

FASCINATING FOSSILS

GRADE LEVEL: 4 - 8

OBJECTIVE:

Students will be able to identify the major types of fossils found in the Devonian Period: Corals, bryozoans, echinoderms, trilobites, brachiopods, bivalves, cephalopods, and gastropods.

MATERIALS:

Pictures of fossils on overhead transparencies, slides or PowerPoint
Samples of fossils

PROCEDURE:

1. Present pictures or specimens of the fossil types that are found at the Falls of the Ohio. (A fossil kit is available from the park and may be reserved by calling (812) 280-9970. It is available for pick-up only and cannot be shipped.) Have the students examine the fossils. Introduce the discussion of the characteristics of the fossils by asking the students if they have ever seen any creatures that look like these. Ask students if anyone has a shell collection. The students may compare present day shells to the ancient fossilized specimens.
2. Have students notice the shapes, sizes, lines of growth, and colors of the shells and fossils. Note the colors if you have real fossils, too.
3. Present the names characteristics of the major types of fossils they will see at the Falls and in your collection. (Brochures of these fossils are available at no charge from the park.) The following fossils are listed by rank abundance at the Falls of the Ohio.

Corals – Corals are small animals that live in colonies. They have soft bodies and build homes by taking calcium carbonate out of seawater. Many Silurian and Devonian corals found in our area look like honeycomb. In fact, species have a variety of shapes. In addition to honeycomb, some resemble a wasp nest, fan, links in a chain, organ pipes, tubes, etc. The horn coral, commonly found at the Falls, is

a single animal whose skeletal structure may resemble a cow or bison horn, or a small tusk.



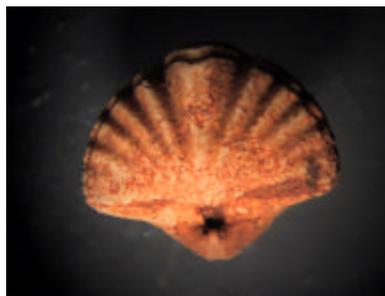
Enallophrentis - a Devonian horn coral

Sponges (Stromatoporoids) These colonial organisms have thin layers of calcium carbonate. They have various shapes, sometimes resembling petrified cow patties. Colonies can be tiny encrustations over corals and shells or they can be mounds six feet across and a foot thick. The largest fossil at the Falls is a stromatoporoid sponge colony over 100 feet long.



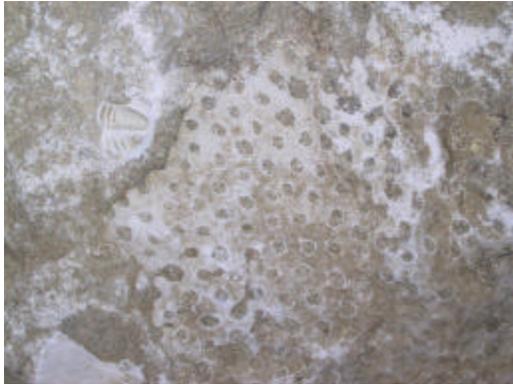
A Devonian stromatoporoid with a snail mold

Brachiopods - These marine animals have two shells called valves. The top and bottom valves do not look the same. They have bilateral symmetry – the left and right sides are mirror images of each other.



Brevispirifer - a Devonian brachiopod

Echinoderms - There are two types of echinoderms found at the Falls: crinoids (sea lilies) and blastoids. Both lived attached to the sea floor on stalks (columns). Both had a body made of tiny plates (although blastoid plates were fused, while crinoids were held with ligaments). Their skeletons were composed of calcite. The crinoid columns are usually what people see. They are sometimes called “Indian beads” because there are holes in the center and they can be strung into a necklace or bracelet.



Coscinium – a Devonian bryozoan

Bryozoans – Superficially, they are similar in appearance to corals. These tiny creatures lived in colonies where each individual was attached to its neighbors. The colony contained dozens, hundreds or thousands of individuals each less than a millimeter long. They had tentacles for feeding and most had calcite skeletons. The colony grew by budding new individuals. Some colonies grew in flat sheets, others in upright positions looking like bushes or nets.

Gastropods – Also called snails, they have coiled shells: flat spiral, upward like a screw, or a combination. Some have many coils visible, while in others only the last coil is visible.

Bivalves – Although they may look similar to brachiopod, they are not. The bivalves (also called pelecypods or clams) have two shells, but the top and bottom are identical in shape. Each shell is asymmetric; they are not mirror images on the right and left sides. Fossil bivalves look much like modern day species.

Trilobites – These small creatures crawled along the bottom of the sea. Some spiny ones may have been able to swim or glide short distances. Some could roll up in a ball in a defensive posture. They had a three part segmented body – with a cephalon

(called the head, even though it contained other internal organs), the thorax (containing the gills and intestines) and pygidium (tail).



Dawsonoceras – a Silurian cephalopod

Cephalopods – These animals have a shell like the chambered (or pearly) nautilus. It is a spiral shell with each segment a little bigger than the last, the animal living in the last one. (Many fossil cephalopods are straight or gently curved rather than coiled.) The older chambers could be filled with gas or water to adjust the buoyancy while swimming. This allowed the animal to rise or fall as it moved. The creature inside is similar to a squid.

4. Have students make a notebook with drawings and identification notes about each type of fossil.

5. Have students bring their notebooks and record the various fossil types that they find while exploring the fossil beds. They can draw a picture and describe where they made the observation.

EXTENSIONS/EVALUATIONS:

6. Have students take rubbings of fossils for their notebooks. Look for a fossil with a distinctive texture that they can feel. (A lot of fossils won't work.) Place a page out of their notebooks over the fossil and rub across the page with the side of a crayon or charcoal pencil.

7. Have students identify four different types of fossils ground at the Falls. Describe what they may have looked like and whether they swam, crawled or were attached to the sea floor.

8. Attend a Falls Fossil Festival in mid September. Participate in a hike on the fossil beds or dig into the Litter's Quarry "Fossil Piles." Find out about the festival at the web site: www.falloftheohio.org, or call (812) 280-9970.