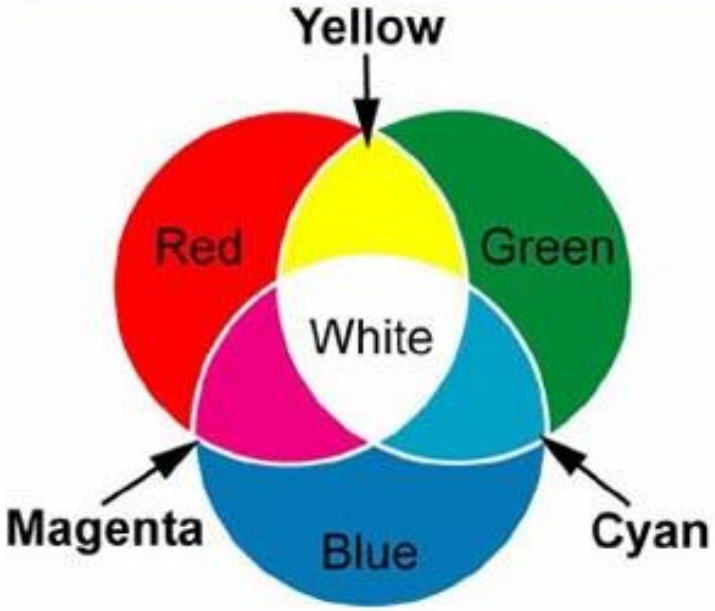
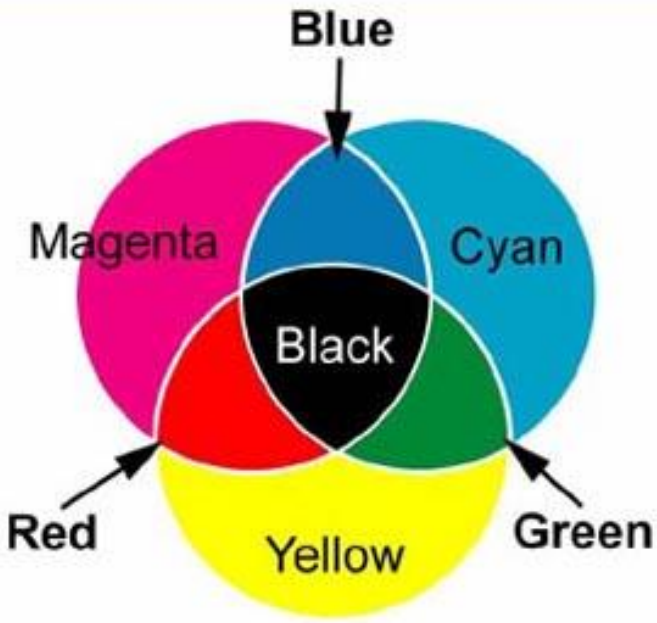
Color Formation Diagrams

The additive primary colors



White = red + green + blue
Yellow = red + green
Magenta = red + blue
Cyan = blue + green

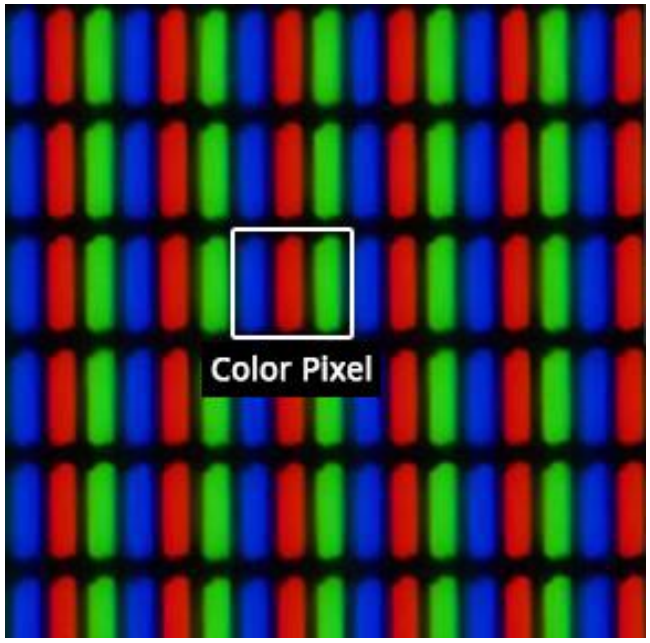
The subtractive primary colors



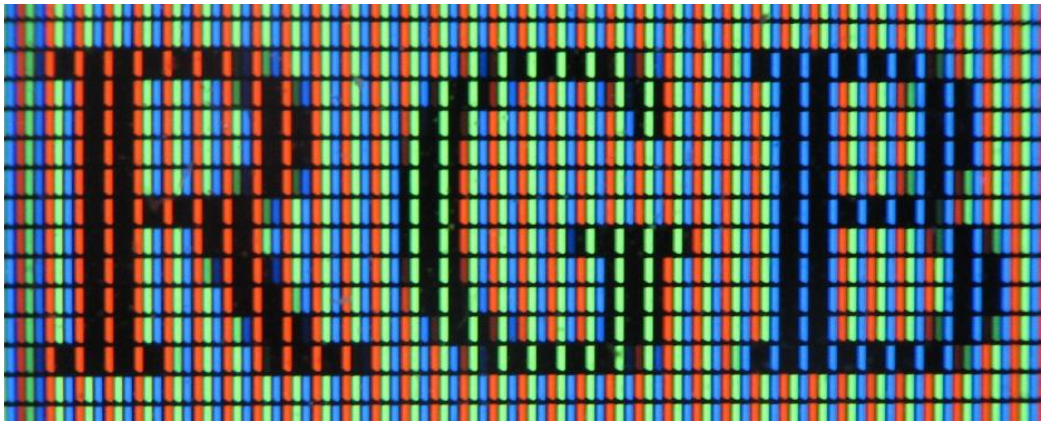
Black = magenta + yellow + cyan
Red = magenta + yellow
Green = cyan + yellow
Blue = magenta + cyan

Let's look at this computer screen IN DETAIL…

Let's look at this page printed IN DETAIL…

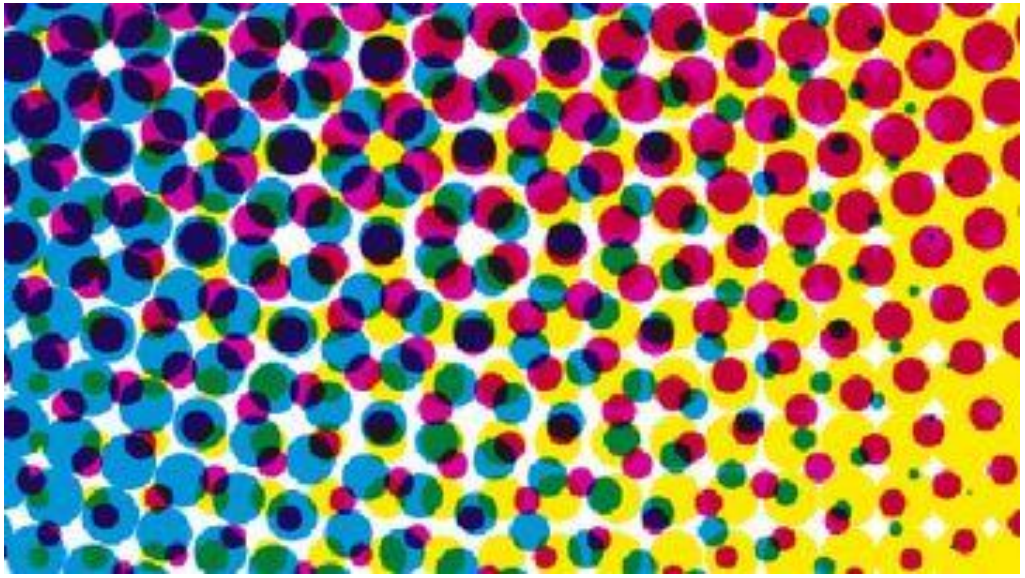


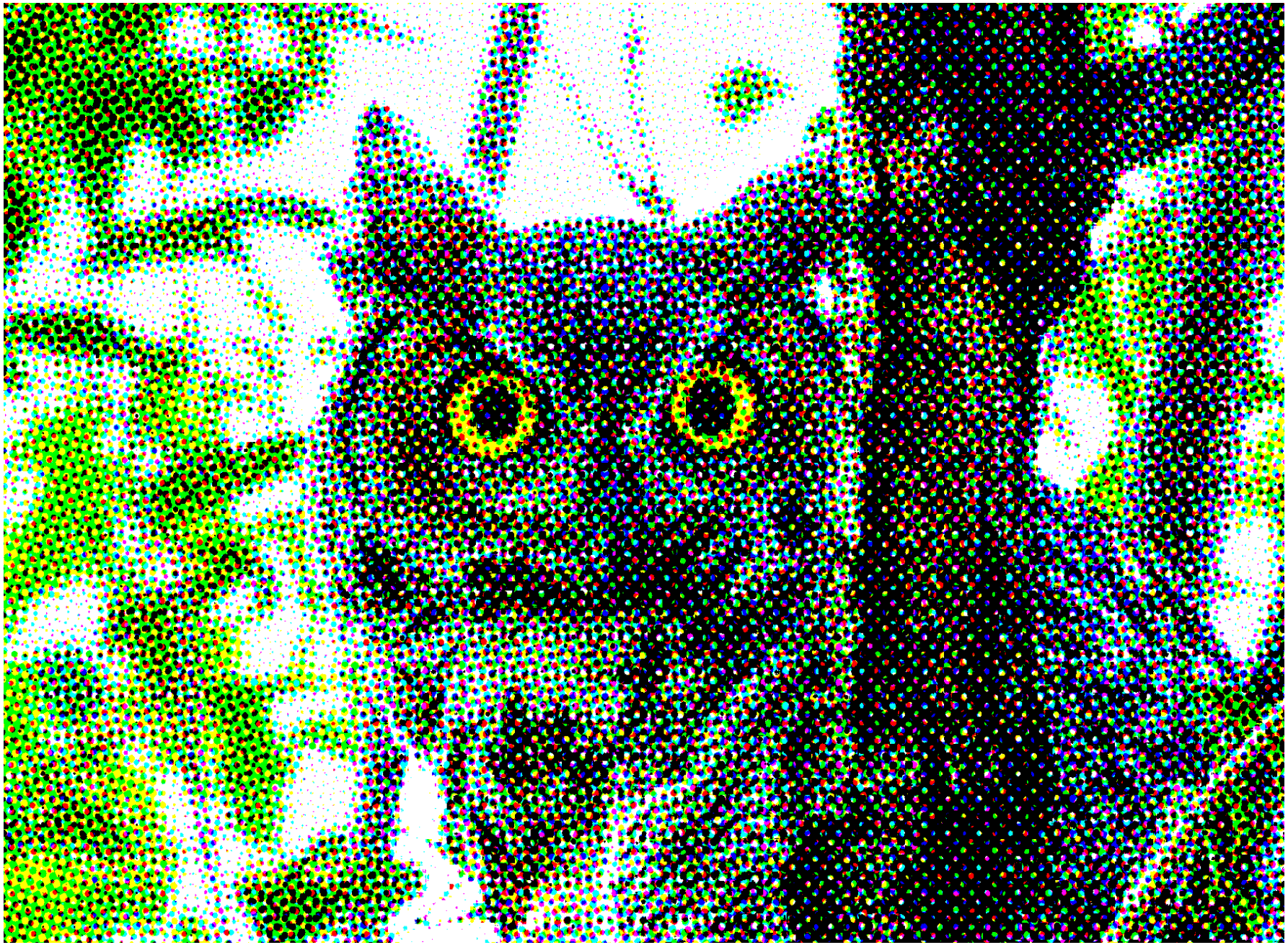
…computer screen IN DETAIL



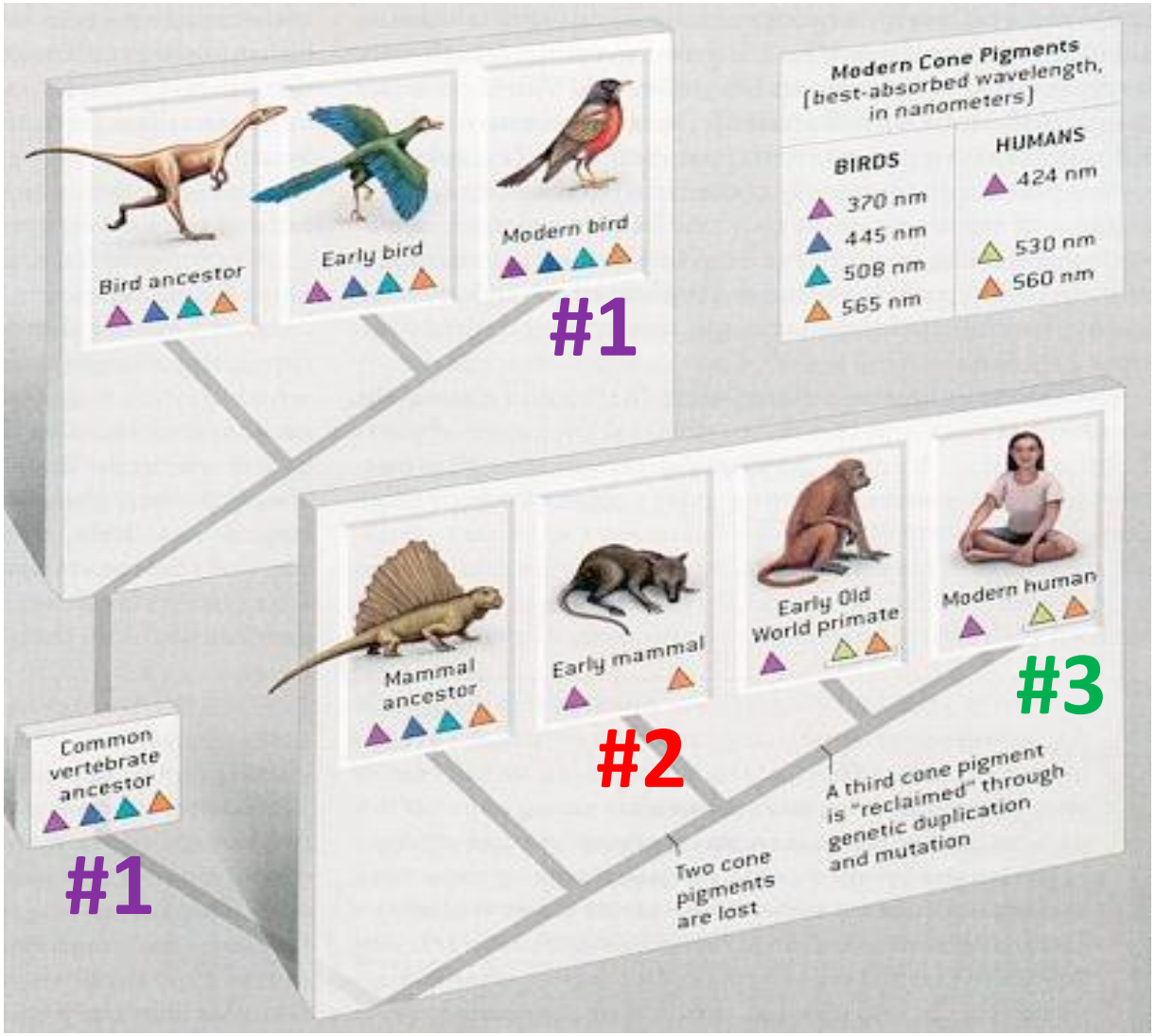
…something printed

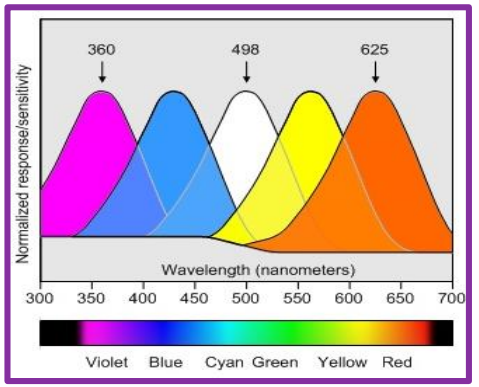
IN DETAIL



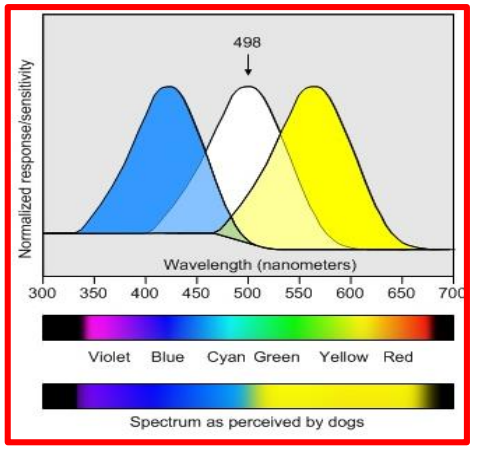


Evolution of Color Vision

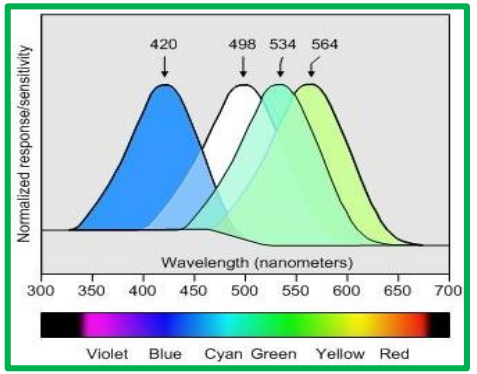




#1



#2



#3

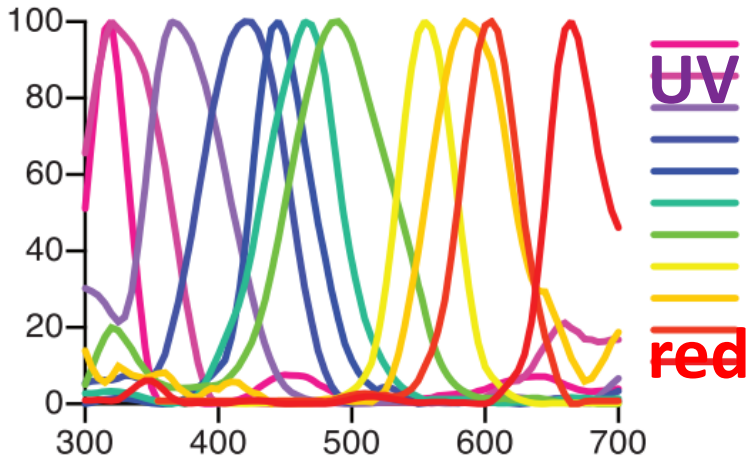
Can there be more?

YES!

The mantis shrimp has 12 distinct photoreceptor types.

- There are more than 500 known species of mantis shrimp, which range in size from less than an inch to over a foot long.
- They mainly live among the coral reefs of tropical oceans — one of the most colorful environments on Earth.
- The mantis shrimp eyes are considered to be the most complex eyes in the animal kingdom.

- With its 12 photoreceptors, the mantis shrimp is able to immediately recognize basic colors just by scanning an object with their eyes, rather than using the brain to distinguish different colors of light.
- While it can make quick and reliable determinations of color, the creature is rather bad at discriminating close colors from one another.




LIFE
" Life - it goes on "
Robert Frost

Living things are distinguished from non-living in that they **have biological processes** *(functions* such as *metabolism, growth, reproduction, etc.)*

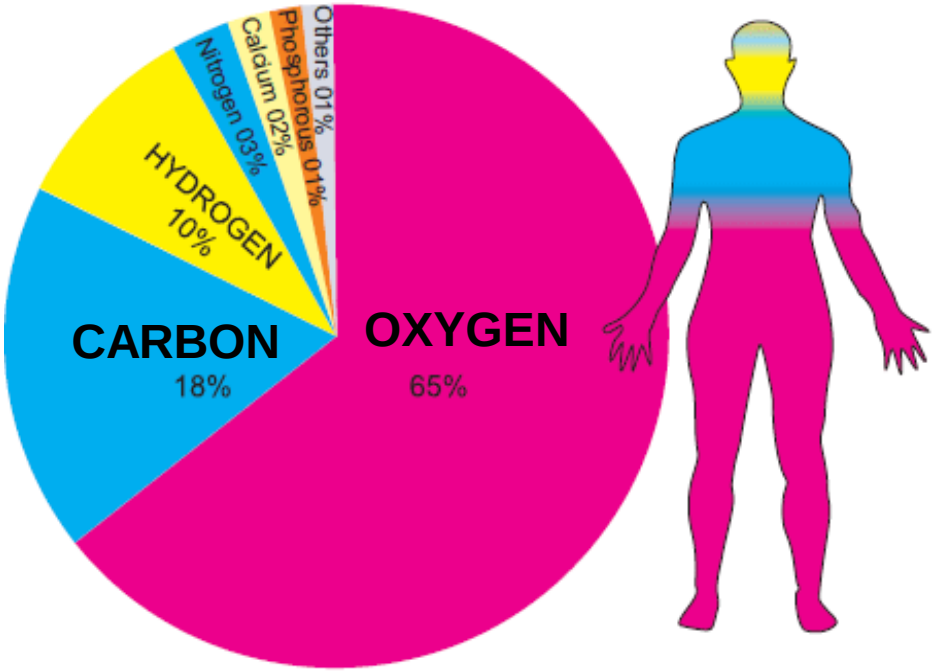
The smallest unit of life is called an organism.

Examples?

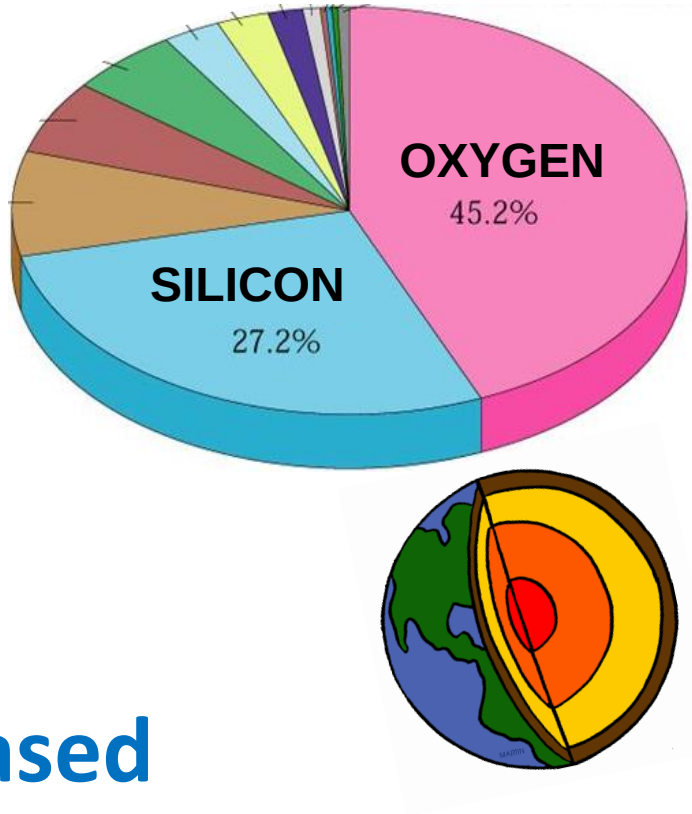
What is Life Made of?

Approximate <u>elemental composition</u> **(% of chemical element by mass)**

of a human body…



…vs Earth's crust



life is carbon-based