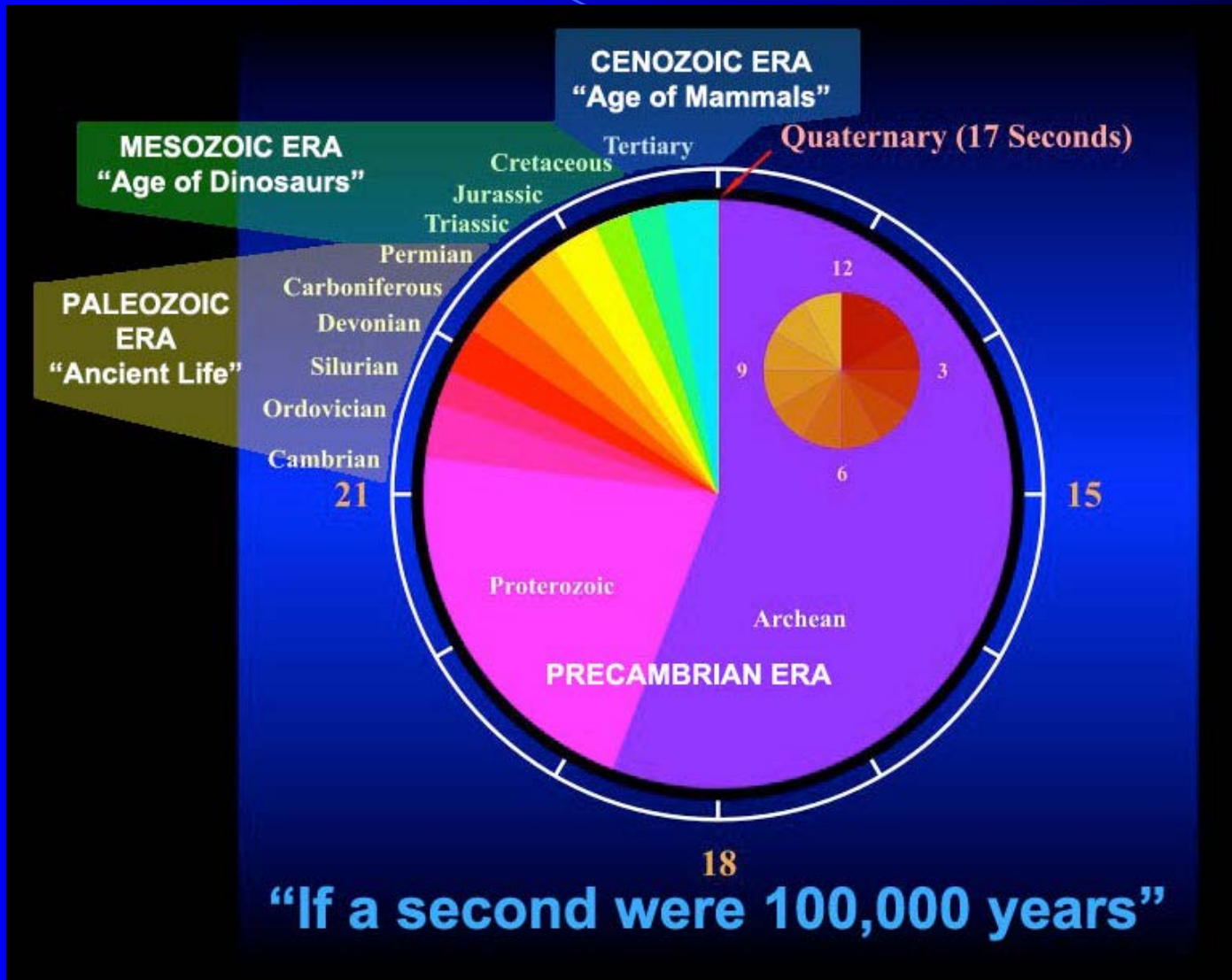
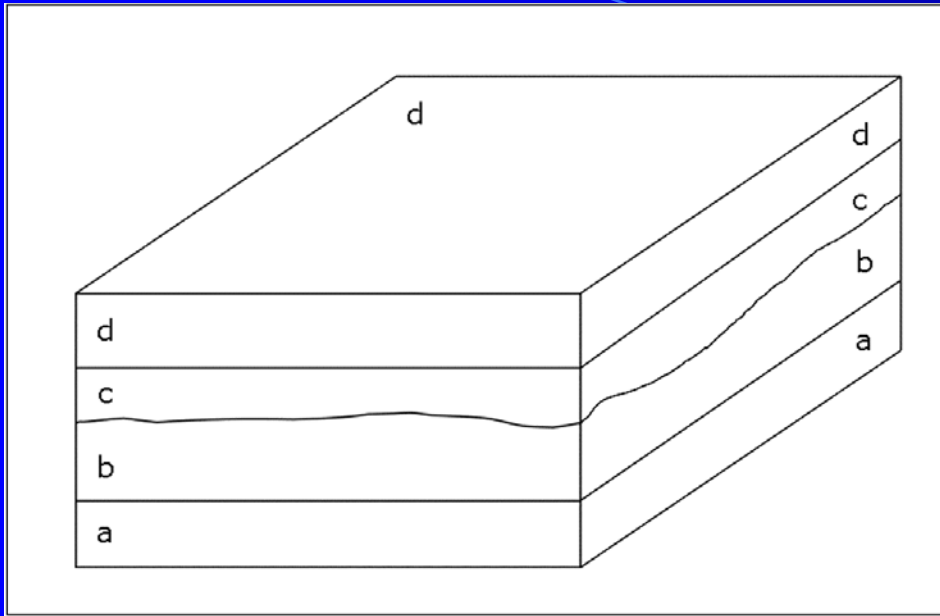


# 89.325 - Geology for Engineers

## Geologic Time

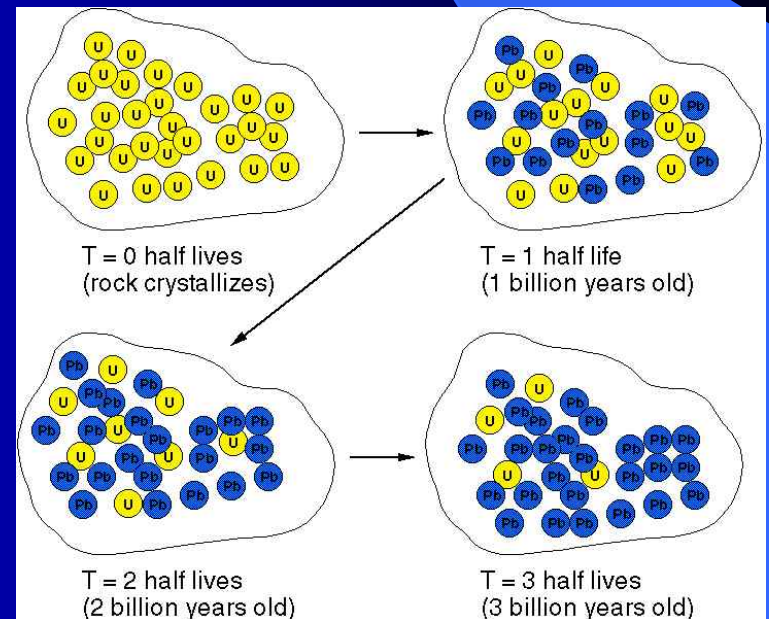




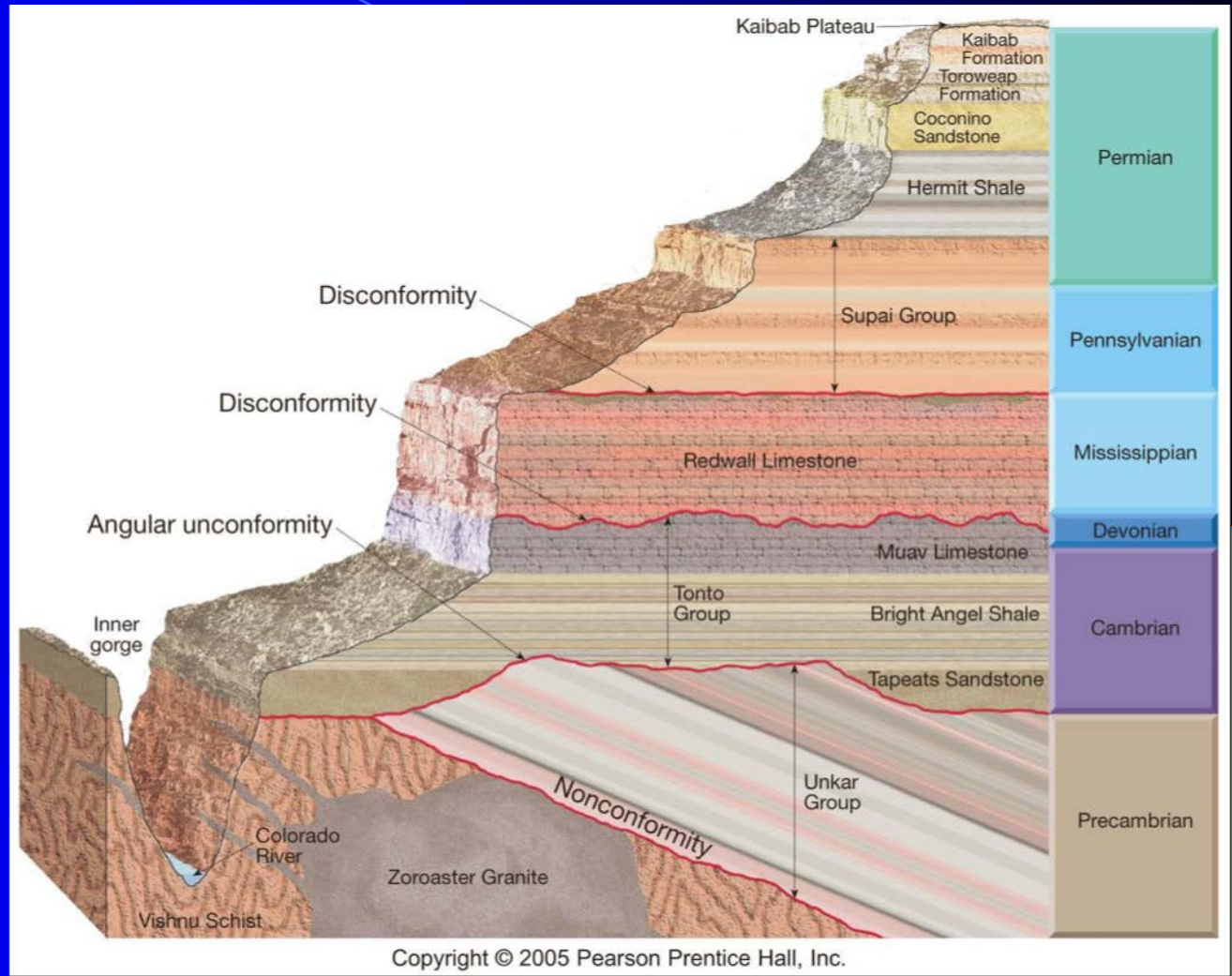
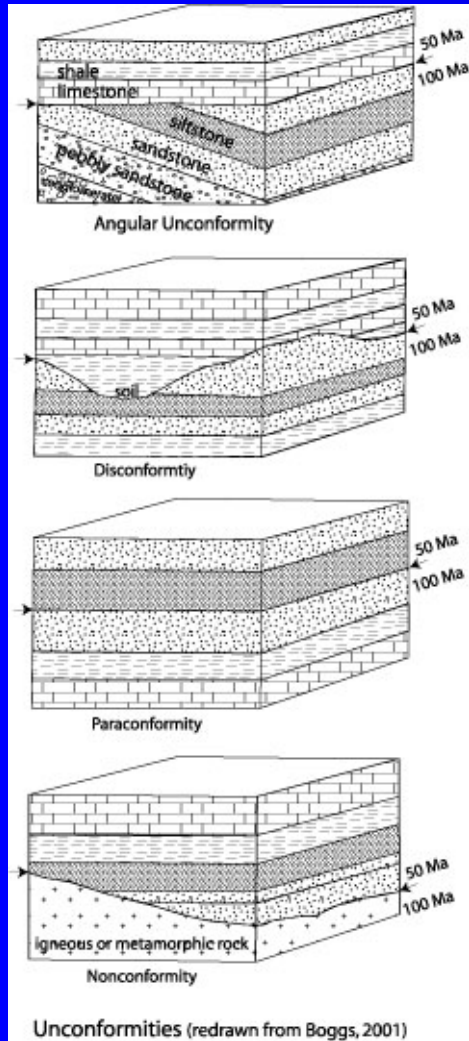
**Relative geologic time** – the sequence of geologic events

- Law of superposition
- Law of original horizontality
- Uniformitarianism

**Absolute geologic time** – the specific time of a geologic event usually determined by radiometric age dating.

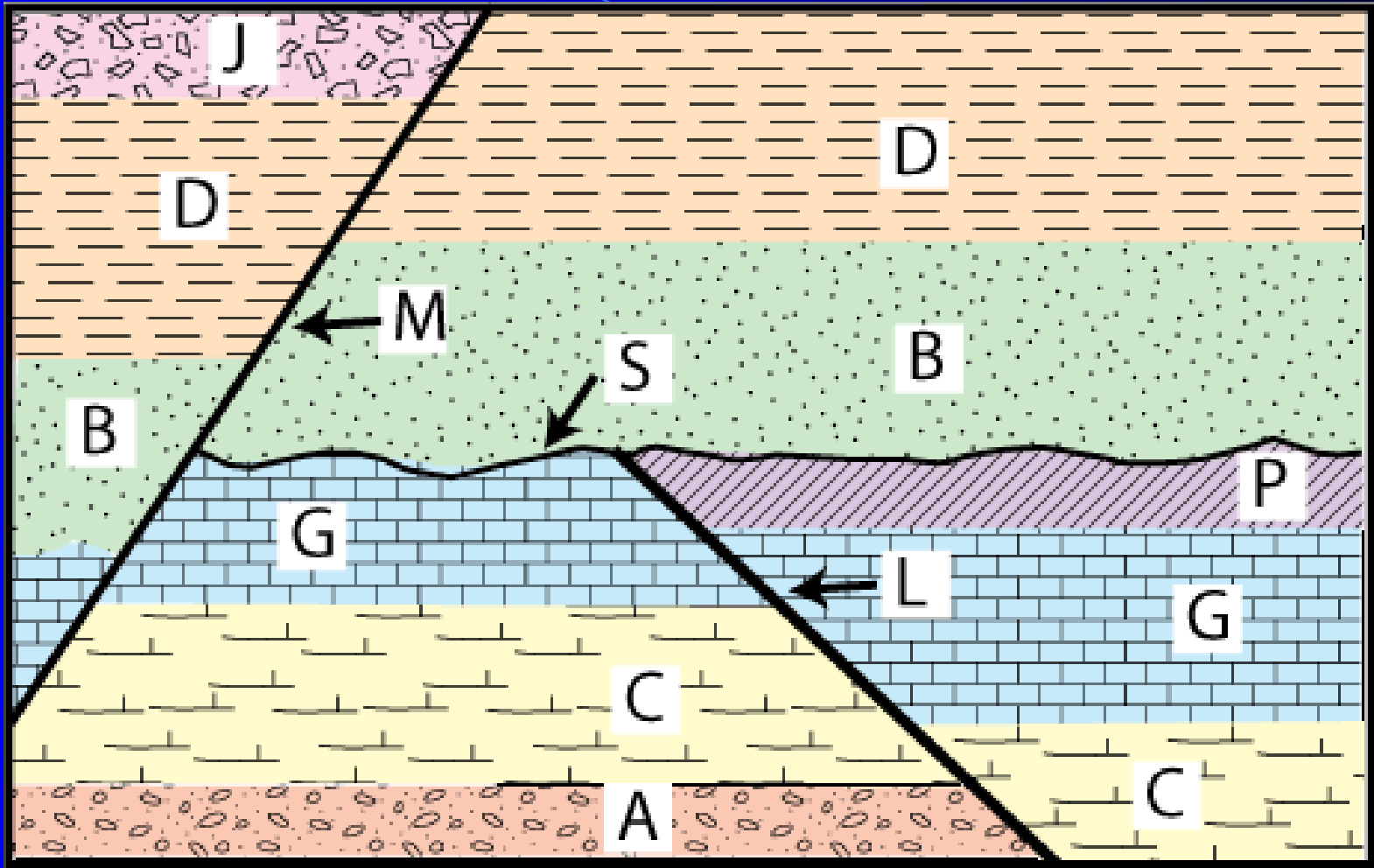


- What is an unconformity
- Types of Unconformities

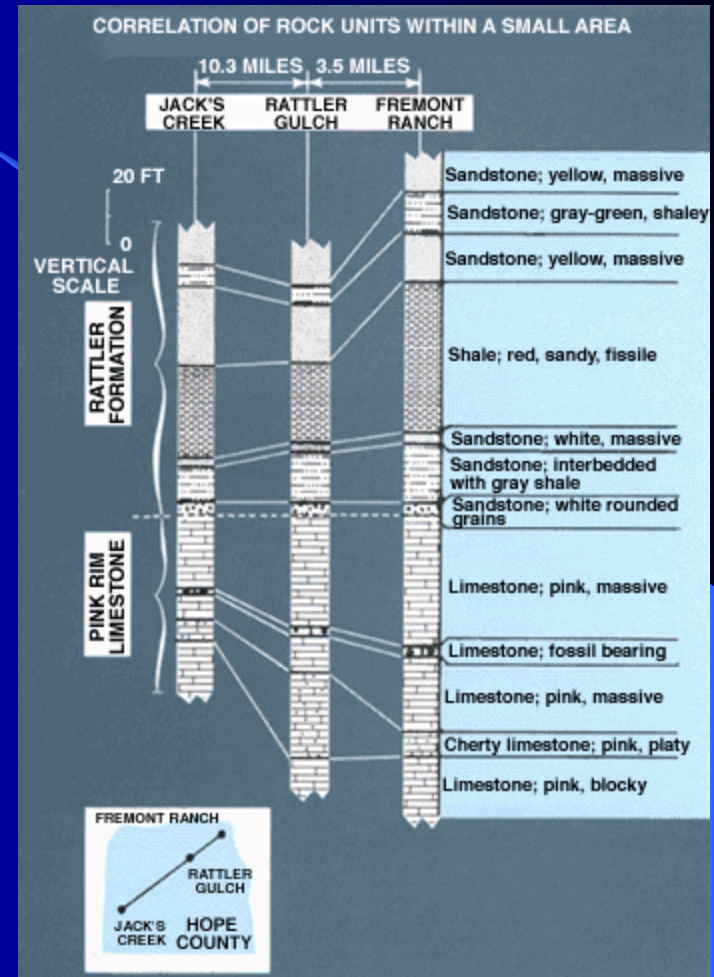
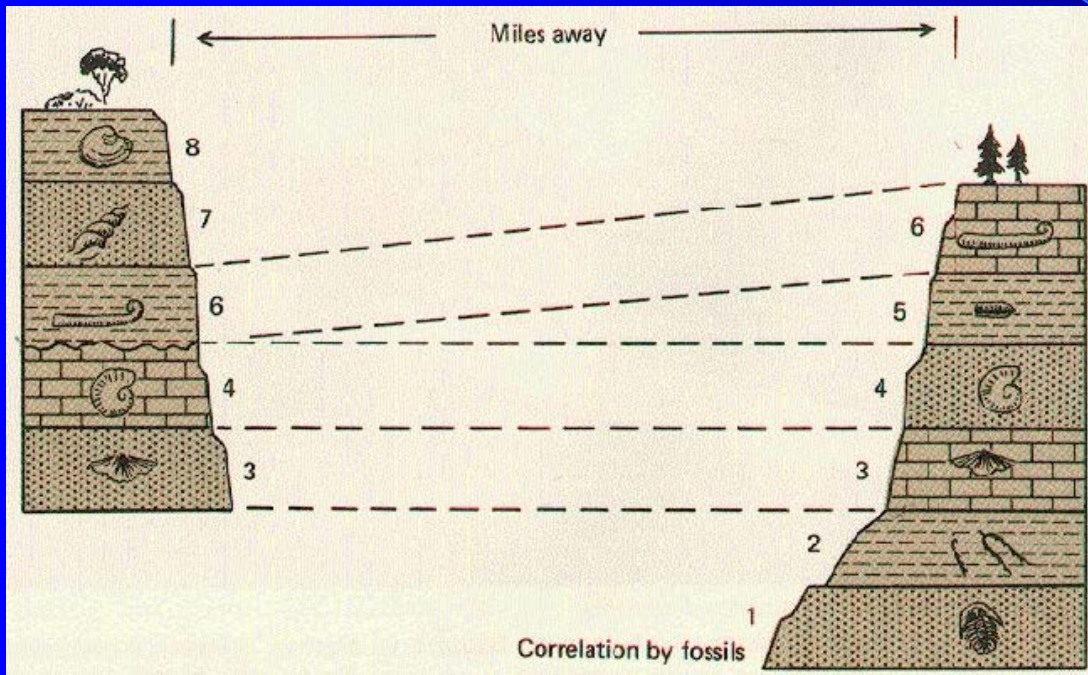




# Sequence of Events



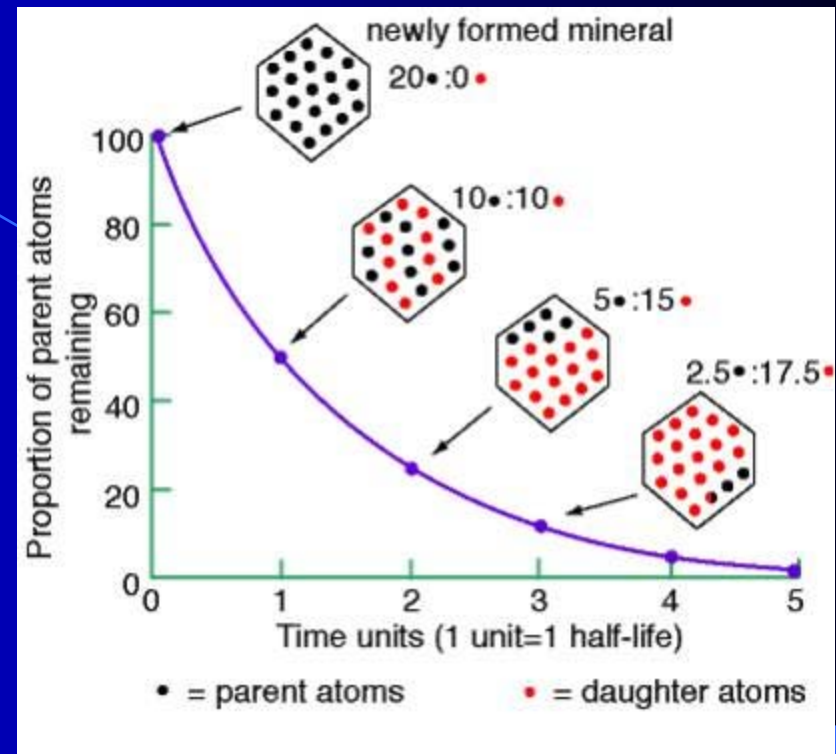
# Geological correlation



# Geologic Time Scale

EON	ERA	PERIOD	MILLIONS OF YEARS AGO	KEY EVENTS
Phanerozoic	Caenozoic	Quaternary	1.6	Humans evolve
		Tertiary		
	Mesozoic	Cretaceous	138	Extinction of Dinosaurs
		Jurassic		
		Triassic		
	Paleozoic	Permian	240	Permian mass extinction
		Carboniferous	330	
		Devonian	410	Invertebrates become common
		Silurian		
		Ordovician		
	Cambrian	500		
Proterozoic		Also known as Precambrian	3500	Earliest life
Archean				
Hadean				

# Radiometric Dating



Parent	Half-life (10 <sup>9</sup> yrs)	Daughter	Materials Dated
<sup>235</sup> U	0.704	<sup>207</sup> Pb	Zircon, uraninite, pitchblende
<sup>40</sup> K	1.251	<sup>40</sup> Ar	Muscovite, biotite, hornblende, volcanic rock, glauconite, K-feldspar
<sup>238</sup> U	4.468	<sup>206</sup> Pb	Zircon, uraninite, pitchblende
<sup>87</sup> Rb	48.8	<sup>87</sup> Sr	K-micas, K-feldspars, biotite, metamorphic rock, glauconite



