Name _____

How Do Meteors Burn Up in the Mesosphere Before Reaching Earth?

Have you ever seen a shooting star? Even though it looks like a star, it's actually a meteor—a small rock or piece of metal from space. When a meteor enters Earth's atmosphere, it starts to burn up, and this happens mostly in a layer called the mesosphere.

The atmosphere is made of five main layers. The mesosphere is the third one from the ground, above the stratosphere and below the thermosphere. It is about 30 to 50 miles (50 to 80 kilometers) above Earth's surface. This is the layer where most meteors burn up before they can reach the ground.

So why do they burn up? As a meteor speeds into Earth's atmosphere, it is moving very fast—sometimes faster than a speeding bullet. The mesosphere contains some air, even though it's thin. When the meteor hits these air molecules, it creates a lot of friction. Friction is what happens when things rub against each other. This rubbing makes heat.

The meteor gets so hot from this friction that it catches fire and glows brightly. That's why we see it as a streak of light in the night sky. Most meteors are very small—only the size of a pebble or a grain of sand—so they burn up completely. They never reach the ground.

Larger meteors might make it through the mesosphere and reach Earth's surface. If they do, they are called meteorites. But thanks to the mesosphere, most space rocks are stopped before they can cause any harm.

The mesosphere acts like Earth's safety shield, protecting us from being hit by space debris. Without it, we might see a lot more damage from falling rocks.

Next time you see a shooting star, remember—it's not a star at all. It's a space rock burning up in the mesosphere, keeping our planet safe.