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.

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

(Soundbite of car running).

Mindy Thomas. (Groans.) Come on Guy Razzy, where are you?

Reggie. Coo! Coo!

Mindy. I could give him a call…

(Soundbite of car horn).

Mindy. Hey, Guy Raz! Put a little pep in your step! We've got roller coasters to ride!

(Soundbite of car horn.)

Reggie. Coo.

(Soundbite of car door opening.)

Guy Raz. Hey, Mindy! Sorry I'm late. My zoodle set my alarm for eight am Berlin time again.

Mindy. (Sighs)

Reggie. Cooo.

(Soundbite of car engine revving.)

Guy. Oh boy, Mindy, I am so excited for this trip. It’s been so long since I’ve visited a theme park.

Mindy. …the rides, the games, the crowds, the vomit…it’s what days like today were made for!

Reggie. Coo.

Guy. Uh huh.

Mindy. Oh, Bongo and the Big Toot are just about to come on. Let me just turn on the radio here. Heeeee-yah!

Reggie. Coo!

(Soundbite of radio static).

Bongo. Woah-ho-ho! You’re tuned into Bongo and the Big Toot–

(Soundbite of fart.)

Bongo. –in the morning on ninety-seven-w-o-w!

(Soundbite of fart.)

Mindy. (Laughing.) I love this show!

Bongo. Hey Toot, you hear about this new theme park that’s opened just outside of town?

Toot. Of course I've heard of it! We play their commercial like seventeen times an hour.

Bongo. Biomimicry World!

Bongo and Toot. It’s nature’s way or the highway!

(Soundbite of fart.)

Guy. Hey! That’s where we’re going, Mindy!

Reggie. Coo!

Toot. So, biomimicry. What even is that?

Bongo. Actually, in your case, it’s pronounced, b-o-mih-me-cry.

Toot. What? It is?

Bongo. Yeah! Cause Your B.O. is making me cry!

(Soundbite of fart.)

Toot. Hawhawhawhaw!

Bongo. Ahh.

Toot. I don’t get it.

(Soundbite of fart.)

Reggie. Coo. Coo coo coo. Coo.

Mindy. Oh, they were just joking around, Reg!

Reggie. Coo? Coo coo coo!

Mindy. That's right, because biomimicry is actually when we humans look to nature to get ideas for inventions that might be able to help us out.

Guy. Yeah, like how scientists have studied how termites keep their mounds cool inside even when it’s boiling hot outside, and that’s helped them to figure out how to cool down office buildings.

Mindy. Yeah, or how scientists have studied ants and how they move in and out and around their giant colonies. Knowing this has helped to make traffic and roadways more efficient for us humans.

Guy. Right, and all the rides at Biomimicry World are inspired by nature in the same way.

Reggie. Coo!

Mindy. I can’t wait to see this place for myself!

Guy. I'm so excited, Mindy! Are we almost there?

Reggie. Coo?

Mindy. Yup! In fact, I think I see it now. Look, Guy Raz! Look, Reggie!

Reggie. Coooo!

Guy. Wow!

Mindy. Now I just need to find a place to park here. Oh, here we go.

Guy. Gahh, Mindy!

(Soundbite of car screech).

Guy. Ahhhhhhhhhhhhhhhhhhhhhhhhhh!

Reggie. Coooooooooooooooooooooooo!

(Soundbite of gear shifting.)

Mindy. Right at the front gates! Perfect.

Reggie. Coo!

Mindy. Come on!

Reggie. Coo. Coo! Coo!

(Soundbite of turnstiles and theme park.)

Guy. Alright, Mindy why don't you grab a map from over there and we'll figure out where we want to go.

Mindy. Okay!

(Soundbite of paper rustle).

Mindy. Here's a map for ya!

Guy. Thanks, let me just see here…Woah, this place is huge! You've got the 'float like an otter' wave pool…

Mindy. Ooh, the sugar glider zipline!

Guy. Bison bunting bumper cars…

Mindy. (Gasps.) Look! There it is Guy Raz! Right there on the map!

Guy. What, Mindy?

Reggie. Coo?

Mindy. It's the ride I came here for!

Guy. The Slingshot Sheriff?

Reggie. Coo!

Mindy. Yeah! Grandma G-force and Thomas Fingerling came here last week and they said that this ride was absolutely bonkerballs! Or maybe it was barfyballs? Anywho, it’s based on the slingshot spider from Peru!

Guy. Oh yeah?

Mindy. Yeah! You wanna check it out?

Reggie. Coo coo!

Guy. I don't know, Mindy. I’m usually more of a, you know, teacups and cotton candy kind of guy.

Mindy. Oh, come on Guy Razzy! The whole thing is based on new research from a team of scientists at the Georgia Institute of Technology!

Guy. Really?

Reggie. Coo coo!

Mindy. Anything for science?

Guy. (Groans.) Anything for science.

Mindy. Yes!

Guy. So, tell me more about this slingshot spider.

Mindy. Okay, well first of all, this spider is tiny!

Guy. How tiny?

Mindy. I’m talking only around one millimeter long!

Guy. One millimeter? That’s like five times smaller than a grain of rice!

Mindy. Yeah, and it’s only a teeny tiny bit bigger than a grain of sand!

Guy. Wow. I'm surprised those researchers from the Georgia Institute of Technology were even able to find any of these little spiders.

Mindy. Yeah, and it’s even more impressive when you find out that these teeny tiny spiders live in the super dense Amazonian rainforests in Peru.

Guy. Huh. And what’s so special about these spiders?

Mindy. Well, let’s just say they have a very unique way of hunting.

Guy. Huh. Don’t most spiders just catch their prey in their sticky spider webs?

(Soundbite of fly buzzing and then sticking.)

Mindy. Well, sometimes yes. But this tiny spider does things a little bit…uh, differently.

Guy. Differently?

Mindy. Oh yeah.

PA System. Welcome to the Kingfisher Monorail System, the most aerodynamically efficient monorail system in North America.

(Soundbite of beeps and turnstiles.)

PA System. The next monorail will arrive precisely in ten…nine…eight…

(Soundbite of monorail arriving).

PA System. Seven six five four three two one. Whew! Nailed it!

(Soundbite of monorail doors opening.)

Guy. All aboard, Mindy!

Mindy. All aboard, Guy Razzy! Walk walk walk walk walk walk…

Guy. Ahh.

(Soundbite of PA system turning off.)

Guy. Okay, let's see here. Looks like it's only a couple stops!

Mindy. Eeeeeee! I can't wait! I can't wait I can't wait I can't wait I can't wait!

Guy. So, you were saying this slingshot spider has a different way of hunting its prey?

Mindy. Oh yeah! And it's all in the name.

Guy. Slingshot?

Mindy. You got it!

Guy. So it uses a tiny slingshot to hunt its prey?

Mindy. Well, not exactly. See, the slingshot spider IS the slingshot! Or at least, its web is the slingshot!

Guy. Huh?

Mindy. Okay, so using its webbing as a sort of elastic band, the spider creates a cone shaped web that it winds back, and then, sometimes hours later, when a fly or a mosquito comes into range…Bam!

(Soundbite of fly buzzing and hand hitting the table.)

Guy. Blah!

Mindy. It launches itself at its target!

(Soundbite of slingshot.)

Mindy. And the slingshot spider has captured its prey!

Guy. Woah! It must be pretty quick to catch a fly out of mid-air!

Mindy. You have no idea, Guy Raz. This little spider is able to accelerate one hundred times faster than a cheetah!

Guy. Yikes! Those mosquitoes don’t stand a chance!

Mindy. Not a chance.

Guy. So those researchers from Georgia Tech are trying to figure out how something so small can travel so fast?

Mindy. Well, sort of. I mean, they’re dolphinately interested in how this spider is able to accelerate so fast, but they’re also interested in the spider's web that it uses for the sling.

Guy. I'm guessing it’s pretty special then?

Mindy. Oh, yeah! This web is super strong and able to hold incredible amounts of energy when the slingshot spider pulls it back into place.

Guy. Huh.

(Soundbite of PA system turning on.)

PA System. Next stop, Slideshow Alley.

Guy. This is us, Mindy!

(Soundbite of the monorail stopping).

Mindy. Ooh! All offboard!

Guy. All offboard!

(Soundbite of PA system music.)

PA System. Thank you for choosing the kingfisher monorail system.

Guy. Woah, check out all these rides, Mindy!

(Soundbite of roller coaster and screaming.)

Mindy. Unbelievable!

Guy. The gecko wall?

Mindy. Aw, yeah! That's the one where they shove you in a suction cup-y suit and you've gotta shimmy up the wall like a gecko.

Gecko Wall Climber. (Laughing.) This is so fun!

Guy. Oh, right.

(Soundbite of suction cups.)

Mindy. Ah! Check out this one! It's the Mantis Shrimp Punching Bag!

(Soundbite of wrestling match gong.)

Guy. The Mantis Shrimp Punching Bag?

Mindy. Oh, yeah! You know how the mantis shrimp has the fastest punch in the entire animal kingdom?

Guy. Yeah! Enough To knock out its prey and boil the water around its claw!

Mindy. Right. Well, this punching bag here tells you how fast your punch is!

Guy. And then it looks like it compares it to how fast the mantis shrimp punches!

Mindy. You got it!

Guy. Hey, let's go find that Slingshot Sheriff Spider ride!

Mindy. Oh, already found it! Look, it's right over there!

(Soundbite of roller coaster sounds and screaming.)

Guy. Woah!

Mindy. Yeah!

Guy. Mindy, that thing is massive!

Mindy. Okay, so remember, the slingshot spider is only about a millimeter long.

Guy. Yeah…

Mindy. But it's web–

Guy. –which is what it uses to launch itself at its prey like a rubber band…

Mindy. Right. Its web is much much bigger. So this ride has been scaled up to human size.

(Soundbite of roller coaster.)

Guy. Wow!

Mindy. Wow is right. Come on, I can't wait any longer! Race ya! Run run run run run run!

Guy. Mindy, wait up!

PA System. Howdy partner, and welcome to the Slingshot Sheriff, the world's fastest accelerating ride inspired by the Peruvian slingshot spider!

(Soundbite of roller coaster.)

Guy. So, what were those researchers from Georgia Tech trying to learn from the slingshot spider?

Mindy. Well, like I was saying, the slingshot spider accelerates really really fast.

Guy. Okay, I think I got it. So how fast does this little spider accelerate?

Mindy. Well, let's see. The fastest human on the planet–

Guy. –Usain Bolt.

Mindy. Yes, so when he explodes off his starting blocks at the start of a race, his acceleration is around three hundred times slower than this little spider when it flings itself from its web.

Guy. Wow!

Mindy. And moving that fast, that quickly, subjects it to some rather intense G-forces, if you know what I mean.

Guy. What does your Grandma have to do with all this?

Mindy. Not Grandma G-force, Guy Raz! The actual gravitational force applied to your body.

Guy. Oh right, of course! I remember, G-force is that heavy feeling you get when you're on a roller coaster.

Mindy. Yeah! So, on a roller coaster, you'll typically experience around three, four, or maybe five G-forces, even?

(Soundbite of roller coaster.)

Guy. Uh huh.

Mindy. And a fighter pilot, when doing all of those crazy twists and turns in their jets–

(Soundbite of jet.)

Mindy. –can actually get up to around ten G-forces!

Guy. Right, and so how many G-forces does this spider experience when it launches itself from its web?

(Soundbite of slingshot.)

Mindy. One hundred and thirty G-forces!

Guy. One hundred and thirty!?

Mindy. Yup! That's enough to make a fighter pilot black out ten times over!

Guy. Woah.

Mindy. But here's the thing; unlike other high flyers in the animal kingdom like frogs, crickets or even grasshoppers, the slingshot spider does not rely only on its legs muscles to produce all of the power it needs to launch itself so quickly.

Guy. Right, this spider instead uses its web to accelerate at such high speeds!

(Soundbite of slingshot and boom.)

Mindy. Exacteritos! And what's blown these scientists' brains is how this little teeny tiny spider is able to pull back and then hold this slingshot in place for hours at a time.

Guy. Because I imagine it has to wait a while for a fly or a mosquito to come near its web.

(Soundbite of buzzing, slingshot, and boom.)

Mindy. You know it. And it takes a crazy amount of energy to pull this slingshot back and then even more energy to keep it in place for hours on end.

Guy. So how do they do it?

Mindy. Well, they're still studying it. But…

Guy. But?

Mindy. They think that this spider might have some sort of locking mechanism in its legs that allow it to pull itself into place and then cock itself, ready to fire as soon as its prey comes into view.

Guy. Huh!

Mindy. Which is exactly how this ride seems to work!

(Soundbite of roller coaster and screaming.)

Mindy. Speaking of which, looks like we're up next, Guy Raz!

Guy. Uh, yay?

Ride Operator. Alright you two, just take a seat here and we'll getcha launched there.

Mindy. Don't mind if I do! Ooh, comfy.

(Soundbite of bell.)

Ride Operator. Okay, strappin' ya in.

Guy. I'm not so sure about this Mindy…

(Soundbite of clanking.)

Rider Operator. And that'll do. Ok, have fun, now.

Guy. Ah, Mindy, are you sure these elastic ropes are safe?

Mindy. Yes, of course I'm not sure they're safe, Guy Raz! But…and this is a big butt…they are based directly off the slingshot spider's silk that it uses for its web, which is another reason why the scientists were interested in researching this spider!

Guy. Why?

Mindy. Well, because the silk that these spiders use is able to hold much much more energy than anything us humans have ever made.

Guy. Really?

Mindy. Yeah, they're hoping to use the web's energy storing secrets to create a potential power supply for tiny robots and other little devices.

Guy. Well, I guess that makes me feel a little better…

Mindy. Aw, come on Guy Razzy! Anything for science?

Guy. Anything for science. Anything for science. Anything for science.

Mindy. Three…

Guy. Two…

Mindy. One…

Mindy and Guy. And here we…goooooo!

(Soundbite of roller coaster starting.)