IN SEARCH OF EARTH'S SECRETS
A Pop-Up Science Encounter

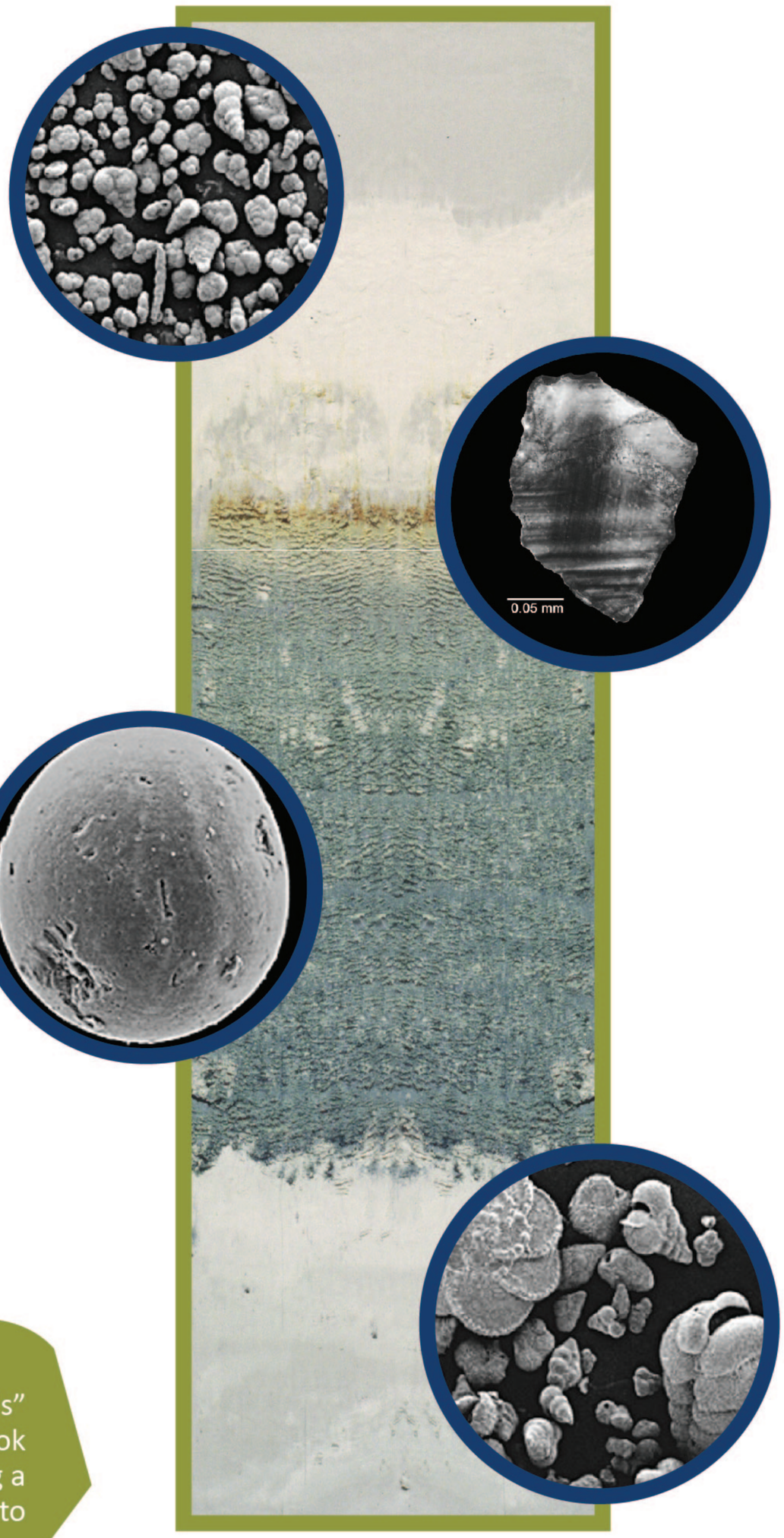
DRILL DOWN DEEPER INTO DEEP SEA FOSSILS

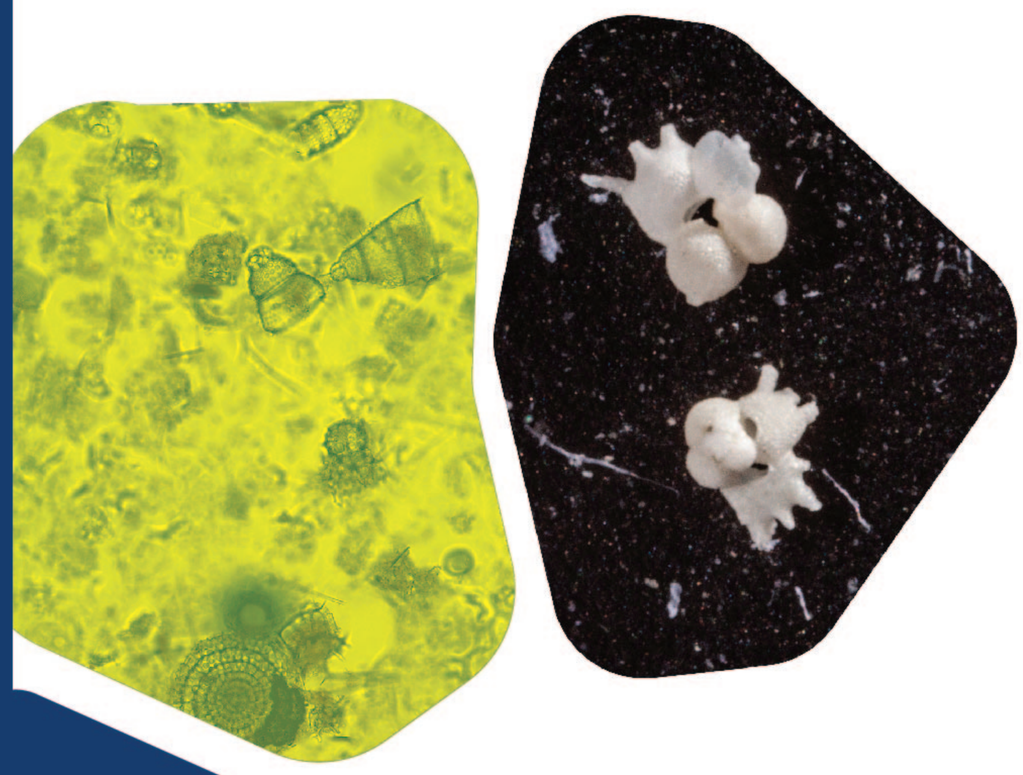
Where do microfossils come from?

Most of the seafloor is not covered with sand. It is covered with tiny fossils. You will only find seafloor covered with sand near coastlines. The sand comes from bits of land rocks that were carried to the sea by rain and rivers.

The fossils that cover the rest of the seafloor are rarely from a plant or animal. They are usually shells so small that you need a microscope to see them in detail (which is why they are called "microfossils"). The fossil shells come from tiny creatures in the ocean like diatoms, which are one-celled algae, and forams, which are one-celled amoebae.

The ocean is filled with these tiny creatures. When they die, their shells pile-up on the seafloor. This has been happening for millions of years. In many places in the ocean, the layers of ancient microfossils on the seafloor are hundreds of feet thick.





Try This!

Check out the "Deep Sea Fossils" backpack from the front desk to look at actual seafloor microfossils using a magnifying glass. You can also try to measure them with a ruler.

Learn more about the different kinds of microfossils at www.insearchofearthssecrets.com.

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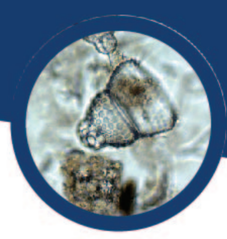


Collect your *Deep Sea Fossils* passport sticker

How do microfossils teach us about past climates?

Fossils that are smaller than a pinhead may not sound as exciting as a T. Rex skull or a megalodon shark tooth, but scientists love seafloor microfossils.

Fossils of large animals are hard to find. Their remains often get eaten or washed away by wind and rain before they turn into fossils. This makes it almost impossible to find a place that has a continuous collection of fossils on land showing how large animal have changed over millions of years.

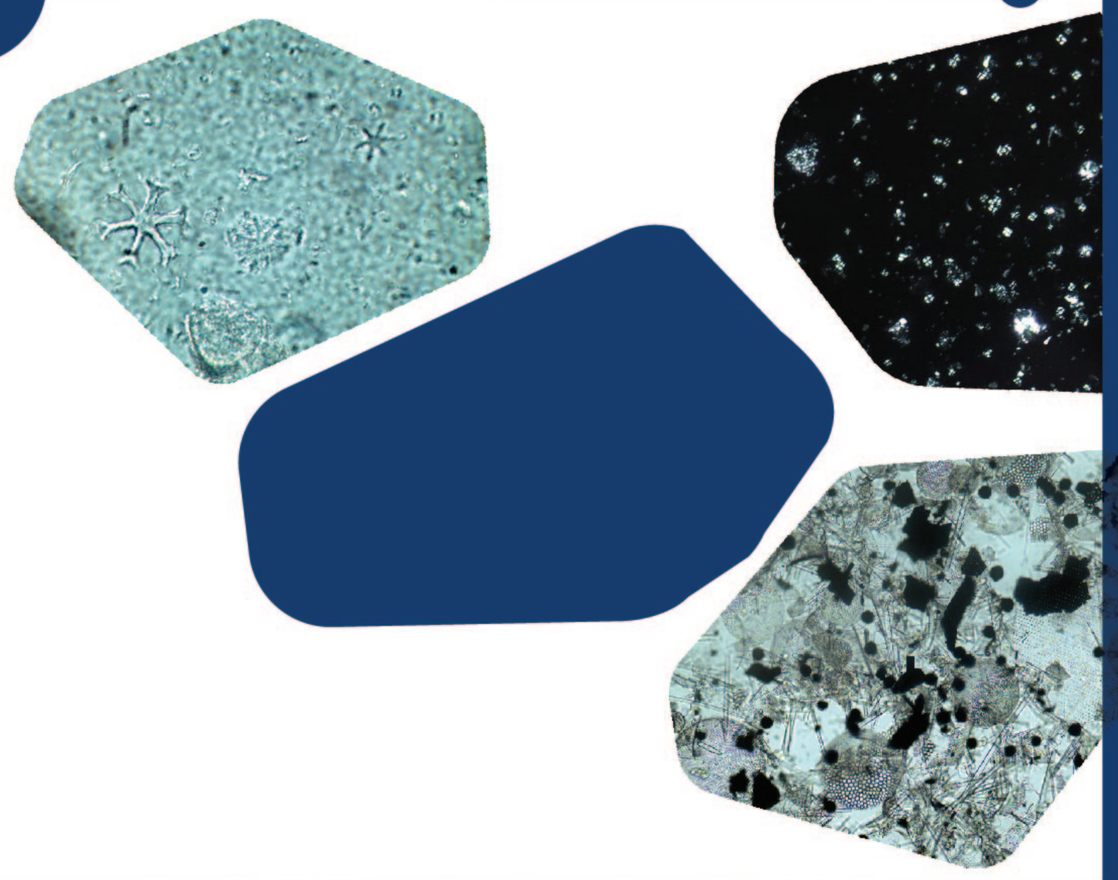
There are no rivers or rain under the ocean and few creatures there eat really tiny shells. This makes microfossils abundant on the seafloor. They provide scientists an unbroken record of how things have changed on Earth for over 100 million years.

One of the changes scientists see by studying microfossils is how climate has changed in the past. Just like large animals, the tiny creatures that microfossils come from are adapted to live in only certain habitats and climates. Scientists know which of these creatures need to live in warm climates and which ones need to live in cold climates.

During warm periods, the most abundant microfossil species in the ocean are the ones that do well in warm temperatures. Their shells will cover the seafloor during this time.

If the climate get colder a couple million years later, the warm water species will disappear and be replaced by species that do well in cold water. The shells from the cold water species cover the layer of shells deposited earlier by warm water species.

When scientists see the layers in the seafloor change from mostly warm water species to mostly cold water species, it is an indication that climate changed at that time.



Try This!

Check out the "Deep Sea Fossils" backpack from the front desk to get a closer look at some enlarged 3D models of microfossils.

Learn more about what scientists learn from microfossils at www.insearchofearthssecrets.com.

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