

Transcript for *Bill Nye the Science Guy* | I've Been Mooned

- ♪ Bill Nye the Science Guy ♪ ♪ Bill Nye the Science Guy ♪ ♪ Bill, Bill, Bill, Bill, Bill ♪ ♪ Bill Nye the Science Guy ♪

- Science rules. ♪ Bill Nye the Science guy ♪

- [Woman] Inertia is a property of matter. ♪ Bill, Bill, Bill, Bill, Bill, Bill ♪ ♪ Bill Nye the Science Guy ♪ ♪ Bill, Bill, Bill ♪

- [Woman] T-minus seven seconds. ♪ Bill, Bill, Bill, Bill, Bill, Bill, Bill ♪ ♪ Bill Nye the Science guy ♪

- Do you know that the goes around the sun, and the moon goes around the Earth in a very predictable cycle? Very predictable. Not everything is like that. See, the moon is always the same. It never changes, It's the same size and shape, round like a ball, but it looks different to us here on Earth because of the way sunlight hits it. That's right, moonlight is really sunlight, and it changes because the moon is going around the Earth and the Earth is going around the sun. Everything's just going around. Okay, let's say that this baseball diamond is the orbit of the moon. Now, the diamond is square and the Orbit's round but you get the idea. Now, we need a sun. So, let's say that the Earth is on the pictures map. And see, by the way, the scale of this globe and this moon are about right, in respect to the orbit of the moon, that's the baseball diamond. Now, notice that right now, when you're standing on the Earth, you can't see the moon at all, this is what we call a new moon. And the reason you can't see it, is the moon is between you and the sun. Now, the moon orbits the Earth in this direction. So, when the moon gets to first base, it's a half moon, because sunlight is falling on half of it, then it keeps running to second. Now, when the moon's back here at second, it's a full moon. That's because the moon is on this side of the Earth. Here's a trick, the moon's orbit isn't flat, it's tilted. So, a lot of times, when the moon's back here, it will be way up here. But notice it's still a full moon. And this is why most of the time, the Earth shadow doesn't fall on the moon, it's almost always full. You gotta keep movin'! On to third. So, over here at third, it's a half moon again. But look, the shadow's on the other side, that's because we're on the other side of the Earth. Well, time to break for home. Leave!

- So, with the orbit set up like this, the moon will end up right on home play. The moon score is a home run, every month. Well, that's astronomy for ya, or baseball. No, I guess it's both. You know sometimes, you can see the moon during the daytime.

- Each week, the moon looks different. Sometimes it's round, sometimes it's a teeny sliver, and sometimes you can't even see it. Here's a fun thing to do, look at the moon. Sometimes you can see it during the daytime. Draw what you see on your window. Don't worry it's just soap, you can wash it when you're done. Look at the moon in a couple of days, and draw it again. When the moon is not there, that's called the new moon. Just drawn a dotted circle. After a month, the moon starts the whole thing all over again, and the dark part always goes from the right to the left. The moon's in your room, Cool!

- Moon glow is really sun glow. That's right. Moonlight is really sunlight that reflects off the surface of the moon like a mirror. You see, well, how can moonlight be so bright? I mean, where does it all come from? Well, two things. First of all, the moon doesn't have as much gravity as the Earth, so it can't hold on an ocean or an atmosphere that absorbs moonlight. And moon rocks reflect a lotta lights. And, you know, moon rocks are a lot like Earth rock. They have a lot of the same minerals, minerals like potassium. Potassium is in banana. Now, one of the reasons that scientists think that moon rocks and Earth rocks are so much alike, is that perhaps, the Earth was hit by a giant meteorite or a giant rock in space. It hit the Earth and that material spun off and formed the moon. So, moon glow is really sun glow reflecting off of moon rocks, huh! Wow, go figure!

- [Announcer] Community Access 27. Next, the Hi-Delly School, with the moon.

- And now, Ms. Marshall's, fourth grade class presents, "The Moon." A play in two acts at one. "The Revolution."

- So, where did the moon come from anyway? Or the best theory right now, is that the Ancient Earth, was hit by giant asteroid, big rock from space. Of course, in space there's no sound, so it would be more like. Anyway, if this material was melted, molten. After a while, a piece of it that flung off, and the pull of gravity held it more, and that our moon. Now, because the moon was formed by this impact, the moon's orbit is tilted even today. Pretty hot!

- [Announcer 1] 10, 9, 8, 7-

- [Announcer 2] Are you looking to get away from it all? Enjoy life again? Then Apollo Charter Tours has just the ticket for you. Come fly with us, and in three short days, all your cares and worries will be a world away.

- [Neil] Tranquility base here. The Eagle has landed.

- [Announcer 2] Come, join us, for an out of this world Lunar experience.

- [Neil] Hey, are you okay there, Buzz?

- [Buzz] Yeah, I just took a leisurely trip.

- [Announcer 2] Everything you will need has been provided for, expert pilots and technicians, in-flight food and beverage, entertainment, spectacular view, craters, and, of course, the best golfing this side of Pluto. That looks like a slice to me, Al. All for only \$25 billion. And if you act now, we'll throw in two hours of free Lunarmobile Rental, to really gets you going. Call now, and reserve your seat in the Capsule. Apollo Charter Tour. This has been a fake commercial, and was not intended as a guarantee, warranty, or protection. Any similarity to an actual product, living or dead, was purely coincidental. And now, back to our regularly scheduled program.

- [Announcer] That's one small step for man. One giant leap for mankind.