

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## Characteristics of Life Project

**Learning Objective:** to understand the characteristics that define life and how they apply to the diversity of the organisms on Earth

We are learning about the characteristics necessary for life. The characteristics are broad enough to include the great diversity of life on Earth, from the 2,700 known bacterial species to the more than 1.5 million named animal species!

**Activity:** You will research an organism and create a presentation/poster that represents the characteristics of living things based on that organism. You will need to give an example of how the organism exhibits all characteristics of life.

Items to display on your poster/in your presentation:

**1. List and define the characteristics of living things and how they apply to your organism. \_\_\_/ 24**

2. Draw or find pictures that represent each of the characteristics of life. The pictures should be in color. More than one picture can be used to represent each characteristic of life. \_\_\_/ 6

3. List and define the following: **homeostasis, asexual reproduction, sexual reproduction, metabolism, and stimulus.** \_\_\_/ 10

4. Make the **title** and **subtitles** of the poster large and legible. \_\_\_/ 6

5. The layout of the poster should be appealing to the eye. It should not be clustered or too sparse. \_\_\_/ 2

6. Include your name, date and period. \_\_\_/ 2

**Total: \_\_\_/ 50**

### Characteristics of life:

Organization (cell→tissue→organ→organ system→organism)

Growth and development

Reproduction

Response to stimuli

Homeostasis

Energy

## Characteristics of life example: human

**Organization:** brain cell → nervous tissue → brain → nervous system → human

There are many specialized cells in the human body; ie. skin cells, muscle cells, brain cells

**Growth and development:** growth occurs from a one-celled zygote to an adult human being. Humans grow at different rates at different stages in their lives. Growth is very rapid in the womb and in the first two years of life. Puberty is another stage when growth and development is rapid.

**Reproduction:** Sexual reproduction is the formation of a new individual following the union of two gametes (egg and sperm cell)

**Response to stimuli:** when different receptors in the skin are stimulated (touch, pressure, pain and temperature), different responses can occur (ie. movement of body part away from pain receptor)

**Homeostasis:** The human body maintains blood pH within the very narrow range of 7.35 to 7.45 A pH below this range is called acidosis and a pH above this range is alkalosis. Either condition can be life-threatening. One can live only a few hours with a blood pH below 7.0 or above 7.7, and a pH below 6.8 or above 8.0 is quickly fatal.

**Energy:** Cellular respiration is the process by which the chemical energy of "food" molecules is released and partially captured in the form of ATP. Carbohydrates, fats, and proteins can all be used as fuels in cellular respiration, but glucose is most commonly used.

