The Pop Ups. Stay seated. Three, two, one, ignition. Get ready for an adventure of magnificent proportion.

The Pop Ups. (Singing.) I don't know what you've been told, but we're in a golden age - so many discoveries that are jumping off the page. Wow in the world. Wow in the world. Wow in the world. Wow in the world. Wow in the world. Wow in the world. Wow in the world. Wow in the world. Wow in the world.

The Pop Ups. With Guy and Mindy. We're on our way, Houston.

Barry. (In the film.) I don't know what brought these strange and frightening Martians to our planet, but they're gone now, Liza. They're gone, and we can go on living again.

Liza. (In the film.) Oh, but Barry, how do we know they won't return?

(Soundbite of popcorn crunching).

Barry. Oh, we don't, not for certain, in any case. But if there's one thing that I know for certain, it's that nothing can keep us apart, Liza. Nothing, not even an invasion from Mars.

(Soundbite of cheering and applause.)

Guy Raz. Oh, man. That film gets me every time, Mindy.

Reggie. Coo coo

Mindy. Oh, Guy Razzie, are you crying? You know, it is perfectly natural to get emotional at science fiction movies. Hang on a second. Let me get you a tissue here.

(SOUNDBITE OF TISSUES RUSTLING)

Mindy. Here you go, buddy.

Guy. Thanks, Mindy. Oh, gross. Is this a used tissue?

Mindy. Uh-huh.

Reggie. Coo.

Guy. Mindy, do you have any unused tissues?

Mindy. Well, I do, but I'm kind of saving those for when I really need them. So…

Reggie. Coo.

Guy. (Sigh.) I got to tell you, Mindy, this drive-in movie double feature was such a great idea. And the two movies they're playing, they're sci-fi classics.

Mindy. And I got to say, Guy Raz, these old sci-fi movies are where I get some of my best invention ideas.

Reggie. Coo.

Guy. Mindy, do you ever think about life outside of Earth?

Mindy. What do you mean?

(Soundbite of alien space music.)

Mindy. Like the bug-eyed aliens from Mars?

(Soundbite of alien noises.)

Guy. No.

Mindy. The blob monsters from Garbon Five?

Guy. What? No.

Mindy. The Begaratrons from Tulsa.

Reggie. Coo.

Guy. No, Mindy. I'm talking about the actual scientific search for extraterrestrial life, like the SETI Institute, the scientific institute that spends all of its time looking for life outside of Earth.

Mindy. The SETI Institute, huh?

Guy. Yeah, it stands for the Search for Extraterrestrial Intelligence.

Reggie. Coo.

Mindy. And have they found any blob monsters yet?

Guy. What? No, no blob monsters, Mindy. In fact, we've had no reliable signs of life outside of Earth whatsoever.

Reggie. Coo.

Mindy. Is there a but coming? Please tell me there's a but.

Guy. But…

Mindy. Yes.

Guy. But that hasn't stopped scientists from looking. For more than fifty years, NASA's been sending out spacecraft and looking out at distant galaxies through their telescopes, trying to find signs of life.

Reggie. Coooo.

Mindy. And…

Guy. Well, although we haven't found any concrete proof of life beyond Earth, we have found over four thousand exoplanets.

Mindy. Oh, you're talking about those planets that are found outside of our solar system.

Guy. Yup. And out of those four thousand planets, about sixty of them are considered to be habitable exoplanets.

Mindy. And by habitable, you mean an exoplanet that is just the right distance from a star so that it's not too hot, and it's not too cold. It's just right.

Reggie. Coo.

Guy. Exactly. In fact, some scientists refer to these planets as being in the Goldilocks Zone, the perfect distance away from a star to harbor life.

Mindy. And scientists have found sixty of these habitable exoplanets so far?

Guy. Yeah, and more and more of these exoplanets are discovered all the time, Mindy. And scientists believe that some of them might be able to host alien life.

Mindy. (Gasp.)

Reggie. Coo!

Mindy. Blob monsters! Eeee!

Guy. Well, not quite because scientists believe that if life does exist outside of Earth, it's most likely that it will be microbial life.

Mindy. Huh?

Guy. Teeny-tiny creatures that like to eat up other molecules and expel gas.

(Soundbite of passing gas.)

Guy. Anyway, there may not be an alien invasion coming anytime soon, Mindy, but there very well could be microbial life out there in the cosmos thriving, just waiting to be discovered.

Mindy. Wait a minute, Guy Raz. Do you mean like on Venus?

Guy. Venus?

Mindy. Yeah. You know, second planet from the sun, hottest planet in the solar system. All that jazz. Anywho, I just read that scientists have a hunch that microbial life might exist on Venus.

Guy. Wow. Really?

Mindy. Yeah. You want to check it out?

Guy. What do you mean?

Mindy. Well, Venus is the brightest object other than the moon in the night sky.

Guy. Huh. You don't say.

Mindy. Yeah. In fact, I think we could probably spot it from here if it wasn't for all this light pollution.

(Soundbite of traffic.)

Guy. You're right, Mindy. With all the light coming from these cars and the buildings all around us, I can barely see any stars tonight.

Mindy. I got an idea.

Guy. What?

Mindy. Why don't we take a quick spin out to somewhere a little bit darker so that we can see Venus and look for microbial life on it?

Reggie. Coo.

Guy. I don't know, Mindy. Doesn't the next movie start in, like, ten minutes?

Mindy. Guy Raz, we are sitting in a mostly functional Wow Machine that can have us out and back before this guy even finishes reading the snack bar specials.

Drive-In Movie Employee. Hey there, moviegoers. Just a reminder to explore our concessions. We've gotten out-of-this-world deals on delicious Martian Bars–

Guy. Ok, I'm in. Let's do some stargazing.

Mindy. Boo-yah.

(Soundbite of engine revving.)

Mindy. Ok, let me just plug in the coordinates here.

(Soundbite of beeping.)

Mindy. Beep beep beep bop boop bop beep bop boop. All right. All set. Reggie, Guy Raz, hold on to your buns 'cause here we go.

(Soundbite of music.)

Mindy. And here we are.

(Soundbite of landing thump.)

Reggie. Coo.

Guy. And where exactly are we, Mindy?

Mindy. Well, just open up the hatch and find out.

Guy. All right.

(Soundbite of opening hatch.)

Mindy. Guy Raz, we are at the hottest, driest and lowest point in North America.

Guy. Mindy, are we in Death Valley National Park?

Mindy. I don't know. Reggie, check the map. Are we in Death Valley National Park?

Reggie. Coo Coo.

(Soundbite of map rustling.)

Mindy. Looks like you're right, Guy Raz.

Guy. What are we doing here?

Mindy. Well, because of how secluded this part of the world is, I mean, we're basically in the middle of nowhere, there is very little light pollution out here.

Guy. Which makes it a great place for stargazing.

Mindy. So, can you spot Venus? Look. It's right there.

Reggie. Coo.

Mindy. Well, as it turns out, Guy Raz, this sister planet of ours might also be

home to some extraterrestrial life. See, this group of researchers from the Massachusetts Institute of Technology, MIT, well, they just announced that they have discovered a gas called phosphine in Venus' atmosphere. And according to the Centers for Disease Control, you know, the CDC, it has an odor of garlic or decaying fish.

Guy. Ugh. So what does this foul-smelling chemical have to do with extraterrestrial life, Mindy?

Mindy. Well, here on Earth, basically the only thing that can create this gas are these teeny-tiny little microbes called anaerobic bacteria. Anaerobic bacteria means that it's a kind of bacteria that does not need oxygen to grow and survive.

Guy. And so these scientists from MIT, they believe that this sort of bacteria is making that gas on Venus?

Mindy. Yes. Well, I mean, sort of. They're not saying this is dolphin-itely proof of life on Venus. But they can't really think of any other way that this gas could have gotten there. So…

(Soundbite of phone vibrating.)

Mindy. What is that? A coyote?

Guy. No. Calm down, Mindy. It's just my Guy phone.

Reggie. Coo.

Guy. Uh-oh.

Mindy. Uh, what-o?

Reggie. Coo

Guy. Well, according to this science alert I just got on my Guy phone, there might not be any phosphine on Venus after all.

Reggie. Coo?

Mindy. What–what are you talking about, Guy Raz? They just discovered it. You can't undiscover something that you just discovered!

Reggie. Coo!

Guy. Well, it's sort of how science works. It's called replicability. It means to copy or to duplicate something. And in science, replication is how we know for sure that something is a scientific fact. And usually when a new discovery is made, scientists will discuss it with each other to make sure that their findings make sense.

Mindy. So other scientists also looked for phosphine in Venus' atmosphere, just like those scientists from MIT?

Guy. That's right. And according to this science alert, out of the three teams of scientists that have tried to replicate and reproduce those early findings of phosphine in Venus' atmosphere, not a single one has been able to do so.

Mindy. Ugh. Bonkerballs.

Guy. But that's Ok, Mindy. This is exactly how science is supposed to work. By replicating experiments with different groups of scientists, we're able to find out whether something is actually a scientific fact or just a fluke. And I suppose the only real way to know for sure would be to send a spacecraft up there and take actual readings from Venus' atmosphere.

Mindy. Oh, well, that might just be happening, Guy Raz.

Guy. Really?

(Soundbite of music.)

Mindy. Yeah. For the first time in almost forty years, there are plans to send a spacecraft to Venus.

Guy. Whoa. Wow.

Mindy. So this private space company called Rocket Lab is planning to send a satellite and probe to our sister planet Venus as early as 2023. And, specifically, they're sending it there to collect information from the Venetian atmosphere.

Guy. And how are they going to do that?

Reggie. Coo.

Mindy. You know what? Let me go to the Wow Machine and get out my telescope, and then I'll tell you all about it. Be right back.

(Soundbite of footsteps.)

Mindy. Walk, walk, walk, walk, walk, walk, walk. Got it! Walk, walk, walk, walk, walk. There we go.

Reggie. Coo coo.

Guy. Let me have a look here. Whoa. It looks like the whole planet is one giant volcano, Mindy.

Mindy. Well, Venus is the hottest planet in our solar system, Guy Raz. It has a surface temperature of about four hundred and seventy one degrees Celsius, or eight hundred and eighty degrees Fahrenheit.

Guy. Are those scientists from Rocket Lab planning on sending a probe to this flaming-hot fireball?

Mindy. Uh-huh.

Reggie. Coo.

Mindy. Well, if all goes according to plan.

Reggie. Coo.

Guy. Huh.

Mindy. After launching from Mahia in New Zealand…

(Soundbite of spacecraft.)

Mindy. The spacecraft will spend several months hurtling through space until it arrives at its final destination.

(Soundbite of spacecraft descending.)

Mindy. The main part of the satellite will whiz by Venus, taking pictures and

information of the planet's atmosphere from above. But to get up close and personal, it'll release a smaller probe…

(Soundbite of door opening and rocketing.)

Mindy. …that will rocket down into the planet's cloudy atmosphere, collecting more and more and more information. I don't know why I'm laughing like this.

Reggie. Coo.

Guy. And it's this little probe that's going to be able to tell us whether this garlic-smelling gas exists and if it's being produced by microbes?

Mindy. Exact-oritos, Guy Raz.

Reggie. Coo.

Guy. Huh. And so how are they going to get the probe back?

Mindy. Oh, they're not.

Reggie. Coo?

Guy. They're not?

Mindy. Nope. In fact, that probe isn't even attached to a parachute. It's going to be slamming straight into Venus at a speed of around six miles a second.

(Soundbite of thud.)

And the pressure of Venus' atmosphere is about seventy-five times stronger than the pressure here on Earth.

Guy. Whoa. So I guess that probe isn't going to last long once it enters Venus' atmosphere.

Mindy. Yeah, it's going to get crushed like a tin can. But it should have enough time to get some information about the atmosphere and tell scientists once and for all whether or not there is phosphine present on the planet.

Guy. Whoa. This could be one of the greatest discoveries in human history, Mindy.

Mindy. Or it could be nothing.

Reggie. Coo.

Guy. Well, I guess we'll just have to wait a few years to find out for ourselves.

Reggie. Coo

Guy. Hey, Mindy. I can't see Venus through the telescope anymore.

Mindy. Oh, yeah. I created this telescope to run on quarters, and looks like your time is up, buddy.

Reggie. Coo.

Guy. Ugh!

Mindy. Just in time, too. The next movie's about to start any second. Come on. We got to get back to the drive-in. Walk, walk, walk back to the Wow Machine.

Guy. Open the hatch.

(Soundbite of thud.)

Mindy. All right, Guy Razzie. Get your popcorn ready 'cause here we go.

(Soundbite of music.)

Mindy. Ah, made it.

Reggie. Coo coo.

Guy. Phew, and just in time, too, Mindy.

(Soundbite of alien music.)

Guy. I think it's about to start.

Movie Actor #1. But what is it? Wherever did it come from?

Movie Actor #2. Its name is Zontar, and it came from Venus.

(Soundbite of gasping.)

Guy. Huh. I guess there is life on Venus after all, Mindy.

Reggie. Coo.