

## It's Alive!!!...or is it?

- All living things must have ALL SIX of the characteristics that we will learn.
- If even one is missing it CANNOT be considered alive!

## Vocabulary

### **Organism:** a living thing

Organism is simply a science word we use to describe a living thing. An organism could be a plant, animal or bacteria—ANYTHING that is a living thing.



## MADE OF CELLS



### 1. All living things are made of one or more CELLS.

Cells are the smallest unit that can carry on all of the activities of life. Some organisms are single-celled and others contain trillions of cells. (*multi-cellular*)

## RESPOND



### 2. All living things sense and respond to change.

A change that affects how an organism acts is called ***stimuli***. Stimuli can be things like light, sounds, hunger – anything that causes a reaction.

An organism reacts to a stimulus with a **response** – an action or a change in behavior.

## RESPOND



Every organism reacts differently to stimuli, but all organisms must keep the conditions inside their bodies the same (this is called **homeostasis**).

**Homeostasis** – everything in an organism is balanced, and internal conditions remain stable and relatively constant. Organisms do many things to keep itself in homeostasis.

## OFFSPRING

### 3. All living things reproduce.

Every type of organism has **offspring** (**children**)

Without offspring the species would become extinct.

Two types: **Asexual reproduction** and **Sexual reproduction**



# OFFSPRING

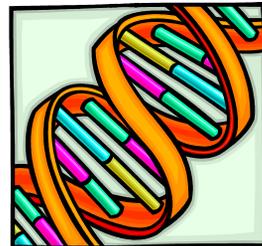
**Asexual reproduction – only one parent and produces offspring that are identical to the parent**

**Sexual reproduction – involves two parents and combines their genetic material**



# DNA

**4. All living things contain DNA.**



Inside each cell is information stored in a molecule called ***deoxyribonucleic acid*** or ***DNA***.

This DNA is very important because it carries instructions for the organism's traits.

## 4. All living things are made up of chemicals

- Carbohydrates – cell's main energy source
- Proteins – building material of cells
- Lipids – building material of cells
- Nucleic acids – genetic material of cells

## USE ENERGY

### 5. All living things need and use energy



Energy is the “gas” for life. Without energy, cells couldn't do their very important jobs.

Most organisms get their energy from their food.

**Metabolism** – combination of chemical reactions through which an organism breaks down or builds up materials

# GROW



## 6. All living things grow and change

All organisms grow at some point in their life.

Sometimes they simply get larger.

Other times they are also developing/changing (for example, a tadpole turning into a frog).

**Development** – process of change that occurs during an organism's life, producing a more complex organism.

Almost every organism has the same basic needs:

### The Four Necessities of Life

- Water
- Air
- Shelter
- Food

## WATER

- 70% of the cells of most living things are made up of water.
- Water is required for metabolism, the chemical processes of an organism.
- Organisms vary greatly in how much water they need and how they get it. **You would survive only three days without water!**



## AIR



- Air is a mixture of gases, including **oxygen** and **carbon dioxide**.
- Living things need oxygen to release energy from food.
- Organisms living on land get oxygen from the air.
- Organisms living in water get oxygen from the water.
- Green plants, algae and some bacteria need **both** oxygen and carbon dioxide.
- Photosynthesis is the process by which green organisms turn the energy in sunlight to energy stored in food.

## A Place To Live



- An organism's home contains all the things it needs to live.
- Some living things need a large amount of space.
- Some living things live their entire life in one place.
- Space on earth is limited. Often organisms have to compete for the things they need.

## Food

- Food gives living things the energy and nutrients they need to do their work.
- **Producers** make their own food.
- **Consumers** eat other organisms to get food.
- **Decomposers** are consumers that break down nutrients in dead organisms and animal wastes.





Bye !