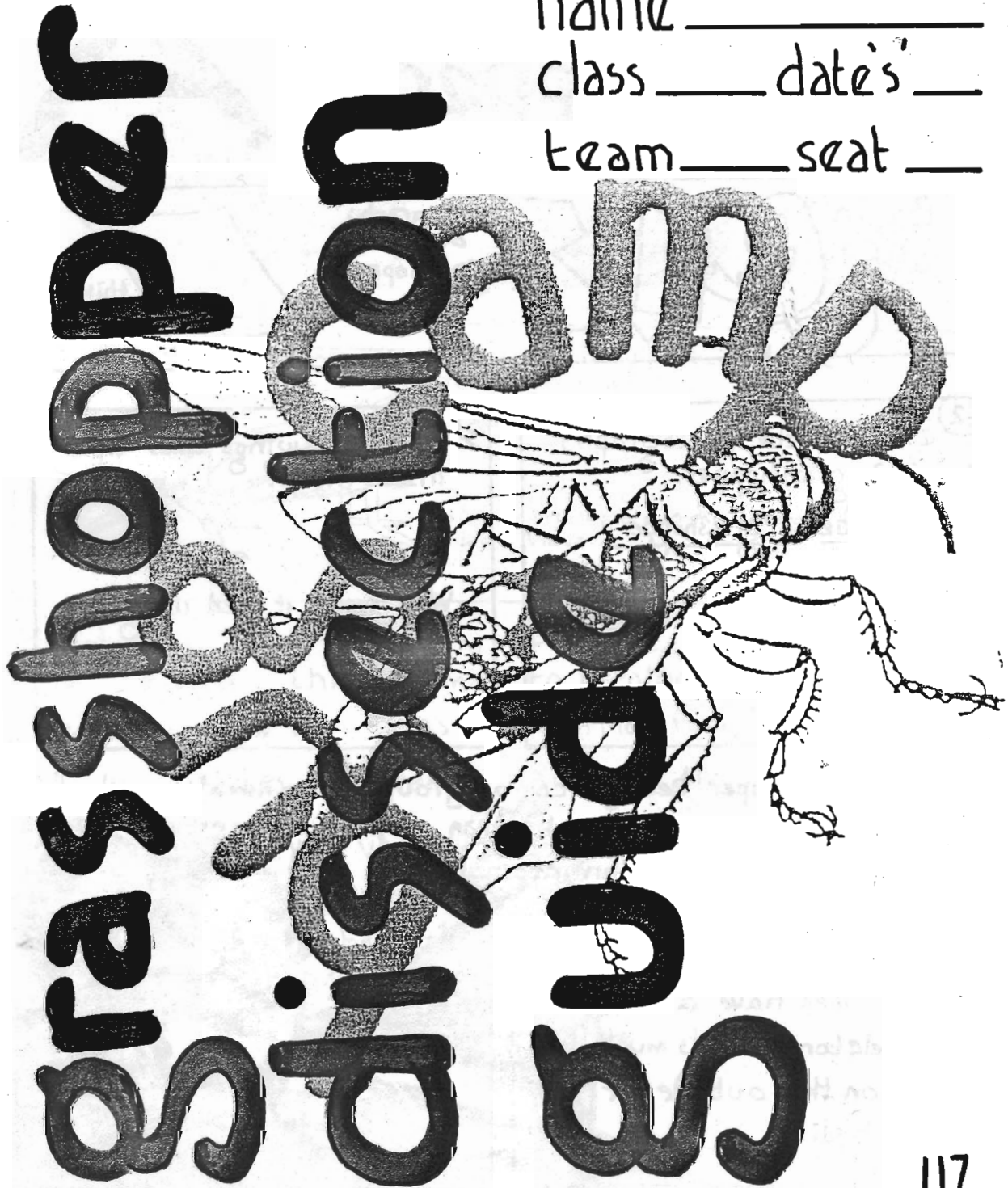


name _____



class _____ date's _____

team _____ seat _____



What is a grasshopper?

A

1) Begin with  photographs of grasshoppers  this sheet.

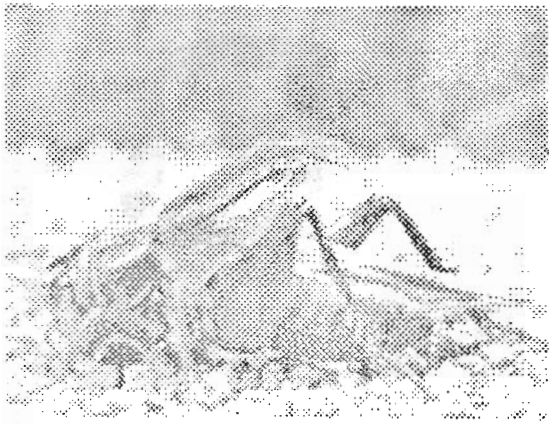
2) examine the photographs of a grasshopper.
Describe a grasshopper

3) How many wings does this insect have?

Why would it need wings?

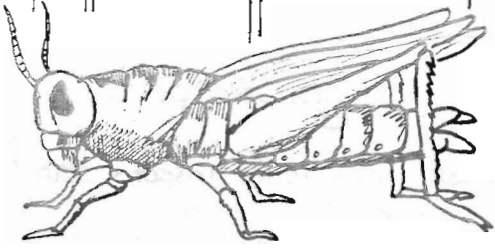
The grasshopper belongs to a group of animals called insects. There are more insects than any other any other animal. Insects do not have an internal skeleton, as we do, to support our weight. Instead they have a hard exo-skeleton. It feels much like a shell on the outside of their bodies





4

head	thorax	abdomen
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How many body sections does a grasshopper have?

How many legs do this (and all insects) have?

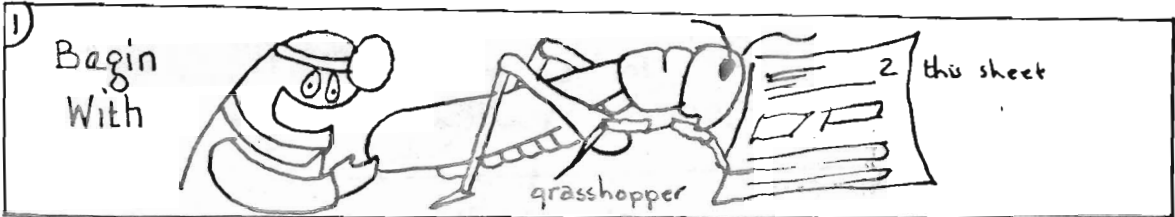
Grasshoppers have a system of tracheal tubes that enable this animal to breathe air. Their ability to fly helps them find food. They live in patches of weeds and in grasslands. They eat leafy vegetation.

5) How would the grasshoppers coloring help it in the grasslands where it lives?

6) Do you think insects have blood? Why or Why not?

What does a grasshopper look like?

B



2) look at the grasshopper
It has two sides. One is the back or Dorsal side. The other is the chest or Ventral side of the insect.

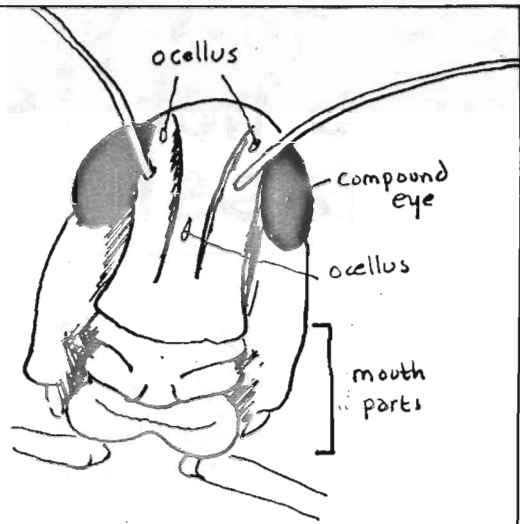
3) Touch the grasshopper
In what ways is the insect's skin different from yours?

4) How is the dorsal side of the grasshopper different from the ventral side?

5) Make a drawing of the grasshopper

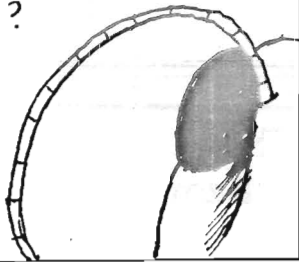
6) The head has a thin pair of jointed antennae
There are two large compound eyes and three simple eyes called ocelli

The grasshopper can chew food. Look at and describe the mouth parts.



(you can draw if you want)

7) Why do you think grasshoppers have antenna?



8) Why do you think they need so many legs?

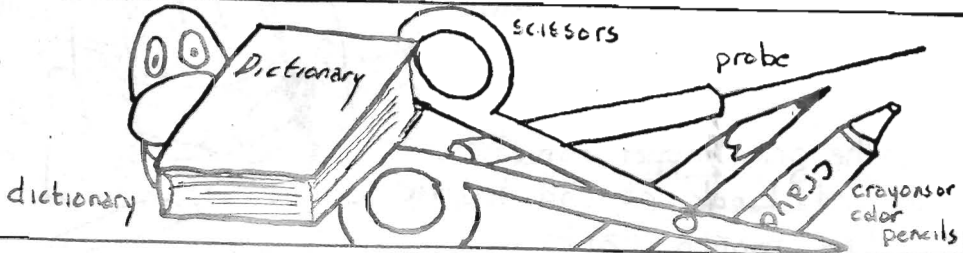


9) In what ways* (at least 5) is a grasshopper different from a human?

how can you find out what is inside a grasshopper?

C

1) Begin with



2) We have explored the outside of a grasshopper's body. How can we find out what is inside the grasshopper's body?

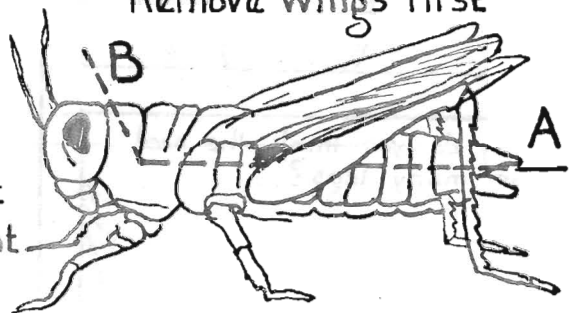
3) define (look in a dictionary)

dissecting



4) Place grasshopper on a tray. Since the exo-skeleton is so hard it must be removed. Cut a hole in the skin with a sharp scissor at point A. cut along the dotted line to point B towards the head

note:
Remove wings first



5) remove the top (dorsal wall) of the grasshoppers body. look inside first.

look around inside the animal using your probe.

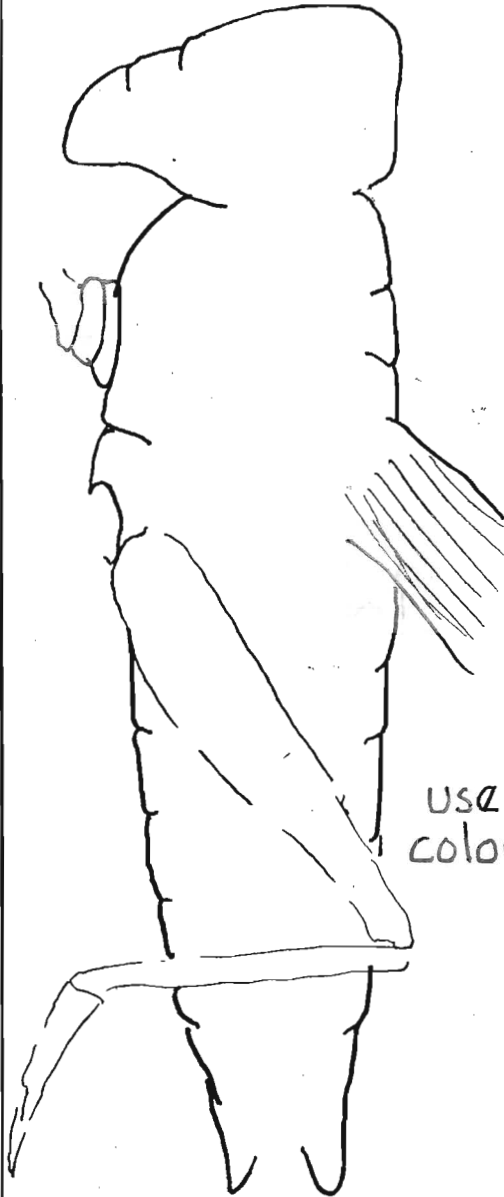


7) How did you find out what is inside of the grasshopper?

8) Why are there no bones?



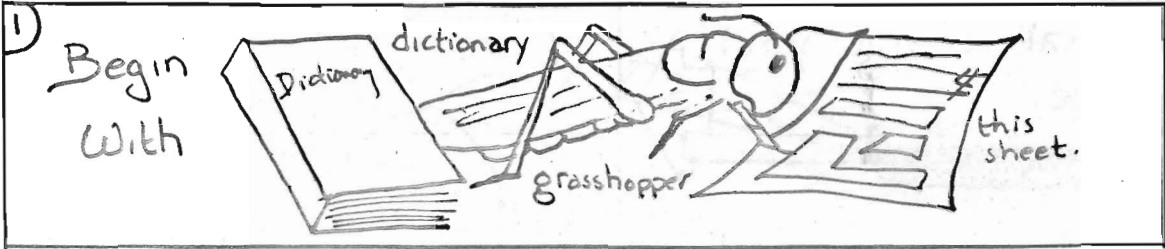
6) draw what you see inside the animal



USE
color

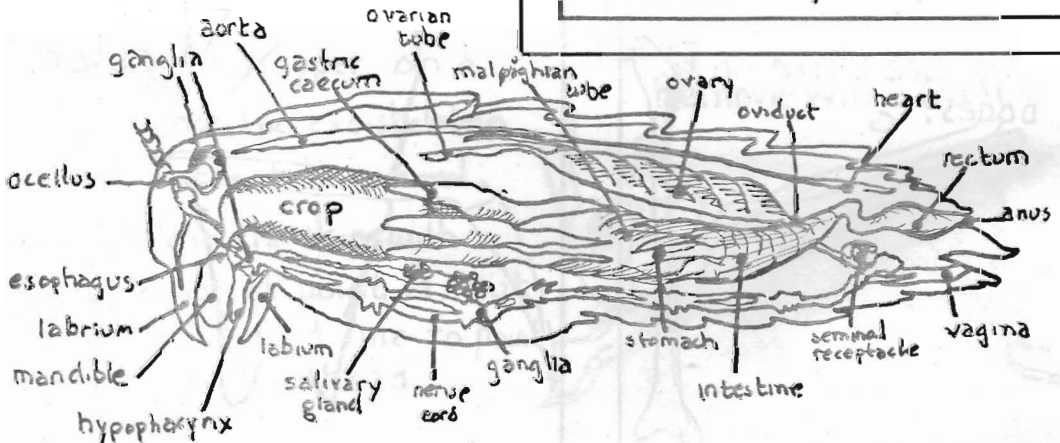
What is inside a grasshopper?

D



2) Since the ex-skeleton is so hard the preservative liquid does not always keep the internal organs in good shape. Inside the animal you should see:

3) There are many systems operating inside the insect. The digestive system, excretory system, circulatory system, reproductive system, respiratory system and nervous system.



4) Notice that there are muscles on the inside of the body wall. What do you think their function is?

5) At the anterior end is the mouth which opens between the mandibles and continues through a short esophagus into the crop. This is followed by the stomach.

6) Attached to the stomach are six finger shaped digestive glands. They produce enzymes.

What is an enzyme?

look this up.

7) The digestive system continues as the intestines widen finally reaching the anus.

Draw a picture of the digestive system

8) Tell about the systems of this insect that kept it alive.

OVERVIEW

The head has one pair of slender, jointed antennae, two compound eyes, and three simple eyes or ocelli. The mouth parts are of the chewing type and include: 1) a broad upper lip or labrum; 2) a tongue-like hypopharynx; 3) two heavy blackish lateral jaws or mandibles, each with teeth along the inner lateral margin for chewing food; 4) a pair of maxillae of several parts including palps (sensory appendages) at the side; and 5) a broad lower lip or labium, with two short palps.

what did you Learn because you did this dissecting activity?

mouth parts of the grasshopper



MANDIBLE



MAXILLARY PALP

MAXILLA

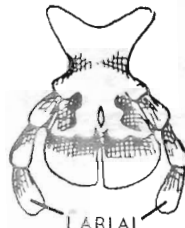


CLYPEUS

LABRUM



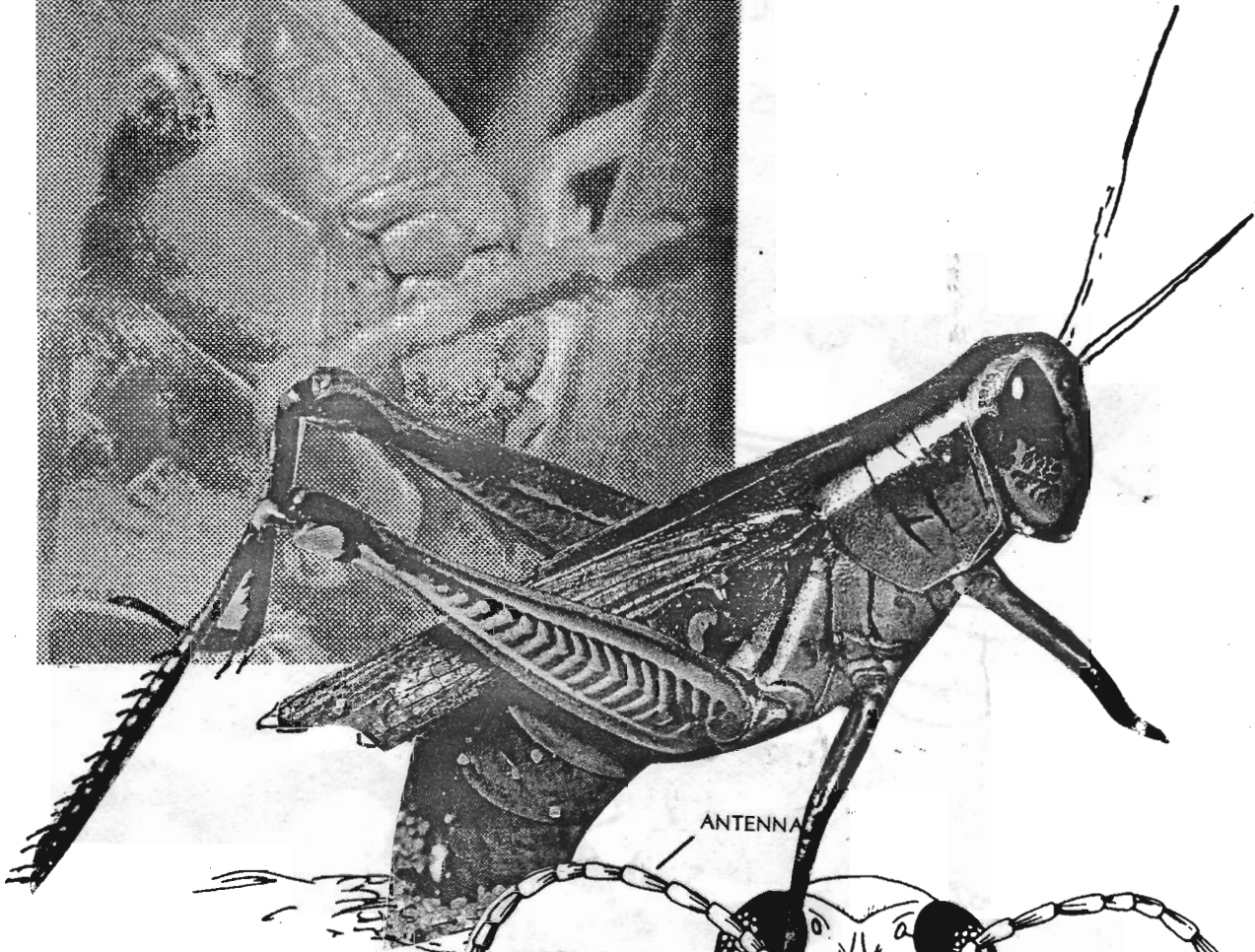
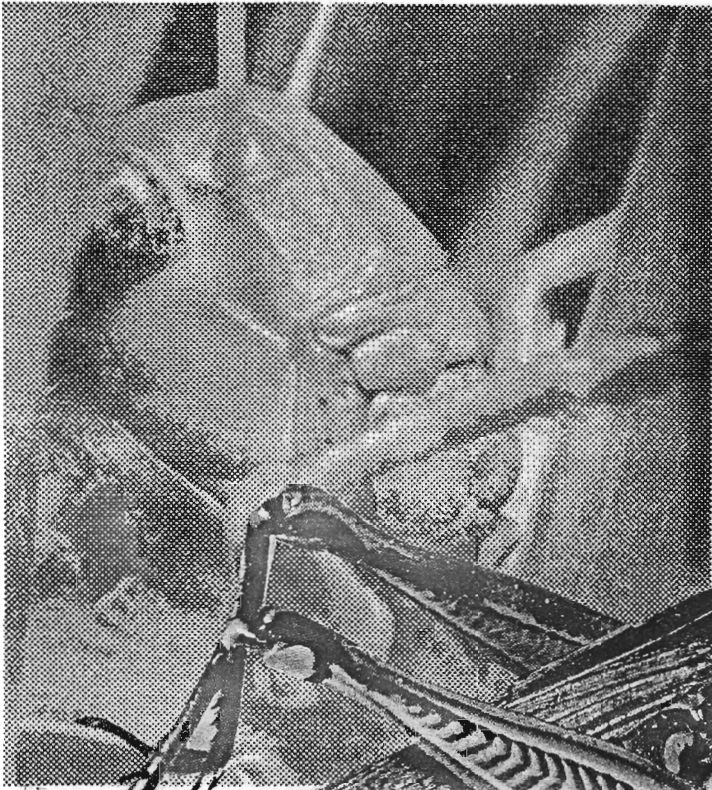
HYPOPHARYNX



LABIAL PALP

LABIUM





ANTENNA

COMPOUND
EYE

OCELLUS

SIMPLE EYE
(OCELLUS)

CLYPEUS

MANDIBLE

LABRUM

LABIUM

MAXILLARY PALP

LABIAL PALP

How the
grasshopper
eats