Biology

Chapter 1

INTRODUCTION TO BIOLOGY

1. Biology is _____

2. Properties of life are _____

_____

3. 7 properties of life:

   A. _____ B. _____

   C. _____ D. _____

   E. _____ F. _____

   G. _____

4. A unifying theme is _____

_____

5. 7 Unifying themes of Biology

   A. _____ B. _____

   C. _____ D. _____

   E. _____ F. _____

   G. _____

6. **Theme 1: Cellular Structure and function**

   A. _____ are the smallest unit that can perform all of life's _____

B. All organisms are composed of _____

C. Cellular structures are:

a. _____ in most organisms

b. Highly _____

c. Surrounded by a covering called a _____

7. Theme 2: REPRODUCTION

A. Reproduction is _____

_____

B. How organisms reproduce _____ greatly but the importance in all organisms is _____

8. Theme 3: Metabolism

A. Metabolism is _____

_____

B. Examples of metabolism:

1. _____

2. _____

9. Theme 4: Homeostasis

A. Homeostasis is the process of keeping _____ conditions stable despite the changing _____ Environments

B. Examples of homeostasis:

a. _____

b. _____

c. _____

10. **Theme 5: Heredity**

A. Heredity is _____

_____

B. Traits are passed to offspring through _____ which are segments of _____ that control a trait

C. A change in DNA of a gene is called a _____

D. The mutation may aid or hinder _____.

11. **Theme 6: Evolution**

A. Evolution is a change in the inherited traits of a _____ over many _____.

B. _____ don't evolve _____ do.

C. A species is _____

_____

D. The process by which evolution occurs is _____

E. Natural selection is _____

_____

(survival of the fittest)

12. **Theme 7: Interdependence**

A. A community is _____

B. Members of a community are interdependent meaning

_____

C. Example of interdependence

_____

D. Branch of Biology deals with interdependence is _____

TOOLS OF BIOLOGY

Metric System

13. The metric system is the system of units used in all _____

classes.

14. It is based on units of _____. Meaning it _____

or _____ by 10 times

15. Metric Base Units

Base Unit	Meter (m)	Gram (g)	Liter (L)	Degrees Celsius	Second (s)
Measurement					

16 Metric Prefixes

Prefix	Symbol or Abbreviation	Value
Kilo		1,0000

Hecto		100
Deca		10
Base Unit	M, L, G, S	1
Deci		1/10
Centi		1/100
milli		1/1000
Micro		1/ 1,000,000

Metric Conversion

17. Done by moving _____

18. Number Line :

_____

The Microscope

19. Importance of microscopes in

Science:_____

_____

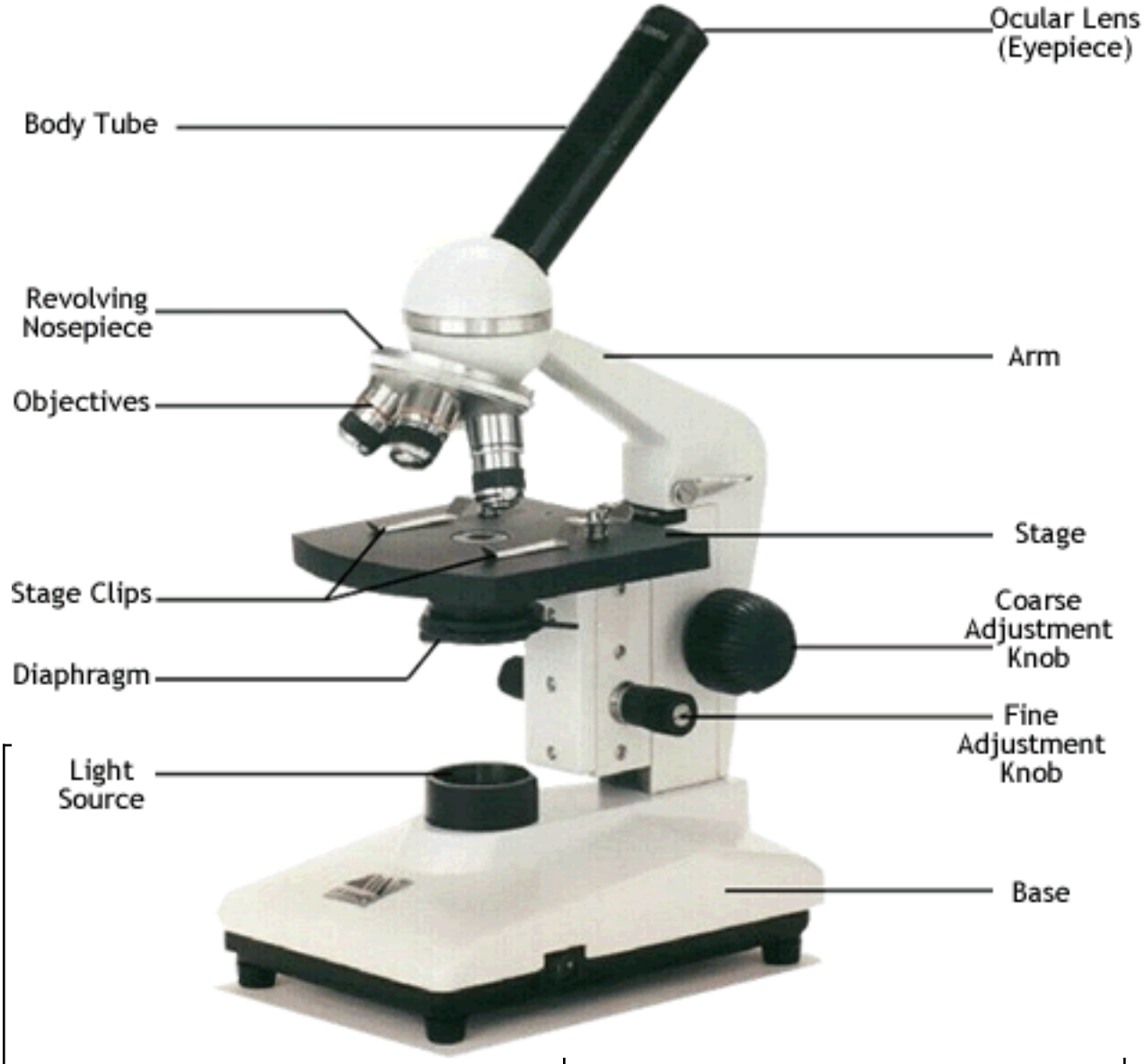
20. Two main types of microscopes _____ and

_____

21

	Advantages	Disadvantages
Electron Microscope		
Light Microscope		

22. We will use the light microscope



Part	Function
Revolving Nosepiece	
Objective Lens (high, low, scanning)	
Diaphragm	

Light Source	
Ocular Lens	
Stage	
Coarse Adjustment Knob	
Fine Adjustment Knob	

23. Rules for using a light microscope:

A. always carry the microscope with one hand on the _____ and the other hand on the _____

B. Make sure the _____ is wrapped around the base

C. Always start on the _____ power objective lens

D. Focus with the _____ knob before moving to the _____ adjustment knob.

E. Never use the _____ adjustment knob on high power.

F. When done rotate the revolving nosepiece so the _____ is above the stage opening

G. When done turn off the _____

H. Make sure the _____ has been removed from the stage.

I. _____ the microscope and wrap the

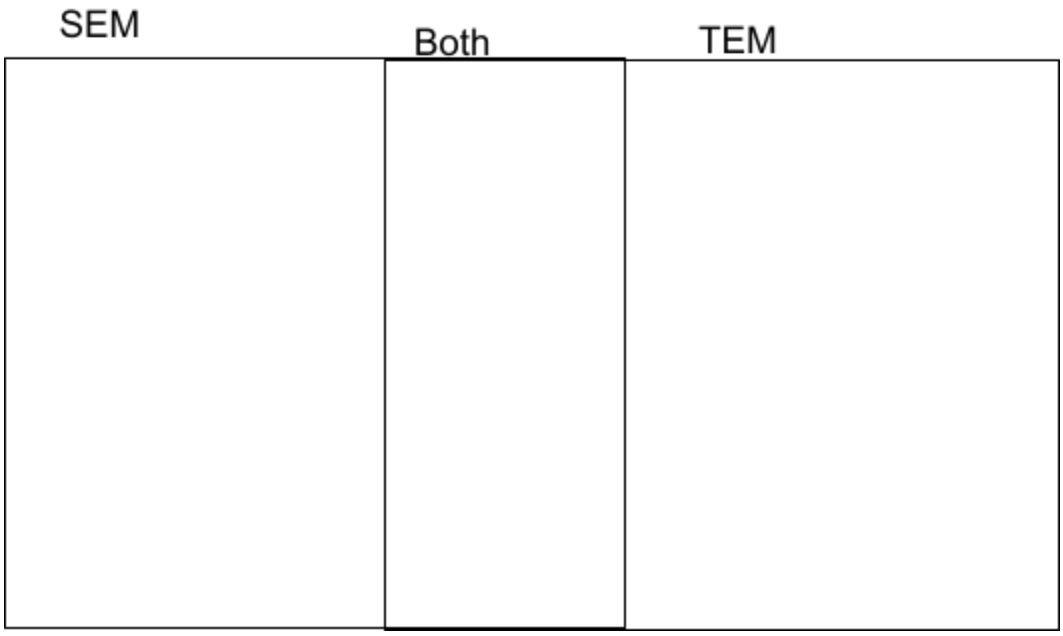
_____ around the base.

J. Use _____to clean the lenses, not paper towels

24. Two types of electron microscope are _____ (SEM)

and _____ (TEM)

25. Electron microscope Venn Diagram



The Scientific Method

26. The scientific method is

_____

27. Steps of scientific method

    a.

    b.

c.

d.

e.

f.

g.

28. Step 1: Make observations

a. Observations are

_____

_____

b. Two types of observations

1. _____ - measurable or countable

Example _____

2. _____ describable not measurable

Example: _____

C. observations are useful in describing scientific events

d. What are the characteristics of good observations?

E. observations are important because they help form

_____.

d. Inferences are _____

_____

e. Inferences are the process of

_____

_____

Example:

29. Step 2: Ask a question that arises due to observations
30. Step 3 : Do background research

a. the reason for doing background research_ _____

_____

31. Step 4: Form a hypothesis and make a prediction

a. a hypothesis is _____

_____

b. 2nd definition of hypothesis is

_____.

c. A hypothesis MUST be _____.

d. A prediction is _____

_____

32. Step 5 Test with an experiment

a. an experiment is _____

_____

b. In an experiment there are 2 groups _____

and _____

c. the control group is _____

d. the experimental group is _____

Examples:

e. The two groups are identical except for _____

f. The factor that is changed in an experiment is

_____

g. The _____ is the variable that is measured.

Its outcome relies on the _____.

h. Examples

I. Controls are _____

_____

J. Example

K. Why is it good to have a controlled experiment?

_____

_____

33 Step 6. Analyze Results and draw conclusions

a. _____ is collected from experiments. Two types

_____ and _____.

b. After all the data is collected a conclusion is made on whether the data _____ the hypothesis

c. A hypothesis can not be proven _____ or _____.

They are _____ or not _____.

D. A theory is _____

_____

34. Step 7: Report results

a. an important part of scientific research is for the work to be reviewed by other scientists.

b . Scientists examine the _____ to see if the test was _____

c. In order for the work to be widely accepted the hypothesis must be supported by several different _____. Its results need to be _____