NORTH CAROLINA THROUGH TIME

EON	ERA	PERIOD	EPOCH	AGE (millions of years before present)
PHANEROZOIC	Cenozoic	Quaternary	Holocene	0.008
			Pleistocene	1.8
	Mesozoic	Tertiary – Neogene	Pliocene	5.3
			Miocene	23.8
	Paleozoic		Oligocene	33.7
		Tertiary – Paleogene	Eocene	55.5
			Paleocene	65
		Cretaceous		145
		Jurassic		213
		Triassic		248
		Permian		286
		Pennsylvanian		325
		Mississippian		360
		Devonian		410
		Silurian		440
		Ordovician		505
		Cambrian		544
PROTEROZOIC	Late Proterozoic			900
	Middle Proterozoic			1600
	Early Proterozioc			

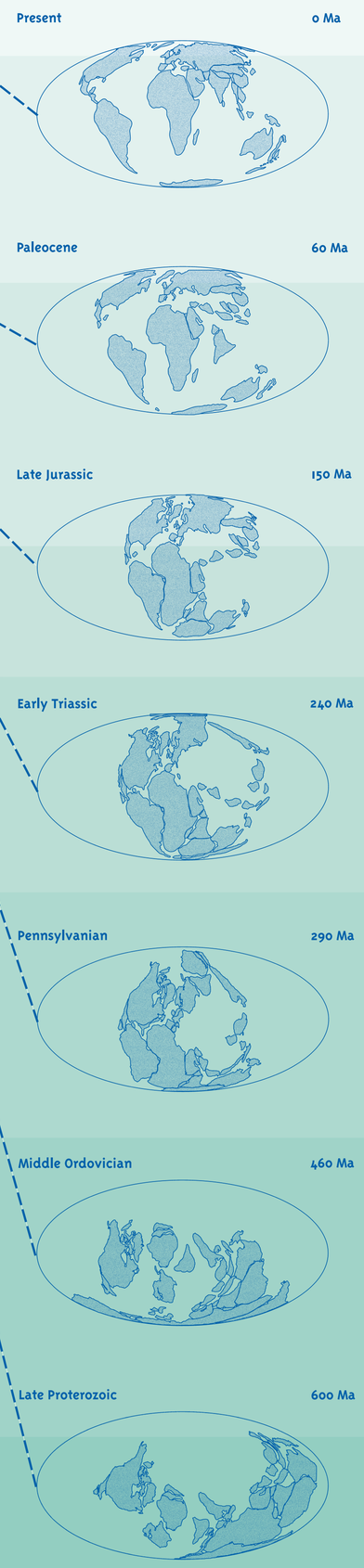
Precambrian*

* Rocks older than 544 Ma are also called Precambrian, a time term without specific rank.

WILSON CYCLES

- Passive Margin
- Rifting
- Continental Collision
- Passive Margin
- Rifting
- Continental Collision
- Passive Margin (?)

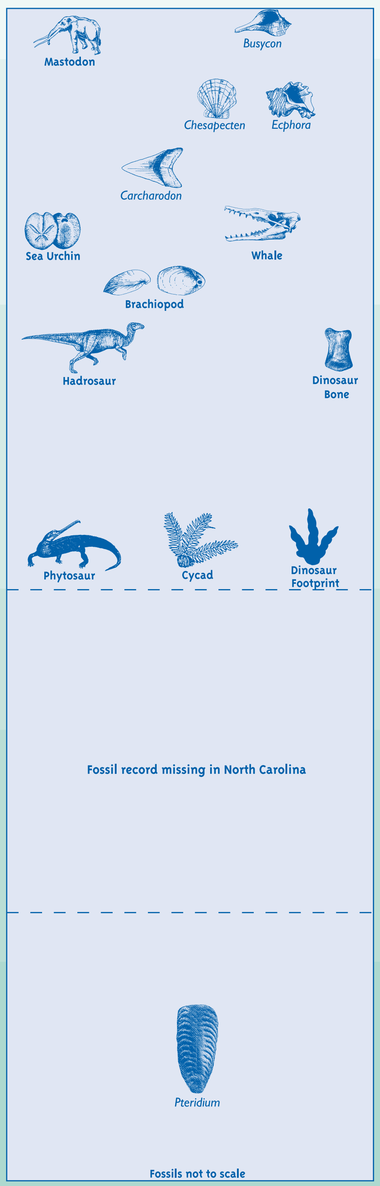
INFERRED LOCATION OF EARTH'S TECTONIC PLATES



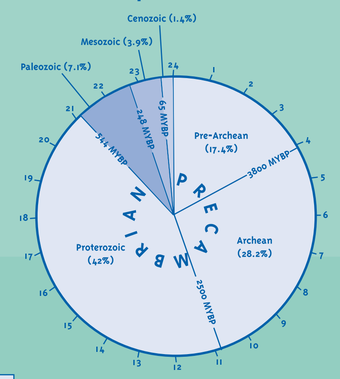
IMPORTANT GEOLOGIC EVENTS IN NORTH CAROLINA

- 0 – Formation of modern floodplains.
- The Suffolk scarp forms by shoreline erosion.
- Ice Ages: Climate alternates between cooler/wetter and warmer/drier than present.
- 2.5 – Formation of peat deposits and Carolina bays.
- Gulf Stream current established. Fossil-rich Yorktown Formation deposited.
- 5 – Tectonic uplift and subsequent erosion of Mountains and Piedmont.
- Phosphate of the Pungo River Formation deposited. Giant shark's teeth.
- 25 – Rapid cooling of Atlantic Ocean.
- Limestone of the Castle Hayne and River Bend Formations deposited.
- Abundant marine fossils, including whales.
- 50 – Green-grey sands and silty clays of the Beaufort Formation deposited.
- 75 – Major rise in sea level causes deposition of fluvial, deltaic, and marine sediments of the Cape Fear, Middendorf, Black Creek, and Peedee Formations.
- Dinosaur bones and teeth, shark's teeth and shells, abundant tree fossils.
- 100 – Cape Fear Arch begins to develop.
- 150 – Marine sediments deposited on Continental Shelf.
- Initial opening of Atlantic Ocean. Creation of passive continental margin.
- 200 – Emplacement of diabase dikes and sheets.
- Continental rifting of the North American and African plates. Clay (used for bricks) and coal deposited in rift basins. Dinosaur, reptile, and other fossils and footprints.
- 250 – Alleghanian orogeny: Period of intense faulting and folding.
- Final assembly of the supercontinent Pangea as Africa and North America collide.
- Emplacement of granite in the Piedmont (e.g., Rolesville and Lilesville plutons).
- 300
- 350 – Acadian orogeny: Period of igneous activity, metamorphism (?), and faulting.
- Emplacement of emerald-bearing Spruce Pine pegmatites.
- Emplacement of granite (e.g., Mount Airy, Concord, and Salisbury plutons).
- 400 – Taconic orogeny: Period of intense metamorphism and deformation.
- 450 – Collision between North America and a volcanic island arc (future Piedmont) closes western part of the Iapetus Ocean. Initial formation of Brevard, Hayesville, and Greenbriar thrust faults.
- 500 – Sedimentation and igneous activity. Pyrophyllite and gold deposits form.
- Emplacement of granite (e.g., Chapel Hill, Roxboro and Vance County plutons).
- 550 – Sedimentation and igneous activity.
- 600 – Formation of Mt. Rogers and Grandfather Mt. Formations.
- Oldest known fossil in North Carolina (620 Ma).
- 700 – Continental rifting of the supercontinent Rodinia and initial opening of Iapetus Ocean.
- 800
- 900
- 1000 – Grenville orogeny about 1 to 1.2 billion years ago.
- 1100 – Assembly of the supercontinent Rodinia.
- 1200
- 1400
- 1600
- 1800 – Oldest dated rock in North Carolina on Roan Mountain.

IMPORTANT FOSSILS OF NORTH CAROLINA



GEOLOGIC TIME REPRESENTED BY A 24-HOUR CLOCK



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