

What is Life?

THE YOU AND THIS COMPUTER
ARE COMPOSED OF BILLIONS
OF VARIOUS ATOMS.

HOWEVER, THERE IS A VERY
IMPORTANT DISTINCTION
BETWEEN YOURSELF AND THIS
COMPUTER

- YOU ARE ALIVE.



What is Life?

WHAT THINGS DEFINE
LIFE? TURN TO YOUR
TABLE PARTNERS AND
DISCUSS WHAT THINGS
MAKE SOMETHING ALIVE

What is the difference between living, non living and dead?

Living: has all six characteristics of life

Nonliving: has less than six characteristics of life and is not made of cells

Dead: is made of cells and once had all 6 characteristics of life. In order to be dead you must once have been living.

What does it mean to be alive?

How is something made "living"?

Scientists have identified six basic characteristics of life.

For something to be described as living, it must have **ALL** six of these characteristics.

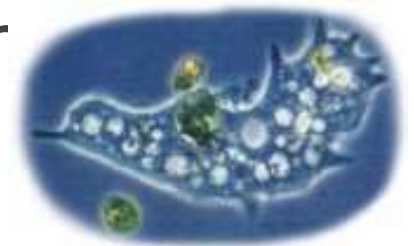
the following characteristics were designated "characteristics of living things" with the consensus of the scientific community.

1. They Are Composed of Cells

Cells are the basic Units of all living things.

Some organisms are single-celled, **unicellular**, like this
Amoeba

Others are multi-celled, **multicellular**, like hum



2. They use energy/ Metabolism

LIVING ORGANISMS REQUIRE ENERGY.

THEY USE THIS ENERGY TO CARRY OUT ENERGY-REQUIRING ACTIVITIES SUCH AS METABOLISM AND LOCOMOTION.

ALL ORGANISMS HAVE SIMILAR CHEMICALS.



3. They Grow and Develop

Growth is becoming larger
Development is the process
of changes that an
organism goes through
during their life cycle.



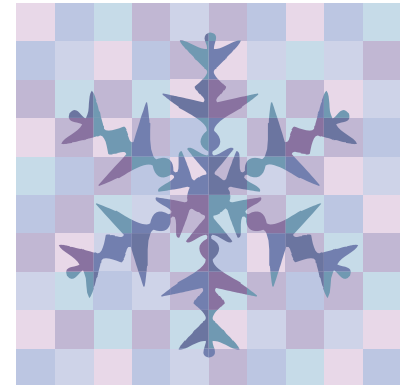
4. They Respond to Stimuli

All living things
respond to
stimuli in their
environment



5. They Maintain Homeostasis

All living things maintain a state of internal balance or a stable environment.



6. They Reproduce

All living organisms reproduce, either by sexual or asexual means.

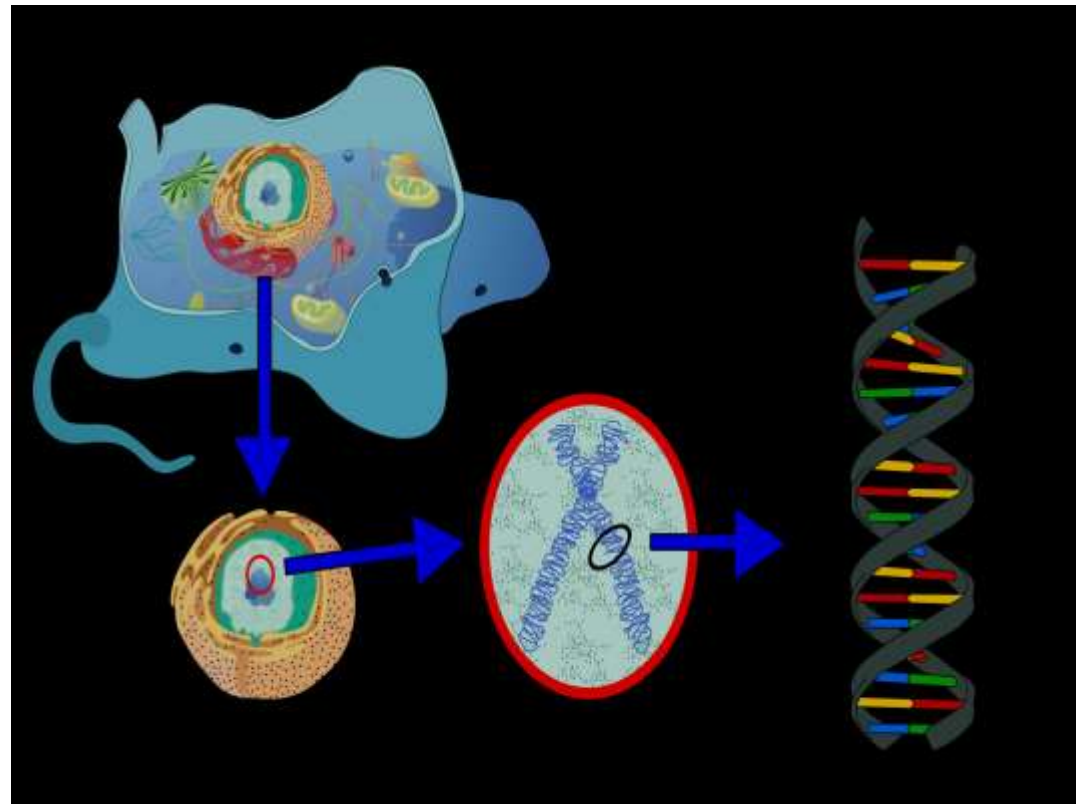


cells reproducing via mitosis, a form of asexual reproduction

DNA – the molecule of life

Deoxyribonucleic Acid

- ▶ Double stranded molecule
- ▶ Contains the code for genes/traits
- ▶ Found on chromosomes in the nucleus
- ▶ Contains the four bases: Adenine, Thymine, Cytosine and Guanine
- ▶ A bonds with T
- ▶ C bonds with G



Now build your own DNA molecule

- ▶ Color each of the parts in your key:
- ▶ Thymine = orange
- ▶ Adenine = green
- ▶ Guanine = purple
- ▶ Cytosine = yellow
- ▶ Deoxyribose = blue
- ▶ Phosphate = pink
- ▶ Cut out the parts of the DNA molecule on the dotted line. Glue on a separate paper. Remember that A goes with T and C with G only.