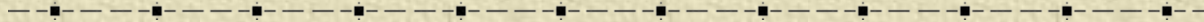


Fossil Evidence for the Theory of Evolution



What is the Theory of Evolution?

- Evolution describes how organisms change over a long period of time as the result of inheritable physical and behavioral traits.
- Fossil records are evidence that shows us there were organisms before us and allows us to compare how those organisms have changed over long periods of time.

Preservation of fossils depends upon specific conditions

- An organism dies and its remains decay, other nutrients are recycled.
- Sometimes, the remains are covered in sediment (sand or mud) and if conditions are right, hard tissues (wood, bone, teeth, shells etc.) remain.
- For fossils to form, organisms usually have to be buried in mud, sand, or clay soon after they die.

Imagine for a moment that you let your dirty laundry pile up longer than you should...

-
- Where would you find the oldest laundry in this basket?
 - Where would you find the freshest laundry?
 - How could you roughly estimate when you wore a shirt in this laundry basket if you couldn't remember?





Which fossils are the oldest in this image?

Which fossils are the newest?

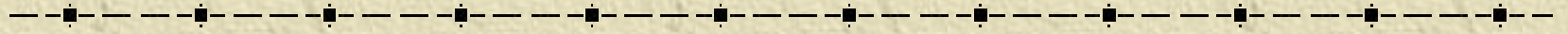
Relative Dating with Fossils

- As layers are formed, newer layers are deposited on top of older layers
- Fossils in the upper layers tend to represent present-day organisms.
- Comparing rock layers helps scientists determine the relative age of the fossils.
- **Index fossils** are fossils found in a single layer that can be used to help identify geological periods

Which of these strata is the oldest?

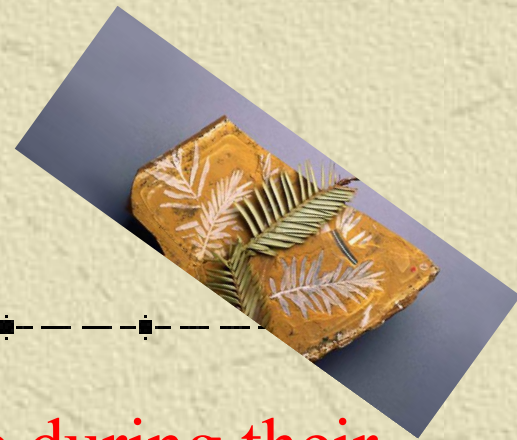


Scientific Evidence and Events in Fossil Records:

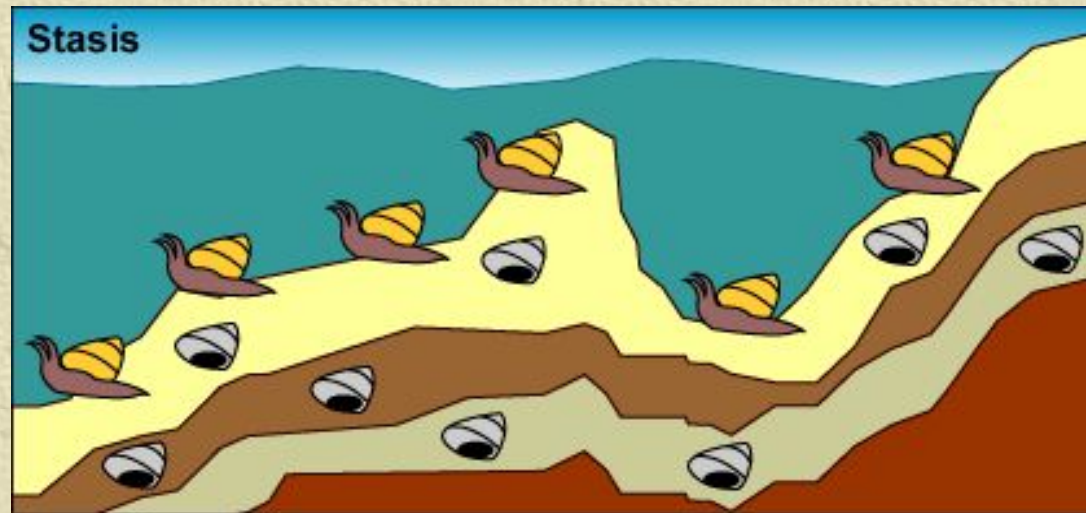


- Stasis
- Punctuated Equilibrium (sudden appearance)
- Gradualism

Stasis:



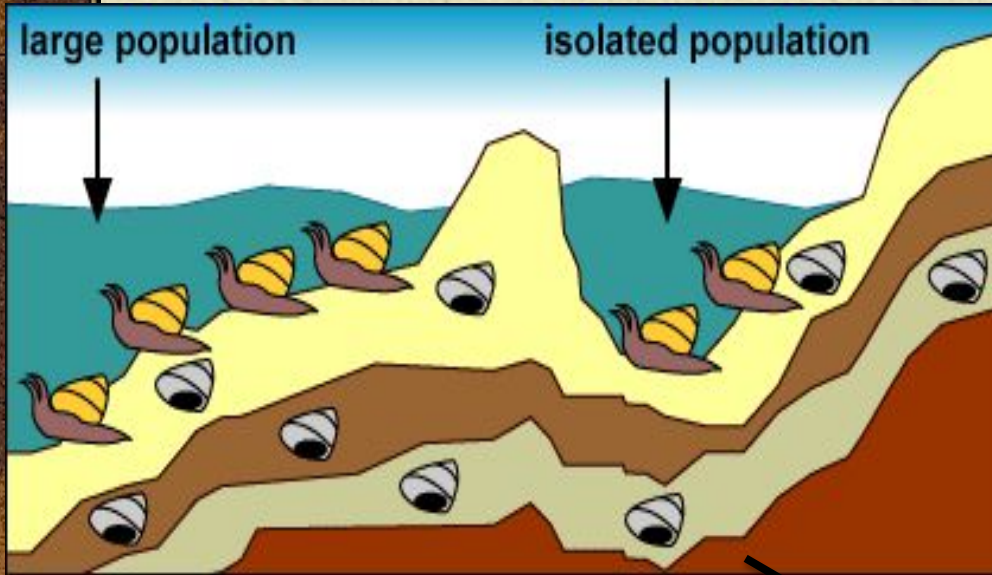
- Species exhibit little to, no change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear



Punctuated Equilibrium:

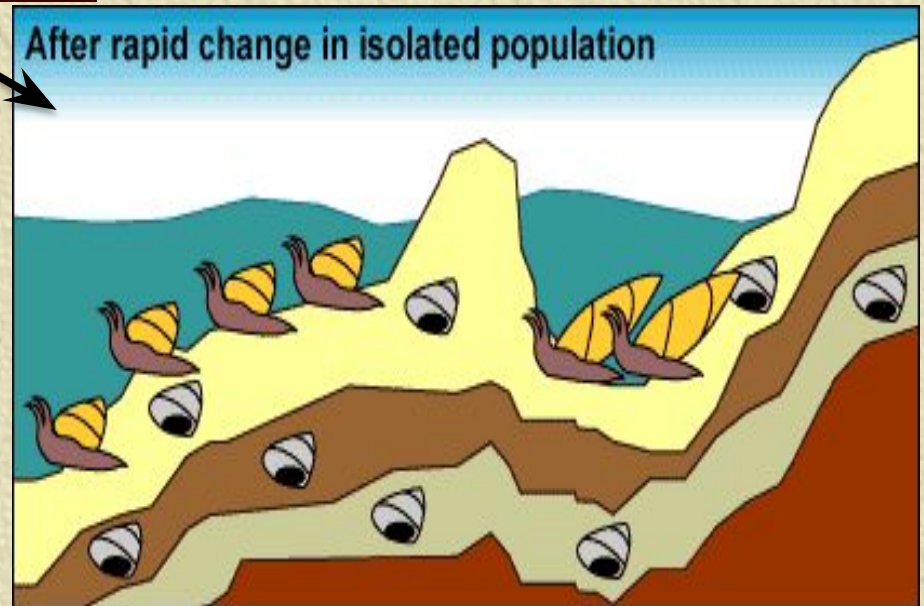
- Change comes in spurts. There is a period of very little change, and then one or more huge changes occur, often through mutations in the genes of a few individuals.

Punctuated Equilibrium



Before

After



Gradualism:

- The population **gradually changes over a long period of time:** Change is slow constant, and consistent.
- **Fossils will support stasis and punctuated equilibrium much more often than gradualism. Why?**

Gradualism

