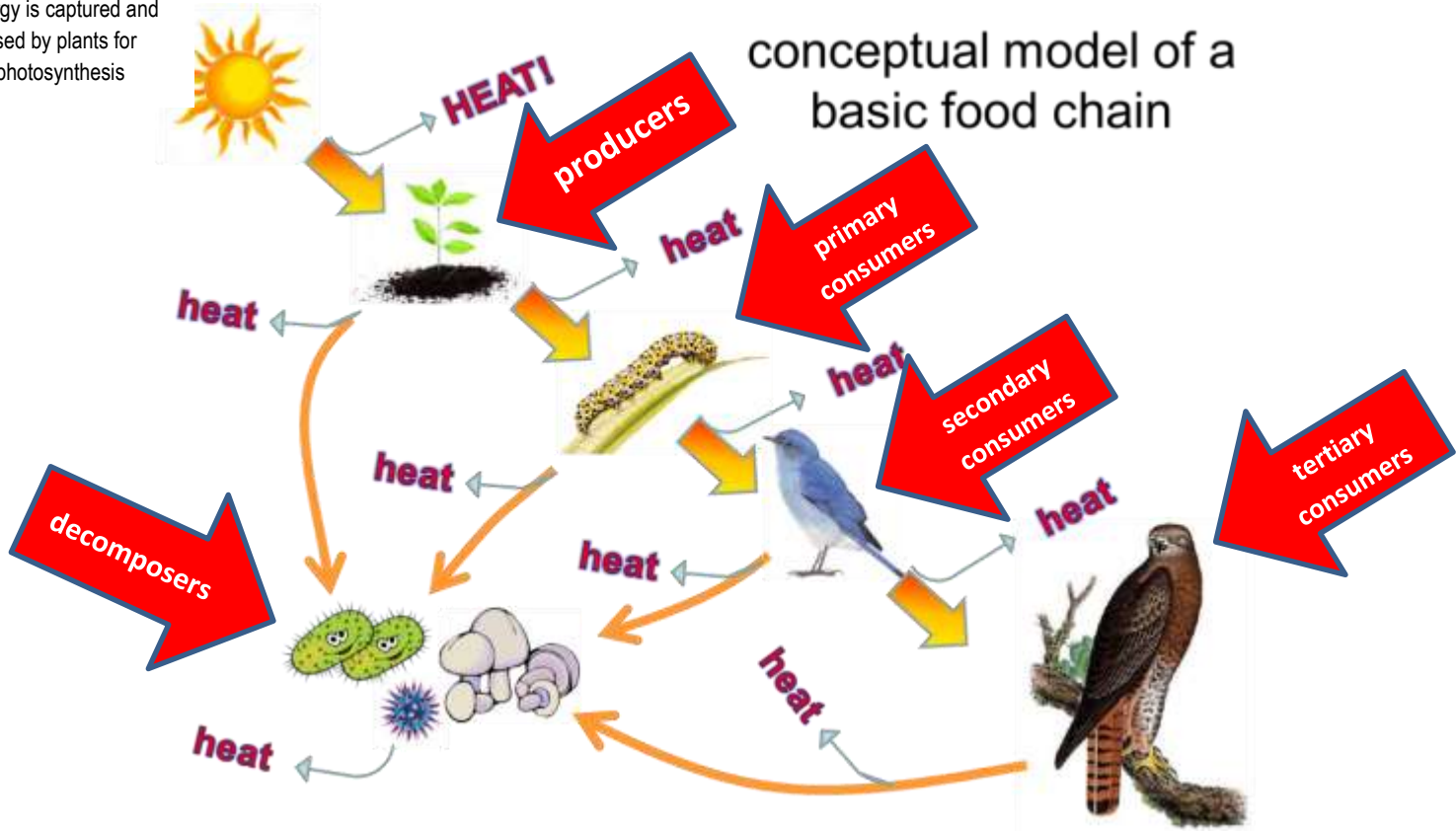


Aim: How does energy flow through an ecosystem?

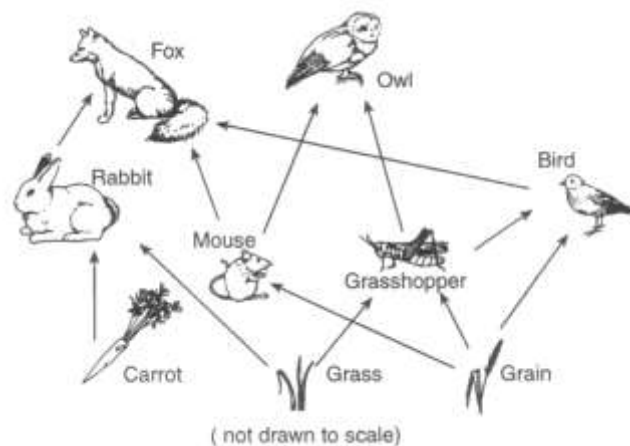
1. Food Chain - a linked feeding series (linear – not a true representation of all feeding habits)

only ~1.2% of solar energy is captured and used by plants for photosynthesis

arrows show flow of chemical energy (and/or matter)



2. Food Web – interconnected food chains (a better representation of energy flow within an ecosystem)

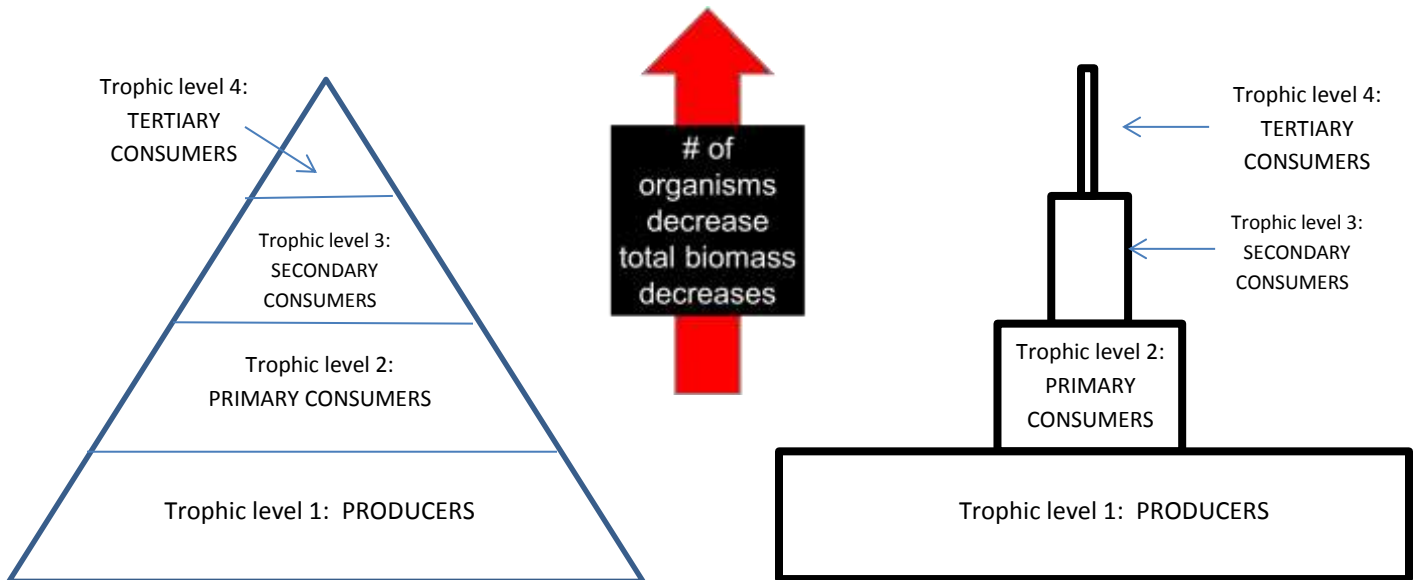


Remember:
following different paths through the food can alter an organism's consumer level

ex. birds can be considered both a primary and secondary consumer

3. Biomass / Energy Pyramid

Biomass - the combined dry weight of all organic matter per trophic (energy/feeding) level



Ecological Efficiency

1. **10% rule - approx. 10% of energy is passed up each trophic level (90% is lost)**
2. Energy is lost because:
 - a. not all parts are eaten
 - b. some energy is used by organisms for life processes
 - c. energy is used to maintain body temperature
3. most energy is degraded and given off as heat (2nd law thermodynamics)
4. since little energy can be transferred to higher levels, it is necessary that 1st level contains greatest biomass to support higher trophic levels
5. more trophic levels = greater amount of energy lost
6. **** More individuals can be supported in an ecosystem if they eat at lower trophic levels ****