Down to Earth: Crash Course Kids #4.2

Physical Science
https://youtube.com/watch?v=BlPtF_NqIQI
https://nerdfighteria.info/v/BlPtF_NqIQI

[light, up-beat intro plays]

SABRINA: So. You know that the Earth is round. And you know that gravity is the force that pulls objects down. But if the Earth is round, and there's stuff at the bottom of the Earth, say, a penguin in Antarctica. Why doesn't gravity pull the penguin down, off of the Earth? I mean, does gravity really pull down?

[music plays, then stops]

When we talk about gravity and we say things like up or down, we don't mean those things in the sense that you're used to. In this case, 'up' just means away from the Earth, and 'down' means toward it. So when you hear people say gravity pulls things down to Earth, they really mean that gravity pulls things toward the Earth.

Now think of it this way. Gravity is the force of attraction between any two objects made of matter, right? Well, I have news for you: you're made of matter, and so is the Earth.

That means you and the Earth have an attraction to each other. Aww, you guys! Anyway, the scientific argument for gravity is that any object that's on or close to Earth's surface, and is made of less matter than Earth, will be pulled in by our planet's stronger gravitational pull. Wanna do a little demonstration?

[upbeat, bass guitar plays, then stops]

To show how Earth's gravity can pull an object, like the penguin we mentioned before, toward it, no matter where on Earth that penguin is, all you need is a tennis ball and a rubber band. Oh, and your index finger.

Now, let's pretend the tennis ball is Earth, and the rubber band represents the force of gravity. That makes you finger our adorable little penguin, just chilling on the surface of the Earth.

Now, stretch the rubber band around your tennis ball Earth, and stick your finger under the rubber band. Now try to lightly pull your finger away from the ball. The penguin is trying to jump off the Earth.

Even though penguins can't fly! What are you doing, penguin? But, what happens? Not much. Your finger doesn't get far before the rubber band pulls it back toward the ball, right? And the effect is the same no matter where your finger penguin is on your Earth ball.

Whether it's at the top, or the side, or on the very bottom, the same thing happens. The penguin is forced back to Earth, no matter how hard it tries to jump off. So, what does this mean?

[thoughtful music plays, then stops]

It means that no matter where on Earth an object is, the planet's gravitational pull will draw the object toward it, and that's how you should think about gravity. It's the force that pulls things toward Earth.

[boing noise plays with each jump of the penguin]

So basically, we have gravity to thank for the fact that penguins stick to the bottom of the Earth. And I, for one, am grateful. I- I like penguins.

[outro music plays]