**Standards**: SC.6-2. Structures, Processes, and Responses of Plants: The student will demonstrate an understanding of structures, processes, and responses of plants that allow them to survive and reproduce. (Life Science)

6L.4A.1 Obtain and communicate information to support claims that living organisms (1) obtain and use resources for energy, (2) respond to stimuli, (3) reproduce, and (4) grow and develop.

**Objectives:** Students will list the characteristics all living things share, explain where living things come from, and identify what all living things need to survive, recognize and define unit vocabulary.

#  **Multimedia Resource**

<https://www.youtube.com/watch?v=juxLuo-sH6M> Introduction to the Characteristics of life Author: Frank Gregorio Published: Sept. 29, 2010 License CCBY Music “Fantasy Chorale” by Paul Reeves Listen ad-free with You Tube Red

<https://www.youtube.com/watch?v=iK3zK7ydjwI> Characteristics of Living Things Author: Anthony DeStefano Published: May 22, 2015 License: Standard YouTube License

<https://www.youtube.com/watch?v=xHjqaOx>

 Needs of Living Things Author: Funza Academy Published: August 3, 2014 License: CCBY

<https://www.youtube.com/watch?v=MuKs9o1s8h8>

Habitats Author: Turtlediary.com Published: June 21, 2016 License: Standard You tube License

<https://www.youtube.com/watch?v=fGdwwpas5Iw>

Unicellular and Multicellular Organisms Author: MooMoo Math & Science Published: Sept. 20, 2016 License: Standard YouTube License

<https://www.youtube.com/watch?v=osYuBLQ4Scc>

Photosynthesis: How Plants Get Energy Author: Paul Batchelor Published: January 24, 2017 License: Standard You Tube License

<https://www.youtube.com/watch?v=AHCOzc143Ec>

Feed Me: Classifying Organisms Crash Course Kids Published: March 5, 2015 License: Standard You Tube License

<https://www.youtube.com/watch?v=MuKs9o1s8h8> Fabulous Food Chains Crash Course Kids Published: April 21, 2015 License: Standard You Tube License

<https://www.youtube.com/watch?v=ZhtiuILOq-8>

The Use of Energy by Living Things Author: Flexiguru Published: June 15, 2015 License: Standard You Tube License

<https://www.youtube.com/watch?v=8tEJX4SbUFU>

All Living Things Move & Respond to Their Surroundings Author: Jessica Dorner Published: Nov. 5, 2015 License: Standard You Tube License

<https://www.youtube.com/watch?v=aYO2B-8TltU>

Asexual & Sexual Reproduction Author: Madel del Rosorio Published: Oct. 14, 2014 License: Standard You Tube License

<https://www.youtube.com/watch?v=WzbHOY5fGqc>

Francesco Redi & Spontaneous Generation Pasteur Brewing Published: Sept. 18, 2012 License: Standard You Tube License

<https://www.youtube.com/watch?v=XH0jAH8YX_w> Lazzano Spallanzani Author: Michael Post Published: Sept. 4, 2013 License: Standard You Tube License

**Materials**

Magazines, books on Living Things, paper, scissors, glue, chart paper, readings from Readinga-z (must have subscription for Readinga-z)

 **ANTICIPATORY SET**

Teacher displays pictures of a flower, dog, cat, person, tree, butterfly, bird. Teacher asks students what these items have in common. Teacher writes their responses on the board. Teacher tells students they will be studying “Living Things”. Teacher creates a KWL chart on chart paper with students and place it on the wall.

Play video - <https://www.youtube.com/watch?v=juxLuo-sH6M>

**GUIDED PRACTICE**

**Key –** All living things have a cellular organization contain similar chemicals, use energy, response to their surroundings, grow and develop, and reproduce.

(South Carolina Grade 6 - Interactive Science, Pearson Education, Inc., Copyright 2017)

Teacher passes out vocabulary list, goes over words and definitions, and makes sure students can recognize words. Teacher tells students that they will be able to practice words on Quizlet.

<https://quizlet.com/229555281/lesson-1-what-is-life-flash-cards/>

Play video - <https://www.youtube.com/watch?v=iK3zK7ydjwI>

(Teacher will go over each of the characteristics of living things.)

 **CHARACTERISTICS OF LIVING THINGS**

**Cellular Organization**

All organisms are made of small building blocks called **cells**.

1. **Unicellular organism** – single-celled organisms – responsible for carrying out all the functions necessary to stay alive. (ex. bacteria, Brewer’s yeast, all protists)
2. **Multicellular organisms**- composed of many cells. In many multicellular organisms, the cells are specialized to do certain tasks.
3. Specialized cells
4. Muscle & nerve cells work together to keep you alive.
5. Nerve cells carry messages to your muscles cell to make your body move.

Students give examples of multicellular organisms.

Examples of multicellular organisms – humans, dogs, plants, fish, birds

Play video - <https://www.youtube.com/watch?v=fGdwwpas5Iw>

**Energy Use**

Organisms get energy from taking in and breaking down materials.

<https://www.youtube.com/watch?v=ZhtiuILOq-8>

**Response to Surroundings**

All living things respond to their environment. A change in an organism’s surroundings that causes the organism to react is called a **stimulus**. Stimuli include changes in light, sound, and other factors. The reaction to a stimulus is a response. Often that response results in movement. To carry on its daily activity and to survive, an organism must respond to stimuli.

<https://www.youtube.com/watch?v=8tEJX4SbUFU>

**Growth & Development**

All living things grow and develop. **Growth** is the process of becoming larger. **Development** is the process of change that occurs during an organism’s life, producing a more complex organism.

**Reproduction**

Organisms reproduce in diverse ways. **Asexual reproduction** involves only one parent and produces offspring that are identical to the parent. **Sexual reproduction** involves two parents and combines their genetic material to produce a new organism that differs from both parents.

<https://www.youtube.com/watch?v=aYO2B-8TltU>

(Teacher will go over spontaneous generation and each experiment to disprove spontaneous generation.)

 **WHERE DO LIVING THINGS COME FROM?**

**Key: Living things arise from other living things through reproduction.**

Four hundred years ago people believed that life could appear from nonliving materials. They thought that water and mud produced earthworms, wheat stacked in a dark corner in a barn produced mice, dust created fleas, rotting meat created maggots. The mistaken idea that living things can arise from nonliving sources is called **spontaneous generation.** It took more than a century and hundreds of experiments to convince people that spontaneous generation does not occur.

Redi’s experiment

<https://www.youtube.com/watch?v=WzbHOY5fGqc>

Needham’s experiment disproves Redi’s, but it was proven his results was faulty.

Lazzaro Spallanzani’s experiment

<https://www.youtube.com/watch?v=XH0jAH8YX_w>

Many people continued to believe in spontaneous generation. In the mid-1800’s, Louis Pasteur, a French chemist, designed another experiment to test spontaneous generation. He provided enough evidence to disprove the theory of spontaneous generation. It was replaced with **biogenesis** which is the theory that living things come only from other living things.

Louis Pasteur’s experiment

<https://www.youtube.com/watch?v=Xc-hHhDID9A>

 **WHAT DO LIVING THINGS NEED TO SURVIVE?**

**Key:** **All living things must satisfy their basic needs for food, water, living space and stable internal conditions.**

Play Needs of Living Things by Funza Academy.

(Teacher will go over each basic need.)

**Food**

All living things need a source of energy to live. Organisms differ in the ways they obtain energy. Some organisms capture the sun’s energy and use it to make food. They are called **autotrophs** – organisms that make their own food. Autotrophs use the food they make to carry out their own life functions.

Organisms that cannot make their own food are called **heterotrophs**. They obtain energy by feeding on other organisms.

<https://www.youtube.com/watch?v=AHCOzc143Ec>

<https://www.youtube.com/watch?v=MuKs9o1s8h8>

Examples of heterotrophs are animals, mushrooms and slime molds.

**Water**

All living things need water to survive. Most organisms can live for only a few days without water. Organisms need water to obtain chemicals from their surroundings, break down food, grow, move substances within their bodies, and reproduce.

One property of water that is vital to living things is its ability to dissolve more chemicals than any other substance on Earth. Water makes up about 90% of the liquid part of your blood.

**Living Space**

All organisms need a place to live. An organism’s surroundings must provide for all its needs.

The several types of habitats are:

* **Forest Habitat** covers a large area where many trees, plants and animals live.
1. Deciduous Forest- cool rainy areas found in middle of Europe and Eastern half of North America. Animals must adjust to cold winters and hot summers. Ex: Black bear, Grey squirrel, Turkey, Rat snake
2. Coniferous Forest – largest type of habitat in the world. Wintry weather makes life very difficult in these forests. Ex: Lynx, Moose, Squirrel, Loon, Hawk owl
3. Rain Forest – occurs in regions near the equator. The climate is very warm with plenty of rainfall.
* **Dessert Habitat** – dry conditions and a wide temperature range and very little rainfall or precipitation.
1. Hot and dry dessert – near the Tropic of Cancer or Tropic of Capricorn
2. Cold desserts – near the Arctic part of the world
* **Water Habitats** are made up of fresh water like ponds or rivers and salt water.
* **Grassland Habitat** are big open spaces of grass. About ¼ of land on Earth is in grassland.
1. Temperature grassland – farther from the equator and have both cold winters and hot summers.
2. Tropical grassland – closest to the equator and hot year-round.
* **Tundra Habitat** are located at high altitudes and mountains around the world. The two major characteristics of tundra are Arctic tundra which is frozen most of the year and Alpine tundra.

<https://www.youtube.com/watch?v=MuKs9o1s8h8>

**Stable Internal Conditions**

Organisms must be able to keep the conditions inside their bodies stable. The maintenance of stable internal conditions is **homeostasis**. Homeostasis keeps internal conditions just right for cells to functions.

**Independent Practice**

1. Students pair and read pages 308-309 to each other. Then, they write a summary and put on wall. Lastly, they answer questions on page 309 and pass in for points.
2. Classwork/homework – Go to Quizlet and work on vocabulary (learn, flashcard, match, and test)
3. Read pages 306 – 315 in science book. (Homework)
4. Read pages 311 and 312 and answers and pass it for points.
5. From your own habitat, name two examples of autotrophs and two examples of heterotrophs. (page 313 in science book)
6. Teacher writes the URL for Classifying Organisms & Fabulous Food Chains on the board. Students use their computers to view these videos (school/home) and create a food chain by drawing, using pictures from magazines or write it out.
7. Students will get into groups and pick a habitat from a container. Their research should include:
8. More detailed description of the habitat
9. All-important characteristics
10. Example of the habitat- Pampas of Argentina, Brazil
11. Name and describe a specific animal and plant that lives there
12. Tell if the habitat is in danger and why, and what can be done to save it

**CLOSURE**

Students and teacher will complete the KWL chart.

**References**

Biggs, Alton, Snyder, Susan, Daniel, PhD., Lucy. “Living Things”. 2007,

 South Carolina Science, Grade 6. Columbus, OH. McGraw Hill Companies, Inc.

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 Thornton, Ph.D., Kathryn, Wysession, Ph.D. “What Is Life”. 2017, South

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