

# Pedagogology with Bill Nye

## Ologies Podcast

### November 3, 2020

Oh heeey, it's that little beetle grub in your compost that you mistook for a dead human finger, Alie Ward, just squirming toward one of the most exciting episodes of *Ologies* in the three-year history of the show. I mean, we have rock star ologists on every week, but celebs? We have a verifiable famous person on this week. What's next: Vibe-ology with Paula Abdul? Iconology with Missy Elliot? I mean, the sky's the limit.

But before I sit down with our collective, personal hero, some personal thanks to Patrons at [Patreon.com/Ologies](https://patreon.com/Ologies) for submitting the questions for this episode, for every episode, and for supporting the show each and every day. If you want to join that, it's a dollar a month. Literally \$12 a year gets you access to submit questions for over 50 episodes. It's cheaper than a parking meter, folks.

Also thank you to everyone rating the show, and subscribing, and spreading the word. It matters so much, as do reviews. I read *all* of your reviews because I love you back, such as this freshie from Carley who says:

*Pretty sure Ologies cured my cancer... But for real though, almost a year of chemo, surgeries, and quarantine, hearing a Tasmanian Devil screech or learning how to not lose a boat has been the highlight of my journey. You too can experience this enlightenment. No cancer necessary.*

Thank you Carley and please continue to be healthy. While we're here: big hugs to longtime listener Christa Avampato who just went through surgery last week.

Okay, onward! The title of this one is Pedagogology. Peda-GOG-ee? [*uncertain*] Peda-GO-jee?

[*to Jarrett*] What is it?? [*Jarret: "I'm never sure."*] [*Google pronunciation: PEda-go-jee*]

Pedagogy [PEda-go-jee], okay. The title of this one is [*slowly*] peda-gog-ology. Pedagogy means the 'method and practice of teaching', so theoretically this ology is the study of teaching. So, learning... to teach... to learn... to communicate, perhaps science. To be a science communicator in sci-comm. To 'comm' some 'sci'.

There is maybe no one better on planet earth to ask than the world icon of science TV. He graduated with a Bachelor's in Mechanical Engineering, worked at Boeing, and has a zeal for all things scientific. He is the author of several books. He hosts several seasons of his own show on Netflix. After wanting to be his generation's Mr. Wizard, he's been communicating science for decades, and now we all want to be *him*.

We chat about communicating science, the intersection of policy and conservation, the joy of discovery, gender fluidity, TikTok, masks, voting, ties, monks, craters, and the F-word with your hero and mine, Pedagogologist Bill Freakin' Nye.

-----

**Alie Ward:** [*fangirling a little*] Hi, hi.

**Bill Nye:** Hi. Greetings, greetings.

**Alie:** [*laughing*] I'm so excited to talk to you. Thank you for being here.

**Bill:** Well, thank you for having me here.

**Alie:** I don't know how to do this interview because there's too many questions that I want to ask.

**Bill:** Well, start with one of the first ones.

**Alie:** Oh, okay. So, start with the first? Okay. That's a good idea.

**Bill:** That wasn't really my idea.

**Alie:** *[laughs]* It's so nice to talk to you again. I had so much fun being on your podcast. I'm such a huge fan. Obviously. You know that. Huge fan.

**Bill:** That's good. *[jokingly fangirling]* I'm big fan of yours also.

**Alie:** *[exaggeratedly]* Oh stop! Okay. I'm just going to get right into it. You ready?

**Bill:** Yes, ma'am.

**Alie:** Okay. I would like to know what a typical day is like for Bill Nye.

**Bill:** Right now a typical day is getting up and eating breakfast, which usually consists of some stone fruit from nearby grocery stores or the farmer's market, which is nearby where I live here in Los Angeles. And then I get on calls like this.

No, that's what I do. There's a lot of Zooming – that's a brand name. A lot of casting of pods. We do *Science Rules!* – you've been on *Science Rules!*. We do *Science Rules: Coronavirus Edition*. I do a little research for those. And there's always a lot of email associated with the Planetary Society.

**Aside:** Bill is the CEO of the Planetary Society, which is the world's largest and most influential nonprofit space organization. They "introduce people to the wonders of the cosmos, bridging the gap between the scientific community and the general public to inspire and educate people from all walks of life," and "make their voices heard in government and effect real change in support of space exploration."

Nonprofit badassery is what's happening.

**Bill:** There's a lot of activity for me associated with that. Then, at the end of the day, after a lot of, often, apples and peanut butter for lunch, then I go for either a long walk of about four and a half miles, or I ride my bike for about 15 kilometers. So what is that? 10 miles or something like that.

**Aside:** 15 kilometers is 9.3 miles, which is a lot of miles.

**Bill:** I go up the big hill, the hill here that separates Hollywood proper from, *[exaggerated Valley Girl accent]* like, the Valley. And I, like, totally live in the Valley. I've found that doing these two activities every other day is good for the hips and knees.

**Alie:** How about for ideas? Do you get a lot of ideas when you're cycling or when you're physically occupied?

**Bill:** Yeah. You know, this idea of mindfulness, where you're supposed to think about nothing? Oh, would but that I could. I think about things all the time. I hearken to the story of this guy named William Friedman, who was one of the codebreakers in World War II. He says he encouraged the people that he worked with to just think about... in the background, you're working on the problem all the time. You're always working on the problem. So yes, I'm always thinking about things, Alie.

**Alie:** I don't doubt it.

**Bill:** And right now, man, I'm in California. Everything is on fire, no sign of rain to come, the hurricanes hitting the Gulf of Mexico. In the US we have got climate change big time.

**Alie:** Yes. Do you ever wonder in all of this... Do you ever subscribe to any theories of this as one of many universes or just a simulation gone bad? Or is that just giving up?

**Bill:** That it's a simulation gone bad is completely unreasonable to me. I'll tell you why, everybody. This gets back to our good friend, Occam's razor. William of Ockham (pronouncing it as best I can) goes: If you think about it, the simplest explanation for a phenomenon is probably the best.

**Aside:** William of Ockham was a friar from Ockham, Surrey in England in the late 1200s, and I just looked that up today. I always pictured Ockham to look like some sort of Trent Reznor goblin holding a razor blade with his teeth. But no, he's just a monk who was like, "Hey man, chill out. The simple answer is probably the deal," and then went back to eating some unsalted porridge.

**Bill:** One explanation would be that we're all in a giant video game and our memories are implanted by the Galactic Over Director, the G.O.D., of the video game; everything that we do is prescribed by the rules of the video game, and somebody is in charge, and what you think is reality is not reality because you're part of it. That's one explanation. Another explanation is we're not in a video game. This is actually the universe and here we are. It's just a lot more reasonable to me.

Now, whether or not there are other universes is a fabulous question, but apparently the only reason – or the best, or most compelling reason – that there might be other universes, multiverses, is there's nothing to exclude that possibility. "Okay. All right. We'll see." Or maybe it will be shown that you can never see; that it's unknowable. "Okay. All right." I'm still going to have coffee in the morning.

**Alie:** We still have to fix this big ball on fire that we live on.

**Bill:** Yes. But these are worthy questions. You know, the two things that get us all the time are: Are we alone in the universe, are we the only sentient or whatever-you-call-us, contemplating-our-fate beings? And where do we all come from? How did we all get here?

I think the video game hypothesis is somebody trying to come up with: How did we all get here? What is going on? It is a fundamental and amazing question. I mean, I don't know, man. But I sure want to find out.

The premise in science, everybody – and I know we have questions to get to Alie, I can't wait – but the premise of the bit – as we say in comedy writing – is that the universe *is* knowable, that the cosmos *is* knowable. That we can even ask that question is amazing. It fills me with reverence every day that we are made of the dust of stars. We are at least one of the ways that the universe knows that it exists. We are one of the ways the universe knows itself. That's really profound, people.

**Alie:** Do you ever find that kind of existential rooting in science itself?

**Bill:** Well, you've been on the *Science Rules!* podcast, and I mention this, of course to promote my podcast, [*quiet airhorn*] but also as a witness. If you ask Corey Powell, my cohost, what's my favorite thing... I'm a mechanical engineer, physics was how I got here. But my favorite thing

these days is evolution. Evolution is how we understand all of biology. All of life science is in the context or the lens of evolution.

**Aside:** For more on evolution and some hot Charles Darwin gossip, see the Evolutionary Biology episode, if you like.

**Bill:** I think about science every day, all the time. Where did we all come from? And are we alone in the universe? I think about that all the time.

**Alie:** On the topic of evolution, let's talk a little bit about yours. You are, kind of, proof that one's mutations are their superpower, in that you are someone who's a mechanical engineer who is also gifted in comedy. A lot of times people probably find themselves in one bucket or the other, but you were a bit of both, and that kind of led to how you used your voice. Did you ever struggle with wanting to be a performer versus wanting to be an engineer? What was that like for you?

**Bill:** Okay, let me just say: Are you kidding?? Yes I struggled! Oh my goodness did I struggle! You guys...

Let me also back up one little thing. You use the term 'gifted'. *[sighs]* I'm always concerned about the term 'gifted'. I'm always concerned about the term 'talent'. To me, Fred Astaire = Talent! Okay. Bill Nye = Talent? *[laughs]* Not sure, you kind of lost me there. *["Don't be so modest."]*

But along this line, what started it was... I was a senior in college and the guy who had been my freshman roommate, Dave Laks – when we see each other at reunions, it's always great. "Hey, Dave. I love you, man." "I love you too, man." – he had gone into material science, I went into mechanical engineering. He's like, "You gotta come see this." So I went to his house. They had this extraordinary technology in 1977 – cable television!

And I saw Steve Martin at The Boarding House. The Boarding House is a nightclub in San Francisco. *[fade into clip from "Let's Get Small," recorded live at The Boarding House, Steve Martin picking the banjo]* And Dave goes, "Look, this guy is just like you. His sense of humor is just like yours. Look at this guy." *[clip continues: Steve Martin, "Hey, this guy's goooooood." [audience laughs]]*

Then a year later, Warner Bros. Records sponsored a Steve Martin lookalike contest. A completely different set of friends in a whole 'nother city, Seattle, pressured me to enter this contest. I did and I won. I mean, due respect, I won. I did not win the national one. I did not advance beyond Seattle. The guy who won could play the banjo, and I guess, objectively, kind of looked like Steve Martin...

This led to people wanting me to be Steve Martin at parties because... you're not of a certain age, but it is my claim that when Steve Martin released these first two albums, the whole world was laughing with him. The whole world was on board with his... people would call it absurdist, his point of view, which was deep irony.

Anyway, then you start trying to do standup comedy, you start trying to write your own material. Meanwhile, I was working as an engineer. And then, because everybody was talking about comedy early on – this is before *Seinfeld*, before *Everybody Loves Raymond*, before all that – the head of the NBC affiliate station in Seattle, Bob Jones (what I guess was his real name) wanted to have a comedy show. I had met these guys at comedy clubs over the couple years there and I got invited to do a bit. One thing led to another and we had to fill six minutes, which is quite a while in television. And so Ross Shafer, who's still a good friend of

mine, said, "You could do that science stuff you're always talking about." So I did the household uses of liquid nitrogen as Bill Nye, The Science Guy.

**Alie:** [laughs] Of course!

**Bill:** And it was Ross who just blurted out, "Bill Nye the Science Guy" in a meeting, and it was, you know, well received. So then there was pressure to do a Science Guy bit every few weeks. And I started doing it as kind of a magic thing; that is to say, 'maybe not everything you see was real', but then it occurred to me how cool it would be just to make it all real.

**Aside:** Bill says that during the mid-1980s, the Reagan administration opted to remove and not replace President Carter's solar panels, which was a mega-bummer to many environmentalists, and they also ended the push to have us convert to the metric system, which is why I had to ask a search engine how many miles 15 kilometers is and why I'm not sure if its 'kEElometers' or 'kilAHmeters'. And so I just had to look that up and 'kilAHmeters' is American and 'kEElometers' is British. They're spelled the same, though.

Any-fricken'-whoozzle, the folks who produced the *Seattle Today* show hired our then-35-year-old buddy Bill in 1989 to make an educational video for the Washington State Department of Ecology, and it was called "Fabulous Wetlands." [softly] And it was fabulous! [clip from "Fabulous Wetlands," Bill Nye: "So what is a wetland? Well, you got land, you got water, it's not that complicated!"]

**Bill:** And that became a template for *Science Guy* show. And then one thing led to another, and the Children's Television Act, where station owners had to have three hours of educational television, every week! "You mean we're going to stop our printing press for money?!"

**Alie:** Right! [laughing knowingly] Yes, I know!

**Bill:** "We're going to stop printing money for three hours, every week?? Oh my goodness!" Anyway, that's... One thing led to another, but as far as quitting my engineering job... Man, oh man! I was working part-time on a comedy show in Seattle that only would go six weeks at a time. And then you're unemployed for the next six weeks. You know, it was... for a guy who was used to having a job... You know, I used to wear a tie to work; a straight tie.

**Aside:** I can't help but imagine Bill wearing a straight tie to his day job and then coming home and changing into a bow tie, like Mister Rogers, to teach science. Or ducking into a phonebooth like Clark Kent, changing only his tie but emerging, clearly, our nation's science superman.

**Bill:** I'll just tell you also, Alie, in those days, working at Boeing and then Sundstrand, when I wore a tie I also... This was it was just my thing; I also wore a shirt. [ba-dum-TSH!]

**Alie:** [laughing]

**Bill:** I didn't want to scare anyone, you know? So anyway, quitting my job October 3rd, 1986 was a real stopping and thinking. I mean, I set aside my end-of-the-world money, which was \$5,000.

**Alie:** That's a lot of money!

**Bill:** Eh... it was enough to pay... I had a mortgage! I had a condo, a condominium. I was like, you know, [cool guy voice] a young single guy in a condo driving a Volkswagen bug! But, you know, even then the world was changing so fast and I realized if I left engineering for a year, I would be... not un-hirable, but it would be quite difficult for me to get back in it. So you ask, was it an agonizing decision? Yeah!

But I was a young guy, people much more regret what they don't do than what they do. Once in a while, you know, there's problems. But most of the time we regret what we didn't do. So I quit my job and tried it. And then for another six years I worked part time as an engineer. Traditionally it's called a contract engineer. That was a long answer to one of your questions.

**Alie:** No, I liked it.

**Bill:** So yes, I agonized!

**Alie:** Of course you did! But did you not get a little bit of advice from... some guy named Carl?

**Bill:** Oh, Carl Sagan. Yes.

**Alie:** [*giggling*] Yeah, okay.

**Bill:** [*sarcastic laugh*] Some guy! So what happened, everybody, was, first of all, I was in high school in Washington DC, and a guy who had graduated two years ahead of me, who had the same physics teacher, said, "You know, Bill, you ought to apply to Cornell. You're the kind of guy that would fit in at Cornell University." And, you know, we love the word skepticism, Alie, but I was very skeptical of this claim.

**Alie:** [*laughing*] Okay!

**Bill:** But nevertheless, I applied. I had never visited the Cornell campus. I just... In football, if you're familiar, I threw a Hail Mary pass. I typed the application on a typewriter, a manual typewriter. And I got in! I still to this day am amazed. The people I went to college with are So Freaking Smart! Yeah!

**Aside:** So yes! Bill got in and took some pretty cool classes.

**Bill:** As a senior I took one class from Carl Sagan, who was at Cornell. And it changed my life! It really did. The guy was so inspiring, he was "all that," as the kids say.

**Aside:** Years after he graduated Bill was making a Sunday morning educational TV show called *Bill's Basement* and he got back in touch with his former Cornell instructor to ask a sci-comm question:

**Bill:** I asked Carl Sagan about this and he says, "When you're doing these things, Bill, (he called me Bill) it sounds like a fine thing." Oh! This was at my tenth college reunion. My tenth college reunion, I had written a paper letter. Some of you may know this technology; [*rustling paper excitedly*] sounds like this. And this is where you can store... It's plant-based information storage!

**Alie:** [*laughs*]

**Bill:** And I wrote him a letter, and his assistant arranged for me to meet with him for five minutes. I told him about this thing and says, "Focus on pure science. Kids resonate to pure science." That was the verb he used. And so I did, that was just outstanding advice. And I... [*scoff laughs*] This one sentence out of all the sentences I've heard over my entire life, and it was really cool advice. So if you watch the *Science Guy* show, it's all about pure science. Even the computer show is about the science, or the mathematics, or the fundamentals of computing, rather than the state of that art in 1997 or whatever it was.

**Aside:** So Bill is still in touch with Ann Druyan [Carl's widow], and the Sagan kiddos were fans of *Bill Nye the Science Guy*. He still hangs out, and has a beer, and shoots the shit about our place in the cosmos with them, because that is the kind of casual radness that Bill Nye brings to the table.

**Bill:** All these remarkable circumstances have led me to where I am. And you know, each of these things is some crazy turning point in your life. Like you! You're doing an ologies podcast! You're crazy! You're wild.

**Alie:** Who knew? Who knew! I definitely think that you should take the risks. [*computer voice with British accent: "Cut bangs. Text your crush. This is likely not a simulation."*]

Have you ever been part of any studies where they've tried to figure out generationally... what generation gives a bigger shit about science? [*laughing*] And if it's related to their watching *Bill Nye the Science Guy*? I feel like millennials care. Maybe an older generation doesn't. If they had had a better *Bill Nye the Science Guy*, do you think we would have an easier time with policy that would protect the earth?

**Bill:** Well, I think we're about to see a fantastic turning point.

**Alie:** [*eagerly*] Yeah?

**Bill:** To your point, not to make you all jealous, but I was at the foot doctor recently....

**Alie:** Whoa! Okay!

**Bill:** Yeah, back in the day when you could walk around, I was in Penn Station in New York City and this woman with a giant piece of luggage ran over my foot.

**Alie:** Oh!

**Bill:** Now, "Why didn't you get out of the way, Bill?" [*defeated*] Yeah. Well, so...

**Alie:** Physics.

**Bill:** Anyway, the toe was broken, and crooked, and all these exciting things. So anyway, I was in the doctor's office and he said... This guy was my age, Dr. Singer. He said, "You wait here," and he brought in five people who work in his office. And they're young people, millennials, who all watched the *Science Guy* show, and they all said, "The reason we're physicians and nurses is because we watched the *Science Guy* show." And I got choked up. I went, "Wow, you guys..."

I mean, we made the show in a brick warehouse in Seattle. It's still there. And to have it stand the test of 27 years of time is really surprising and wonderful. So I believe with these people who are in their 20s and early 30s, when they are running the show, (people like you, Alie) things are going to change. Things are going to change big time.

[*loudly, prophetically*] And I remind us all in the US Constitution, Article I, Section 8, Clause 8 refers to the 'progress of science and useful arts'. That's your job as a member of Congress; is to promote the progress of science and useful arts.

**Aside:** This is the Patent and Copyright clause, which states that the Congress shall have power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

Now, for more on the US constitution, including hearing it read word for word in its entirety with asides, you can see the Nomology episodes with USC law professor Franita Tolson, who sheds so much light on this ancient foundation of the country.

**Bill:** And that's in there because the people who wrote the constitution – say what you will about their other activities – they realized how important science is to the success... or to your economy, to your country's economy. So I think you all are going to *change the world!*

**Alie:** Well, Bill Nye has already changed the world. Is it weird for you to be, by the way, an archetype? I'm not trying to flatter you. I'm just being honest. I see so many Twitter bios that are like, "I'm the next Bill Nye." "I want to be the next Bill Nye." "I want to be Bill Nye." Is it ever weird for you to be like, "I'm *the* Bill Nye."?

**Bill:** Well, it's always weird. But here's the thing, everybody, if you want to be the next Bill Nye, please do it! I'm of a certain age! You know, I jumped off of buildings onto airbags. I parachuted out of planes. I did bungee jumping until I got floaters in my eyes because of the g-forces when you decelerate. And I memorized all those lines, I wrote most of them. And the show almost killed me, but it was... I'm still very, very proud of it. I put my heart and soul into it.

But to all the Bill Nyes of the future, just remember that part of what made the Bill Nye show successful was the crew. Everybody on the crew had a terrific sense of humor. It's one thing to be enthusiastic and to celebrate snot, or barf, or whatever wonderful things we all might consider gross, or to celebrate being a nerd. And soldering, and welding, and using a microscope, and putting a cover slip on a slide without cracking it; those are all great things. But just make sure that... consider, or embrace the idea, that you also want it to be funny.

**Alie:** Yes! I was going to ask about that, about communicating science, because I think that... I don't know what ology this is going to be, by the way. I haven't figured that out yet. You got any suggestions?

**Bill:** Well, pedagogy.

**Alie:** Okay! That's a good one.

**Bill:** Is that an ology? Peda... pedagogical!

**Alie:** Yeah! Pedagogical!

**Bill:** Pedagog- Pedagogical. The thing, stuff-ogy.

**Aside:** Survey says: It is indeed a word! So, pedagogological. Like capri length britches and smallpox scars, this word appeared more in the late 1800s. But it does exist! So we're going with it.

**Alie:** In terms of being a science communicator, if you could give someone really good advice about comming sci, would it be to try to find the humor in things? Make it relatable? What do you think?

**Bill:** Well, the biggest... What I tell everybody is two things; come up with your learning objectives. Now, I am not trained as a professional educator. I have not been hired by the United States, State, or Commonwealth to teach professionally. But a learning objective is a technical term in education that means 'the thing you're going to get across'.

And this takes discipline. Talk about dinosaurs. There's, you know... Dinosaurs and space. We all love dinosaurs and space. And people who say they don't love dinosaurs and space; [*appalled*] They are lying to your *face*! They're lying to your face! And so... By the way, it was in my lifetime that the connection between space and dinosaurs was discovered!

**Alie:** I can't- isn't that nuts?? Isn't that nuts!

**Bill:** Yeah. If it doesn't freak you out I don't know what does.

**Alie:** I know! We're such babies on this planet! We're such tiny, tiny, young, little babies, not knowing what is going on at all.



**Bill:** When I was a kid, Alie – and I will not lose my train of thought. When I was a kid, the best idea anybody had was: dinosaurs had small brains so the mammals took all their food and the dinosaurs died. And Mrs. McGonigal [phonetic], my second grade teacher, was like, “Ugh, okay. I’m supposed to read this book to you all, but this is nothing. Come on! The dinosaurs, giant Tyrannosaurus is, like, getting outwitted by a mouse? Maybe.”

Anyway, so in my lifetime I was out paying taxes. I was, you know, a grownup when the discovery of the asteroid that almost certainly finished off the ancient dinosaurs 66 million years ago was discovered. It’s really something.

**Aside:** PS: This crater is on the Yucatan Peninsula in Mexico and we didn’t know about it until the 1970s! The movie *Jaws* had been out for 3 years before we figured out definitively where the rock that ended the dinos hit. There are Sex Pistols albums older than this knowledge!

**Bill:** Back to the learning objectives. In the case of dinosaurs, they’re so ancient, there’s so much you can talk about. “Birds are dinosaurs! Whoa, cool!” Dinosaurs had feathers... or not. Dinosaur fossils are found here; they’re not found here. “Well, we thought we’d find them here, and we found them over here.” All this sort of thing.

But dinosaurs and people did not live at the same time. That’s kind of a gigantic idea. We know that dinosaurs lived because we found their fossil bones. That’s it. We know they lived. And if you can get those two things across in 28 minutes, you’re doing something. I really encourage everybody to think about what, in education or communication, is what you want to get across. And we all do it, Alie, we bury the lede. We start thinking out loud and you don’t get to the point for a couple sentences.

Then the other thing that’s really important, in my opinion – and as you know, my opinion’s correct – is what I call ‘discipline in vocabulary’, DIV. If you introduce words that the listener or viewer doesn’t know, you’re going to lose them. And this is very well documented and don’t come running to me. And then the other thing along this line is you don’t want to introduce a word and then explain it. You want to have the explanation before the word.

**Alie:** Ohhh!

**Bill:** And you know, we all do it. We all define the word with the word.

**Alie:** Mhmm. Yeah.

**Bill:** You know, “What’s echolocation?” “Well, echolocation is when you... when you echolocate.” “Oh, right.” [*laughs*] It’s really easy to fall into that trap. So when you go to write these things, or create them, or produce them, I really encourage everybody: learning objectives, figure out what you’re going to get across, and be disciplined in the words you use to introduce words in technical terms.

**Alie:** Were you a kid that liked science or did you think that...?

**Bill:** Oh man, yes! Oh yes! Now understand, everybody, I’m of a certain age, and the space program was the thing! I mean, that’s what was going on! I was a little, little kid when Sputnik flew, but I remember very well the anxiety my parents felt in 1957 when the “Russkis” were getting into [*imitates a raspy, old-timey broadcast voice*] “the ultimate high ground!”

And then when these guys Alan Shepard, John Glenn flew in space, and Yuri Gagarin, you know? They hid this truth, but apparently Yuri Gagarin was this maniac test pilot – very accomplished guy, could handle any situation – comes back in after orbiting the Earth, coming

back into the atmosphere: “Well, you know, Yuri, it’s not going so well, your retrorockets system...” “Okay, don’t worry about it!” So he parachutes out of the freaking capsule! He just jumps out!

**Alie:** [*gasps*] What!

**Bill:** And parachutes to the Earth! And the capsule, I guess, landed pretty hard, and at that time, the Soviet government didn’t want to tell people. But I mention it – it was a very exciting time in space exploration. There was all this wild stuff going on, and there was this intimate connection between the Cold War and the civilian space agency, NASA (National Aeronautics and Space Administration).

So I was brought up with that, and you know, even now people talk about the World’s Fair in 1964-65 in New York City. Well, my family – I grew up in Washington, DC, in the city limits of Washington, DC – we went there, went to New York. It was astonishing! I mean, it was ‘The Future’, you know? And almost every day when I get on a freeway in Los Angeles – back when you went places in cars?

**Alie:** Right, I remember.

**Bill:** Six months ago?

**Alie:** Yeah.

**Bill:** The freeways were really envisioned at that time. [*intones*] “In the future, Man–” the term was ‘Man’ – “Man will travel through roadways in the sky!” [*Alie laughs*] And that turned out to be true – whether or not it’s this utopian vision is something else – but these ideas were presented to us as kids and it’s just so inspiring, amazing, and fabulous. We spent a lot of time looking things up. You don’t have to do that anymore. I mean, the access to information now is even cooler. Even cooler.

Furthermore, my mother’s father was a chemist. He was a professor at Duke University, then Johns Hopkins University. Then he got a job... Apparently his most satisfying job was a company called Crown Cork & Seal. And only older listeners would remember when bottlecaps had cork glued under the metal cap. Anyway, he had the patent on that adhesive, apparently. So I grew up with science and then... If you knew this about my mom, my mom was one of the code girls.

**Alie:** Yes!

**Bill:** And so she was... I just will say objectively, she was very good at puzzles. Crossword puzzles and stuff like that. And so she was recruited by the Navy to do something. “Mom, what did you do during the war?” “I can’t talk about it.” [*imitates a modest yet secretive chuckle*] “Ha ha! Ha ha ha ha.”

**Alie:** [*laughs*] Casually!

**Bill:** My whole life! “Can’t talk about it.” And so there was an event – and I know not everything we talk about makes it into the podcast...

**Alie:** No, I love it.

**Bill:** But there was an event last year, a year ago April, at the Library of Congress celebrating these women, a few of whom were still alive. And a gal came up to me and said, “You know, my mom was with your mom in Hawaii.” [*Alie gasps*] I said, “My mom was never in Hawaii!” Actually, uh, apparently she was!

After VE Day – after the European victory day – several of these women were taken to Hawaii to continue work on the JN (Japanese Navy) codes. JN 25 was the famous one. So, I learn something every day!

**Alie:** Damn.

**Bill:** Anyway, that was really something. So I was raised... By the way, everybody, the Equal Rights Amendment has been passed now by 38 states and commonwealths. We'll see what happens. My mom was a very feminine feminist. [*admiring sigh from Alie*] She marched in at least one of the Equal Rights Amendments parades, but I think she marched in three of them. And my great-grandmother, whom I never met, marched in the Suffragist Parade in 1913 in Washington. So I go back with this, everybody.

**Alie:** Yeah. And actually, every episode we donate to a cause of the ologist's choosing.

**Bill:** Well, we love the Planetary Society.

**Alie:** Well, there you go!

**Bill:** So everybody, Carl Sagan started the Planetary Society in 1980 because he and two other guys: Bruce Murray, who was head of the jet propulsion lab during the Voyager missions – the famous, famous gold record and all that, [*“But it's just cool!”*] and Lou Friedman, who was an orbital mechanics guy at JPL (Jet Propulsion Lab), they felt that public interest in space was very high but government support of it was not so high. And that's still true when it comes to planetary exploration. I mean, we just discovered evidence of life on Venus, in the atmosphere of Venus.

**Alie:** Right.

**Bill:** And I've talked all the time, as you know – who wouldn't? – that Venus is like Hell. I mean, the surface of Venus is hot enough to melt lead; it rains sulfuric acid. [*reacts to self*] “No way!” [*responds to self*] Total way.

It rains sulfuric acid, but the acid doesn't hit the ground. It evaporates before it gets to the ground because the ground's so hot. But apparently in the atmosphere, way above the surface, there are some temperate temperatures – if I can use that. See, that's an example of using the word to define the word.

**Alie:** Right.

**Bill:** There's some...

**Alie:** You defined it with a definition.

**Bill:** There's some temperatures that aren't especially too crazy hot to dissociate every molecule we associate with life. So *maybe*, maybe there are Venusians.

**Alie:** Eeee!

**Bill:** Aerosol Venusians zooming around or getting winded around in the Venusian atmosphere.

**Alie:** Exciting!

**Bill:** It really is amazing. And I say all the time, everybody, if we discover life or evidence of life on another world, it will change this world. Everybody will feel differently about being a living thing in the cosmos. It's just jaw-dropping.

**Alie:** Okay, I'm gonna bombard you with listener questions.

**Bill:** Lightning round?

**Alie:** Lightning round!

**Bill:** Is it a lightning round or just listener questions? Whatever you wanna do. Hit me with the ball, as we say.

**Alie:** It's lightning round with listener questions. Uh, 43 pages of listener questions. So I have organized them as best I can, and I'm just gonna start firing them off. You ready?

**Bill:** I'm so ready.

**Aside:** Before your questions, patrons, a quick word from sponsors of the show who made it possible for us to donate to the Planetary Society.

[Ad Break]

Okay. Now onto 43 pages of your questions. [*"I said I wasn't gonna make you cry."*]

**Alie:** Oh gosh, there are so many. Liz Roepke, great question: Were you ever scared to perform as a science communicator on TV or radio or podcasts? And how did you overcome that? Or are you still working on that?

**Bill:** If you're not scared, quit doing it, that's the old saying. [*Alie laughs*] And the other really good remark Tom Bergeron made (that guy who hosts *Dancing with the Stars*) he says, "Take your nervousness and turn it into excitement." It's a theater expression, there's a lot to it. But as Robin Williams said, "If you stop being nervous, quit doing it."

**Alie:** Ahh, great advice.

**Bill:** But whether or not I'm scared – that's something else. Don't know if I'm scared, but I'm always like, "I'm on this podcast Alie! I don't want to say the wrong thing, man... [*self-corrects*] wo-man!"

**Alie:** Oh no, it's like very, very high stakes! I'm a real hardball interviewer also. You know that, Bill Nye.

**Bill:** Oh man, it's just... the sweat is pouring.

**Alie:** Yeah. If you're not crying by the end of this, I haven't done my job.

Nick Mikash says: How do we depoliticize science? What are the ways NOT to approach science communication for those who are resistant to science?

**Bill:** You guys, this is the question – I'm really serious, this is a great question. I've struggled with this the last 20 years. How do you get people who refuse to – or *seem* to refuse to – acknowledge the facts that we have discovered through the process of science? You know, I say all the time – I went to elementary school with a kid who had polio. You do not want polio. It wouldn't even occur to you not to get vaccinated against polio. And so then you show all this evidence that there is no connection between vaccines and autism, but people still have this perception. Changing their minds is quite difficult, but here's the new thing I'm working on, and that's making people aware of this phrase that I've come to embrace: 'the liar's dividend'. [*dramatic echo: "The Liar's Dividend"*]

So after the lie is out there – 'lie' is a hard... after the *pseudoscience*, or after the false claim is presented, that's stuck in the listener or the viewer's mind. For the liar, it continues to pay dividends. These false claims get stuck in people's heads. It's very difficult to displace it.

However, pointing out to people that they're receiving the proceeds from a liar's dividend, it may raise awareness and help them overcome it.

It's clear that the anti-science people are completely outnumbered by the regular people. So if regular people vote with the environment in mind or with how you should respond to a public health crisis in mind, then normal people will win and we can move on. Just keep in mind that trying to change somebody who's a climate denier or contrarian, trying to change his or her mind takes a couple of years. It's really difficult.

**Alie:** Actually, kind of on that note, first-time question-asker Erin Spencer wants to know: What evidence helped you essentially change your mind about climate change or was the most impactful? What's a nice piece of evidence to have in your toolbelt for those conversations?

**Bill:** Well, I never was a contrarian about climate change. And the reason... Now, the reason everybody... And so what happened was people – Carl Sagan and another guy named Jim Pollack (James Pollack) – had written a computer program, a mathematical model of what would happen if you set off all the nuclear weapons in the world on the same day. And then a couple of years later, Walter Alvarez and his son discovered this asteroid impact that finished off the ancient dinosaurs. And then James Hansen – Jim Hansen – was studying the planet Venus and realized the significance of carbon dioxide in an atmosphere. And so he testified in front of Congress in 1988, about global climate change caused by all the carbon dioxide put in the air by people. 1988! So, those three things came together for me, as a guy reading *Scientific American* and science news and just interested in that sort of thing.

So I was always concerned about climate change. And then I became a member of the Union of Concerned Scientists, which is a very good political-but-not-partisan nonprofit organization that studies things like climate change. I was on board with this from the get-go.

But what I say to everybody is: scientists around the world – and you'll hear 97%, but it's more like 99% of climate scientists – are convinced, have shown, that humans are putting all this carbon dioxide in the air and that's just making the world warmer. So, everybody, how could you see it any other way?

And then the other striking thing: it's 2020, these fires, which are ravaging the West, and these hurricanes, which are stacking up in domino fashion in the mid-Atlantic, are all predicted by the mathematical models that were written originally in the 1980s, then really honed in the 1990s, and the first hockey stick graph was published by Michael Mann and others in 1995.

**Aside:** And just a side note, the late climatologist and director of the Geophysical Fluid Dynamics Laboratory, Jerry Mahlman, coined this hockey stick term and stated in 2004 that:

*Global warming is real and is a phenomenon that humans have created. Climate scientists worldwide have understood its essence since the so-called Charney Report of the National Research Council in 1979. Our burning of fossil fuels (coal, oil, and natural gas) is the indisputably direct cause of the ever-increasing concentrations of carbon dioxide in the atmosphere. This added carbon dioxide acts directly to warm the planet. There is no scientific controversy about these facts.*

Again, a 2004 quote from climatologist Jerry Mahlman. So this is neither fresh news, nor is it really up for debate. [“Facts.”]

**Bill:** And every time they do an analysis, the hockey stick gets more compelling. It gets accurater and accurater. So, that people are in denial about it is just because it's so big. The problem is

so overwhelming that it's easier just to tell yourself that "this couldn't possibly be happening," rather than say, "Well, I guess we should get to work on this." So that's a great question, but figuring out how to convince people who are entrenched for, sort of, spiritual reasons is really difficult.

But I remind us about the word 'political'. Politics is not inherently bad. What's caused trouble, what might be a better word for everybody to think about, is 'partisanship', where if you're on board with these other policies of your party, then you also are on board with denying climate change. So, just careful of that everybody. Political is not partisan. They're closely related, but they're not quite the same thing.

**Alie:** And kind of in that vein, Ruby Johnstone wants to know: How do you feel about social media and the ability to communicate science – both real and very fake – to a broader audience? And I also know, you're killing it on TikTok! Any tips?

**Bill:** Well, the thing on TikTok... Up I am cracked. I'm cracked up. You guys, I'm a miserable, hateful person, and I hate everything, but along with that I'm pretty much a crazy optimist. I'm very excited about the future; I can't wait to get up every morning and stuff like that because of [*dramatic*] SCIENCE!

But this idea that you have a right to not get vaccinated is just wrong, and it makes me a little crazy. So I did that TikTok video. And you know, it's been shown that wearing a face covering is very effective in preventing the spread of this coronavirus. But apparently the real thing is being in enclosed spaces with people who are infected because it goes through the air.

So anyway, this idea that you have a right to not wear a mask is not understanding this fundamental idea that I have rights too. You may think you have a right to infect me, but I would say, "Actually, no you don't." And the example I give everybody is: You pay taxes on the whole road, but you don't get to drive on both sides. You have to drive on one side at a time. So, wear a mask." But convincing people of that is really difficult.

[*clip of Bill Nye from TikTok: "So, the reason we want you to wear a mask is to protect you, sure. But the main reason we want you to wear a mask is to protect ME!!"*]

**Alie:** Next question. First-time question-asker by someone of the name Rachel Bloom, you may know her, Emmy...

**Bill:** Oh really? She's great.

**Alie:** Yes! Emmy and award-winning...

**Bill:** If that's really her real name.

**Alie:** Yes. Her real name. She is a listener of *Ologies*, she's an idol of mine. [*clip of Rachel Bloom song: "Cause all I can do is lay around, and post pictures of your dick on the Internet ..."*]

**Aside:** FYI, this is *the* Rachel Bloom of the Emmy-winning CW show *Crazy Ex-Girlfriend*, and as long as we're talking about her, her book, *I Want to be Where the Normal People Are*, is due out on November 17th, and you can preorder it now, and I hear that it is hilarious. I'm going to add a link to it at [AlieWard.com/Ologies/BillNye](http://AlieWard.com/Ologies/BillNye). And yes, she is a fellow ologite, and she has a question for Bill.

**Alie:** She wants to know: How has being a science icon for all ages impacted you as a person? Also, this is totally awesome!!

**Bill:** Thank you, Rachel. How has... I don't know. I'll tell you what. Television, and to about the same extent, podcasts, are intimate. Television is intimate. As the saying goes, "You don't hate

anyone more than you hate someone on television.” [Alie laughs] The same is true in a, perhaps, much more important example; if you don’t like the baseball announcer, you just hate the guy. It’s like this deep thing because he’s just in your ear, or in your face in the case of television. So when it comes to Bill Nye and the *Science Guy* show and all that, you can either take my word for it or ask anybody who I’ve worked with, what you see is what you get. I mean, I love science. I think it’s the coolest thing ever.

And what I still love about television and what I love about the podcast, Alie, it’s still handmade. Even though we’re using this extraordinary technology, converting pressure waves in the air into electronics and putting them back in the air around the world electronically... Even though we’re doing that, it’s still a conversation between you and me, between you, and Rachel Bloom, and me. I just love that.

When we did the show... Rachel Bloom was on the *Saves the World* show. When we did that show, it was... I just tell everybody, the crew, everybody’s there trying to do the same thing. It’s still this handmade product, and that’s what I think appeals to people. So when you watch the *Science Guy* show, I’m talking to *you*, listener, viewer. You’re the person I’m trying to get through to. I really care about every viewer. When I’m talking to the lens, I’m talking to one person and I’m trying to convince one person. I love you out there, Rachel! I love you, man... wo-man!

**Alie:** A few more listener questions.

**Bill:** Oh man, I got time! Hit me with the ball!

**Alie:** Okay, good. Maria Hancox, Juliebear, Mark, Aki, Liz Roepke, Catherine Gilbert, Celia LaBonte, and Casey Handmer want to know: Is it true that the bowties maketh the man? And do you have a favorite bowtie? Be honest.

**Bill:** So... Don’t tell me to be honest.

**Alie:** I’m going to tell you to be honest! I’m not going to accept lies!

**Bill:** People have asked me about the bowties many times, and I have about 500. So, picking a favorite is quite difficult, because it depends on your mood, it depends on what you’re wearing, it depends on the expectation of the viewer, where you’re going to be. If you go to somebody else’s wedding, you don’t want to show up looking sharper than the groom. Although, of course, [*mock pompous*] that’s quite a challenge. No. That’s a joke, everybody.

But with that said, my grandfather owned a tie... My grandmother was... People talk about immigrants. My grandmother was French. She was a war bride. She married a US Army captain after the first World War. But she would go back to France to see her sisters and hang out, and she brought this one tie back that is just so beautiful. It’s dark blue. Silk. And it’s two kinds of silk, and there’s a stripe of one kind of silk going through the middle of the other kind of silk. It just makes the most beautiful knot, and it’s very narrow, and it has arrow points, as they’re called, or diamond points. The ends of the tie are diagonal, not straight. I only wear that on very special occasions.

**Alie:** Yeah, where have you worn it?

**Bill:** If I’m a commencement speaker. I was at my mother’s alma mater, Goucher College, where she was recruited by the Navy. I wore it there. And I also... as is my policy, I also wore a shirt.

**Alie:** It was sleeveless though, right? You got the sleeves tailored off?

**Bill:** *[laughs]* Uh... Actually, everybody, I'm a fan of the short-sleeved shirt. So, we have a whole thing right now where everybody running air conditioner in southern California led to these brownouts because air conditioning takes all this electricity.

Well, there's a tradition in Japan right now called Cool Biz. They have a lot of romaji, a lot of English words going on in Japan. So, guys wear short-sleeved shirts. It's this business thing. Embrace it, everybody! Embrace it! Short-sleeved shirt.

**Alie:** Show your guns!

**Bill:** There you go. See? Alie cuts right to it.

**Alie:** I get it. Okay, a couple more because I thought Meghan McLean asked a great one that had nothing to do with anything, and I want to ask it: What's the weirdest thing you've ever eaten?

**Bill:** I guess, calf brains.

**Alie:** Oh! What was the occasion?

**Bill:** I got invited to a restaurant with a woman I used to know, I used to date, her father had spent time in the Middle East; North Africa, Morocco kind of thing. And he'd eaten this dish many times and he took us to a Moroccan restaurant, and yeah...

**Alie:** What did that taste like?

**Bill:** It's quite rich. It's fatty. Hence the expression 'fathead' as a compliment. But I don't do that anymore, you guys. I wouldn't be surprised, as time goes on, if I become a vegetarian.

**Alie:** Yeah. I feel like I'm heading that way.

**Bill:** I eat fish. I eat a lot of fish. I don't like to eat mammals. Birds are dinosaurs.

**Alie:** Yeah, I get that. I understand that. I'm heading that way.

**Bill:** And I know we have questions to take, Alie, but... Humans are now running the planet. This was not our idea. We all... I think all of us grew up with the idea that there's the outdoors, and nature, and organic or natural ecosystems, and then there's us. There's cities, and urban, and even... every car commercial features you driving through deserts, or swamps, or some amazing thing that you usually don't do with a car. But here's the thing: We ended up in charge of the Earth now, so we have to manage the deer population, the wolf population, the bobcat population.

I'm not kidding. Humans are now in charge. We have to manage the fresh water. We have to manage the oceans. And we have to manage the atmosphere. This is not something everybody who listens to *Ologies* probably planned to do with his or her life, but now, as taxpayers and voters, we've all got to embrace the idea that we are running the show.

*[exaggerating his age]* When I was a kid, there were fewer than 3 billion people. When my grandparents were raising my dad there were about 1.5 billion. Now there's almost 7.8 billion people, and there's going to be 9 and probably 10 billion people. So even though the rate of growth is slowing, it's still growing, the human population, so we have such an effect on the Earth that we have to take charge. Go out there and take charge, you all!

**Alie:** We have to! Actually, I wanted to ask... Vlad Bathory had a great question: How did you become the Kid Guy? You've had some very memorable recent appearances, dropping F-bombs, talking like an adult...



**Aside:** Hey Parents or Weird Uncles Babysitting: Just cover the kids' ears, or prepare to shrug at them.

[clip of Bill Nye on *Last Week Tonight with John Oliver*: "By the end of this century, if emissions keep rising, the average temperature on Earth could go up another four to eight degrees. What I'm saying is: The Planet's on FUCKING FIRE!"]

**Bill:** That was heartfelt.

**Alie:** Yeah! It *is* heartfelt. I mean, I let whatever language fly on this podcast, but did you find that that was a transition from talking to kids to talking to kids after they grew up, since you've been in the game for a while?

**Bill:** I guess so. This gets back to 'discipline in vocabulary'. So, dropping the F-bomb on *Last Week Tonight* was just huge fun. Because I feel that way. You get so angry. So angry with anti-science climate deniers. It's just so crazy-making. "The sky is blue." "nO iT iSn'T!" Really?? Can't we agree on that?

Anyway, so climate deniers make me crazy, and that bit on *Last Week Tonight* was heartfelt. But along that line, if you look at the *Science Guy* show about atmosphere, about climate, about pressure – I'm thinking out loud – about extreme weather, storms, we have bits about climate change. And in the 1990s there was discipline in – I'm not kidding – not trying to scare the kids. There was discipline. I used expressions like, "Things could get weird. We're going to have to keep an eye on this. In the future this is going to be a very important idea." Stuff like that.

So, yes I do change the approach based on the audience. But both manifestations of *ME* are authentic. That's my claim. That's my claim for you to evaluate. When I was talking to kids on a kid show, I really meant it. When I'm talking to adults on a *comedy* show, I also really mean it. It's manifestation of the same Bill Nye.

**Alie:** That's part of comedy too, is reading the room and being able to morph your delivery based on what the crowd needs.

**Bill:** Yes. To assess what you hope will work.

**Alie:** Right, yeah. Maria Hancox and Vidie Pong want to know: Have you ever gotten your own theme song stuck in your head?

**Bill:** Oh, I love the theme song.

**Alie:** It's so good. [clip from theme song for Bill Nye the Science Guy: "Inertia is a property of matter."]

**Bill:** It's really good. It was written by a guy named Mike Greene, who has a production company, 38 Fresh in Los Angeles. He's just a cool guy and he came up with that. That's his wife's voice. [continued theme song, female voice: "Science Rules..."]

**Alie:** Oh!

**Bill:** "Inertia is a property of matter." Yeah.

**Alie:** Yeah, I was wondering!

**Bill:** I thank the guy every day. He just did a great thing. But everybody, one note, to importantly note, for your notation, that's important: I don't sing the song. People ask me to sing the song. No! No! That's the whole idea – somebody else is singing the song. *Gilligan's Island*, Gilligan doesn't sing the song! That may be an older reference. There's one kind of cool exception to

that though, and that was the show *Frasier*. [clip of *Frasier* theme: "Mercy!"] Kelsey Grammer sang the song.

**Alie:** Really! I didn't know that.

**Bill:** Yeah, it's interesting. But the guy on the TV, the gal on the TV, doesn't sing the song.

**Alie:** Yeah, no. That's somebody else. Of course.

**Bill:** That's right.

**Alie:** Last questions I always ask: What's the shittiest part about your job? What do you hate the most? What's the most petty, annoying, or huge thing you hate about being Bill Nye the Science Guy?

**Bill:** Well, that my genius is unrecognized.

**Alie:** [laughs] You only have 19 Emmys, it sucks!

**Bill:** No, well... No, but I mean... Now look, you guys! A couple things, Alie. It's only *eighteen* Emmys for the *Science Guy* show. And keep in mind that the writers won... I was one of the writers. We won five times, and the editors, and the sound design, sound mixers, these guys and gals won every year because they were just so creative. They were so funny. And you know that voice, [imitating announcer from *Science Guy*] "Bill. I don't think that's gonna work, Bill." That's Pat Cashman. He's just a comedy *genius*!

**Aside:** Okay, but come on. What is the shittiest thing about being a beloved icon doing his dream job?

**Bill:** And so the most frustrating thing, I guess, is that we're still fighting this fight. That climate change was discovered and presented to Congress in 1988, and we have hardly done anything about it. And it is quite frustrating. So everybody: Vote.

I mean, I'll say that it's a guy in the on-camera department – the OCD as I like to call it – is... you know, you're standing there, your knees get tired, your feet get tired. It's... I'm whining. It's not like getting your head blown off in a war, but some days it's physically quite difficult for me.

But so what? Come on, man! We're trying to change the world here. Let's go! Make something of yourselves! Come on people. Anyway, wah-wah-wah. And you guys, my life's amazing. I have my health, and just my life's amazing.

**Alie:** And actually on that note, JV Hampton VanSant says: Hi there, Bill. Can Bill Nye say hello to all the trans people who follow *Ologies*? Like, just "Hello, all trans ologites"?

**Bill:** Hi, trans ologites! So you guys, that show – Rachel Bloom was on it, a big part of it – we did a show about human sexuality based on the current science about people and the way they perceive themselves, the way they present themselves to the world, the way with whom they want to hang out. Can I say "hang out" on *Ologies*?

**Alie:** Yeah! You can say that.

**Bill:** "With whom they want to interact."

**Alie:** Yes.

**Bill:** You know... interact hard.

**Alie:** Yes. Big knowing wink.

**Bill:** Anyway... [clip of Bill from *Bill Nye Saves the World*: “This is what is happening with the study of human sex and sexuality. Right now, biologists, sociologists, anthropologists, they’re all trying to figure this out. And they’re finding human sexuality is on a spectrum.”]

**Aside:** I have some great friends who worked on this episode, including Derek Muller, and Teagan Wall, and Sanden Totten, and they were nominated for an Emmy for writing. Not everyone was pleased, however:

**Bill:** But so many people are so upset by that show. You know, what’s the big deal? It’s like, this is the latest science. Just accept people. What’s it to you, man, woman, or queer person? You know, what’s the big deal? And this gives me great hope, Alie, and I’m not changing the subject. Just look how fast the world embraced gay marriage. I’m serious. It went on, you know, pick a number, 400; 500; 1,000 years. People weren’t that into gay marriage, at least not in Europe, and in the United States, and places that were colonized by the British Empire. People were not that into... were very critical of gay people, rejected... shunned them. I think that’s the modern word, shunned gay people.

But then, in the last 16 years or whatever: “Gay people are getting married? [casually] Oh, okay. I guess, wow, the world’s still spinning. Are they paying taxes?” *They*. Are *they* paying taxes? [responding to self] “Yeah. They’re paying.”

“Do they work at my coffee shop?” [increase excitement] “Whoa! They designed my car. [increase excitement] Whoa! *They*...” Yeah. “I guess it’s no big deal. I guess you’re right.”

Australia just had a big vote. “Okay. We’re going to have gay marriage” “Oh wow!” Great. And so this gives me – I’m not changing the subject – this gives me great hope for climate change that, I’ll betcha there will be sweeping changes that are instituted or put in place very quickly because people just want these sweeping changes.

**Aside:** Bill says, depending on how the election goes. And we of course recorded this a few weeks ago, but it’s coming out on Election Day, November 3rd. So, Bill and I would like you to kindly vote if you have not already.

**Bill:** So I think things are going to change very quickly. And I want to thank the LGBTQ community for being leaders, for being brave and going out there, and demanding change. And Black Lives Matter – we are living at an extraordinary time. You know, I’m so old, Alie. I remember when Malcolm X was shot, when Martin Luther King was shot. I grew up in the city of Washington. I remember Resurrection City, this plywood encampment on the National Mall, that was the audience for the “I Have A Dream” speech. Bobby Kennedy getting shot. I remember all this stuff as a kid. And it led to some big changes... but, not big enough. And so we are at a time now where we could make just cool, important, and wonderful changes. So everybody, let’s embrace the future.

**Alie:** My last question is just, what do you love the most about what you do, about being Bill Nye?

**Bill:** Well, as the saying goes: When you’re in love, you want to tell the world. And I love... I really do love science. I love the process and the body of knowledge. And you know, it’s fashionable now, again, to be a nerd. And I’m a nerd, you know. I think, Alie, if I know you well enough, you’re a nerd.

**Alie:** I’m a nerd.

**Bill:** It’s learning, and learning about the universe and our place within it just fills me with reverence and joy every day. On the Mars rovers – Spirit and Opportunity, which are on the surface of Mars right now; both are not operating, they’re ‘in-op’ — but Curiosity is still

running, still roving. On all three of these spacecrafts there's a thing where we get the colors of the pictures, right? A photometric calibration target. And we called them the Mars dials because for a while we used them as sundials on Mars. The planetary science community used them electronically as sundials. We had a student project, the EarthDial Project, very cool.

But in little letters around the edge of each of these three things, it says: [*paraphrasing*] "We built these spacecrafts in 2003, it arrived in 2004, 2010, 2012. We built them to learn about the Martian environment to look for signs of water and life." And then on the last of the four edges, it says, [*with profundity*] "To those who visit here, we wish a safe journey and the joy of discovery."

And that, my friends, is the essence of the scientific enterprise, the joy of discovery. The J.O.D. as I call it. And science is, as far as anybody can tell, the best way to make discoveries about the cosmos, about ourselves, and our place within it. And so that's what gets me every day, Alie, is the joy of discovery. Celebrate it, my friends! Thank you so much for having me on your podcast! You're the best. So if you're listening to *Ologies*, let me just tell you: Alie Ward is *all that*.

**Alie:** Aw! I'm tattooing that on my back, like a book blurb, by the way. But *Science Rules!* is so good. Thank you so much for doing it. People can find *Science Rules!* wherever they find [*sings*] pooodcaaaasts!

**Bill:** Oh, Alie, may I also add, we have two versions. We have *Science Rules!*, the long version on which you were, and we also are doing *Science Rules: Coronavirus Edition*, where we have the real experts on this thing, on this pandemic, telling it as it is. We had Toni Fauci on the freaking podcast!

**Alie:** [*excited*] Aaaaah!

**Bill:** Everybody: wear a mask and wash your hands. And thank you again, Alie.

**Alie:** Oh, thank you so much. You're the best. Just keep being you, okay?

**Bill:** Okay!

**Alie:** Okay. I'll talk to you later, Bill. Thank you.

**Bill:** Thank you, Alie. Let's change the world!

**Alie:** Yay!

-----

So what do we do? You get your smart heroes on the horn and ask them stupid questions about climate change, and ties, and everything in between. For more on this [*joking*] up-and-coming sci-commer, Bill Nye, you can visit [BillNye.com](http://BillNye.com), follow him on [Instagram](https://www.instagram.com/billnye), and [Twitter](https://twitter.com/billnye), and [TikTok](https://www.tiktok.com/@billnye) @BillNye. And listen to his podcast [Science Rules!](https://www.sciencepodcast.com). There are so many guests and episodes you're going to love.

We are @Ologies on [Twitter](https://www.instagram.com/ologies) and [Instagram](https://www.instagram.com/ologies). I'm @AlieWard on *both*. Please be my friend! There will be links in the show notes as well as at [AlieWard.com/Ologies/BillNye](http://AlieWard.com/Ologies/BillNye) because [*stumbles*] pedagagolololgy is too tough. Too tough to say, too tough to spell. Ologies Merch – including some brand-new masks! – are available at [OlogiesMerch.com](http://OlogiesMerch.com). Thank you Shannon Feltus and Boni Dutch for managing that. They are sisters who host the comedy podcast *You Are That*, which is very worth checking out. Erin Talbert admins the [Ologies Podcast Facebook group](https://www.facebook.com/ologiespodcast).

You can also join the community at [Patreon.com/Ologies](https://Patreon.com/Ologies). Thank you to every single person there making the show possible. Emily White heads up a league of wonderful transcriptionists and those transcripts are linked in the show notes and are available for free at [AlieWard.com/Ologies-Extras](https://AlieWard.com/Ologies-Extras). Caleb Patton bleeps episodes to make them kid-safe and those are available on the same webpage. Noel Dilworth helps with scheduling guests – thank you so much, Noel.

Assistant editing and emotional cheerleading is done by the wonderful Jarrett Sleeper who hosts the mental health podcast *My Good Bad Brain*. And of course the knot in all of our ties, main editor Steven Ray Morris, who hosts the podcasts the *Purrrcast* about kitties, and *See Jurassic Right* which is about dinosaurs. Nick Thorburn wrote and performed the theme music, and he's also in a band called Islands, a very good band.

And if you stick around until the end of the episode you know I tell you a secret. This week, it's my ding-dang birthday and I haven't taken a real vacation since 2009, and as a surprise Jarrett booked some time away; four days at a remote location with no cell service. And then he realized after he booked it that it's clothing-optional. So for my birthday I was possible going to go see a lot of floppy dongs and bare nips, maybe some untrimmed muffs.

But Gremmie is on the mend. Apparently our dog has a bad back so we have to postpone. So stay tuned, because I look forward to talking to you about some naked people I see in the future. Either way, I hope we all have an easy, and comforting early November. [*deeply inhales and exhales*] Do a lot breathing. Just stare at a wall. Breathe. Drink some bubbly water. You are important. Thank you for voting. We got this. Okay! Berbye.

*Transcribed by:*

*Hana Snook, Wellington, New Zealand* 😊

*Ruby-Leigh Tonks*

*Anna Murray*

*Your emotional support Canadian pal Aska Djikia*

### **More links you may enjoy:**

A donation went to [www.planetary.org](https://www.planetary.org)

Sponsors of Ologies: [alieward.com/ologies-sponsors](https://alieward.com/ologies-sponsors)

Bill Nye on John Oliver <https://www.youtube.com/watch?v=KYp8dYJKP2s>

Bill Nye theme song <https://www.youtube.com/watch?v=UtVJdPfm0F8>

Fabulous Wetlands with Bill Nye <https://www.youtube.com/watch?v=BeUPbGWg2KU>

Bill Nye on the gender binary <https://www.youtube.com/watch?v=TKZ-P97PgxA>

Rachel Bloom's new book! <https://bookshop.org/books/i-want-to-be-where-the-normal-people-are/9781538745359>

The Charney Report, 1979 [https://www.bnl.gov/envsci/schwartz/charney\\_report1979.pdf](https://www.bnl.gov/envsci/schwartz/charney_report1979.pdf)

Nomology Episode: [alieward.com/ologies/nomology](https://alieward.com/ologies/nomology)

[U.S. Constitution](#)

[Article I Section 8 | Clause 8](#)

<https://fairuse.stanford.edu/law/us-constitution/#:~:text=Article%20I%20Section%208%20%7C%20Clause,their%20respective%20writings%20and%20discoveries.%E2%80%9D>

Occam's Razor <https://www.britannica.com/topic/Occams-razor>

Bill Nye on the Voyager record <https://www.youtube.com/watch?v=l5BG5nGmGFQ>

*For comments and inquiries on this or other transcripts, please contact [OlogiteEmily@gmail.com](mailto:OlogiteEmily@gmail.com)*