



SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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Department of Biomedical Engineering

Course Name: 19GET277 & BIOLOGY FOR ENGINEERS

IV Year : VII Semester

Unit I –INTRODUCTION TO LIFE

Topic : Characteristics of living organisms-Basic classification-cell theory-structure of prokaryotic and eukaryotic cell-Introduction to biomolecules:

19GET277 / BIOLOGY FOR ENGINEERS /Unit 1/N.Jayashree/AP/BME



Biology = the study of life



What does it mean to be alive???

Vision Tit 2

Vision Title 3

There are 8 characteristics of life . . .

No single characteristic is enough to describe a living thing . . .

They must have all eight.



8 Characteristics of Life



1. Living things are made up cells.
2. Living things reproduce.
3. Living things are based on a universal genetic code (DNA).
4. Living things grow and develop.



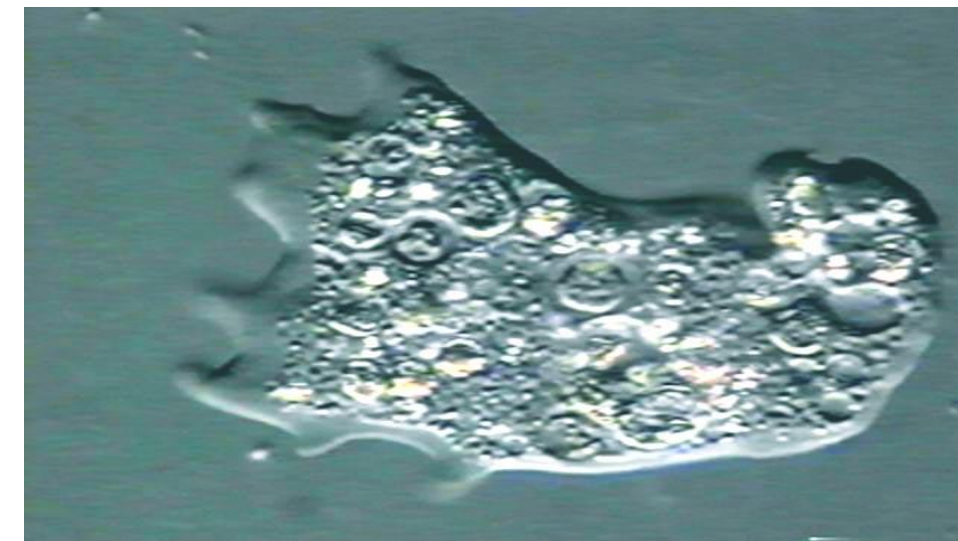
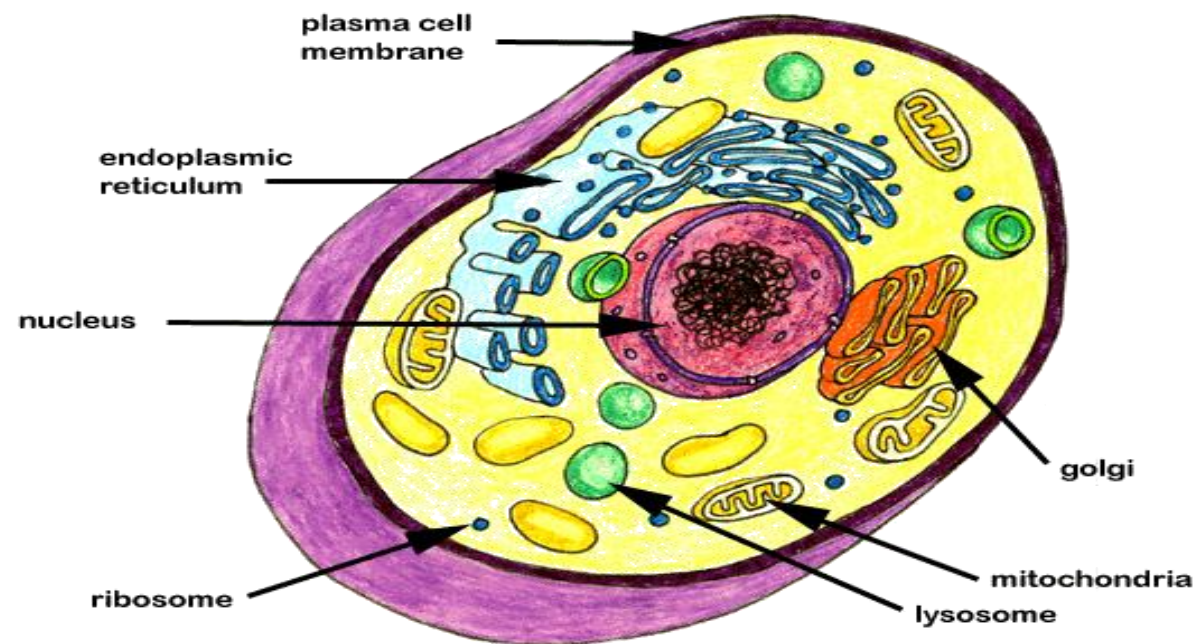
8 Characteristics of Life

5. Living things obtain and use **materials and energy.**
6. Living things **respond** to their environment.
7. Living things **maintain a stable internal environment.** (homeostasis)
8. Taken as a group, living things **change over time.**



1—Made up of cells
They can be either unicellular or multicellular.

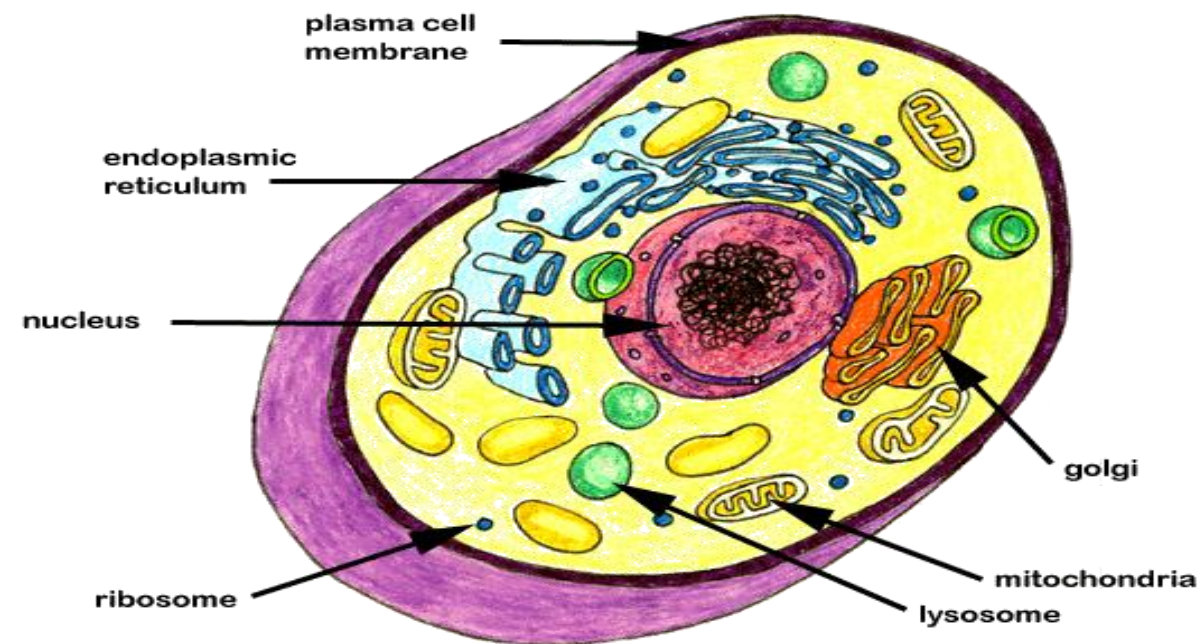
***Unicellular = made up of ONE cell
Picture of a unicellular organism.





1—Made up of cells
They can be either unicellular or multicellular.

***Multi-cellular = made up of MORE than one cell Picture of multicellular organisms



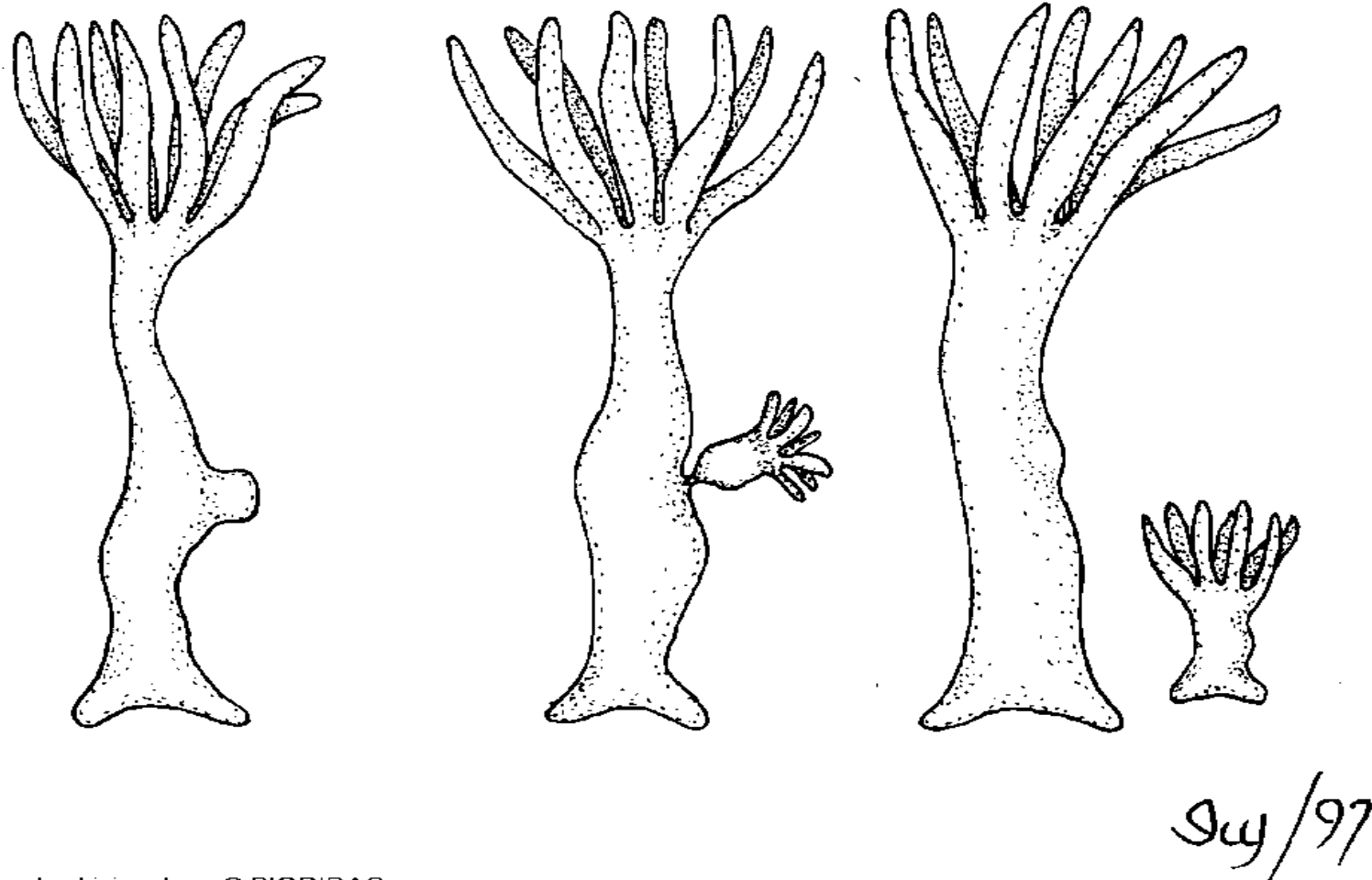


2—Reproduction

There are 2 types of reproduction:

1. Asexual

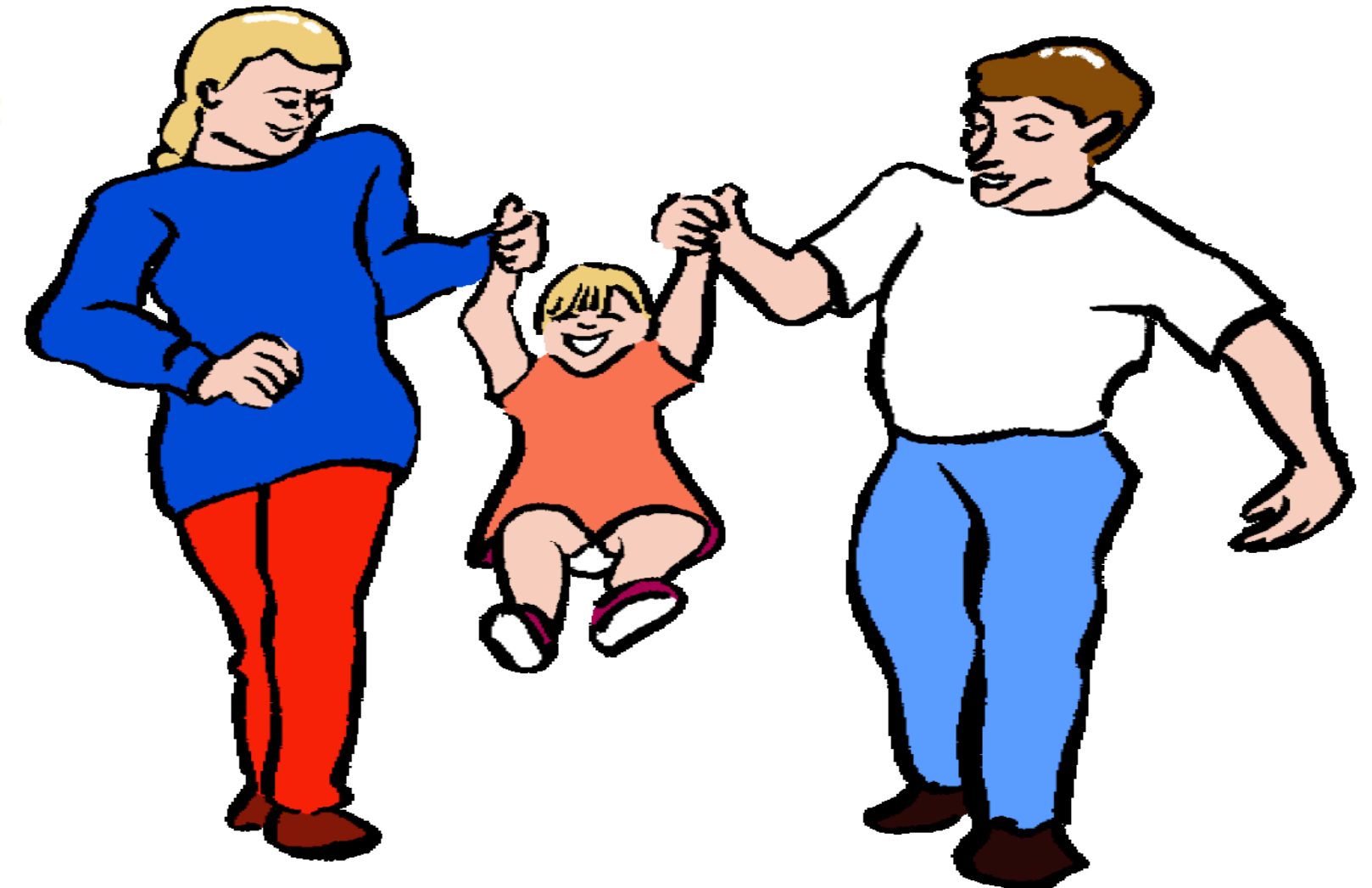
***asexual = reproduction that requires
ONE parent



Ivy Livingstone © BIODIDAC

2. Sexual

***sexual = reproduction that requires **TWO** parents





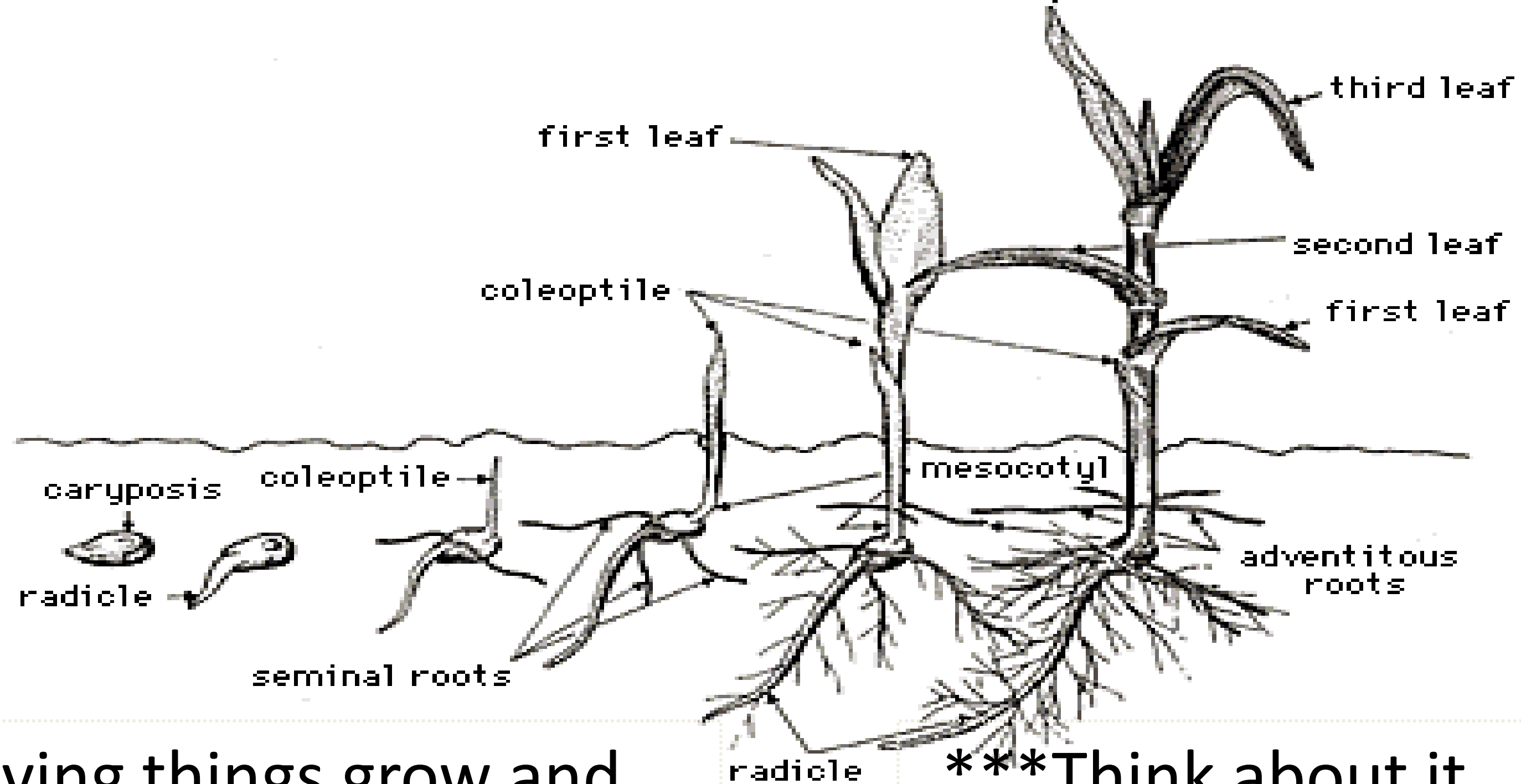
3—Based on a genetic code



Vision Title 3

****DNA = DNA is the *genetic code* found in every cell. DNA is *inherited* from parents and controls your *traits*.**

4—Grow and Develop



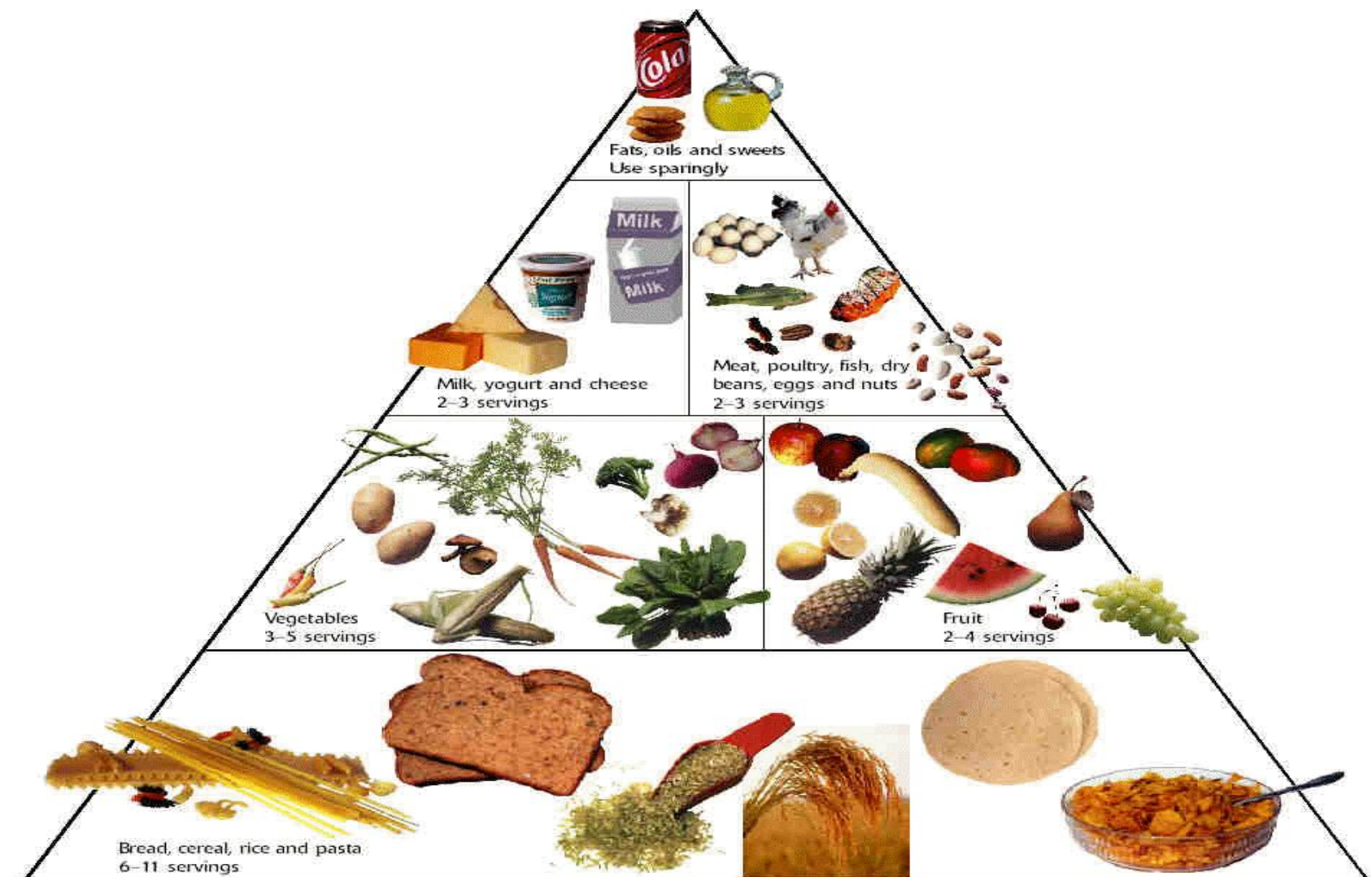
**** All living things grow and develop during at least part of their life.**

***** Think about it . . . Do you look the same as when you were born????**

5—Need for materials and energy

**Living things need a constant supply of materials and energy.

**Metabolism = the process of using those materials.



6—Response to the environment

**Organisms detect and respond to STIMULI (or signals) from their environment.



** **Internal stimuli** =
signal comes from *inside*
the organism



** **External stimuli** = signal
comes from *outside* the
organism

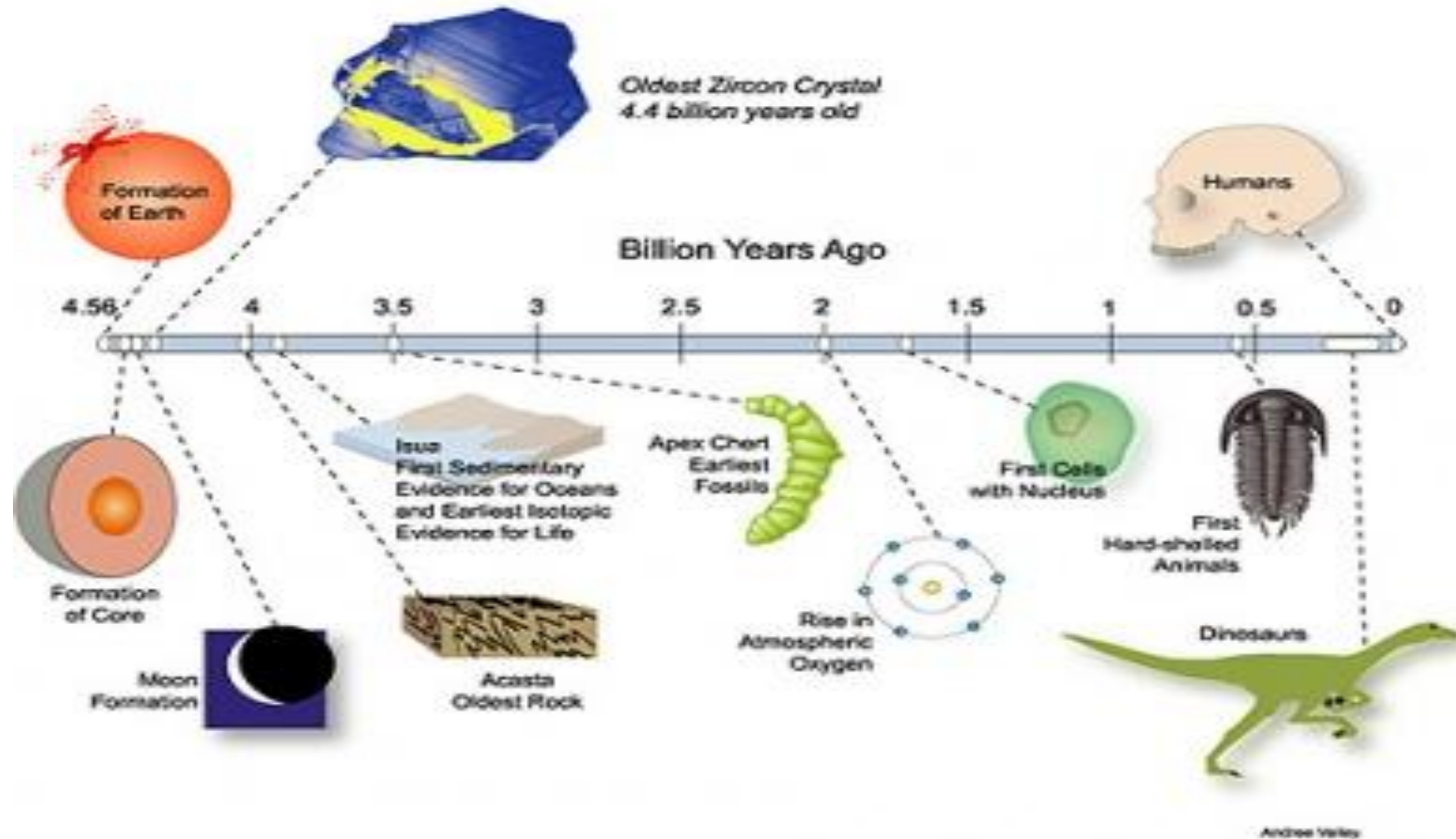
7—Maintaining internal balance



Despite *changing* conditions around them, organism must keep their **internal conditions stable/balanced**.

****Homeostasis =**
the **process** of keeping the **internal** environment **stable/balance/constant**

8—Change over time



Over hundreds, thousands, and millions of years, organisms have the potential to change = **evolution**