Characteristics of Living Things

**Define:** ***Organism*** -

Example:

**Read pages 16-17 in your textbook, and then complete the following chart:**

|  |  |  |
| --- | --- | --- |
| Characteristic | Plant example | Animal example |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

\*\*In order to be a living thing, an organism MUST have ALL 6 characteristics!

**Answer the following question, giving as much proof as you can:**

*Is* ***FIRE*** *a living thing? Why or why not? Explain.*

The Cell Theory

**Read page 17 in the text and watch the video on Mrs. Comte’s website. Then, fill in the blanks in the notes below:**

There are 3 parts to the cell theory:

**1 –**

**2 –**

**3 –**

There were 3 scientists that helped to create the Cell Theory:

**1 –**

**2 –**

**3 –**

Scientists used a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to look at small organisms.

The Microscope

**Read pg. 24-25 in the text and fill in the blanks in the notes below:**

* Anton van Leewenhoek invented the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ microscope in the 1660’s. It had only \_\_\_\_\_ glass lens mounted between 2 brass plates, and magnified objects \_\_\_\_\_ or more times.
* In the lab at school, we use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ microscopes. They use more than one lens so that the object can be magnified to look much larger. For example, if the first lens magnifies by 10X and the second by 10X, the total magnification is \_\_\_\_\_\_\_\_\_\_\_X.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transmits electrons (tiny particles) through a specimen to magnify the image. The specimen must be sliced very thin for this to work.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reflects electrons off of the surface of a specimen to magnify the image, creating a 3D image. Live specimens can be used!

**Create a chart of the Advantages and Disadvantages for each microscope. Find as many as you can in your groups!** (you will have to read between the lines, and think outside the box to complete the chart!)

|  |  |  |
| --- | --- | --- |
| Microscope type | Advantages | Disadvantages |
| **Single lens** | * Simple and inexpensive | * Cannot magnify more than 10X |
| **Compound light** | * Not too expensive * Capable of magnifying most large cells | * Cannot see the detail in cells * As lenses become thicker, images blur |
| **TEM** | * Magnify 2 million or more times (the most of all microscopes) * Can see the inside of specimen in detail (2D) | * Expensive * Cannot see 3D * Specimen must be sliced thinly (dead) |
| **SEM** | * Magnify millions of times, but less than TEM * Can see the detail of the outside of specimen ( 3D image) * Specimen do not have to be killed | * Expensive * Cannot see the inside of specimen |