(PBS Digital Intro)

Shini: The nucleus of any atom consists of protons and neutrons. They might even put a proton and a neutron in my hand. Oh, so no hands involved? Oh. That was worth doing.

If you're one of those many glasses-wearers--and if you're one of the many glass--glasses wearers.

That the--that n--that light--nah.

Should I do that?

For example, if you're looking up at the moon and you cover it with your thumb--lost my place.

Which pops out of the metal, and the photon is destroyed in the proc--

I don't know why I can't say that.

And the fact that these two angles equal each other is called the law of reflection. Oh my God, I really struggled to say that. Was it obvious? Law of Reflection.

It's time to use our understanding of the wave nature of light to explain what stars are made of, why you see rainbows in an oil stain in the parking lot, and how some fancy sunglasses can het--

They become bent and make the bottom of the straw appear to be somewhat--bent.

If we point the flashlights at a reflective surface--

Now, you can also shine light through many equally spaced slits. This c--this called--I missed that. This is called defraction.

I don't know why, but I like, feel like I haven't fully put my teeth in yet.

And when you increase the intensity of the light, does that effect the maximum kinetic energy of the ejecte-lelele?

This is like, what?

There's no pause. But if the l--

Yeah.

And one measure of a lens--one measure of a lenses--lens.

I need to even understand this.

But when you look at the leak through the lens, the virtual image is larger than the actual object sorry. I spat, I could just see it flying.

And remember, when rays converge at a point, that means real image has been formed. Bleeeeh. Help meeeee.

So we'll label the focal point on the point opposite of the object as 'f' and the point on the same side as the object as 'f prime'. Jeez. Lenses have the same focal length on both sides, so we'll label the focal point on the side of the opposite--on the side opposite. Oh my gosh.

Another important equation is true for both converging and diverging lenses is the magnification equation.

This was a refracting telescope. It consisted of an--oh, God. This was--this was a refracting telescope. Hnnn. It's one of those ones, isn't it?

For example, if you rolled a bunch--waves interfere constructively when the crests of both--both waves. B--ohhh. Sorry. Waves--You're funny. It's you.

But that's not t--oh my God.

When a ray moves into air from water, sorry, I'm so conscious of the way I say water. Water. Water.

Later scientists studied such dec--

Taking in as much light as possible in order to best capture images of distant objects. Oh my God.

Like other waves, light also has a frequency and le--wavelength.

Taking in as much light as possible in order to best capture images of distant objects.

I can do that again.

It's important to know the masses of different nucleii, since nucleii interact--it's important to know the masses of different nucleii, since nucleii int--ahhh. It's important to--no. I lied.

You guessed it, y--blah.

On l--oh my God.

Bye.

Nick: That was perfect. Voiceover.

Shini: Nooooo.

Nick: That was great.

?: Yeah. Yeah, it was.

Nick: It was. It was really, really good. You did a really good job. That was hard.

Shini: You sound surprised. Did a good job for a change. It's only taken 43 episodes.