

Name _____

Date _____

Science Period _____

Review: Microscopes / Characteristics of life / Scientific explanations

1. Calculate the total magnification in the following cases:

Eyepiece	Objective	Total Magnification?
10X	100X	= _____
10X	20X	= _____
5X	40X	= _____

2. If you want the image in the field of view to move to the left, how do you move the slide? _____

3. If you want the image to move up, how do you move the slide? _____

4. What is size of the field of view at 40X? _____ 100X? _____ 400X? _____

5. If a giant paramecium takes up one half the field of view at 100X, how big is the paramecium? _____

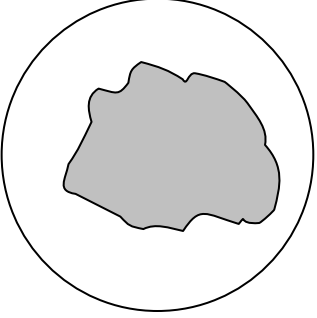
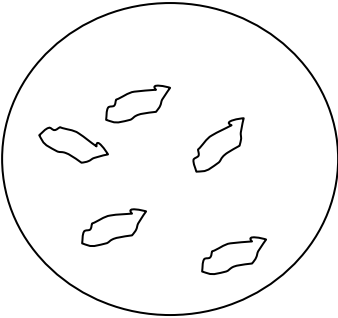
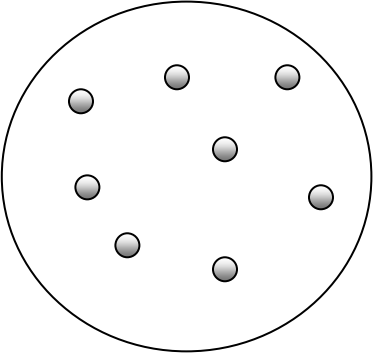
6. How many microns is one millimeter? _____

7. How many microns is one half of a millimeter? _____

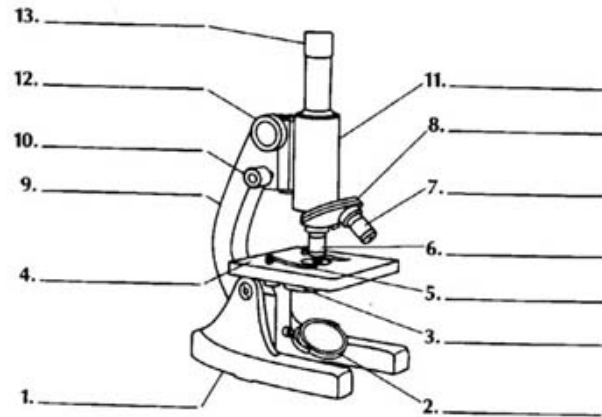
8. If a paramecium is 300 microns long, how many millimeters long is it? _____

Vocab: Match the words on the left with the correct definitions by placing the correct letters in the blanks:

- | | |
|-------------------------------|---|
| _____ 9. diaphragm | A. a kingdom (group) of microscopic organisms like paramecia |
| _____ 10. stimulus | B. an organism's reaction to a stimulus |
| _____ 11. evidence | C. the clear area of focus a certain distance below a lens |
| _____ 12. total magnification | D. circle of light that you see through a microscope |
| _____ 13. field of view | E. the light adjuster on the bottom of the microscope stage |
| _____ 14. paramecium | F. state of rest when some characteristics of life are not observed |
| _____ 15. response | G. a change in the environment that causes a response |
| _____ 16. protist | H. a cigar-shaped microscopic organism with cilia for movement and eating |
| _____ 17. focal plane | I. how many times bigger something looks through the microscope |
| _____ 18. dormant | J. observations that support a hypothesis or a claim |

Fields of view with magnified objects.	Circle the correct answers below:
<p>40X</p>  <p>Field of view = _____ mm</p>	<p>19. The field of view at the left is at 40X total magnification. The length of the large object in the field of view is approximately:</p> <ol style="list-style-type: none"> 1 mm 3 mm 4.1 mm 5.1 mm <p>Explain how you know:</p>
<p>100X</p>  <p>Field of view = _____ mm</p>	<p>20. The field of view at the left is at 100X total magnification. The length of each small object in the field of view is approximately:</p> <ol style="list-style-type: none"> 1 mm 1.6 mm 0.4 mm 0.1 mm <p>Explain how you know:</p>
<p>400X</p>  <p>Field of view = _____ mm</p>	<p>21. The field of view at the left is at 400X total magnification. The diameter of each small, round object in the field of view is approximately:</p> <ol style="list-style-type: none"> 30 microns 300 microns 3000 microns 0.3 microns <p>Explain how you know:</p>

22. Sabrina found an interesting object on the ground when she was out on a walk. She wondered if it was alive. She put it near her window to see if it would grow, but after 3 weeks, it looked the same.
- Sabrina decided that the object cannot be living. Do you agree with her?
 - Explain why you agree or disagree with her. (What evidence does she have?)
 - Explain how you could test what you think about this object. (What experiment could you do?)



Refer to the diagram of a microscope to answer the next group of questions.

23. Part #7 in the diagram is the _____
24. The part labeled #10 is the _____
25. If part #6 was 10X and the eyepiece was standard eyepiece power, the total magnification would be _____
26. Which part causes the objective lenses to move up and down slowly? _____
27. When you first look at a specimen using the microscope, you use the
- eyepiece only
 - high power objective
 - low power objective
28. When carrying a microscope, one hand goes on the neck and one on the _____
29. The thin layer of clear focus that is visible when looking through a microscope is the _____

In the next four questions, write the correct **characteristic of life** with each example

30. 'The light turned red and we stopped the car' is an example of _____.
31. 'Leaves "breathe in" carbon dioxide and give off oxygen.' This is an example of _____.
32. 'Our guppy had fourteen babies' is an example of _____.
33. The root appears first out of the seed when it germinates because all living things _____.

Scientific Explanation:

The famous scientist Galileo was arguing with friends at a dinner party about the effect of gravity on falling objects. Most of the people at the party thought that a heavier object would fall faster than a lighter object when dropped. Galileo said that gravity makes all falling objects drop at the same speed. Galileo picked up an orange and a grape out of a bowl on the table. He held them both at the same height above the table and dropped them at the same time. To the surprise of the other people, the orange and the grape struck the table at the same time. Galileo took off his shoe and a ring from his finger and dropped them at the same time. They also hit the floor simultaneously.

Write a short, but complete, scientific explanation of Galileo's demonstration.

Claim:

Evidence: (bullet points)

Reasoning: