

## STEM Learning Videos

### BPA – Final

Carolina learns about BPA.

Characters:

- Carolina (wife/mom)
- Jorge (husband/father)
- Juanito (the baby)
- Isabella (sister-in-law/married to Carlos/expert)

#### **SCENE 1: Carolina and Jorge's Kitchen**

*Carolina walks into the kitchen holding Juanito, her phone is ringing. She manages to pull her phone out of her pocket, set it on the kitchen table and answer it.*

CAROLINA: Hey, Isabella! Hang on a second.

*She puts Juanito in his high chair.*

CAROLINA: Sorry about that.

#### **Craft Store Aisle**

*Isabella is standing in the decorative paper aisle of a craft store. She's holding a shopping basket which already has a few items in it: cardstock, glue, balloons.*

ISABELLA: No problem! I'm picking up some crepe paper for Juanito's piñata. Do you want to go with traditional colors or do something else...?

#### **Intercutting Between Kitchen and Craft Store**

*Carolina serves Juanito some crackers and sets a sippy cup on the tray of his high chair.*

CAROLINA: I wanna stay traditional, and can you see if they have some of those large containers for food that match the colors? Nothing fancy, but maybe they have those bigplastic ones?

*Isabella is grabbing rolls of crepe paper from the shelf and putting them in her shopping basket.*

ISABELLA: I'm bringing some glassware that my sister loaned me. They're not colorful, but they're better than plastic.

*Carolina watches as Juanito eats.*

CAROLINA: Don't you think it will look better if everything matches?

*Isabella glances at her basket, making sure she has everything.*

ISABELLA: Well, it might look better, but these are glass and they're safer than plastic.

CAROLINA: I don't know what you mean.

*Exposure + Genetics Version*

ISABELLA: Plastics have chemicals that aren't good for us. I know this sounds crazy, but plastics can change the way genes work.

ISABELLA: I'll tell you more when I get there, but pregnant women like you should avoid plastics.

*Juanito drops his sippy cup on the floor. Carolina leans over to pick it up.*

CAROLINA: All right...What time will you get here?

ISABELLA: I'm almost done here. Do you have masking tape?

CAROLINA: We do, but I think Jorge and Carlos might be using it.

*Isabella looks up, checking the aisle labels looking for tape.*

ISABELLA: Oh! Right! For the garage. I'll grab some and I should be there in twenty minutes.

CAROLINA: See you soon!

*Carolina hangs up the phone. Juanito grabs his sippy cup and drinks some water. Jorge enters the kitchen, paint on his face and hands.*

JORGE: Hello

*Carolina turns to Jorge.*

CAROLINA: How's it going?

*Jorge grabs two plastic cups from the cupboard and fills them with water.*

JORGE: Good! We're making progress, but it's getting warm out there.

*Juanito fusses and Carolina stands to pick him up.*

CAROLINA: Let's go change your diaper before Auntie Isabella comes to help make your piñata!

*Carolina lifts Juanito out of his high chair and moves toward the living room.*

JORGE: Carlos said Isabella was picking up some serving plates and stuff?

*Carolina turns back.*

CAROLINA: Yeah, but she borrowed some glassware from her sister that she says will be better.

JORGE: That's great!

*Jorge smiles and carries the cups toward the door. Carolina takes Juanito to the nursery to change his diaper.*

**SCENE 2: Carolina and Jorge's Kitchen**

*Isabella sets her shopping bag on the kitchen table, on which Carolina has already set out some of her craft supplies and her tablet. There are some baby toys on the floor. Carolina holds Juanito and stands next to Isabella. Juanito reaches for Isabella's hair. Isabella begins pulling items out of the bag.*

ISABELLA: Juanito! It's almost your Birthday!

*Juanito giggles. Isabella pulls the last of the items from the bag. Carolina sets Juanito on the floor.*

CAROLINA: You play down here while Auntie Isabella and I work.

*Isabella grabs the shopping bag and begins to exit.*

ISABELLA: I am going to grab that glassware that I told you about and then we can get started.

CAROLINA: Okay.

*Isabella exits. Carolina opens the bag of balloons and starts to blow one up. Juanito hears her and looks up. Isabella returns with an armful of glass containers.*

ISABELLA: So here's what my sister had.

*Carolina goes to the sink and fills a container with water. Juanito goes back to his toys. Carolina brings the container back to the table and pours some flour in. Isabella sets the glassware on the counter.*

CAROLINA: Why am I supposed to avoid plastics?

*Carolina stirs the mixture. Isabella sets out strips of newspaper.*

ISABELLA: Well my sister stopped using plastic when Bianca was born. She had read about different chemicals used to make plastic, like BPA, which stands for bisphenol A. —

*Carolina stops and looks at Isabella.*

ISABELLA: I know! Crazy word.

*Juanito mumbles some nonsense sounds.*

ISABELLA: That's right, Juanito. BPA and other chemicals are used in making a lot of plastics. When we eat or drink out of things that are made out of plastic, we may end up eating and drinking small amounts those chemicals. Especially with hot and acidic foods.

*Carolina begins to dip the strips of newspaper in the paste and cover the balloon.*

CAROLINA: Is it like lead? Carlos was just telling us about that.

ISABELLA: He definitely knows more about lead...

*Isabella holds the balloon steady as Carolina covers it in newspaper.*

ISABELLA: But BPA and other chemicals in plastics may cause some problems especially with kids. And it's worse for babies before and after they're born.

*Exposure + Genetics Version*

ISABELLA: She showed me a video about it if you want to see it.

CAROLINA: Sure!

*Isabella taps the tablet a few times to cue up the video.*

VIDEO:

Each one of our parents gives us half of our genes. And generally, the genes do not change during our lives. But even though the genes themselves do not change, our bodies can control how the genes function. Our bodies do this by turning on some genes and turning off other genes. Sometimes, things that surround us, in our environment, or even what we do, can also change the functioning of certain genes by turning them on or turning them off. This type of change is called an epigenetic change. Epigenetic changes can be permanent or temporary. For example, exercise can cause a pattern of epigenetic changes to the DNA and cause some specific genes to turn on and some other specific genes to turn off. These changes lead to better health. Smoking causes a different pattern of epigenetic changes to the DNA. These changes cause some specific genes to turn on and other specific genes to turn off. These epigenetic changes lead to poor health.

Studies that have been conducted with animals can help us to understand how epigenetics can turn specific genes on or off in humans. Some studies have been done on rodents to observe the epigenetic effects on their DNA caused by chemicals, like BPA. They put BPA in the water pregnant rodents were drinking. The water with BPA changed the way a specific gene functioned in their babies. The BPA turned on a gene that made their babies become overweight. The BPA also changed the color of the babies' fur.

CAROLINA: So if I have identical twins and even though they could have the exact same genes, the things they're exposed to, like BPA, can change how their genes work?

CAROLINA: Ugh! Sometimes it feels like there are just too many things to worry about!

*Isabella turns the balloon to help Carolina reach the last spot. Juanito clangs some toys together.*

ISABELLA: You're a great mom to Juanito and you'll be a great mom to the twins! And we won't cook or store anything in plastic for the party tomorrow.

*Carolina puts the final strip of newspaper on the balloon.*

CAROLINA: I know...

ISABELLA: It's impossible to avoid all plastics, but whenever possible, use something safer like lead-free glass or ceramics or stainless steel.

*Isabella steps back from the balloon covered in newspaper. Carolina picks up Juanito.*

CAROLINA: What do you think, Juanito?

*Juanito makes a sound with his mouth.*

**SCENE 3: Carolina and Jorge's Patio**

Jorge and Carlos are sitting on the patio. Their plastic cups are on the table and there's a freshly-painted garage behind them. Isabella, Carolina, and Juanito come out to join them.

CARLOS: Were you in there cooking? I'm starving!

*Isabella sits next to Carlos and pats him on the stomach.*

ISABELLA: You don't look like you're starving.

*They laugh. Carolina hands Juanito to Jorge and sits down.*

CAROLINA: We start cooking first thing in the morning.

ISABELLA: Remember? You're bringing your mom and Alejandro over here...

CARLOS: Who?

*Carlos and Jorge laugh. Juanito grabs Jorge's plastic cup from the table and chews on it.*

CAROLINA: Oh, Juanito! Don't chew on that!

*Carolina takes the cup away from him. Juanito chews on the edge of the table.*

JORGE: He's not hurting anything.

CAROLINA: Maybe not, but we're avoiding plastic when we can.

*Carlos turns to Isabella.*

CARLOS: Should we go get Alejandro?

ISABELLA: (to Carolina) Will you be able to finish the piñata?

CAROLINA: (smiles) Jorge is going to help me. Endeavors

*Jorge looks up.*

JORGE: Jorge is going to do what?!

*Juanito laughs. Carlos and Isabela get up.*