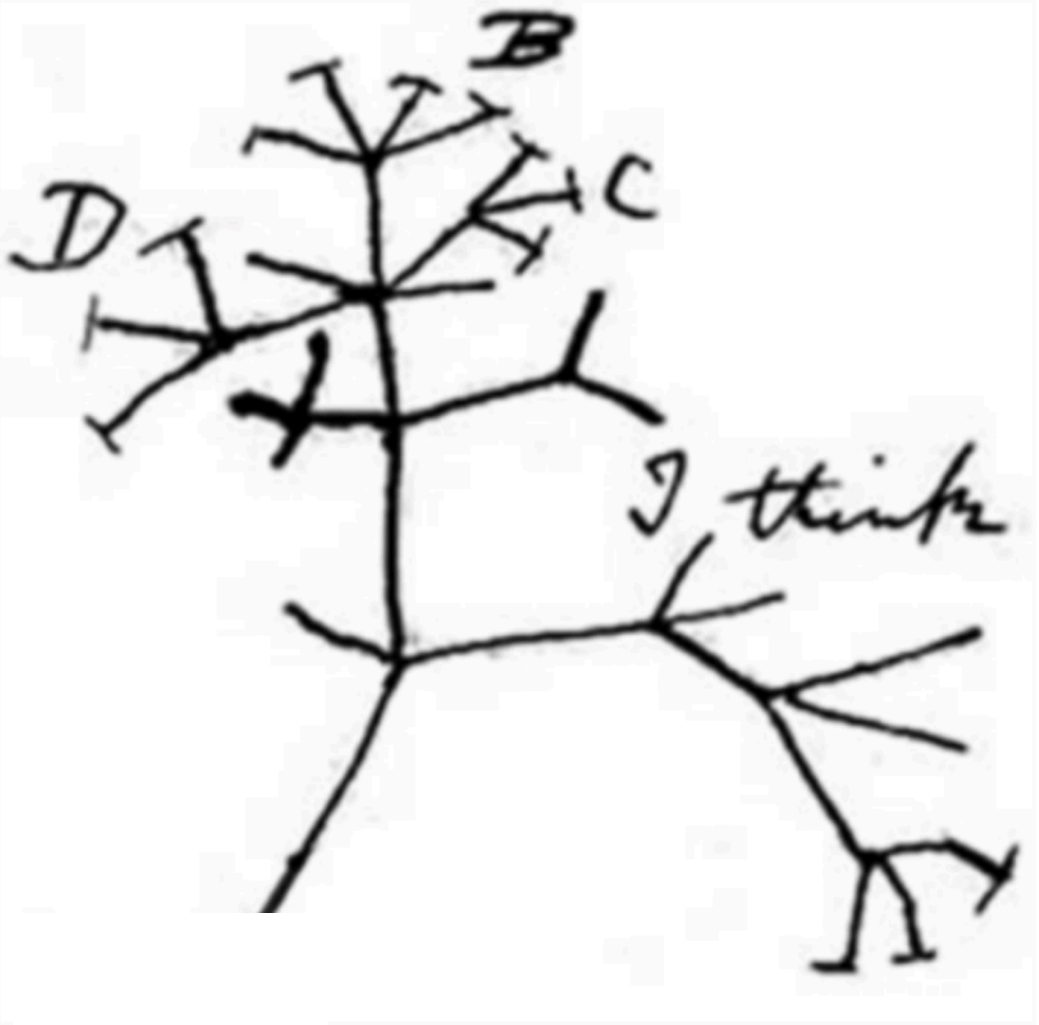
first practice exam is now on NB

Questions?

Chapter 3.2 first read pages 49-57

Here is a (modified) drawing from Darwin's notebook; it captures his core idea about evolution; circle a species and then draw a square around a genus.

How does the theory of evolution + the absence of spontaneous generation leads to a Linnaean classification scheme.



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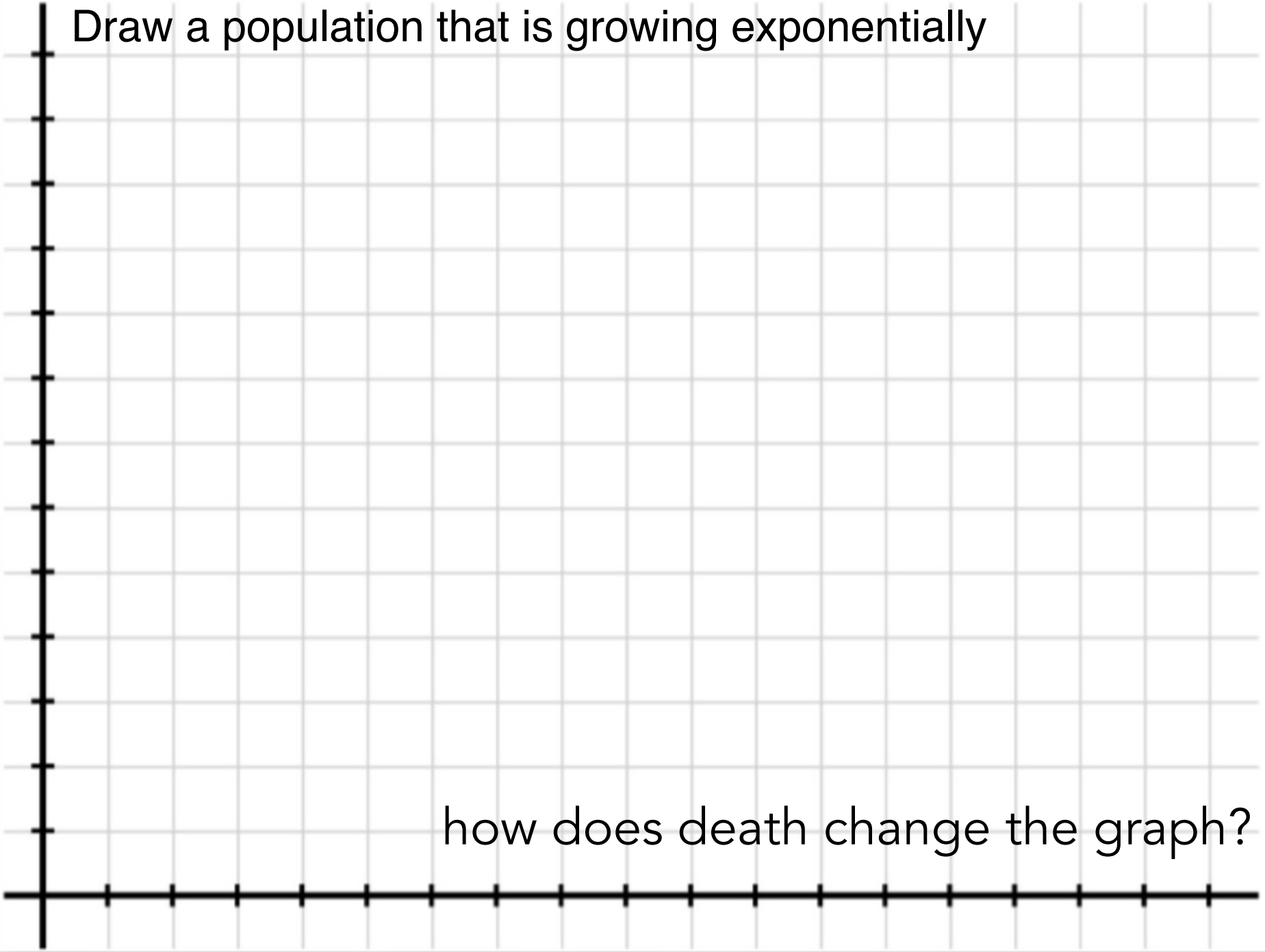
Group: What empirical observations is the theory of evolution by natural selection based on?

Draw a population that is growing exponentially



how does death change the graph?

what limits population growth?

(related to non-equilibrium nature of biological systems)

how does variation within a population impact growth?

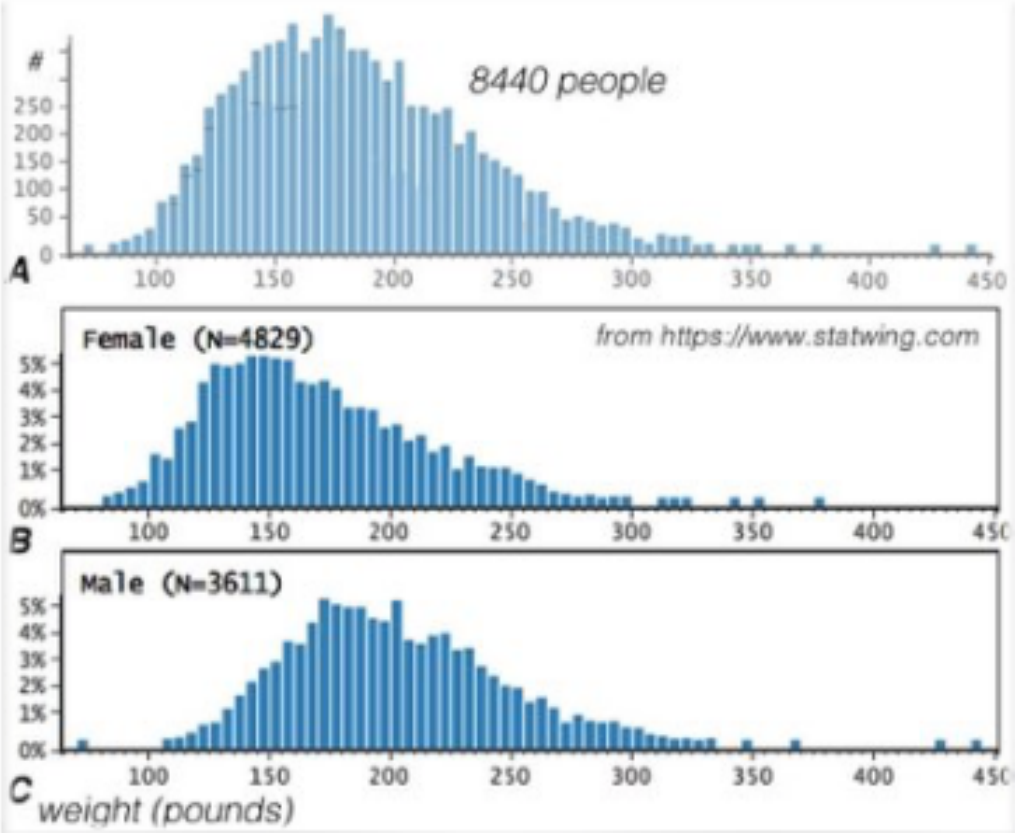
What is difference between mean, median, and standard deviation?

$$\bar{x} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

median

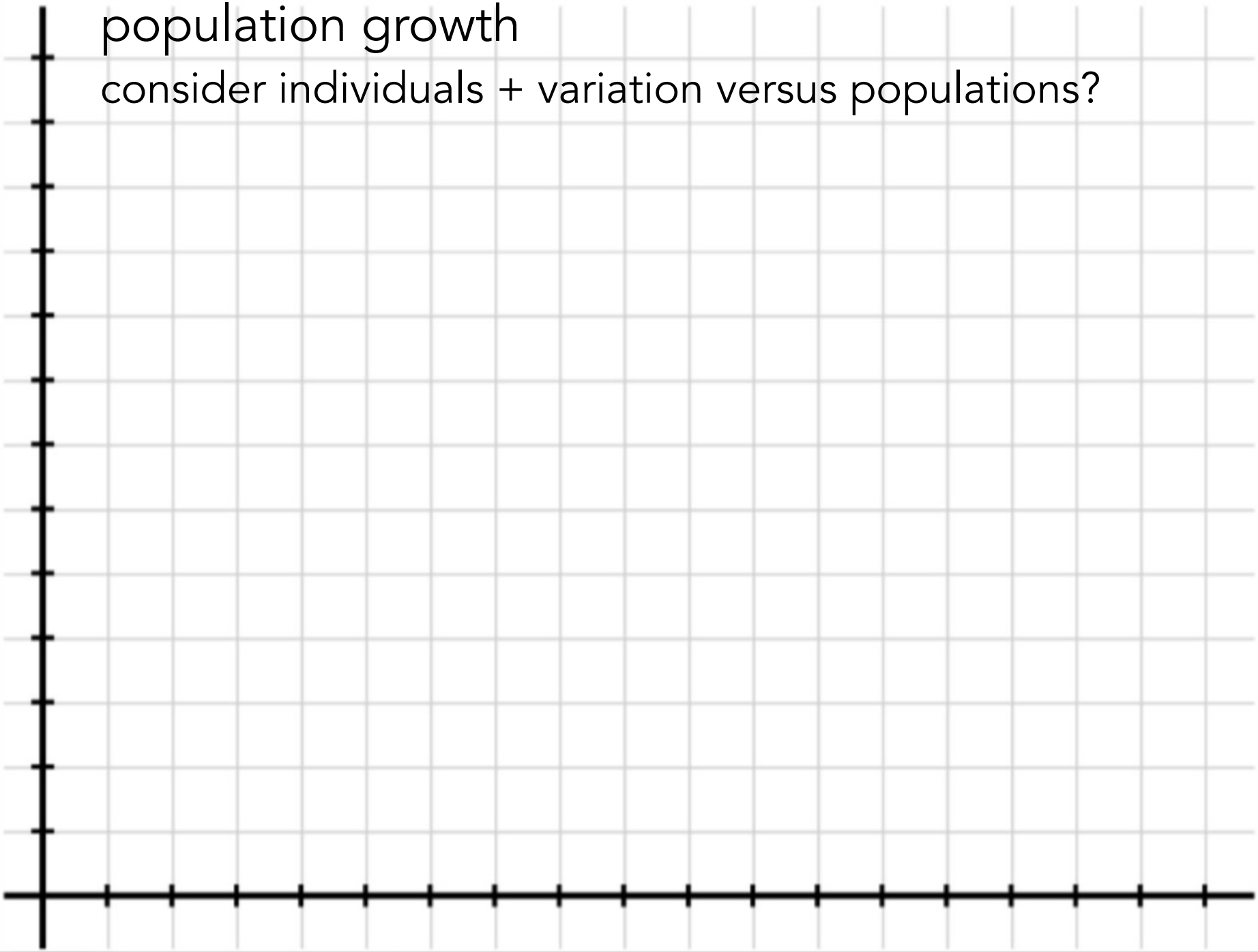
$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \overline{x})^2}$$

Estimate mean, median, and SD of these graphs



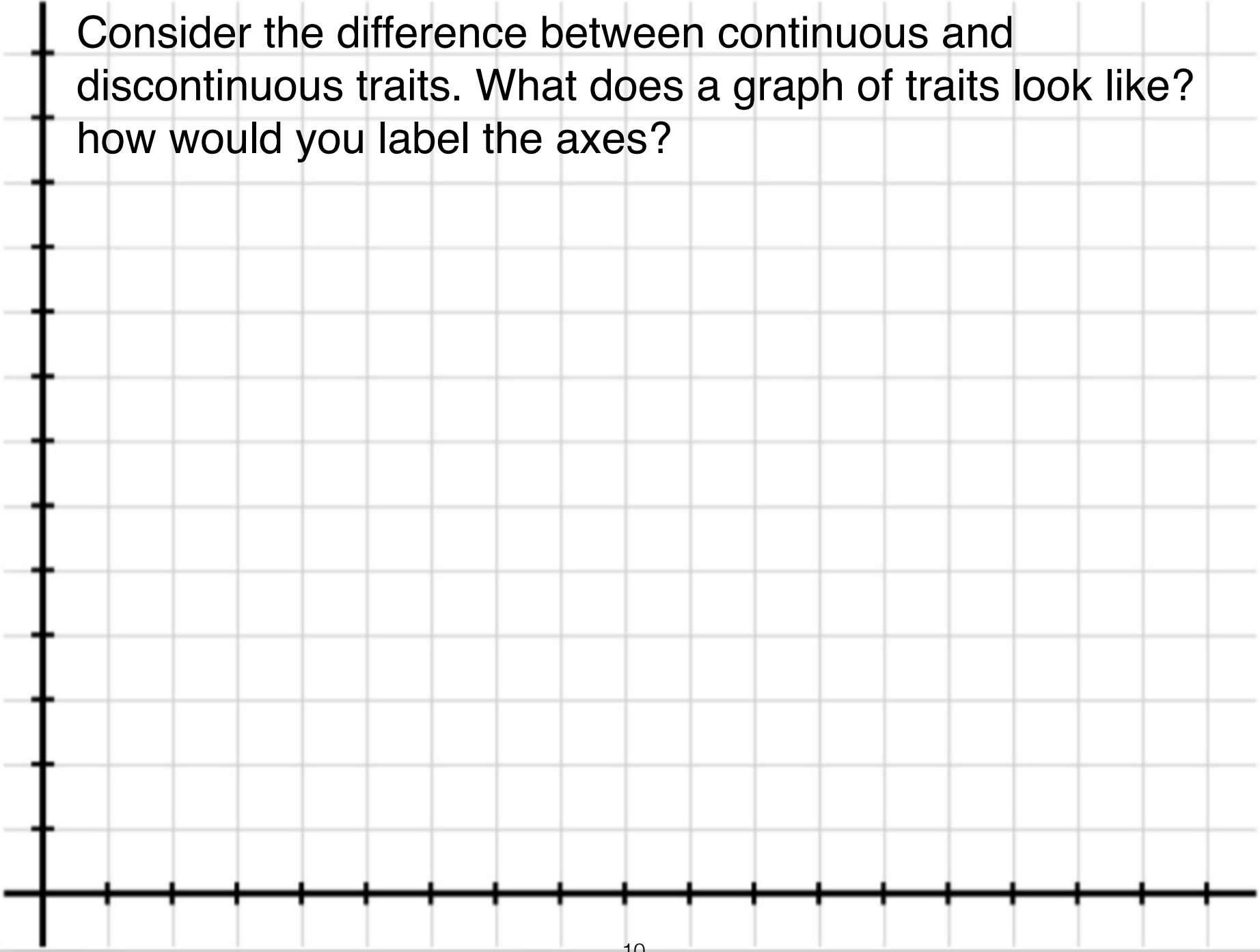
population growth

consider individuals + variation versus populations?



What is a discontinuous trait as compared to a continuous trait?

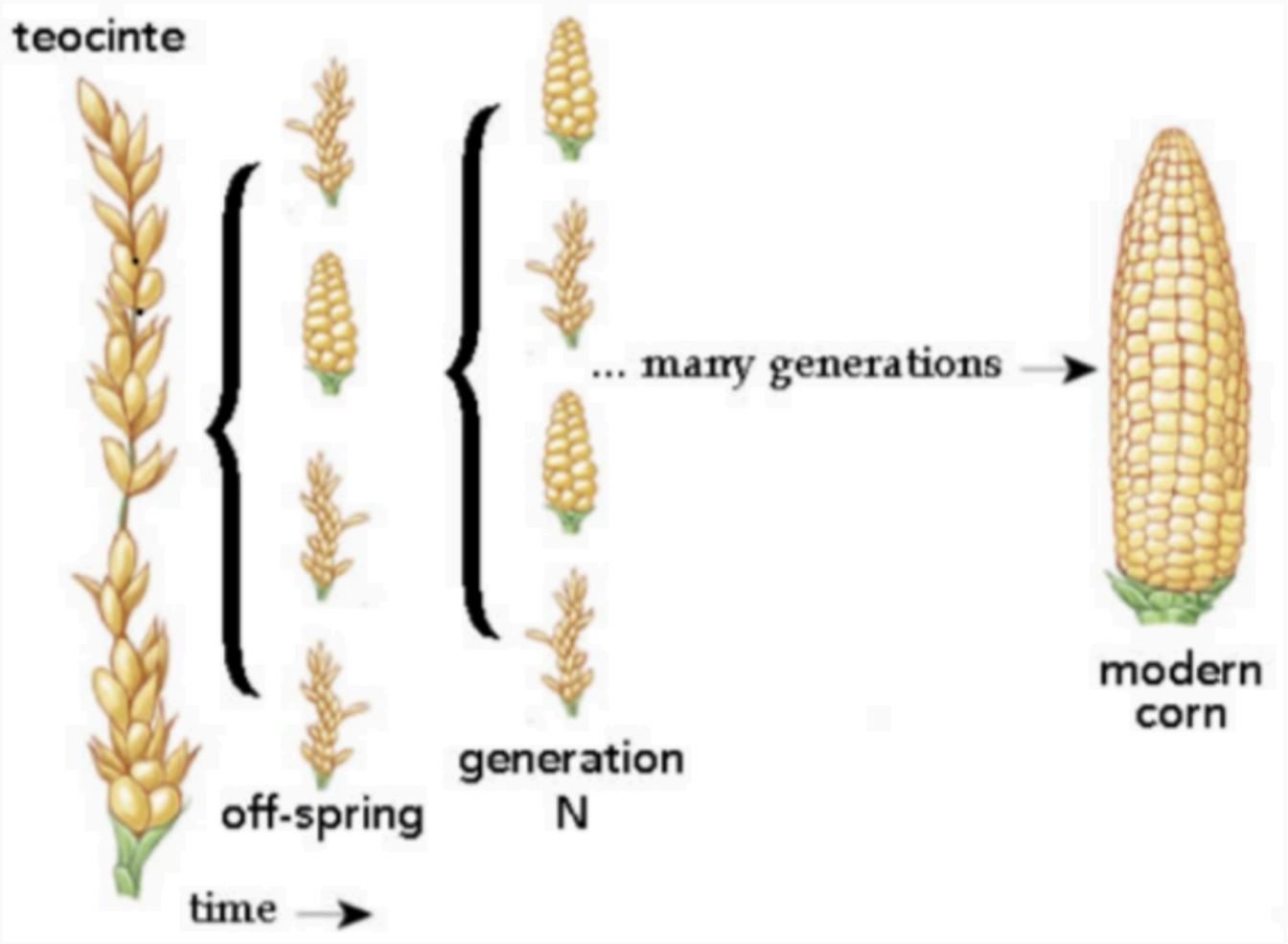
Consider the difference between continuous and discontinuous traits. What does a graph of traits look like? how would you label the axes?



How did the experiences of plant and animal breeder influence the formation of evolution theory?

Darwin took a lesson from the experiences of plant and animal breeders; they recognized the variation between individuals, together with their ability to select those individuals allowed to breed. Over many generations individuals that displayed extreme versions of the selected were generated.

circle the offspring (in generation N) that you would breed to generate modern corn from teocinte and explain your reasoning below.



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What kinds of variation are present in a population?

What is nature “selecting”? How does it “select”?

What is the most important type of variation (from an evolutionary perspective)? one only.

- lifespan (longevity)
- size
- intelligence
- total number of offspring
- other

explain your choice and the reasoning behind it

How might evolutionary processes produce an increase in intelligence, if such an increase lead to a decrease in overall fertility?

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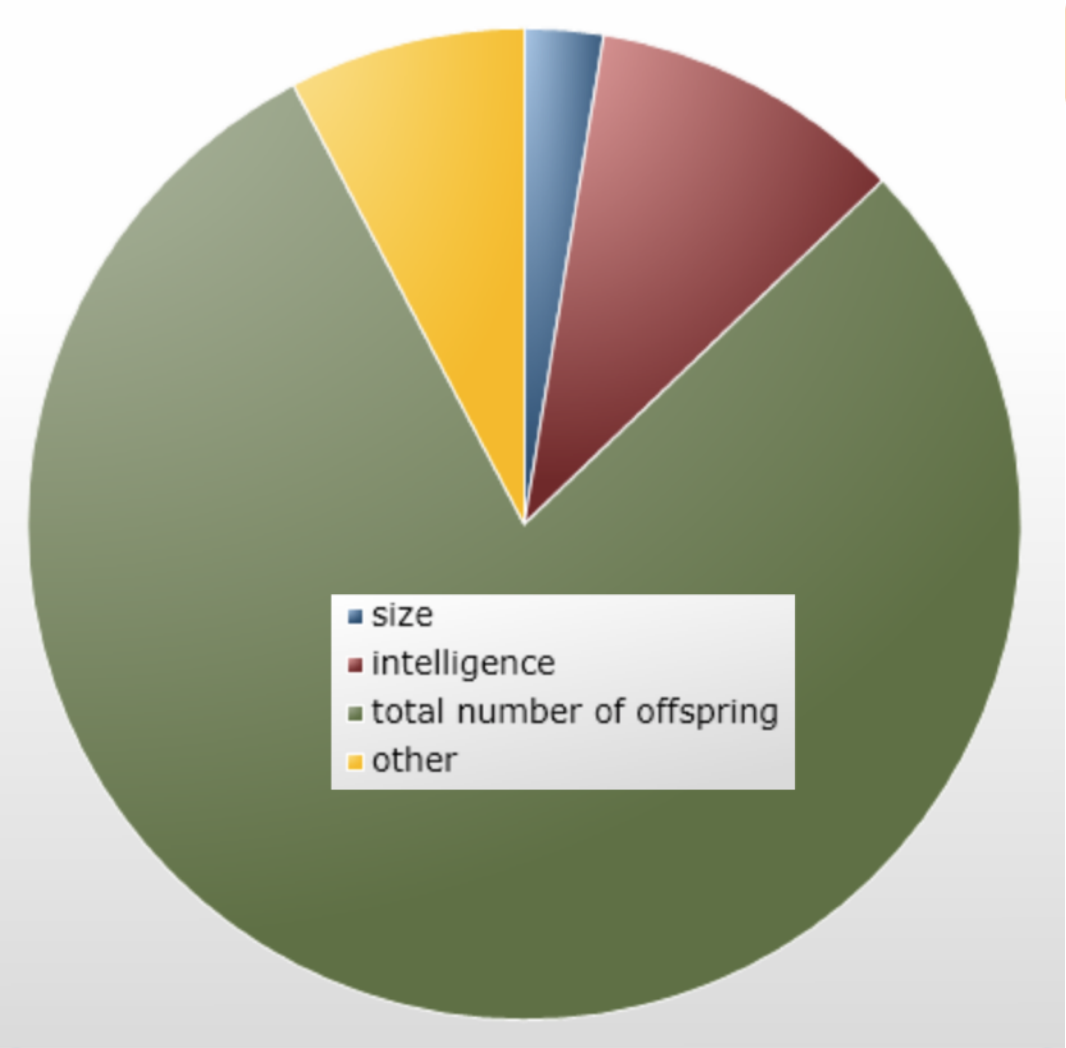


How might evolutionary processes produce an increase in intelligence, if such an increase lead to a decrease in overall fertility?

How does evolution explain the existence of species?

Can we replace the idea of species with
"reproductively isolated population"?
does that change anything?

What is a species in an asexual organism/population?

As you reflect upon the realities of animal breeding, what are the ethical issues? Are they more or less alarming, in your opinion, that the generation of GMOs?

Draw your model of a gene and an allele;
where does genetic variation come from?

Wed. 13 Sept	Chapter 3.2 Evolutionary mechanism	49-57	**Complete** beSocratic #6

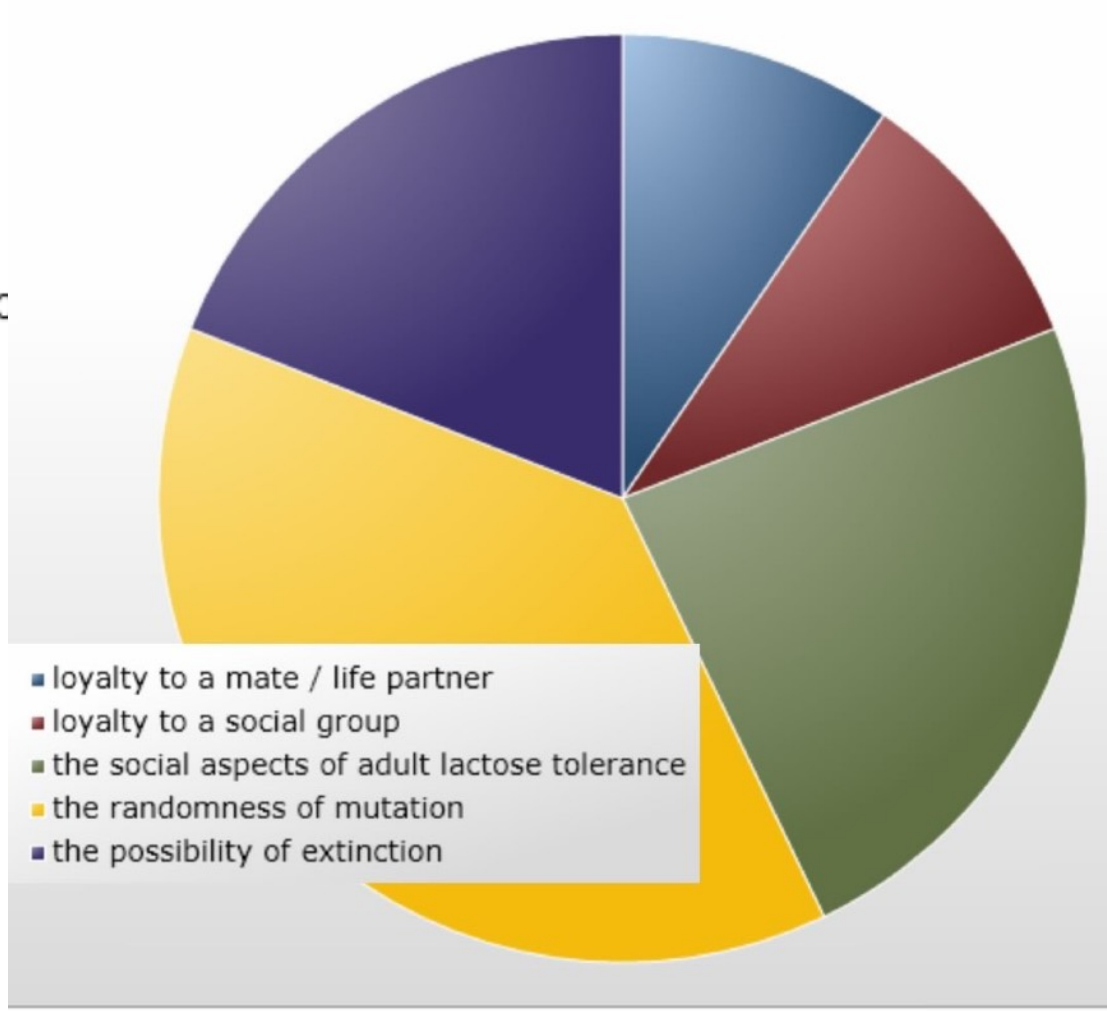
In the text, we refer to the genome as a book - but it is rather weird book because some regions "mean" something and others that do not appear to mean anything.
Make a cartoon a simple genome; indicate what is a gene..

How would you define the difference between an allele and a sequence polymorphism; which is likely to be more relevant to evolution.

Draw Erase Reset

4: Which of these traits do you find the MOST difficult to accept as a sproduct of evolutionary mechanisms?

- loyalty to a mate / life partner
- loyalty to a social group
- the social aspects of adult lacto
- the randomness of mutation
- the possibility of extinction



Can you explain why?

Questions to answer:

Explain why superfecundity is required for evolution to occur.

Why is the presence of genetically inheritable variation essential for any evolutionary model?

Questions to ponder:

What advantages might be associated with self-imposed controls on mating?

How could behaviors that limit an individual's ability to reproduce arise?