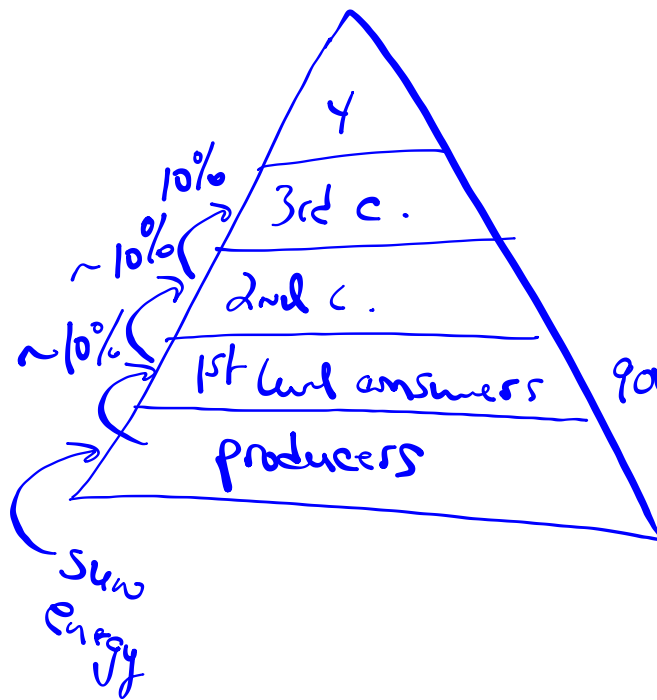


3 Domains -

- [- Archea - 1st - extreme env., no O_2
- [- Bacteria - 2nd - O_2
- Eukarya - nucleus, organelles

Symbiosis

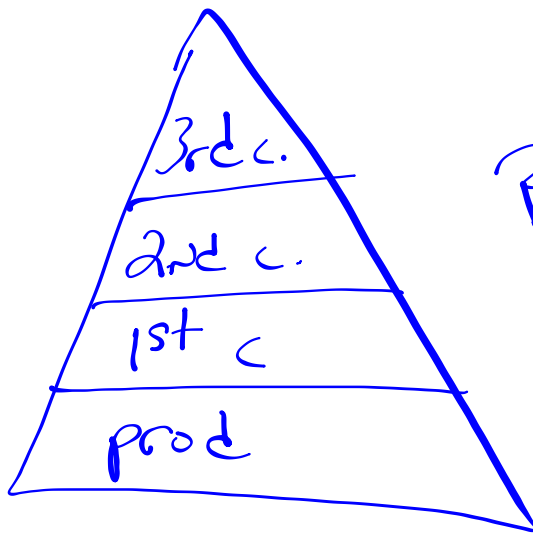
- mutualism - both benefit
- commensalism - 1 benefits, 1 not help
not harmed
- parasitism - 1 benefits, 1 harmed



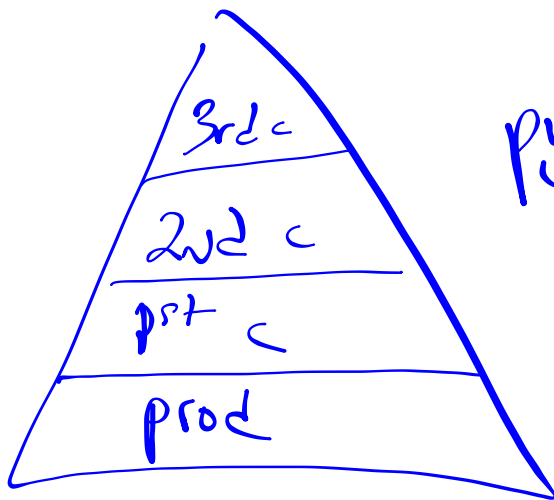
ENERGY
pyramid

900 kcal
10,000 kcal → ?%

$$\frac{900 \text{ kcal}}{10,000 \text{ kcal}} \times 100 = 9\%$$



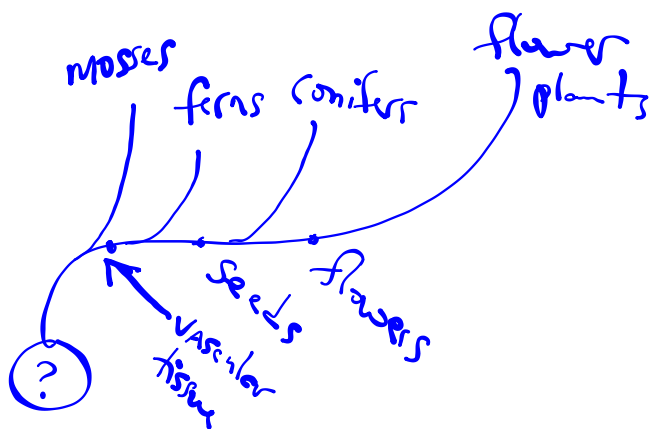
Biomass
pyramid



pyramid
of
#s

CLADGRAM

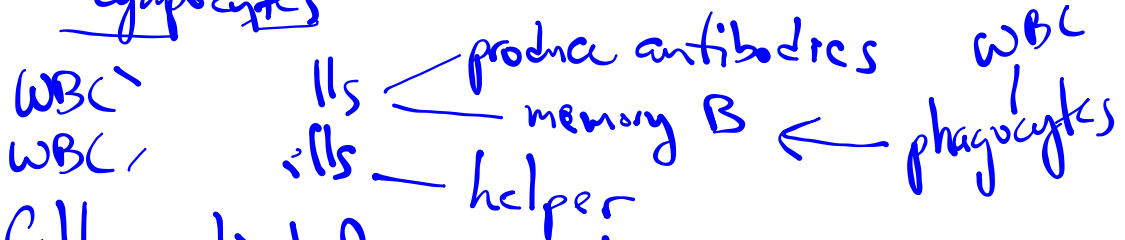
- derived characteristics = evolutionary "innovations"



Specific immunity

Humoral immunity

Lymphocytes



Cell-mediated immunity

- no antibodies

WBC - killer T -

Active - vaccinations

- inject weakened/mild form of pathogen
- stimulates immune syst.
prod. antibodies

Passive -

- inject antibodies from another animal
- maternal

RBC - non-nucleated

- hemoglobin - carries O_2

WBC - immune response

B cells) lymphocytes
T cells)

phagocytes - bloodstream