Name _____

What Goes Up Must Come Down

Some say that the best part of a roller coaster ride is when you're going up the first hill.

That's when the chain that's pulling the coaster train up the hill clatters and clanks like it's a hundred years old and rusty. There's no way to get off the train. It's way too late to change your mind.

Maybe you're scared. Maybe you're excited. But one way or another, you know this is going to be something you'll remember for a long time.

While you were waiting in line, you watched the train go racing up and down the hills while everybody on board screamed. But watching is very different from being on board.

The train crawls slowly up to the top of the hill. At the top, you see the amusement park spread out below. The train is going very, very slowly—inching over the top of the hill. Your heart is pounding and you're filled with terror.

At that moment, the coaster train is ready to roll. Being at the top of a hill gives the train a lot of that invisible stuff that's called "energy." Energy is strange stuff. You can't see it, but it's all around you. You know when there's energy at work because energy is the stuff that makes things happen. Energy makes light bulbs glow, and fires burn, and plants grow. And energy makes things—like roller coaster trains—move.

The roller coaster train has the stored energy that comes from being at the top of a hill. As soon as it goes over the top, it starts rolling down. And here's something you might notice as you scream—the train doesn't go really fast right away. It starts slowly, gaining speed as it rushes downward.

All that stored energy is turning into a different form of energy—the energy of motion. At the bottom of the hill, the train has less stored energy, but it's moving really fast. It's moving so fast that it rolls up the next hill.

As the train climbs up that next hill, what happens to its speed? That fast-moving train slows down as it climbs. If you think about the energy of the train, that makes sense. As the train climbs, it's gaining stored energy. After all, it's going up a hill. And everyone knows that what goes up must come down. The train rolls over the top of the second hill and speeds up again as it plunges into the next valley.

Finally, many ups and downs and twists and turns later, the train rolls into the station and stops. At last, you can get off—and get back in line to do it all again.