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| **EON** | **ERA** | **PERIOD** | | **EPOCH** | **BEGAN ENDED** | **LIFE FORMS** | **MAJOR GEOLOGIC EVENTS** |
| P  H  A  N  E  R  O  Z  O  I  C | C  E  N  O  Z  O  I  C  (Age of Mammals) | Quaternary | | Holocene | 11,000 present | Modern humans  Extinction of large mammals & birds | Worldwide glaciation (110,000 YA) |
| Pleistocene | 1.6 MYA 11,000 | Homo erectus |  |
| Tertiary | | Pliocene | 5.3 MYA 1.6 MYA | Large carnivores  Earliest hominid fossils | Beginning of cascade volcanic arc  (2 MYA)  Uplift of Sierra Nevada Mts.  (4 MYA)  Linking of N. & S. America  (4.5 MYA) |
| Miocene | 23.7 MYA 5.3 MYA | Whales & apes  Large browsing mammals  Monkey –like primates | Volcanic activity in Yellowstone  (17 MYA) |
| Oligocene | 36.6 MYA 23.7 MYA | Formation of grasslands (40 MYA) | Opening of Red Sea |
| Eocene | 57.8 MYA 36.6 MYA | Primitive horse & camel (52 MYA) | Beginning of Antarctic ice caps  (45.5 MYA)  Collision of India & Eurasia  (55 MYA) |
| Paleocene | 65 MYA 57.8 MYA | Extinction of dinosaurs & many other species | Eruption of Deccan basalts  (65 MYA) |
| M  E  S  O  Z  O  I  C  (Age of Reptiles) | Cretaceous | |  | 144 MYA 65 MYA | Placental mammals appear (65 MYA)  Early flowering plants (144 MYA) | Rise of Alps; Himalaya Mts. begin to form (70 MYA)  Formation of Rocky Mts.  (80 MYA)  Most of North America under inland seas (100 MYA) |
| Jurassic | | 208 MYA 144 MYA | Early birds (150 MYA)  Early mammals (200 MYA) | Opening of Atlantic Ocean  (180 MYA) |
| Triassic | | 245 MYA 208 MYA | Flying reptiles (228 MYA)  Frist dinosaurs (245 MYA) | Breakup of Pangaea begins  (200 MYA) |
| P  A  L  E  O  Z  O  I  C | Permian | | (Age of Amphibians) | 286 MYA 245 MYA | Largest mass extinction ever |  |
| Carboniferous | Pennsylvanian | 320 MYA 286 MYA | Coal-forming forests abundant  Sharks abundant  First reptiles (320 MYA) | End of Mountain building in eastern North America |
| Mississippian | 360 MYA 320 MYA |  |  |
| Devonian | | (Age of Fishes) | 408 MYA 360 MYA | First amphibians (370 MYA)  Giant insects (400 MYA)  First evergreen forests | Mt. building in Europe, Urals  (395 MYA) |
| Silurian | | 438 MYA 408 MYA | Early land plants (425 MYA) |  |
| Ordovician | | (Age of Invertebrates) | 505 MYA 438 MYA | Invertebrates dominate  First primitive fishes (500 MYA) | Beginning of Mt. building in eastern North America  (480 MYA) |
| Cambrian | | 545 MYA 505 MYA | Multicelled organisms diversify  Early shelled organisms | Extensive oceans cover most of North America |
| Proterozoic | Precambrian | | | | 2500 MYA 545 MYA | Jellyfish fossil (670 MYA)  First multicellular organisms |  |
| Archean | 3800 MYA 2500 MYA | Early bacteria & algae | Primitive atmosphere begins to form |
| Hadean | 4600 MYA 3800 MYA | Formation of Earth | Oldest known rocks (3.96 BYA) |

**GEOLOGIC TIME SCALE** MYA = millions of years ago