

Answer Key: Fossil Preservation Worksheet



Butter Clam (<i>Saxidomus gigantea</i>) A bivalve that buries itself in sand, gravel, mud, and similar sediments up to 30 cm deep.	Salal (<i>Gaultheria shallon</i>) An evergreen understory shrub that grows blue-black berries, found here in British Columbia, mostly in coastal areas.	Common Earthworm (<i>Lumbricus terrestris</i>) A widespread species of earthworm that lives in semi-permanent burrows and surfaces to feed.
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1: Out of the three organisms above, which one do you think is most likely to become fossilized? Explain your reasoning.

The most likely to fossilize are the butter clams because they have a hard, solid exoskeleton (shell) and live where sediment could bury them rapidly. This means that their hard parts have a high preservation potential. The soft tissue of the creature is unlikely to preserve because bacteria decays tissue after the clam dies. To preserve a shell in a rock, the clam needs to be buried rapidly by sediment before the shell can get smashed to pieces by wave energy for example or degraded by bacteria like its soft tissue will.

The next most likely is the Salal plant. Plant parts can become fossils in layered rocks if they are rapidly buried, and commonly get preserved as a film of carbon that is impressed into the sedimentary layers (called carbonization).

The least likely organism to be preserved is the worm which has low preservation potential. Soft tissue is rarely fossilized because upon death of an organism without mineralized hard parts, the tissue will quickly fall apart and be degraded by bacteria. In exceptional conditions, such as those that formed the Burgess Shale deposit, the absence of oxygen and bacteria plus rapid burial by fine mud allowed soft-bodied creatures from the Cambrian Period to be preserved as carbonized impressions.

2: Out of the three organisms above, which one do you think is most likely to leave behind a trace fossil? Explain your reasoning.

The worm - Most soft-bodied creatures only leave behind trace fossils – or a record of their activities in the sediment that get preserved in a rock as markings such as tracks, trails, and burrows.

Bonus Question: Is there a fossil in the fossil kit that is representative of the expected preservation type of one of the organisms above? Explain your reasoning.

The fossil kit will show a variety of creatures with “hard parts” and exoskeletons that form common fossils such as bivalves, ammonites, trilobites, brachiopods, and coral. You can explain that the soft tissue of these animals is not preserved with the fossil, just the hard parts. Students can also find a type of trace fossil in the kit – burrowed driftwood that contains the holes left in the wood by “shipworms”, which are actually a mollusc not a worm!