Soil Examination

One way to narrow the question "Where do fossils come from?" is to begin by looking at the soil. This is a great opportunity to teach the soil profile to students with an actual cast of a fossil that was a product of this process. The most basic soil horizons are (from top to bottom): humus, topsoil, eluviated horizon, subsoil, parent material, and bedrock which is where fossils are made.

The following ***Virginia Science Standards of Learning*** are the ones most closely connected to soil and the formation of fossils:

2.5 The student will investigate and understand that living things are part of a system. Key concepts include:
d) fossils provide information about living systems that were on Earth years ago.
3.7 The student will investigate and understand the major components of soil, its origin, and its importance to plants and animals including humans.
a) soil provides the support and nutrients necessary for plant growth
b) topsoil is a natural product of subsoil and bedrock
c) rock, clay, silt, sand, and humus are components of soils
d) soil is a natural resource and should be conserved.
4.9 The student will investigate and understand important Virginia natural resources. Key concepts include
c) minerals, rocks, ores, and energy sources
d) forests, soil, and land
5.7 The student will investigate and understand how Earth's surface is constantly changing. Key concepts include:
c) Earth history and fossil evidence

Activity:

Ideally, students should see samples from each soil horizon, but if that is not feasible, in-depth descriptions of each horizon should be used. A simple chart showing the different layers is helpful as are acronyms or songs that may help students remember the information. The letters associated with the horizons are: O, A, E, B, C, and R. Keep in mind that these may vary according to your source (http://www.soils4kids.org/)

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Challenge students to create ways to remember these different layers, then ask them where they think fossils fit. Understanding the layers of soil may help students better understand how we find fossils and what an interesting and complex process it is.

Additionally, if you have the time and resources, it could be fun to bring in some topsoil and let students dig through it to see that it is made up of many things. Alternatively, let them go outside and dig around!

Another way for your students to visualize the different layers of soils would be to simulate it using colored sand. The only materials necessary are a clear plastic/glass container, different colors of sand, and an object to represent your fossil. Simply drop the fossil in the bottom and layer sand on top as you discuss – or have students construct - what the layers represent and how they are pressing down on the object that will eventually turn into a fossil.

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