Conditions for Fossil Formation

Although fossils can be found in sediments deposited in turbulent (high energy) environments near the coastline, complete/articulated skeletons require undisturbed conditions. A quiet seafloor with minimal light, low oxygen levels and a soft muddy composition are among the conditions suitable for preserving organic remains. Rapid burial is a common component for optimal fossilisation, as prolonged exposure would otherwise increase the likelihood of disturbance from scavengers and/or currents. Burial may also occur quickly if a high volume of sediment is deposited in the area following a period of heavy rain that delivers sediment from major rivers (for example).

Like all living organisms, the creatures in your soil need oxygen to live. Oxygen comes from the air above the soil, so there must be a means for air to penetrate into the soil. Soil with a loose structure allows for ample spaces between soil particles for oxygen to collect. In such soils, organic matter will decompose faster. Compacted or “tight” soils -- such as soils with a high clay content -- do not provide adequate space for air to collect, causing less biological activity and a slower organic matter break down.

At temperatures of 4.44°C and above, soil bacteria experience some activity. But once temperatures reach 21.1°C, soil microbes really get going, up to about 37.8°C. Microbial populations double in the soil with every additional 6°C. Because of this, soil organic matter breaks down faster in the summer, and areas with year-round warm weather will decompose more organic matter annually than areas that experience cold winters.

(Source: <http://www.discoveringfossils.co.uk/whatisafossil.htm> and <http://homeguides.sfgate.com/factors-influence-decomposition-rate-organic-matter-soil-50156.html>)

**Key terms:**

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| --- | --- |
| Rapid burial | Optimal conditions |
| Decomposition | Preservation |
| Compaction | Scavengers |
| Fossilisation | Disturbance |

Did you use these words in your summary?

Can you define all of these terms?