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| **EON** | **ERA** | **PERIOD** | **EPOCH** | **BEGAN ENDED** | **LIFE FORMS** | **MAJOR GEOLOGIC EVENTS** |
| PHANEROZOIC | CENOZOIC(Age of Mammals) | Quaternary | Holocene | 11,000 present | Modern humansExtinction 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 & apesLarge 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) |
| MESOZOIC(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)  |
| PALEOZOIC | Permian | (Age of Amphibians) | 286 MYA 245 MYA | Largest mass extinction ever |  |
| Carboniferous | Pennsylvanian | 320 MYA 286 MYA | Coal-forming forests abundantSharks abundantFirst 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 dominateFirst primitive fishes (500 MYA) | Beginning of Mt. building in eastern North America (480 MYA) |
| Cambrian | 545 MYA 505 MYA | Multicelled organisms diversifyEarly 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