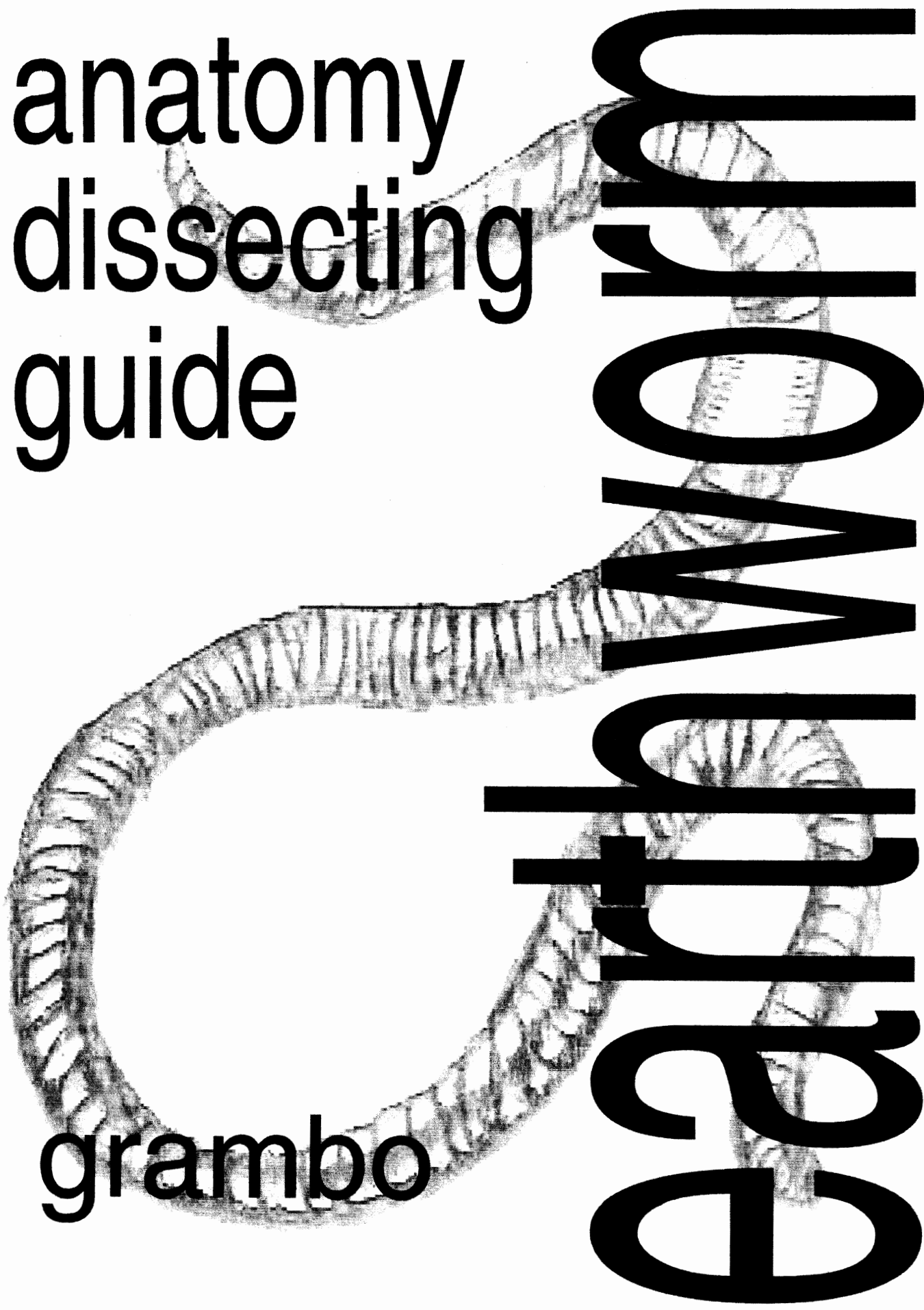


**anatomy
dissecting
guide**

anatomy

grambo



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A- Hands-On Dissection Guide To The Earthworm

B- This is a hands on dissection unit intended for use in the middle school. It can, however, be modified for use in lower or upper grades. While this unit is intended to be used with a real earthworm, a computer program simulation can be substituted.

C- Students will work cooperatively to conduct scientific investigations that will help them solve a scientific problem using a variety of inquiry skills including observing, predicting and testing solutions. Students will communicate their experiences through their student worksheets and in class presentations.

D- Materials include- earthworm (or computer simulation), scissors, tweezers, probe, zipper style gallon bags, work tray, labels, marker, lab sheets.

E- Each experiment in this unit will require one class period (approx 45 min) to complete. The entire unit requires one week.

F- There are five Hands-on experiments, A practice earthworm dissection sheet and a quiz. Since the experiments will require more than one weeks time, the teacher may wish to place the clams onto styrofoam or cardboard meat or lunch trays and then place these items into gallon size zipper seal bags. The students names and classes can be written onto labels placed on the outside of the bags. Bags can then be stored for later use. Students should work in cooperative groups of three or four, with each child having a job such as experimenter, supply gatherer, recorder, presenter, reader, etc. I have found that students in my middle school classroom can do these experiments without the use of a scalpel or knife; they need only a pair of scissors, a tweezer and a probe which is a stick that has a pin attached.

G- Since the children will be using sharp instruments, it is important to go over the proper use of these instruments.

H- Teachers should send a note home to parents explaining the upcoming unit. It is important to explain that the children will be sharing equipment and earthworms. It is also important to explain the need for dissection and how it will help the children understand physiological processes that go on inside their own bodies.

I- Questions for students are on the worksheets.

J- Assessment- After collection and review, the student worksheets should be graded from one to ten, ten being the highest grade. During lab time, question the students to see if they understand the material being presented to them. See if the students are engaged in the activity and if they are working cooperatively. Finally, after students finish with the unit test, have the students write in their lab notebooks their ideas on the dissection process.

K- References- This work was completely designed by Mr. Grambo, hence there are no outside references.

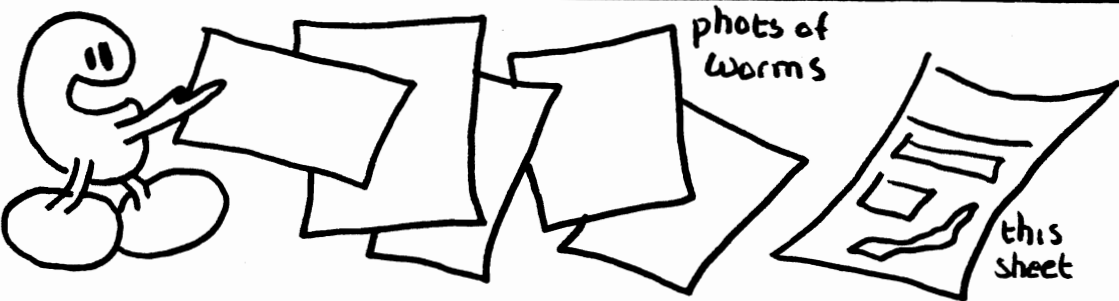
anatomy
worm dissection
experiment 1

name _____
class _____ group no _____

problem - What is an earthworm?

1

1) Begin with



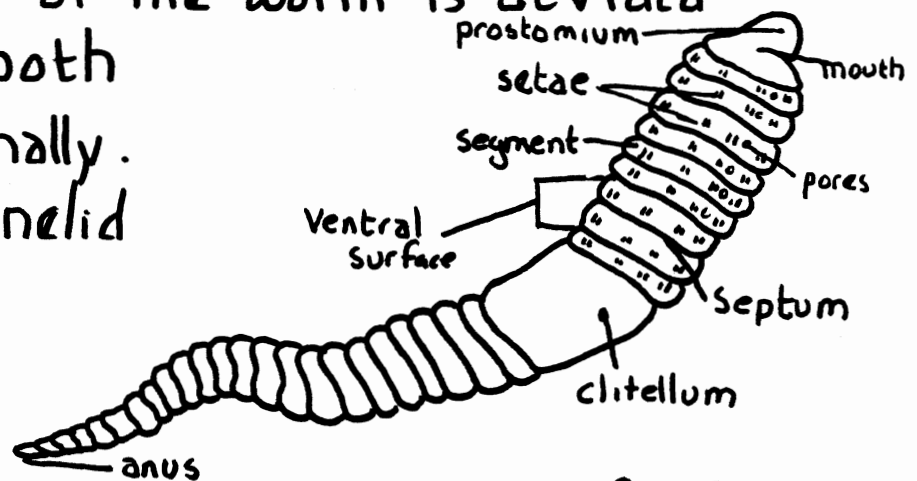
photos of worms

this sheet

2) Describe the worm from the photographs

3) How can an animal without legs move?

The earthworm is an animal that does not have any bones and the body of the worm is divided up into segments both internally and externally. The worm is an annelid meaning segmented



4) Draw a picture of your worm.

The earthworm looks for food at night. For this reason we sometimes call it a night crawler. The head end of the worm extends out of a tunnel which the animal makes by eating through the soil. The head out of the tunnel looks for decaying leaves and animal parts

5) In what way would the worm's tunnels be good for the soil?

Homework-

1- How many segments does your worm have?

6) Decomposers break down leaves and dead animals creating soil.

Why can you consider a worm a decomposer?

2- Name two types of worm?

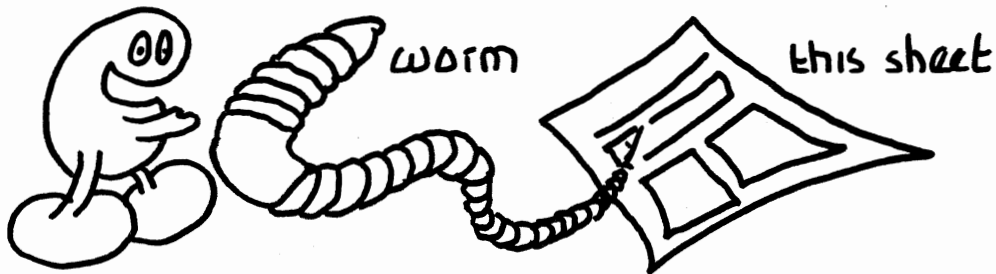
anatomy
worm dissection
experiment 2

name _____
class _____ group no _____

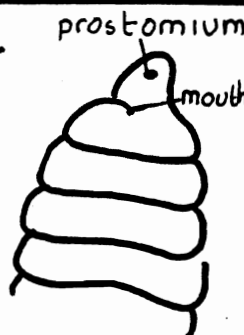
problem - What does an earthworm
look like?

2

1) Begin
with



2) Worms have a back or dorsal side and a chest side or ventral side. In a living worm the ventral side is lighter in color than the dorsal side is. If you are using a preserved worm the color may have changed. Look to see which side the prostomium extends from, this will be the dorsal side.



3) In what way(s) is the dorsal side of the worm different from the ventral side?

4) Touch the worm

How does the worm's skin feel?

5) There is a small piece of skin that projects over the mouth called the prostomium. This is not another section of the worm. This is the anterior end of the worm.
Describe the mouth

6) The anus, which is the opening at the end of the digestive tract, is found at the posterior end of the worm.



7) lightly rub the ventral surface from the posterior end of the worm towards the head or anterior end.



8) Describe what you feel?

Homework-

1- Does each segment have setae?

2- How many setae are on a segment?

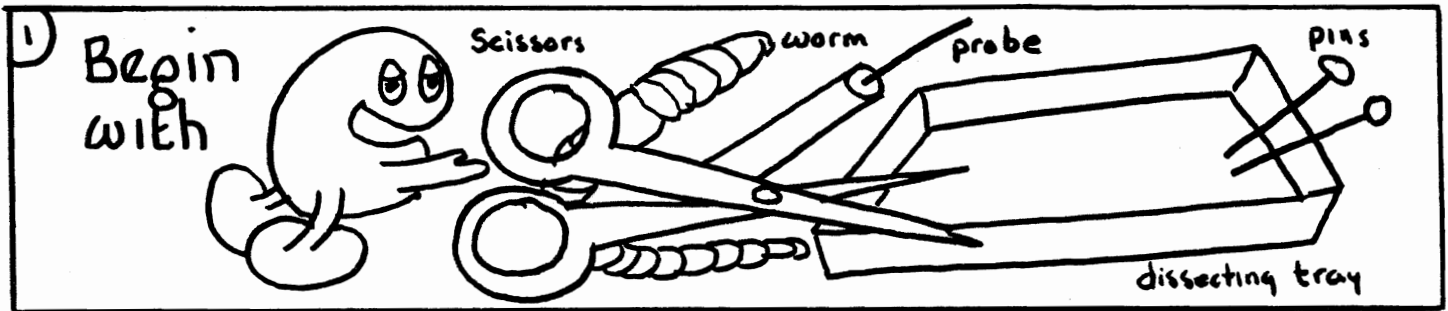
These bristles are called setae - worms use these setae to move.

anatomy
worm dissection
experiment

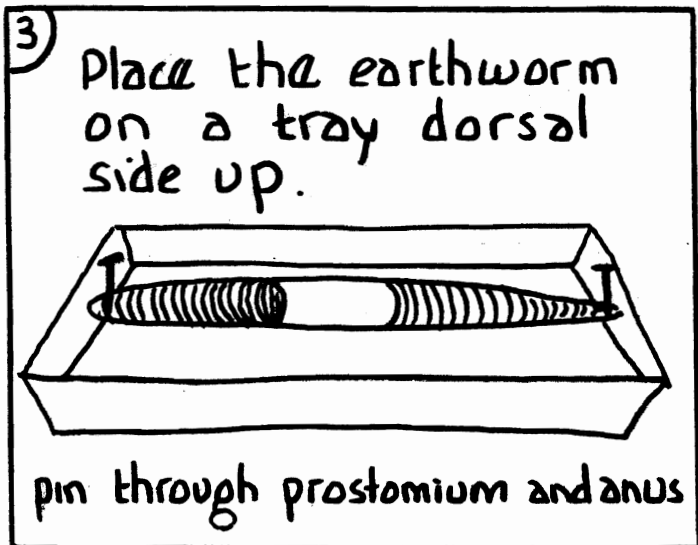
name _____
class _____ group no _____

problem- How can we find out what
is inside an earthworm?

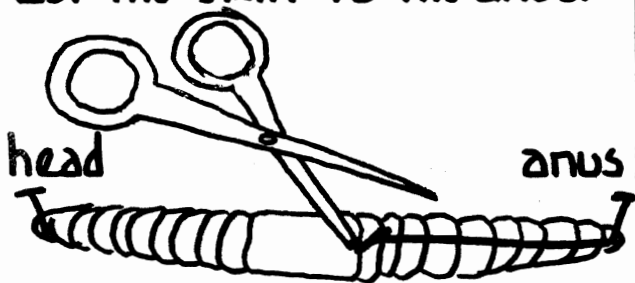
3



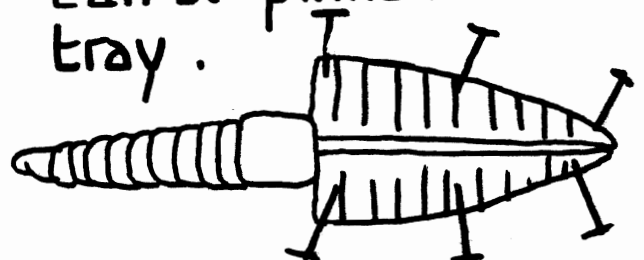
2) We have explored the
outside of an earthworm
Now can we find out
what is inside the
worm?



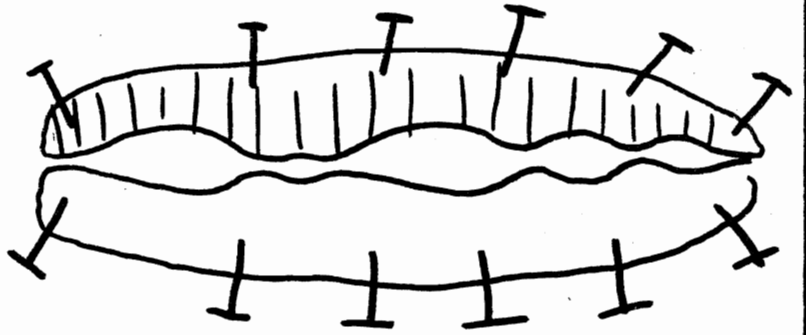
4) lift the dorsal skin with
the tweezers. Cut a
slit and insert the scissors.
Cut the skin to the anus.



5) Cut through the septa on
both sides of the intestine.
to loosen the skin so it
can be pinned to the
tray.



6) Now cut through the clitellum skin and go towards the postamium. Cut through the septa so all the skin can be peeled back and pinned

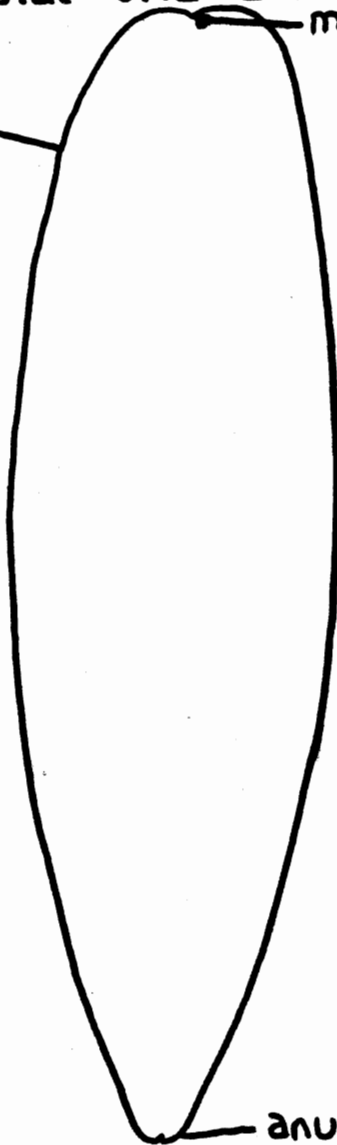


Look around using your probe



7) Draw what you see inside the animal

skin



anus

Homework-

1- How can you find out what is inside an animal?

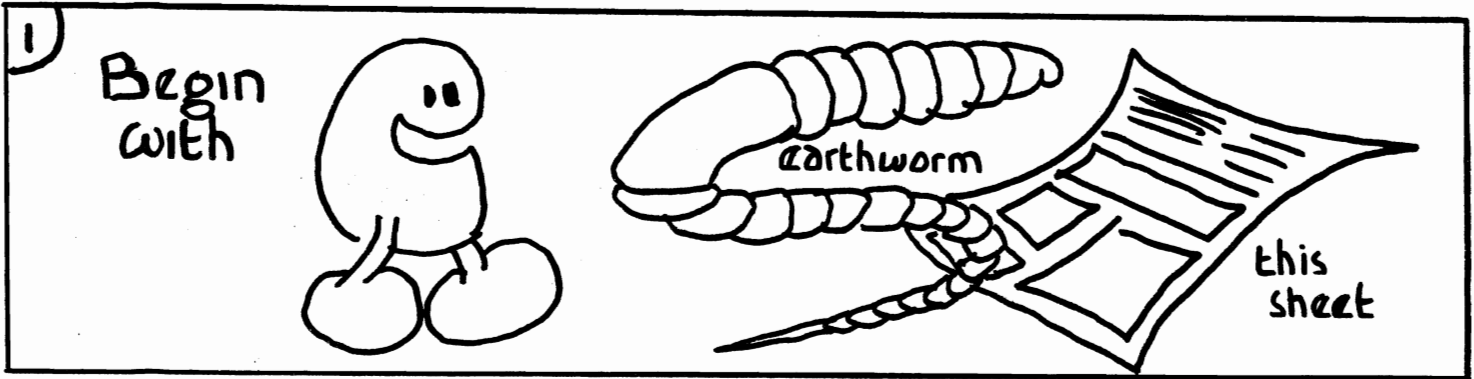
2- Why do you pin back the skin during your dissection?

anatomy
worm dissection
experiment 4

name _____
class _____ group no _____

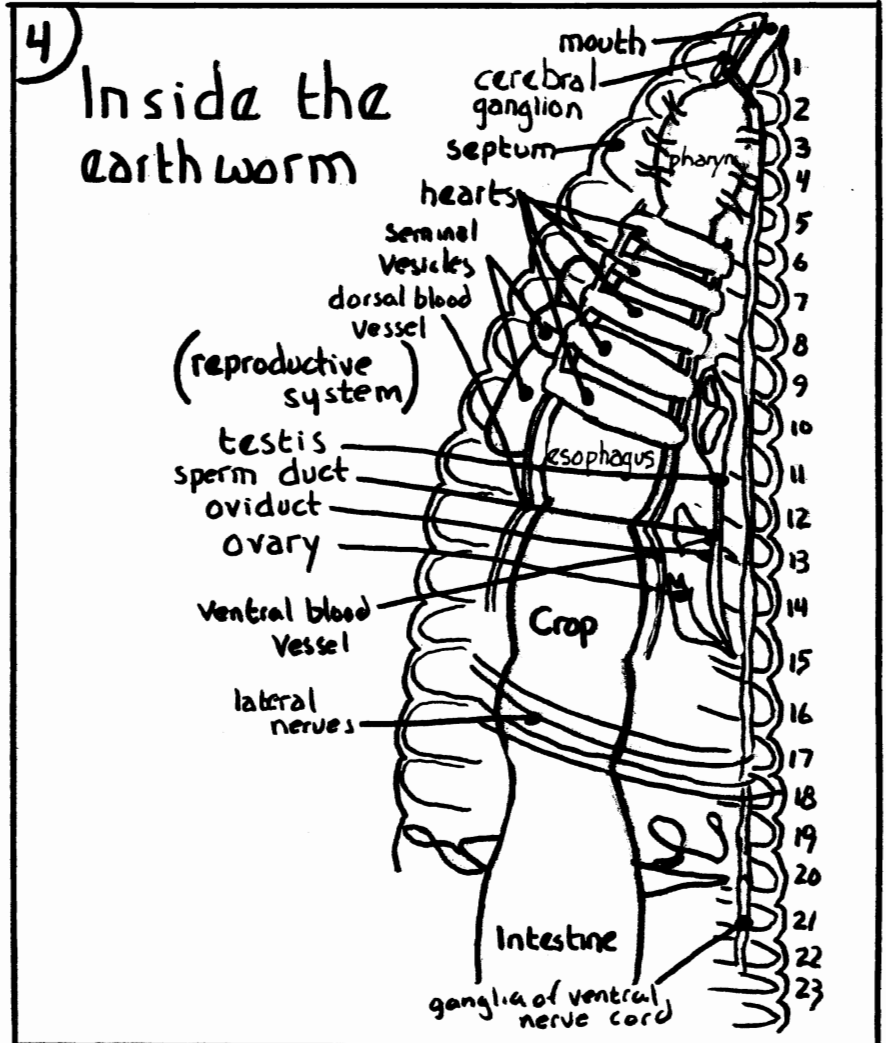
problem- What is inside an earthworm?

4



2) There are many systems operating inside the worm. Among them are the digestive system, nervous system, circulatory system, and reproductive system

3) How does the worm get support without a skeleton?



5) Food taken into the mouth passes through the pharynx through the oesophagus and into the crop.

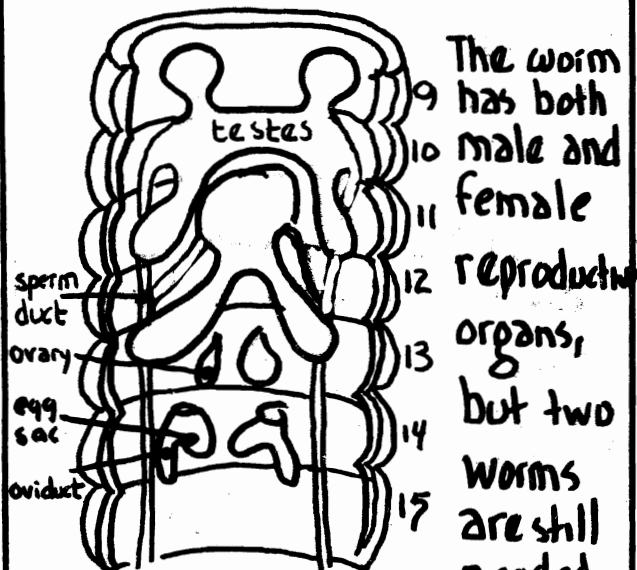
6) Food is temporarily stored in the crop. The food then moves to the gizzard. Food with the help of soil pieces is ground up and passed to the intestine.

7) What organ inside you acts like the gizzard in the worm?

8) How many hearts do you see inside the worm?

What segments are they in?

9) Look at the reproductive system located under the intestine.



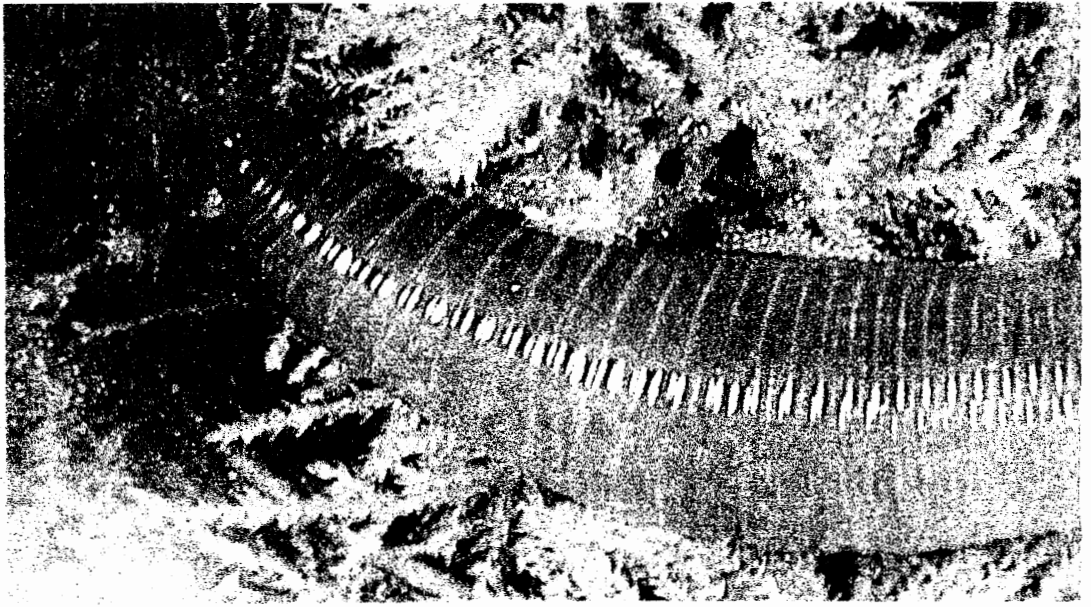
The worm has both male and female reproductive organs, but two worms are still needed

for cross fertilization during copulation.

Homework -

1- Describe the gizzard

2- In what way does the gizzard act like a stomach?



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