

BIO107  
Introduction to Biotechnology

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## Science Versus Religion

Religion is based on faith in the  
absence of evidence.

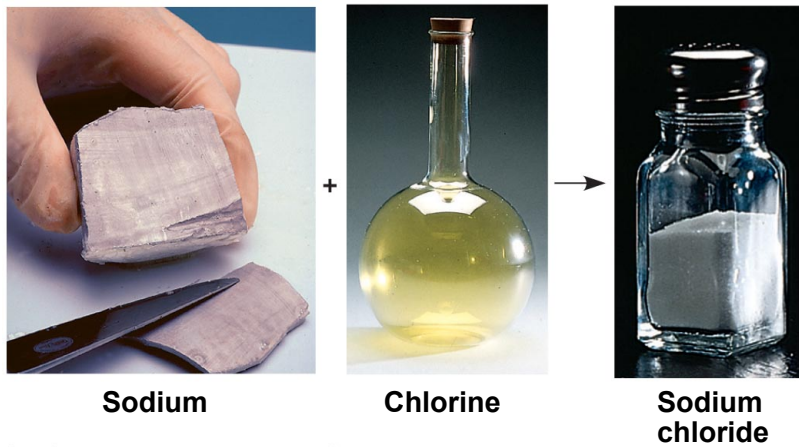
Science is based on evidence that  
leads to belief.

2

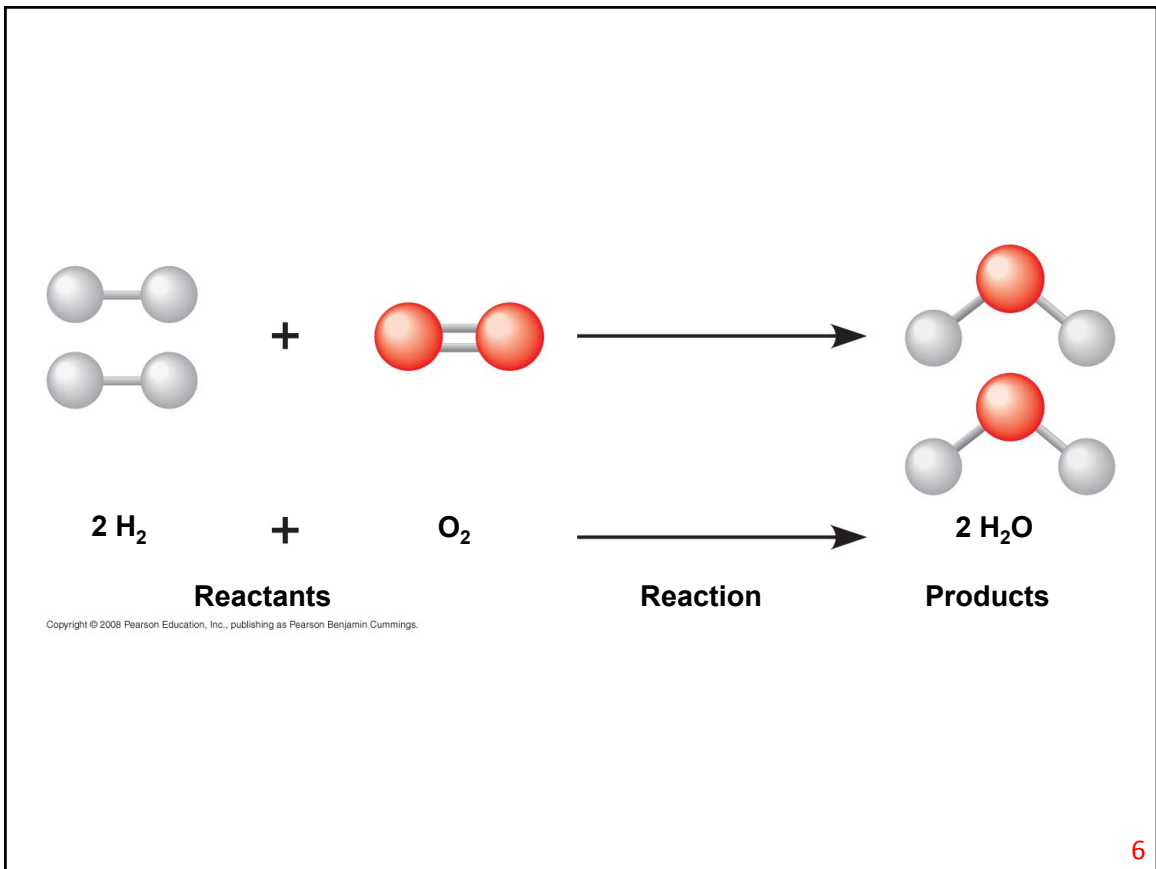
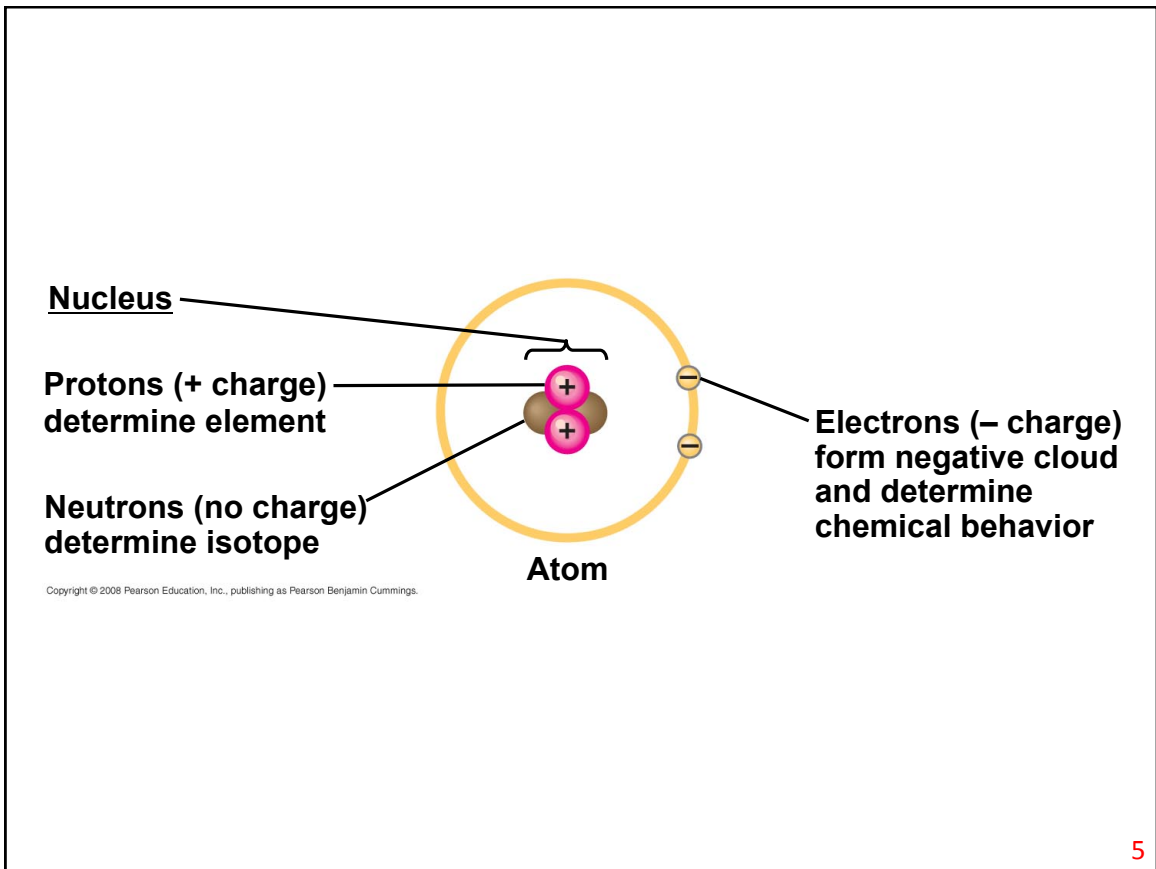
What is Chemistry?

What is Biology?

What is Biotechnology?



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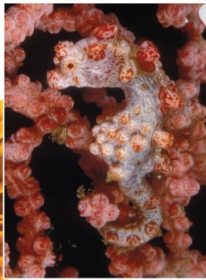


**Table 2.1 Naturally Occurring Elements in the Human Body**

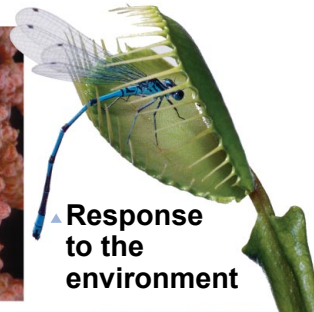
Symbol	Element	Atomic Number (see p. 33)	Percentage of Human Body Weight
<b>Elements making up about 96% of human body weight</b>			
O	Oxygen	8	65.0
C	Carbon	6	18.5
H	Hydrogen	1	9.5
N	Nitrogen	7	3.3
<b>Elements making up about 4% of human body weight</b>			
Ca	Calcium	20	1.5
P	Phosphorus	15	1.0
K	Potassium	19	0.4
S	Sulfur	16	0.3
Na	Sodium	11	0.2
Cl	Chlorine	17	0.2
Mg	Magnesium	12	0.1
<b>Elements making up less than 0.01% of human body weight (trace elements)</b>			
Boron (B), chromium (Cr), cobalt (Co), copper (Cu), fluorine (F), iodine (I), iron (Fe), manganese (Mn), molybdenum (Mo), selenium (Se), silicon (Si), tin (Sn), vanadium (V), zinc (Zn)			

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▼ Order



▲ Evolutionary adaptation



▲ Response to the environment



▲ Regulation



▲ Energy processing

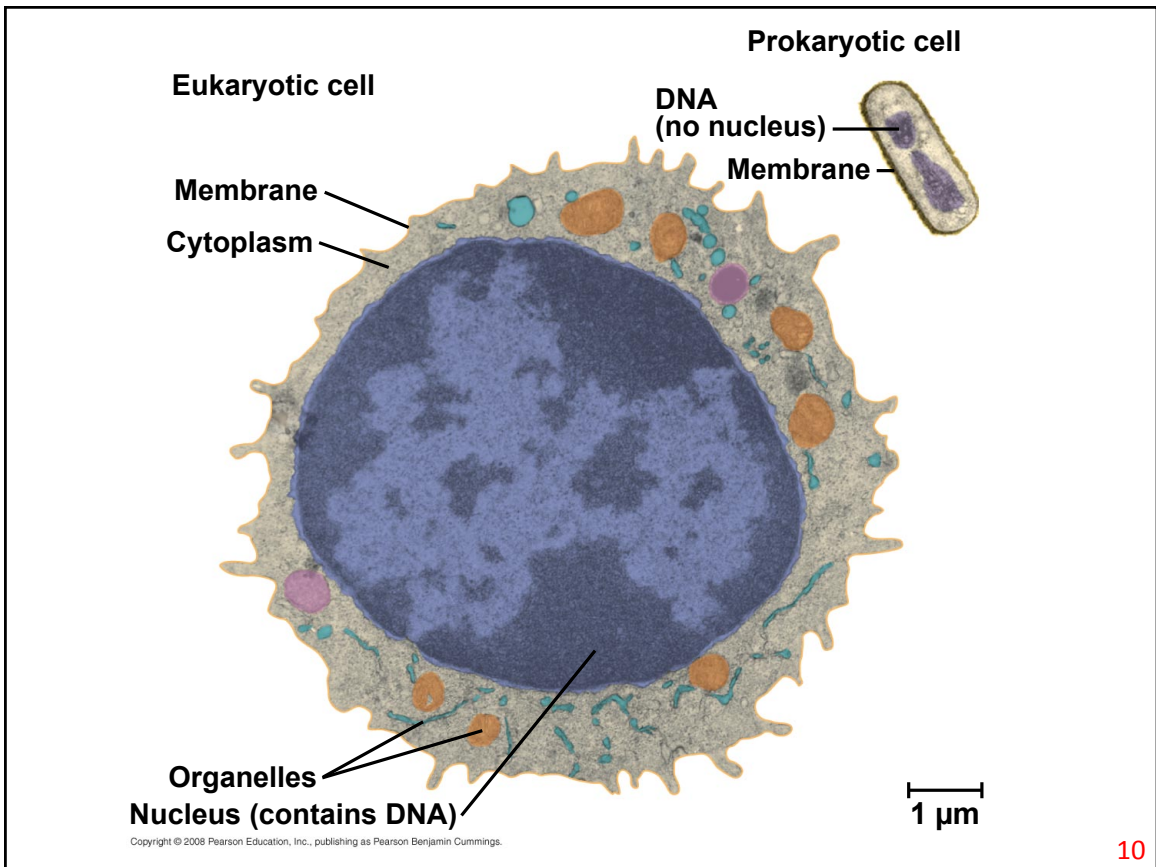
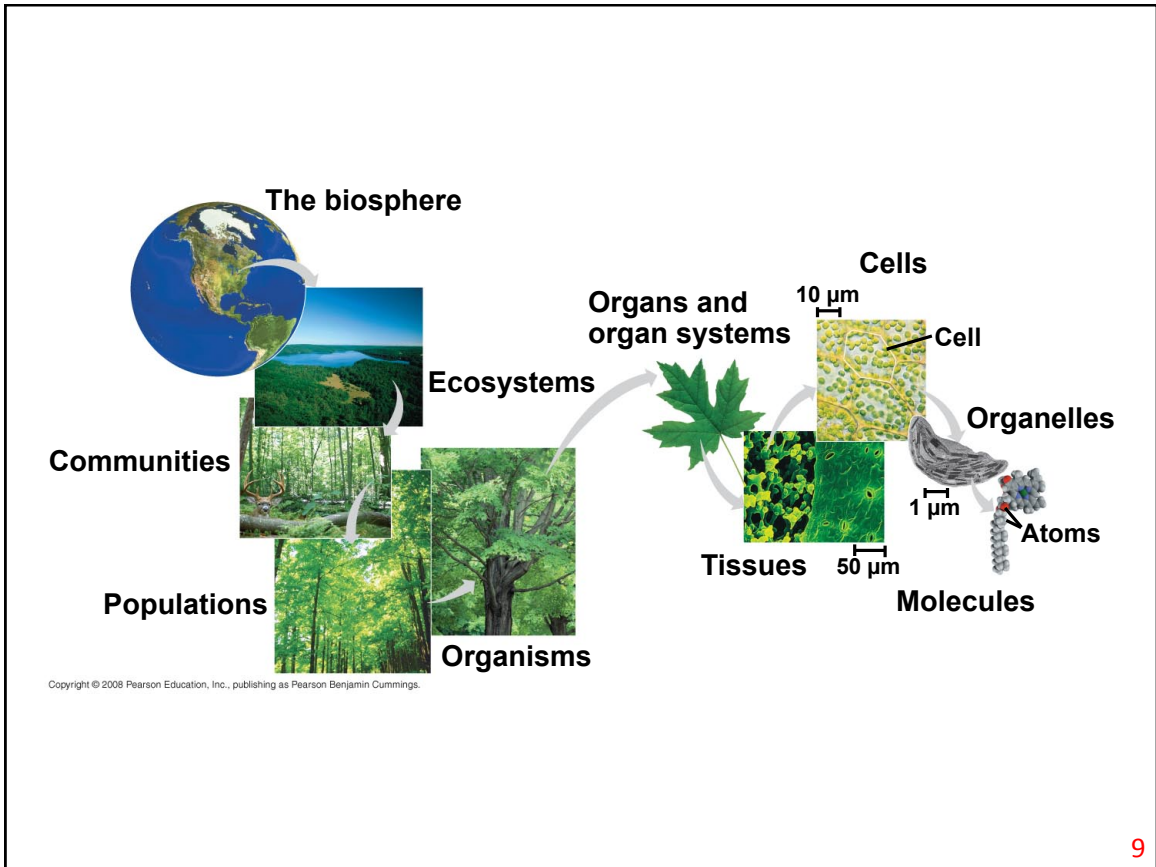


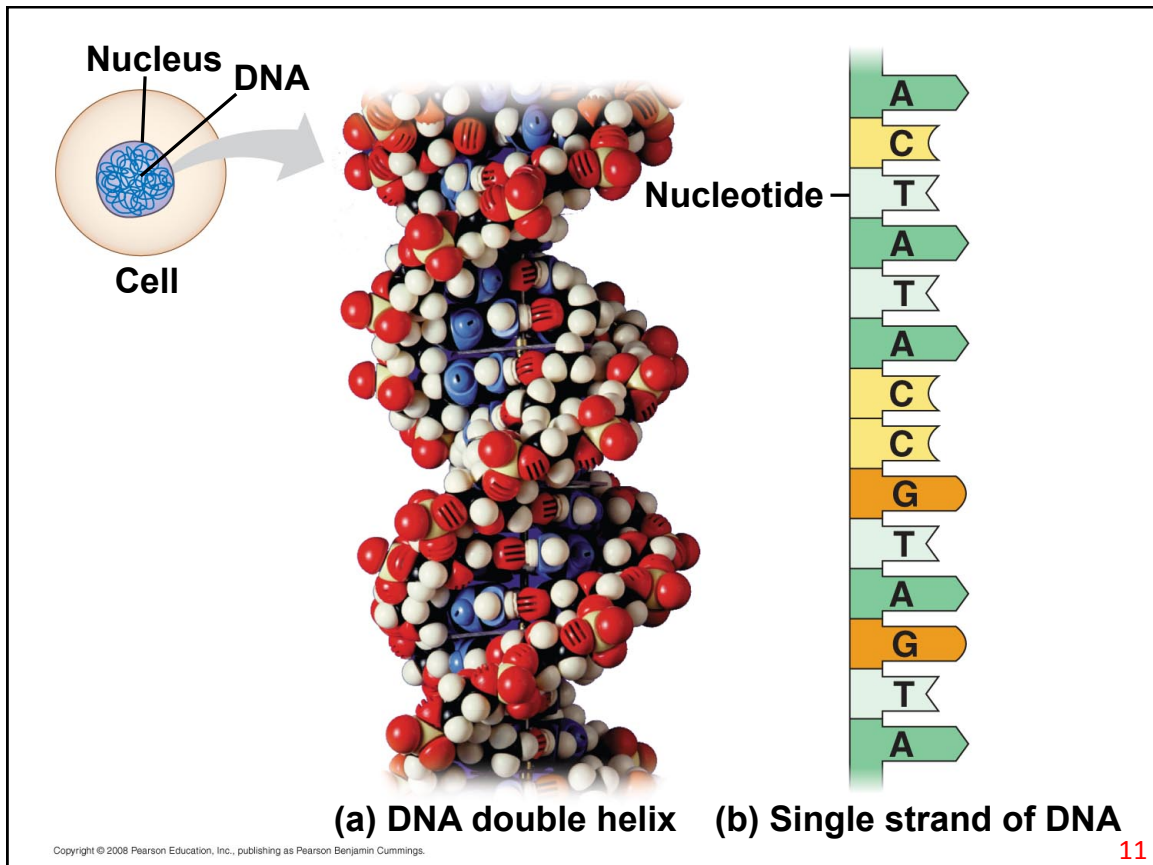
▲ Reproduction



▲ Growth and development

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- ## Classes of Biological Macromolecules
- Lipids
  - Polysaccharides
  - Proteins
  - Nucleic Acids
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## Tools of Biotechnology: Centrifuge



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## Tools of Biotechnology: Vortexer



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## Tools of Biotechnology: Tubes



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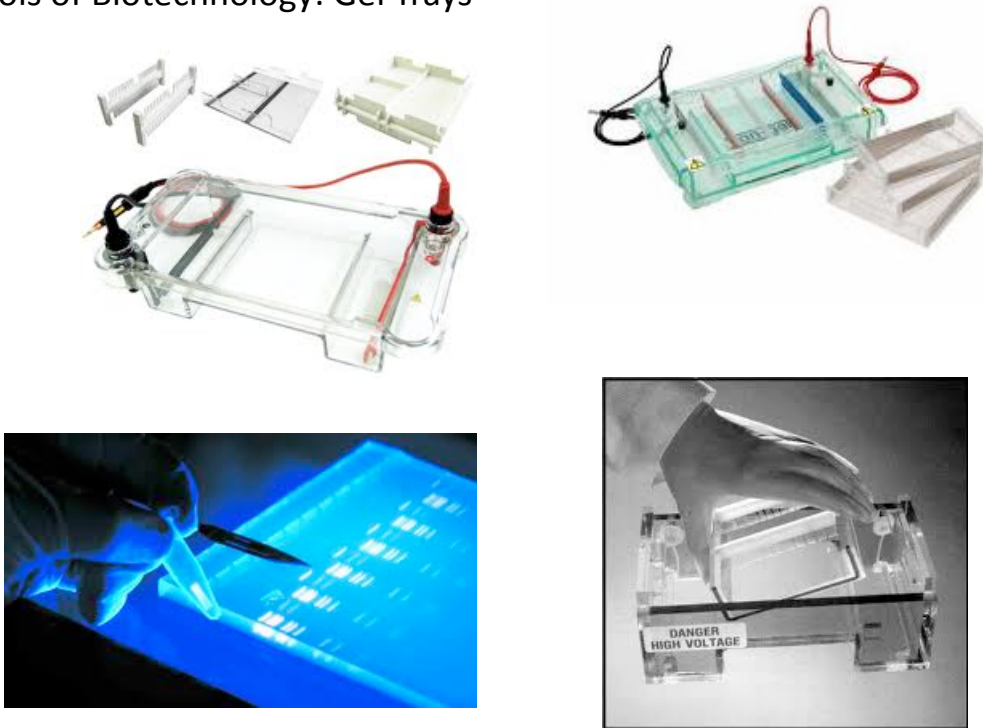
## Tools of Biotechnology: Racks



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## Tools of Biotechnology: Gel Trays



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## Tools of Biotechnology: Power Supplies



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## Tools of Biotechnology: Pipettes



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## Tools of Biotechnology: Pipettors



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## Tools of Biotechnology: Heat Blocks

