



# Expectation Sheet

## Evolution

NAME:

2/20/19

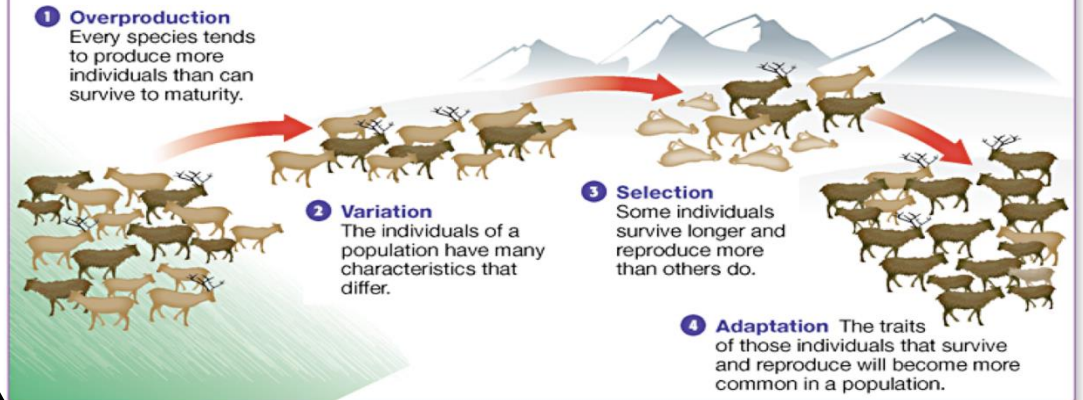
Test Date

### VOCABULARY

- Evolution
- Homologous
- Analogous
- Fossil
- Embryology
- Biogeography
- Vestigial Structures
- Natural Selection
- Adaptations
- Cladograms
- Stasis
- Genetic Diversity
- Genetic Drift
- Genetic Flow
- Inherited Variation
- Mutation
- Recombination
- Endosymbiosis
- Mitochondria
- Chloroplast

### Natural Selection

- Natural selection produces changes in the populations not individuals.
- The individual born with beneficial adaptations (the fittest) will survive and have a better chance to pass on their beneficial traits to their offspring.
- Natural selection needs inherited variation to "select" survivors.



### Evolutionary Evidence

F.A.M.E. summarizes the evidence that supports common ancestry (AME) and evolution (FAME).

F – **Fossils Evidence** (minerals/rock – NO DNA, they show evolutionary age and structures)

A – **Anatomical Structures** (homologous show common ancestry, analogous same function)

M – **Molecular Evidence** (more similarities in amino acids/DNA sequences closely related)

E – **Embryology** (similar developmental stage of embryos – common ancestry)

**F**

**A**

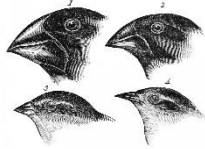
**M**

	Turtle	Man	Tuna	Chicken	Moth	Monkey	Dog
	A	B	C	D	E	F	G
Turtle A							
Man B	19						
Tuna C	27	31					
Chicken D	8	18	26				
Moth E	33	36	41	31			
Monkey F	18	1	32	17	35		
Dog G	13	13	29	14	28	12	

**E**

### Evolution

- Changes in populations over time.
- Leads to variations and potentially new species.



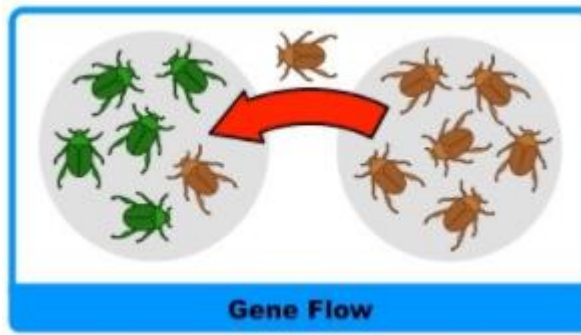
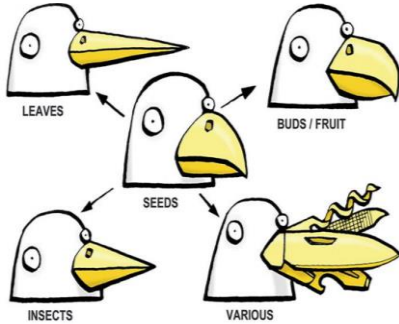
Charles Darwin was the first to propose the concept of descent by modification.

He explained natural selection was the driving force behind evolution.



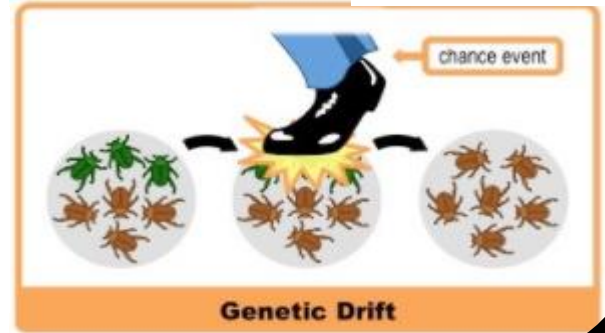
# Genetic Variation

Genetic variation is the driving force in introducing new traits/adaptations. The better ones will help a species to survive, allowing the gene to be passed to the next generation.



Genes flow between different populations. Increases genetic diversity.

Random change in genes by sudden chance, leading to a loss in genetic diversity. One population shrinks.



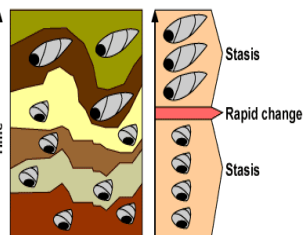
# Reproductive Success

Not all offspring will survive to reproduce. Some will inherit better traits than others giving them a better chance to survive and pass on their traits to offspring.

Organisms with similar reproductive structures show common ancestry. Mammals nurse their young with mammary glands, marsupials carry offspring in a pouch and reptiles have leathery eggs. All suggest common ancestry within each group.

Reproduction can also be improved through delayed implantation for delaying birth for better resources and reproductive isolation to allow different species to breed at different times of the year, decreasing competition among all offspring.

Surviving predators leads to ability to reproduce:  
Camouflage – hide from predators  
Mimicry - bright colors signify poison or venom to predators. So by mimicking these a harmless organism can fool a predator and survive.

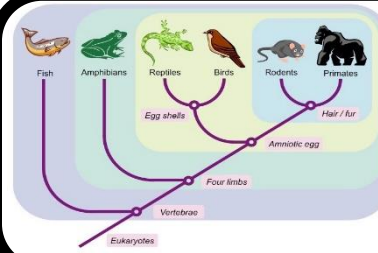
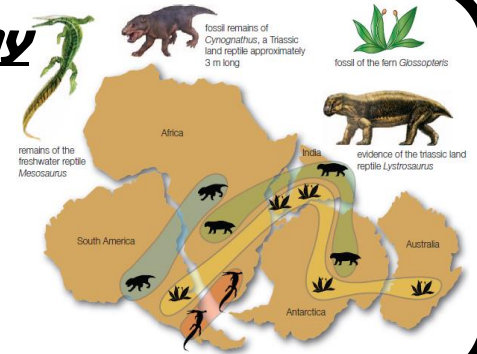


# Fossil Stasis

Fossils remain in a period of no change. A rapid change can cause the stasis to end and new fossils appear suddenly.

# Biogeography

Pangea super continent movement to current day continents explains how similar species' fossils are found on different continents when the organism couldn't swim or fly. Leads to speciation – one species develops into two.

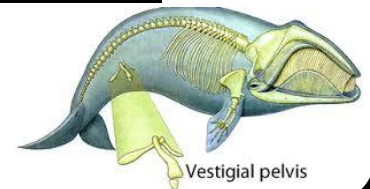


# Cladograms

A branching diagram showing relationships of evolutionary traits among species. Cladograms change as new discoveries are made.

# Vestigial Structures

“Left Over Traits” - Structures that were once used but are now not needed. They do not hinder the organism's survival therefore the trait hasn't been selected out and keeps getting passed down to its offspring.



It explains the origin of eukaryotic organisms and how mitochondria and chloroplast (which have their own DNA) came to exist within the eukaryotic cell.

# Endosymbiosis

