Chapter 8 Section 1 Notes

Example of a Population – all of the black squirrels living in a forest

3 Main Properties of Populations
- **size** - the number of individuals
- **density** – the number of individuals per unit area
    - ex) the number of wild horses per square kilometer in a prairie
- **dispersion** – the relative distribution of individuals (may be described as even, clumped, or random)
    - clumped dispersion – description of a large population of geese gathered in a marsh

growth rate – the ratio of births to deaths in a population

- for a population's growth rate to be zero the average number of births & deaths must be the same

reproductive potential – a population's biotic potential is limited by the maximum number of offspring each individual can produce

- ex) if over a long period of time each pair of adults in a population had only two offspring & the offspring lived to reproduce, the population would remain the same
- rabbits have a higher reproductive potential than elephants, humans, or horses because they have more babies more quickly.
- reproducing early in life has the greatest effect on reproductive potential
- generation time – average age at which members of a species reproduce

exponential growth – occurs when a population grows increasingly faster
- can happen when a population has plenty of food & space, & has no competition or predators
- examples
    - rabbit populations rapidly increased after being introduced to Australia
    - bank accounts that earn interest rapidly increase
    - when mold appears on bread overnight

What Limits Population Growth? (carrying capacity, natural disasters, severe weather)

carrying capacity – the maximum population that an ecosystem can support indefinitely
- determined by the supply of the most limited resources
- density dependent factor would be deaths caused by disease
- density independent factors would be
    - reduction in population size caused by a natural disaster
    - cause of death that does not occur more quickly in crowded populations

resource limits – examples of limiting resources are water, sunlight, or nutrients for plants

competition within a population -
- an example of indirect competition for resources would be a territory (an area defended by one or more individuals)