

Name: _____ Core: _____

Life on Earth

Use pages 21 – 23 in Diversity of Life text to complete the packet.

I. What is Life?

1. Organisms

a. Definition: an individual living thing

2. Dead

a. Definition: no longer alive

b. Something can only be dead if it once lived.

c. Something, like a rock, that was never alive is described as nonliving.

3. Living organisms can be described in terms of two sets of characteristics:

a. needs or requirements that all organisms have to satisfy to stay alive.

b. functions that the organisms do.

II. What do living organisms NEED?

1. gas exchange:

a. The process of moving gases into and out of your body

i. The most common gases involved are Oxygen & carbon dioxide

2. Water

a. Water is essential for life as we know it on Earth

3. Use Energy

a. Energy is required to make things happen

4. Eliminate Waste

a. The process of living produces wastes that are of no use to the organism

b. Many by-products are dangerous to the organism if they are allowed to build up.

c. Wastes may be gases, liquids or solids

III. What do organisms DO?

1. Respond to the environment.

a. When things happen in the environment, organisms respond.

2. Grow

a. When an organism starts life, they are small. As time passes they get bigger.

b. Increase in size

c. Chemical building blocks for growth come from food and from the environment in the form of minerals.

3. Reproduce

a. To make sure the species does not become extinct, living things need to make new organisms of their kind.

IV. How are all living organisms organized?

1. All living organisms are made of cells.
- a. One cell: unicellular
- b. Two or more cells: multicellular

Seeds and Roots

Use pages 31 – 34 in Diversity of Life text to complete the packet.

- I. Seeds are living organisms.
Seeds are living organisms in a dormant or inactive stage.

1. The seed coat is the outside of the seed.
 - a. Tough
 - b. Almost airtight
2. Embryo is inside. Alive because
 - a. Cells are fill with water
 - b. Cells are exchanging gases
 - c. Consuming energy
 - d. Expelling waste
3. Cotyledon is inside
 - a. Energy supply in the form of starch

II. Dormancy

1. Some seeds remain dormant for only a few months.
2. Others can remain dormant for many years.
 - a. Why is long dormancy a useful trait if the plan lives in a region that has little rain?

Seeds can rest on the ground without sprouting. When it finally rains, they will sprout.

- b. How do pine trees use dormancy to survive?

Some pine trees have two types of seeds. One type sprouts under normal conditions. The other kind only sprouts if exposed to high heat, such as a forest fire.

III. Plant Processes and Systems

1. The start of growth and development of a seed is germination.
 - a. It is initiated by water.
 - b. What is water's role in germination?
2. The first structure to emerge from the seed is the root.
 - a. The cells on the outside develop thin hairlike fingers: root hairs
 - i. Function is to absorb water
 - b. The root is programmed to grow downward.
 - c. This growth required a lot of energy.
 - i. starch from the cotyledon provides energy during the early stages of growth.
 - ii. What happens to the cotyledons as the plant continues to grow?
withers and drops off

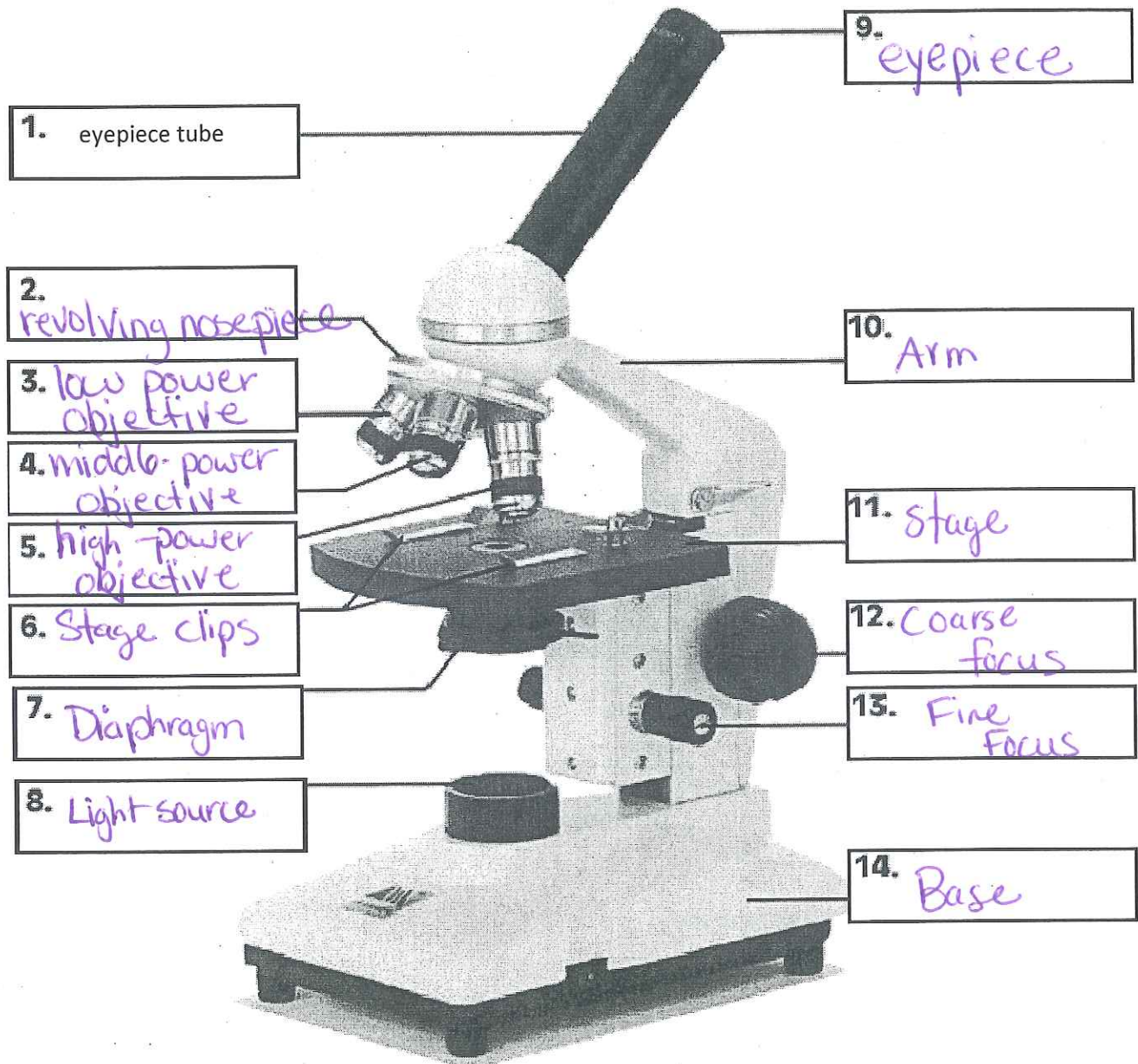
IV. Adaptations of Plants

1. What adaptations do the roots of the following plants have? What is the structure and what is the function?

Structure	Function
Desert plant roots: shallow roots that spread out widely just below the surface	<u>captures any rainfall or moisture that soaks into the top few centimeters of soil.</u>
Redwood tree roots: roots that seldom go more than 3 or 4 meters deep but intertwine with those of other redwoods	<u>the roots lock together with others and support them</u>
Banyan trees (and corn) have prop roots at the base of the stalk	<u>braces the stalk and keeps it upright</u>
Radish, Carrot, or Turnip roots	<u>store large amounts of food in the form of starch</u>

Parts of a Compound Microscope

Label the parts of the compound microscope. Use section 049 of your Sciencesaurus for help.



Measurement

- be able to measure items in mm & cm

Complete the table with the name of the function of the part described. Use section 049 of your Sciencesaurus for help.

1	eyepiece tube	connects the eyepiece to the objective lens
2	revolving nosepiece	holds and turns the objective lenses into viewing position
3	low-power objective (4x)	contains a low-power magnifying lens (4x)
4	middle-power objective (10x)	contains a middle-power magnifying lens (10x)
5	high-power objective (40x)	contains a high-power magnifying lens (40x)
6	stage clips	holds the microscope slide in place.
7	diaphragm	controls the amount of light that enters the microscope
8	light source (mirror or electric lightbulb)	shines light through the object being viewed and into the microscope
9	eyepiece	contains the magnifying lens you look through (10x)
10	arm	supports the body tube
11	stage	supports the microscope slide
12	coarse adjust/focus	focuses the image under low power
13	fine adjust/focus	sharpens the image under low and high power
14	base	supports the microscope