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EVEREST'S DEATH ZONE

Why the world's tallest mountain has become more dangerous to climb than ever

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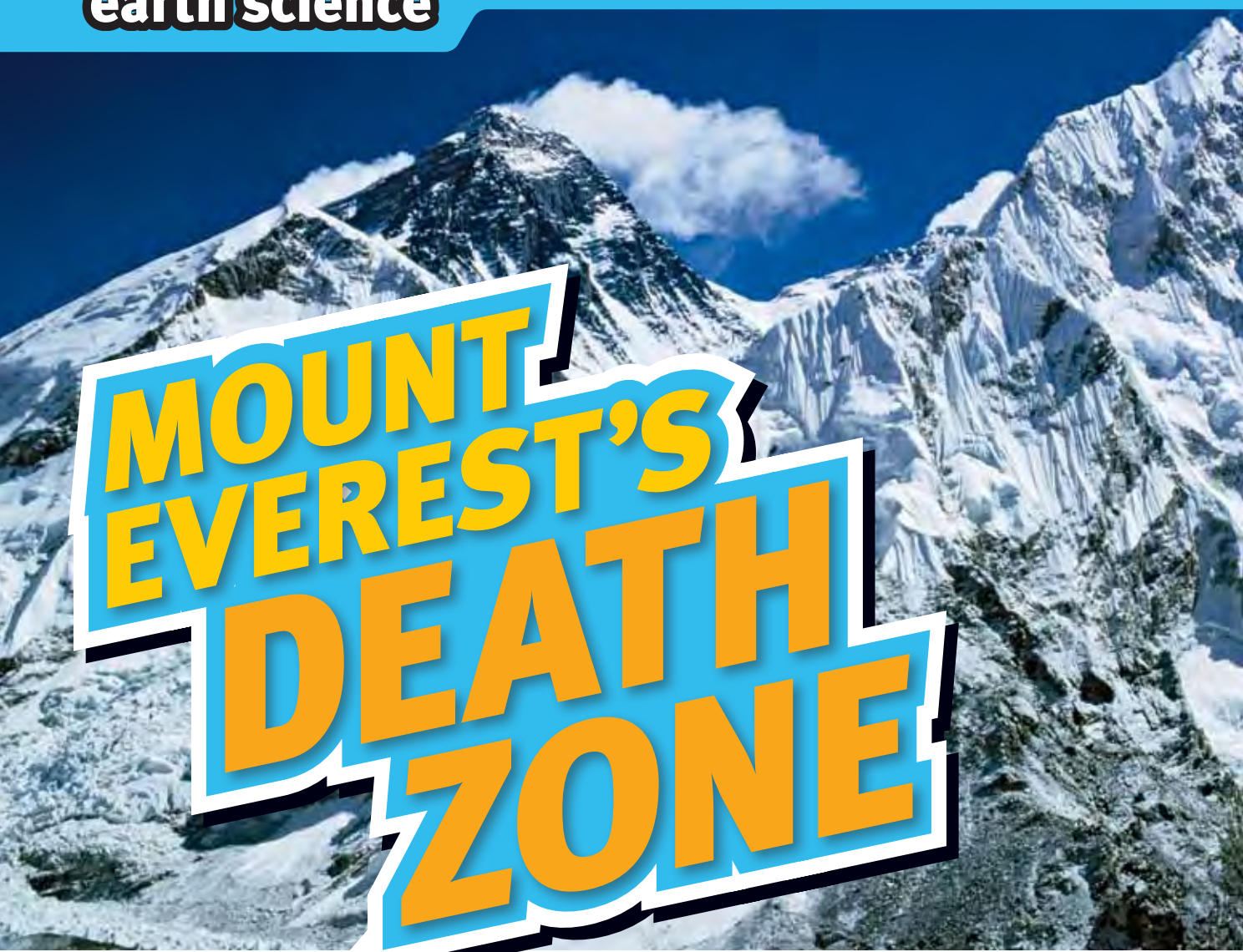

MOUNT EVEREST'S DEATH ZONE

Climate change and crowds of climbers are making the world's tallest mountain more dangerous than ever

Last year, 73-year-old Tamae Watanabe of Japan became the oldest woman to climb Mount Everest, the world's tallest mountain. In 2010, 13-year-old Jordan Romero of California became the youngest to reach the top.

All sorts of people of varying abilities scale the massive mountain in Asia these days. That may not be a good thing—for Everest or the climbers.

Last year, more than 500 people reached the top of the Himalayan mountain, which towers 8,850 meters (29,035 feet) above sea level. Hundreds more climbed partway up.

While it's a great achievement to scale Everest, it can sometimes cause problems for the climbers and the mountain itself. Everest is changing.

Warming Up

Why is Everest becoming more dangerous to climb?

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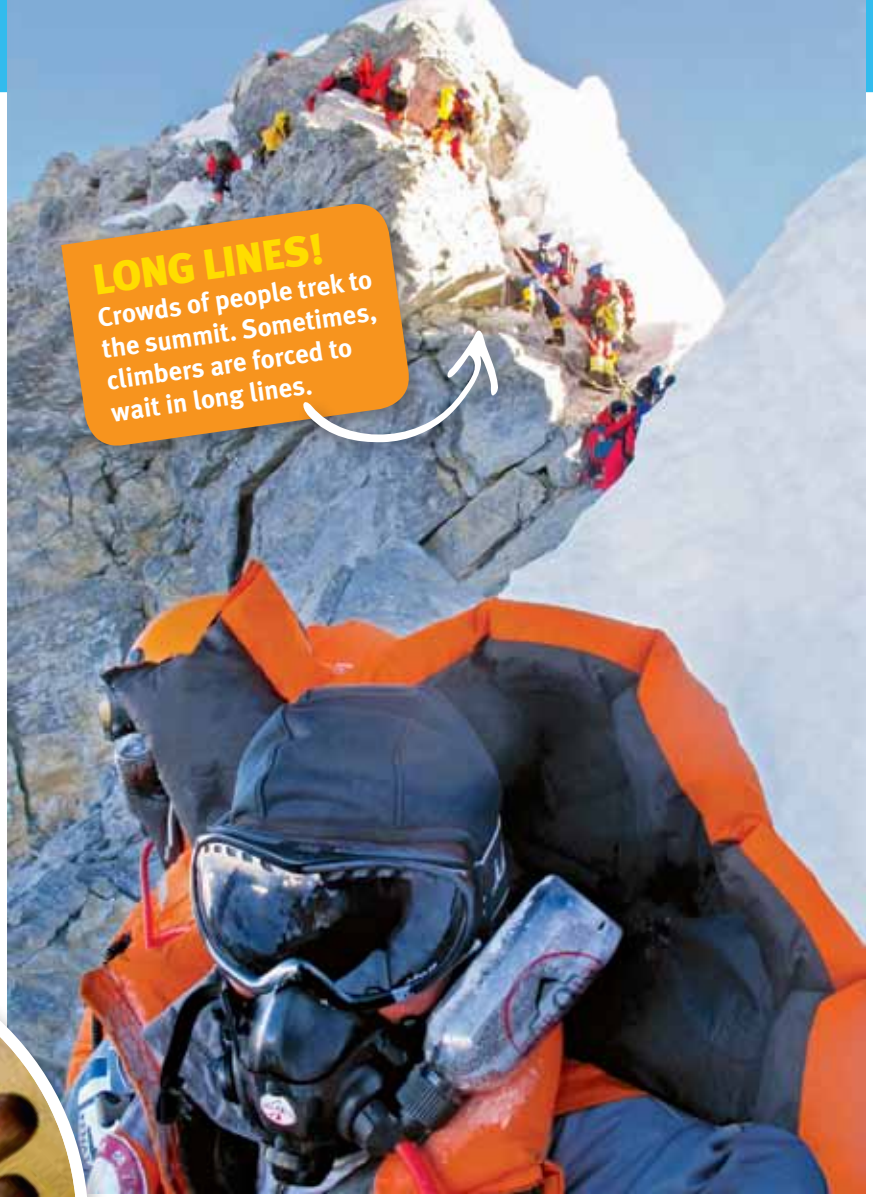


LONG LINES!
Crowds of people trek to the summit. Sometimes, climbers are forced to wait in long lines.

FROSTBITE!
When mountain climbing, delays can be dangerous. Too much time in extreme cold or heights can cause frostbite and altitude sickness.

One reason is changes in its environment. Much of the mountain is covered in huge sheets of ice called **glaciers**. Lately, warmer temperatures in the region have been melting these glaciers. Some places that used to be covered in ice year-round are now completely ice-free in the summer.

Shrinking glaciers put climbers at risk. As glaciers melt, snow, ice, and rock are more likely to tumble down the mountain in huge **avalanches**. These snowslides can injure or even kill climbers.

"As it gets warmer, more debris tends to fall down," says American climbing guide Freddie Wilkinson. He's one of a number of people who

words to know

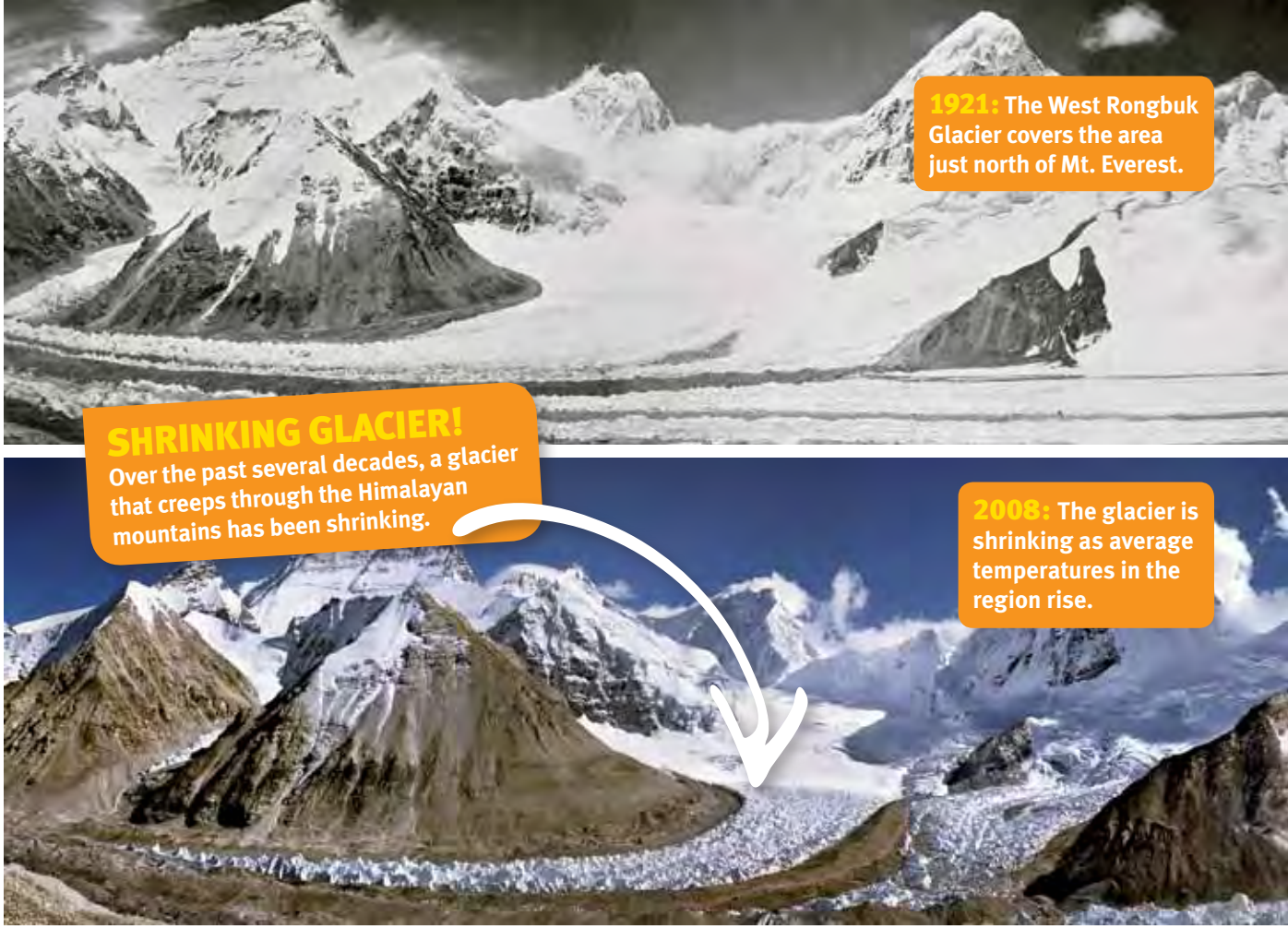
glacier—a large mass of ice flowing very slowly through a valley or spreading outward from a central point

avalanche—the fall or slide of a large mass of snow or rock down the side of a mountain

altitude sickness—a condition that occurs when a person can't get enough oxygen from the thin air at high altitudes, or heights

frostbite—damage to a part of the body caused by extreme cold

tectonic plate—one of the sections of Earth's crust, or upper layer, that moves slowly over Earth's inner layers



think that climbing Everest is becoming too risky.

Too Much Traffic

The weather on Everest is extremely harsh. Climbers can attempt to reach the summit only during a few weeks in the spring, when the peak is the least windy. As a result, crowds of people dash to get to the top. In the rush, piles of garbage can get left behind.

To reach the summit, climbers scramble up single-file, grasping ropes to keep from falling. In recent years, traffic jams along these ropes have sometimes forced climbers to wait hours for their turn to reach the peak.

These waits can have dangerous consequences. The highest part of Everest is the deadliest part to climb. It's nicknamed the "death zone." That's because the air there contains very little oxygen. This can cause **altitude sickness**, which makes climbers weak and confused. The extreme cold can cause **frostbite**. Too much time in these conditions can be lethal.

Most climbers use oxygen tanks to breathe. But if they get stuck for too long, their oxygen supplies can run out. Last May, four climbers died when they were caught in long lines near the peak. More than 200 people had been trying to reach the summit in a single weekend.

Climbing Rookies

In 1953, explorer Edmund Hillary of New Zealand became the first person to scale Everest. For many years afterward, only elite climbers attempted to conquer the world's highest peak. Today, only some Everest climbers are experienced mountaineers. Anyone is allowed to try as long as he or she joins an expedition.

"The abilities of the average Everest climber aren't what they were 30 years ago," says Wilkinson.

Other Options

It's natural for climbers of all skill levels to want to challenge themselves. But Wilkinson thinks amateurs should find different peaks to climb. Everest may be the most famous mountain, he says, but plenty of other places are just as exciting and much less dangerous.

"There are places for rock climbing and hiking all over the United States," says Wilkinson. "You don't need to go to Everest to have a really cool adventure."

—Mara Grunbaum

AIMÉE HERRING

Moving and Shaking

How does Earth's crust move?

hands-on science

Observe: Earth's surface is made of slabs of rock called **tectonic plates**. They float on magma, or melted rock, and are constantly moving. This motion creates many of Earth's landforms, like Mount Everest.

Ask a Research Question: How do tectonic-plate movements create a variety of landforms?

Form a Hypothesis Based on This Question: What happens when tectonic plates collide? Pull apart? Slide past each other?

Materials (per group): plastic knife • 8 oz of frosting • two feet of waxed paper • two graham crackers • water • eyedropper

Procedure:

1. Spread a thick layer of frosting on your waxed paper. Leave an inch of space around the edge. This is your magma.

2. Put the graham crackers next to each other on the frosting. Their edges should touch. These are your tectonic plates.

3. Push the graham crackers away from each other through the frosting. This creates a rift, a separation of plates. Watch what happens to the magma. Real magma would harden into new crust when it cooled.

4. Put the crackers side by side. Slide them past each other like trains passing on opposite tracks. Earthquakes often occur where plates scrape by each other like this.

5. Reset the graham crackers and push them toward each other. Let one slide underneath the other. When Earth's plates do this, the lower plate melts back into the hot mantle, becoming new magma.

6. Moisten the edge of a graham cracker with a water-filled eyedropper. Push the crackers into each other. The plates are colliding.

Record Results: Write down what happened to the graham crackers and frosting in each experiment. What do your observations tell you about how different landforms are made?

Conclusions:

1. Which plate movement forms mountains like Everest?

2. At the mid-Atlantic rift, the Atlantic Ocean gets up to 8 centimeters wider every year. What kind of plate movement accounts for this movement and the making of new crust?