mystery science

Grades K-5
Mini-Lesson: “Can you play football on the Moon?”

VIDEO TRANSCRIPT

VIDEO 1

Hi, it's Jay! One of my favorite seasons of the year is fall. The weather can get cooler, some leaves begin to change colors, and football season starts. I love watching American football, especially when my favorite team, the Packers, play. It's just such an exciting game. The running backs breaking away from tackles, the amazing catches, and all of those incredible kickoff returns. Woah. Someone named Lucca is curious about football. Let's give Lucca a call now.

[Video Call]

- Hi, Jay.
- Hi, Lucca.
- I have a question for you. Can you play football on the Moon?
- That's a great question.

Whether you play football in a park, or at school, or even in your backyard, it's pretty much going to look the same. The passes will fly the same way. The kicks will go the same distance. But things might be a lot different on the Moon, and that's mostly because of gravity. You may have heard that there's less gravity on the Moon, and that changes the way people and things move. See how they're bouncing around? It almost seems like they're kind of floating, doesn't it? So low gravity might really change the way football is played up there. It could be fun and

amazing or maybe kind of difficult. What do you think? Before I go on, I'm curious. How would playing football on the Moon be different than playing football on Earth?

VIDEO 2

I don't know how you answered, but you may have said that the passes and kicks would go a lot farther because there's less gravity. And you're right. If you pass or kick a football on the Moon, it should go four to six times farther than it would on Earth. But here's the thing. Passing and kicking a football up there isn't as easy as it seems. See those spacesuits they're wearing? They're more than just cool costumes. They're like mini human-shaped spaceships keeping astronauts alive with oxygen, heaters, and even a cooling system to cool them down when it's hot. And with all that special equipment on them, spacesuits are really stiff and bulky and hard to move around in. You can't even bend over to touch your toes. So passing, catching, and kicking a football in a spacesuit would be really frustrating. But it's not just the spacesuits that would make playing football on the Moon tricky. Even without a spacesuit, running or even walking towards the end zone on the Moon would be hard. See, keeping your balance in less gravity is tough to do. And the entire Moon is covered with piles of powdery gray dust. It's so tricky to walk on the Moon that most of the time, the astronauts would just hop around. So running football plays on the Moon would be really hard. But that doesn't mean it's impossible. Different groups of scientists and engineers are working on new, lighter space suits that will make walking on the Moon a lot easier. Some of these new space suits are way less stiff and bulky, so you can move your arms and legs a lot easier. Now, you might not be able to play football in these spacesuits yet, but they're getting better and better. Who knows? Maybe one day we'll invent the perfect Moon football spacesuit. One that's perfect for running and passing and kicking a football. Wouldn't that be awesome? It's fun to think about. So, in summary,

playing football on the Moon could be amazing. Our passes and kicks could go farther, and linebackers could flip away from tackles. But playing football up there would also be really challenging. Stiff and bulky spacesuits would make throwing and kicking a football tricky. And running plays in low gravity and Moon dust wouldn't be easy. But that doesn't mean it's impossible. Scientists and engineers continue to work on lighter, more flexible space suits that can help us move better and keep our balance up there. And maybe one day, those space suits will be good enough to race down the field for a game-winning Moon touchdown. That's all for this week's question. Thanks, Lucca, for asking it.