Many people have their beginning interest in geology stimulated by finding fossils. Holding the shell of a sea-dwelling creature found in an Iowa rock, far from the nearest ocean, makes us think about the vast changes that have occurred over the Earth’s surface, and the great length of geologic time that has passed. Studying fossils helps us appreciate the history of life on Earth. They provide a link between geology and biology that is valuable to the study of global changes and how life adapts. Fossil remains also are an important tool in dating different rock layers, and in comparing the sequence of strata from place to place across broad areas.

Iowa has many well known fossil-bearing rock formations, and fossils from around the state have found their way into museums around the world. This brochure will help identify a few of Iowa’s many fossils that may be found by careful observation of road cuts, quarries, stream banks and other exposures of earth materials.

**Fish jaw:** This jaw belonged to a 2 to 3 ft-long placoderm, a primitive fish partly covered by bony plates that gave it an armored appearance. Mineralization of the fossil bone caused the black color seen in this 375 million-year-old (Devonian) specimen from Black Hawk County.

**Brachiopods:** These fossils are among the most common found in Iowa. They lived inside the protective cover of two hinged shells, attached to the floor of warm shallow seas that once covered the state. These eastern Iowa specimens are about 375 million years old (Devonian).

**Gastropod:** Shells of marine animals are often preserved as fossils. This coiled shell from Winneshiek County was inhabited by a snail. The sluggish, bottom-dwelling mollusk scavenged the ancient sea floor about 440 million years ago (Ordovician). The snail moved on a flat muscular foot and could withdraw inside its shell for protection.

**Mastodon (left) and mammoth (right) teeth:** Tooth shapes of these 15,000 year-old molars indicate mastodons browsed on tree branches, while mammoths grazed on grasses. Fossils of these extinct Ice Age (Pleistocene) mammals resembling elephants have been widely found across Iowa.
Crinoids: These animals lived anchored to the seafloor by flexible, rooted stems. Segments of the rounded stems are commonly found as fossils. Famous localities in Iowa include the LeGrand and Burlington areas.

Bryozoan: "Moss animals" were colonial, filter-feeding organisms that inhabited the seafloor. A well-known bryozoan (Archimedes) consisted of concentric rows of lacy-like fronds attached to a corkscrew-shaped axis. The preserved core is seen in this Lee County specimen (340 million years old, Mississippian).

Trilobites: Prized by collectors, whole trilobites usually display a three-lobed, oval-shaped, segmented skeleton, often with distinct eyes. They belong to an extinct group of bottom-dwelling, hard-shelled arthropods that scoured the seafloor. These Scott County specimens are 375 million years old (Devonian).

Seeds: These black fossil seeds are from Scott County. They grew at the end of a frond on a fern-like tree about 300 million years ago (Pennsylvanian).

Tribolites: Known as "moss animals" were colonial, filter-feeding organisms that inhabited the seabed. The preserved core is seen in this Lee County specimen (340 million years old, Mississippian).

Amphibian pelvis: This pelvis bone belonged to a 3 to 4 ft-long proto-arthropod, a rare primitive amphibian that lived 330 million years ago (Mississippian) in Keokuk County.

Cephalopods: Squid-like animals lived in these chambered shells and could propel themselves by ejecting sea water from a tube near their head. The shell's partitions were filled with gas, enabling the animal to regulate its buoyancy. These straight-shelled cephalopods from Marion County are 300 million years old (Pennsylvanian).

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Colonial corals: Bottom-dwelling corals lived in reef-like communities in warm, clear, tropical seas covering Iowa. Many species were colonial, living together in a mass of individual skeletons of lime, resembling a honeycomb. Distinctive colonial forms from eastern Iowa include the "chain coral" (upper left), Pachyphyllum (upper right), and Lithostrotionella (lower right). They were especially abundant in Devonian and Silurian seas, 375 to 425 million years ago.

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Clam shell: Like gastropods and cephalopods, clams are also mollusks that live in a protective shell. This Plymouth County specimen lived on a sea floor 90 million years ago (Cretaceous). Clams were abundant in these waters, the last great inland sea to cover Iowa.

Stromatoporoid: "Stroms" are extinct organisms related to sponges. They built skeletons of lime and lived in various shaped colonies that resembled layered mats, branches, and rounded masses. This Floyd County specimen, with its prominent nodes, lived 370 million years ago (Devonian).

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