

Like a good mystery?

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When you throw a baseball up, you expect it soon to fall back down. That's gravity at work. No matter how hard you throw the ball, gravity wins. The ball comes back down.

Many scientists used to think that would happen to the whole Universe—a very, very, very long time from now. The Universe began with a “Big Bang” 13.7 billion years ago. We don't know yet how it happened.

Space, matter and energy just suddenly popped into being. Although we call this event the “Big Bang,” it wasn't really an explosion.

Space has been expanding ever since then. Stars and galaxies have been growing farther and farther apart. It is as if the Big Bang flung the “baseballs” of matter so high into the sky that they are still “climbing.” It's as if matter is still able to resist the pull of gravity from other matter.

But, just as the baseball reaches the top of its arc, stops for a tiny instant, then falls back to the ground, scientists thought the initial expansion of the Big Bang would someday stop. Then the Universe would begin to collapse. The gravitational forces attracting matter to all other matter would take over.

Eventually, a “Big Crunch” would occur. Space and matter would shrink back to the way they were at the Big Bang, just as a ball you throw up comes down at the same speed it left your hand.

But then scientists discovered something astounding. Not only is the Universe still expanding after all these billions of years, but galaxies are flying apart faster and faster. The “baseball” is acting as if a mysterious energy is continuously pushing it higher and higher in the sky, even though Earth's gravity is trying its darnedest to pull it back to the ground.

So, what's up with that?

It's a mystery. No one knows what this strange gravity-defying force could be. Scientists have named it “dark energy.” But just because it has a name doesn't make it any less mysterious.

So, instead of a “Big Crunch,” the Universe may end in a “Big Freeze,” slowly getting darker and colder, and colder and darker. But this would not happen for many, many billions of years. It's certainly nothing for you and me to worry about!