

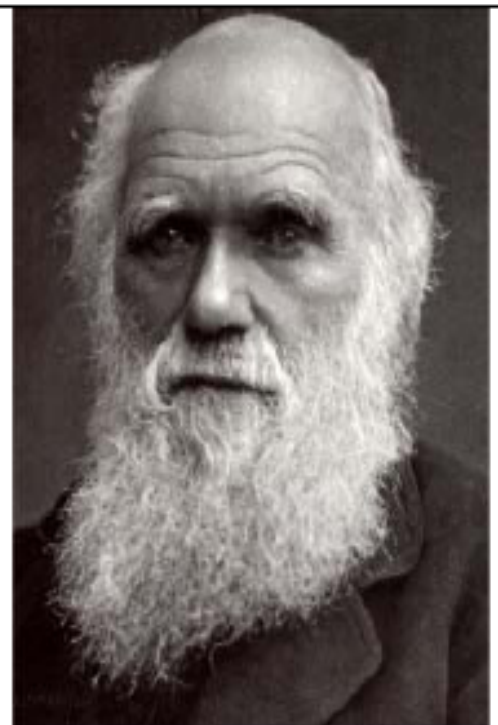
# The Origin (and Extinction) of Species

## Modern Evolution

*THE* big name in evolution = **CHARLES DARWIN**;



Mid-19<sup>th</sup> century English guy; went all over the world as a naturalist and observed different species; studied finches in the Galapagos Islands and noticed how each island had its own species of finch very similar to mainland finches.



# DARWIN

is most noted for making the connection between

**Overproduction:**  
Making more babies than would survive to make more babies

**Variation within a population:**  
Not all individuals are exactly the same

**Competition:**  
Individuals will have to “fight” for limited resources

**Struggle for Existence:**  
Many individuals will not survive or be fit enough to make many offspring

Hmmm...  
....what's a population?

**ADAPTATIONS:**  
Characteristics that make an organism well-suited to its environment

The PEPPERED MOTH and industrial melanism


**Natural selection**= Those individuals with the more favorable genes (traits) will survive long enough to make healthy offspring with those same favorable genes.

How is this like selective breeding?

Observable Example: Antibiotic resistance

# Speciation

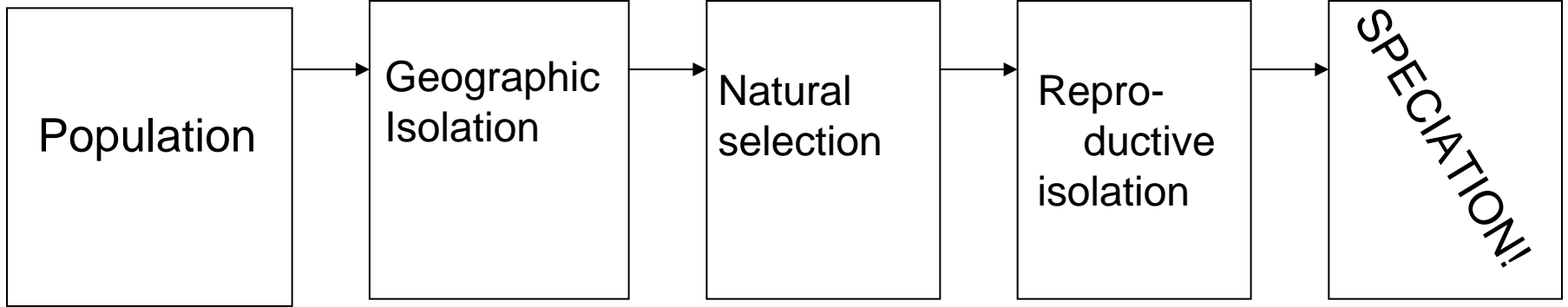
New species can come about when a population is physically separated from other population of the same species called ***GEOGRAPHIC ISOLATION***. If the two environments are different, different genes will be beneficial and, over time, natural selection will select for different traits and the different populations will start to be more and more different.



Eventually the changes may make the two populations so different they can no longer successfully mate.....

.....***REPRODUCTIVE ISOLATION***

*What's that definition of a species again?*



- One group
- All similar enough to interbreed

- Two groups
- All still similar enough to interbreed
- Can't meet to "do the deed"

- Different traits are "selected for" in each population
- Two groups evolve differently

- Groups become too different to be able to mate

- Two different species

# Speciation of Hominids

