



Science Virtual Learning

8th Grade Science

Living vs. Non-living Things

Wednesday, April 22, 2020



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Lesson: Wednesday, April 22, 2020

Objective/Learning Target:

I can explain the difference between living & non living things.

Let's Get Started:

Quick Write: List three characteristics that an organism would have to be considered “living”.

Watch this [video](#) to review the characteristics of living things.



Vocabulary

Read the following vocabulary words and copy them on a separate sheet of paper.

1. **Living** - means it needs food and air and can grow
2. **Non Living** - referring to something that has never been alive
3. **Cell** - the smallest living unit of life. Organism - Any living thing (made of cell(s))
4. **Food** - any nutritious substance that people or animals eat or drink, or that plants absorb, in order to maintain life and growth.
5. **Metabolism** - the chemical processes that occur within a living organism that turns food into energy.
6. **Homeostasis** - the ability of an organism to maintain stable internal conditions no matter what is going on outside the organism.
7. **Stimulus** - something that causes a reaction response.



Background Reading Part 1

It is pretty clear to most people, even very small children, that icicles are not alive. They are cold to the touch; they don't move, except to drip or to fall to the ground when they break; they don't reproduce. At the opposite end of the spectrum, it is also clear that household pets and human friends are alive, especially when you see them run, jump, or respond to you. Those are fairly easy examples. But what about a clock or a seed? Are these things living or nonliving, and how can you tell?

You know that a clock is nonliving, right? But its hands move, it makes noise, and it responds when you turn its dials or press its buttons. That's more lifelike than an icicle, isn't it? And what about a seed? Even though we're told that it holds the potential for life, it looks about as lively as a stone. As you can see, the distinction between living and nonliving is not always clear-cut. Some inanimate objects have characteristics of living organisms, while many living organisms, on the face of it, seem utterly lifeless.



Background Reading Part 2

So how does one distinguish between living and nonliving things? First of all, the scientific definition of living includes those things that are alive or have ever been alive—including what's left of a tree that died years before. Likewise, the seed, which appears lifeless and can remain dormant for years before finally germinating under the right environmental conditions, qualifies as living. In contrast, non living things are not alive, nor have they ever been.

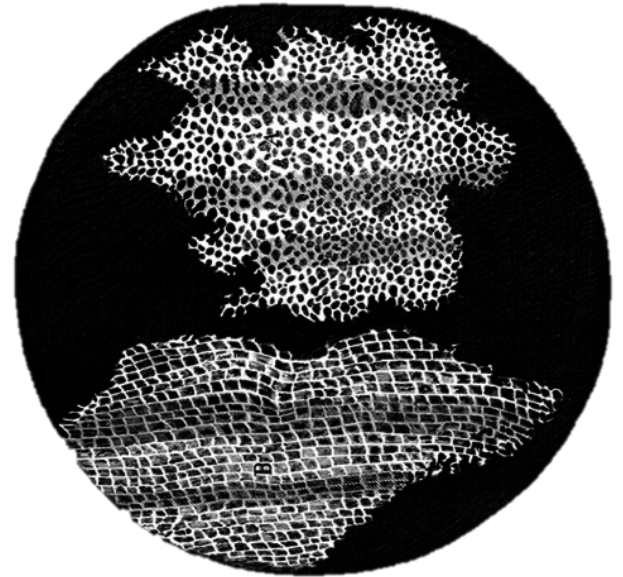
But what does it mean to be alive? According to biologists living organisms are characterized by seven "signs of life": 1) living things have highly organized, complex structures; 2) living things maintain a chemical composition that is quite different from their surroundings; 3) living things have the capacity to take in, transform, and use energy from the environment; 4) living things can respond to stimuli; 5) living things have the capacity to reproduce themselves; 6) living things grow and develop; and 7) living things are well-suited to their environment.

Practice 1

Watch the following [video](#) to learn how humans developed Cell Theory in order to differentiate living and non living things.

After watching the video answer the following questions on a sheet of notebook paper.

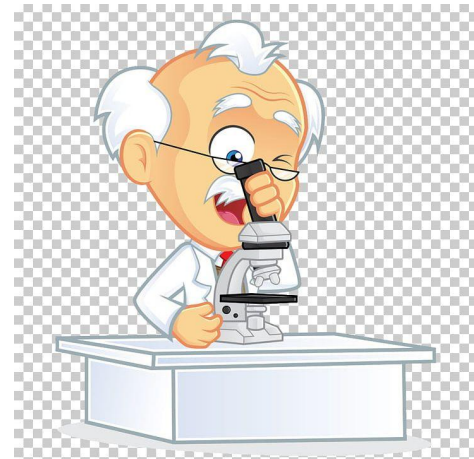
1. What is the smallest unit of life?
2. What scientist concluded that all living organisms are made of cells?
3. What scientist coined the term “cell”?
4. What are the three parts of Cell Theory?



Practice 2

Read this [article](#) from Khan Academy about the development of microscopes that enabled us to see the smallest units of living and nonliving things.

Then complete this [Quizlet](#) to test your knowledge by classifying living and nonliving things.



Additional Practice

Use this [quizlet link](#) to review Cell Theory.

Go to this [site](#) to interact with a virtual microscope.



All possible answers to
the Quick Write:

8 CHARACTERISTICS OF LIFE

LIVING THINGS:

- 1. ARE MADE UP OF CELLS**
- 2. REPRODUCE**
- 3. GROW & DEVELOP**
- 4. OBTAIN & USE ENERGY**
- 5. HAVE A METABOLISM**
- 6. RESPOND TO STIMULI**
- 7. MAINTAIN HOMEOSTASIS**
- 8. ADAPT AND EVOLVE**



Robert Hooke



Matthias Schleiden



Theodor Schwann



Rudolf Virchow

Practice 1 Answers

1. Cells
2. Matthias Schleiden
3. Robert Hooke
4. All living things are made of cells. | Cells are the basic unit of living things. | Cells only develop from existing cells.

Practice 2 Answers

Quizlet will grade your answers and give feedback about the correct answer.

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Quizlet