Black Holes: Where Light Can't Escape

Name _____ **Date** _____

Read the passage. Answer with evidence from the text.

A **black hole** is a region of space where gravity is so strong that nothing can escape, not even light. Its outer boundary is called the **event horizon**. Once anything crosses it, there is no way back out.

Many black holes form when a very massive star runs out of fuel and collapses under its own gravity. Others are enormous. At the center of our Milky Way galaxy sits a supermassive black hole called Sagittarius A*, with about 4 million times the mass of our Sun. It is roughly 26,000 light-years away, so it is no danger to us.

Because black holes give off no light, scientists study them by watching how they pull on nearby stars and gas. In 2019, the Event Horizon Telescope team released the first image of a black hole's shadow, in the galaxy M87. In 2022, they released an image of Sagittarius A*. Here is a surprise: if the Sun were somehow replaced by a black hole with the same mass, Earth would keep orbiting just as it does now. It would just get very dark and cold.

Questions

1. **What is the event horizon?**

   _____

2. **How can scientists study something that gives off no light?**

   _____

   _____

3. **Why is Sagittarius A* not a danger to Earth?**

   _____

4. **Explain why Earth's orbit would not change if the Sun became a same-mass black hole.**

   _____

   _____

More free printables at homeschoolpackets.com/free-printables