SCHOLASTIC and AMERICAN MUSEUM of NATURAL HISTORY present SCIENCE EXPLORATIONS

Journey into Space: Gravity, Orbits, and Collisions

Introduction

A leaf falls to the forest floor. The Earth whirls around the Sun. Billions of stars orbit around the center of the Milky Way Galaxy. Behind it all is the force of gravity.

Gravity helps form the stars and planets. It keeps objects, like the planets, in orbit. Gravity can also cause objects to collide. After all, objects in space aren't looking where they're going. And they definitely don't have brakes! Space collisions are happening all the time. Stars crash into each other. Two galaxies collide and form a bigger one. Asteroids and comets deflect and crash into planets - including Earth!

Space collisions are constantly shaping and reshaping the planets, stars, and galaxies that make up the universe. In fact, that's what formed the planets in our very own solar system -- collisions between particles of dust and gas orbiting around the early Sun.

You could say the force of gravity pulled Michael Shara into astronomy. When he was about 6 years old, his cousin gave him two books about astronomy. One was about double stars, which are pairs of stars that revolve around each other. By the next night, Michael was scanning the night sky for double stars with a pair of binoculars. Before long, Michael noticed that the middle star in the handle of the Big Dipper wasn't just a double a star, but a triple! He was fascinated and began to wonder: What pulls two, three, or even more stars together like that? The answer, he learned, was gravity. Today, Michael is an astrophysicist at the American Museum of Natural History. And he's still fascinated by clusters of stars in the night sky.