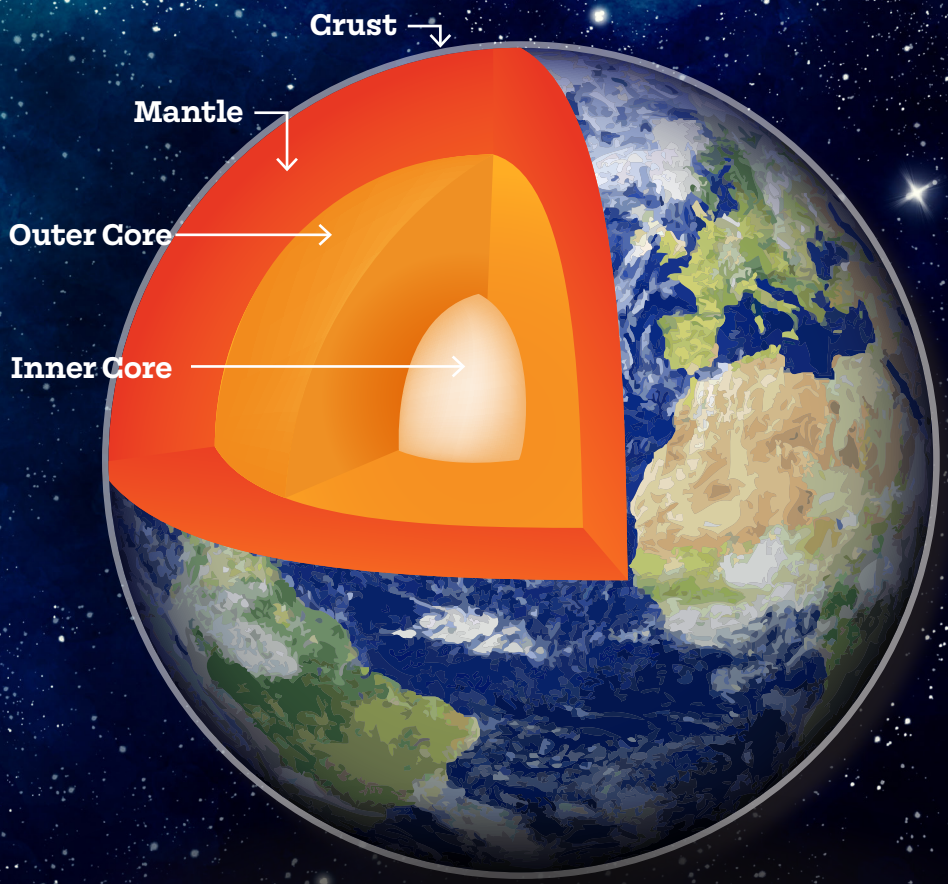
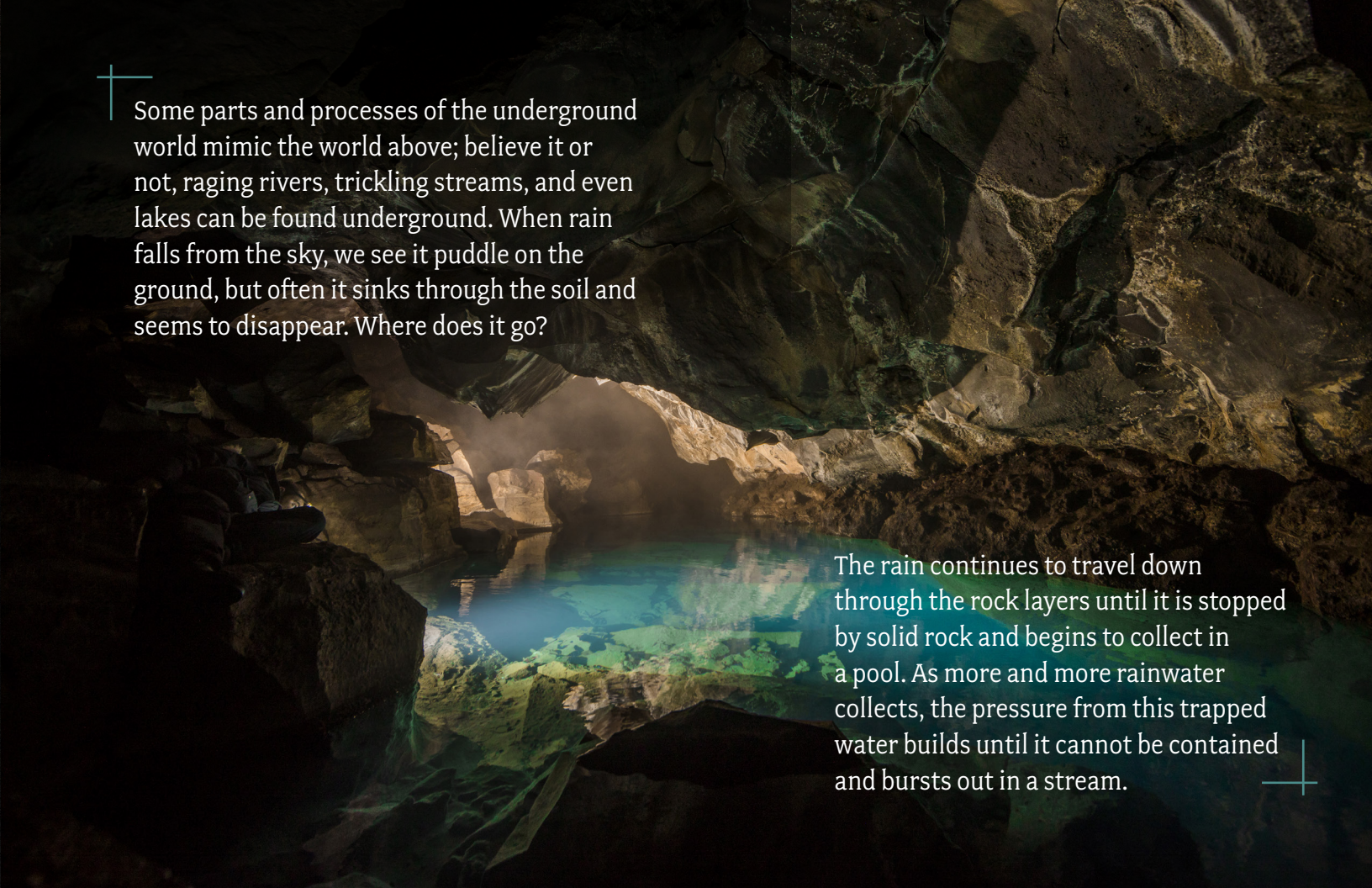
THE WORLD BENEATH MY FEET

by Ileana Board

THE GOOD AND THE BEAUTIFUL LIBRARY

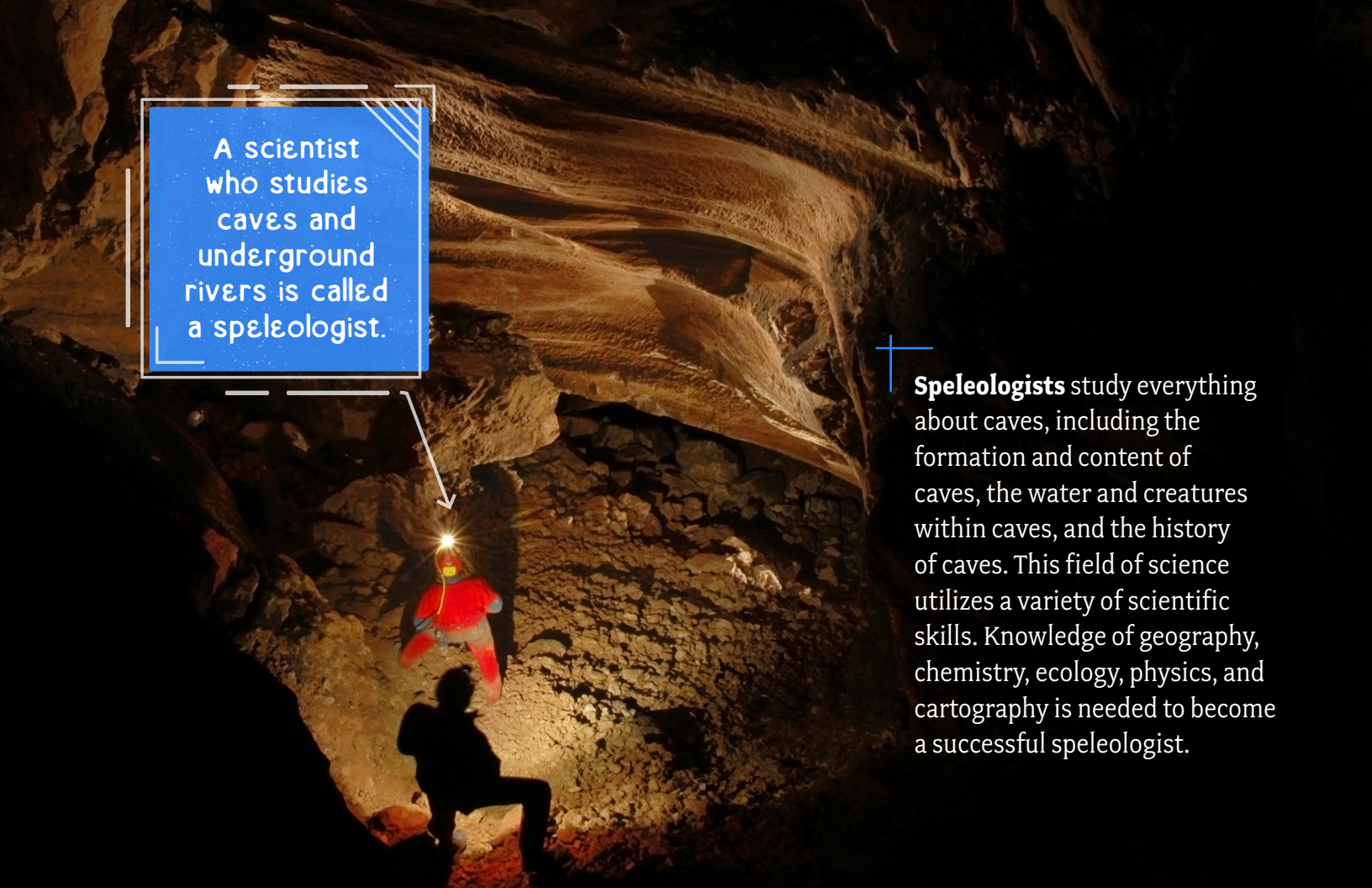
Our planet is made up of four different layers: the crust, the mantle, and the outer and inner cores. Despite the crust being the thinnest of the layers, it is home to all living things on Earth. Even with the inner layers being so relatively close to our feet, we have never seen the mantle or the core layers.





Some parts and processes of the underground world mimic the world above; believe it or not, raging rivers, trickling streams, and even lakes can be found underground. When rain falls from the sky, we see it puddle on the ground, but often it sinks through the soil and seems to disappear. Where does it go?

The rain continues to travel down through the rock layers until it is stopped by solid rock and begins to collect in a pool. As more and more rainwater collects, the pressure from this trapped water builds until it cannot be contained and bursts out in a stream.



A scientist who studies caves and underground rivers is called a speleologist.

Speleologists study everything about caves, including the formation and content of caves, the water and creatures within caves, and the history of caves. This field of science utilizes a variety of scientific skills. Knowledge of geography, chemistry, ecology, physics, and cartography is needed to become a successful speleologist.

When a volcano erupts above ground, molten rock flows down from the volcano's opening. As it flows and comes in contact with cooler surroundings in crevices underground, the sides and tops of the flow harden, eventually forming a cave-like tube with hot lava still traveling through it.

Just like the metamorphosis that turns a caterpillar into a butterfly, metamorphic rock is a rock that, over time, has been changed into another kind of rock. When igneous or sedimentary rocks are heated and put under pressure, instead of melting, their crystal and mineral makeup changes to form a metamorphic rock.

For example, limestone can change into marble, and basalt can change to granulite. An easy way to spot metamorphic rock is to check for visible crystal bands.

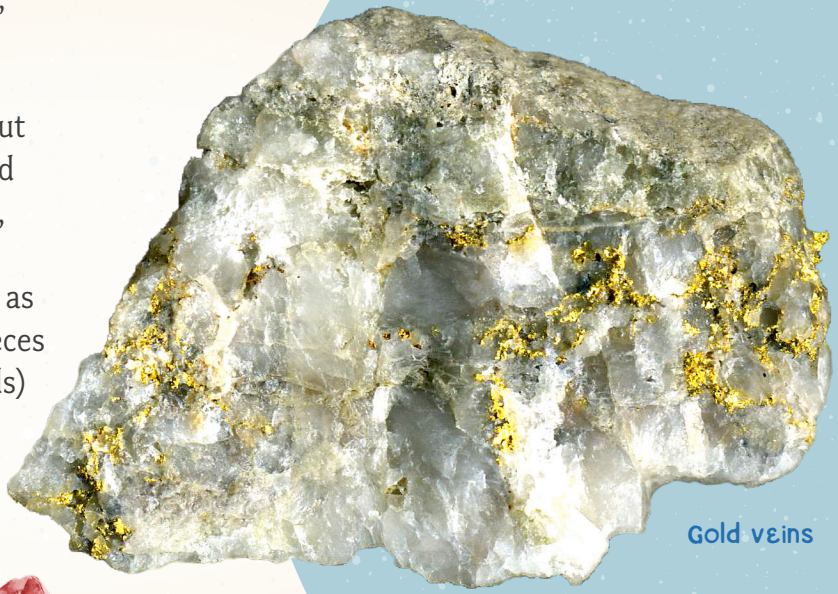
Lapis Lazuli

Granulite

SCIENTISTS WHO STUDY ROCKS ARE CALLED GEOLOGISTS.

Geologists study the earth, including its history, materials, and processes, in order to help predict what will occur in the future and explain what is happening now.

Gemstones, like diamonds and rubies, are crystallized minerals that form in many different ways, just like the different types of rocks we talked about earlier. The basic requirements needed for crystallization are space, pressure, heat, time, and the right ingredients. Gemstones and precious metals, such as silver and gold, are found as single pieces or in veins (like the veins in your hands) in solid rock.



Gold veins

The underground world is home to a vast array of other minerals mined not for their beauty but for their usefulness. They keep the world above running smoothly. Most of the products we use today come from the bounty the underground world provides. Our roads, buildings, cars, fuel, appliances, plastics, and so many other things would not exist without the treasures found right under our feet.

SCIENTISTS WHO STUDY MINERALS ARE CALLED MINERALOGISTS.

Mineralogists travel the world to gather, record, and test minerals. This work enables them to classify minerals and map their structures to help determine possible uses.

Today, fossil fuels represent 80% of the world's energy. Because they are impossible to make artificially and take so long to form, these fuels are called nonrenewable energy sources. Every day, scientists are working hard to find other sources of energy. I wonder if any new fuels buried in the world under our feet will be discovered in our lifetimes.