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Week 1 Assignment GS102

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List and explain the four key features of living organisms that the textbook highlights?

1. All organisms consist of at least one cell. Life begins when molecules join to form one or more cells. Some cells live as part of multicelled organisms. Some cells live on their own. The cell is the smallest unit of life (Star, 2016).
2. All living things require ongoing inputs of energy and raw materials (nutrients). Organisms need nutrients to grow and survive. Different organisms require different types of nutrients and different sources of energy. Living things are either producers or consumers (Star, 2016).
3. All living things sense and respond to change. Organisms must respond appropriately to specific stimuli or else they will not live very long. Organisms must keep their internal environments such as temperature and other conditions within certain ranges or else they will die. By sensing changes, organisms can make changes to their environments as necessary to maintain those ranges. The process is called homeostasis (Star, 2016).
4. All living things use DNA as the carrier of genetic information. DNA is a molecule named deoxyribonucleic acid. DNA contains information required for growth and reproduction of all living things. In multicelled species, DNA is required for development, which is a process that allows a single cell to become a multicelled adult. All organisms inherit their DNA from one or two parents (Star, 2016).

From the list below, select TWO items that you consider alive, and two others that you do not consider to be living:

Sunflower seed

Gold

Mountain

Alexa (voice assistant)

Yeast

Bread

3D Printer

Poppy

Apply the properties of living organisms from the textbook to justify your classification for each of the items you selected.

Living thing choice Number One: Yeast

Here is how this living thing shows the properties of life: As fungi, yeasts are single-cell eukaryotic organisms. The cell reproduces asexually such as by division or fission or budding, and genetic information is passed to offspring through DNA. Yeast fungi require food, water, and oxygen. The fungi utilize homeostasis (Britannica, n.d.).

Living thing choice Number Two: Poppy

Here is how this living thing shows the properties of life: The poppy flower has eukaryotic cells, and so it has DNA in its nucleus. The DNA is passed to its offspring. Poppy flowers require energy and nutrients, such as sunlight and water, and utilize homeostasis (Britannica, n.d.).

Non-living thing choice Number One: Gold

Here are examples of why/how someone might think it is alive: Gold can be eaten (but it just passes through the body). Gold is used in some medicine. It can be found in the earth. The word karat comes from the carob seed. In ancient Asian bazaars, the seeds were used to balance scales that measured the weight of gold (Live Science, n.d.).

But here is evidence that it is not alive: Gold does not possess any of the key features of life. Gold does not consist of cells, does not have DNA, and does not produce offspring. Gold was never part of a living thing, and it does not grow.

Non-living thing choice Number Two: 3D Printer

Here are examples of how/ why someone might think it is alive: The latest 3D printer ink is alive, thanks to embedded bacteria. That means 3D printers can now make living materials capable of degrading toxins and facilitating organ transplants (Science, n.d.).

However, here is evidence that it is not alive: The 3D printer itself does not possess any of the key features of life. It does not consist of cells, does not have DNA, and does not produce offspring. It was never part of a living thing, and it does not grow.

References:

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