

But Why: A Podcast for Curious Kids

How is candy made?

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Jane 00:20

This is But Why: A Podcast for Curious Kids from Vermont Public. I'm Jane Lindholm. On this show, we take questions from kids all over the world just like you, and we find interesting people to answer them. Do you have a sweet tooth? Do you love lollipops and sour candies? Gummies? Maybe chocolates, sweets, candy, Lollis, whatever you call them, many of us find these sweet treats irresistible. And here in the United States, the holiday many people celebrate on October 31, Halloween, has basically become an excuse to collect and eat a lot of candy. So at this time of year, when many young minds turn to thoughts of sweets, we thought we'd learn a little bit more about what candy actually is.

Craig Montgomery 01:05

Candy comes in all sorts of shapes, sizes and textures. Usually it has a sugar base, or it's made out of sugar most of the time, or different forms of sugar, like honey or natural sugars from apples and fruits. But typically what I think of when I think about candies, like chocolate or gummies or like hard candies, like lollipops and stuff like that. My name is Craig Montgomery, owner of Sticky here in the United States.

Jane 01:36

Sticky is a candy company, so Craig is a good person to help answer a few of your candylicious questions. The definition of candy is actually a little complicated, because it can mean different things in different cultures. What's a candy to you might be considered a dessert to me, and some people think of chocolate as candy, but others consider chocolate a sort of separate category altogether. One thing, though, is for certain: at the heart of all candy is sugar.

Ashton 02:06

Hi, my name is Axton from Edmonton, Canada. I'm seven years old, and my question is who created candy?

Jane 02:15

Humans have always sought out sweetness, so there's no way to say who created the first candies. Humans found sweetness in natural substances like honey, maple syrup, sugar cane and sugar beets. And ancient cultures created many treats out of honey and nuts. So people have been making candy, I guess you could call it, for thousands of years. But the kind of candy we think about in modern times only became possible when humans developed a reliable source of sugar they could grow or cultivate as a crop, and then when sugar could be shipped around the world, that was another milestone in the candy story. Candy used to be something only very wealthy people could afford to buy, but over time, sugar became much more readily available and a lot cheaper. And the modern candy industry was born. Some of the earliest candy available for people to purchase for fun was very hard candy. It was so hard it was kind of like sucking on a rock. That's the kind of candy Sticky, the company Craig Montgomery runs, still makes today.

Craig Montgomery 03:20

we make traditional, handmade rock candy. A lot of people these days say this is like that candy my grandma used to have on our coffee table. It was pretty much created a long time ago. Came to

popularity in the UK in seaside towns, where they would sculpt the seaside town name like Blackpool or Brighton, inside of the candy, and sell it as sticks of rock. It's made up of sugar and glucose. And we put little pictures of different designs, like fruits or animals or skeletons and Frankenstein's monsters, different things like that, inside of the candy, and we make them a little bit smaller and more bite size and delicious.

Richard 04:05

My name is Richard. I live in Los Alamos, New Mexico. I'm five years old, and I want to know how is candy made?

Jane 04:15

There are lots of ways to make candy, because there are lots of different kinds of candy, but let's use the rock candy they make it Sticky as our example.

Craig Montgomery 04:23

for us to make candy. Essentially, we're just glorified sugar boilers. We boil about 18 pounds of sugar and then we add a sugar syrup, because crystal sugar wants to be a crystal, and it needs some sort of a doctor, like a glucose which we use other companies use high fructose corn syrup, or a tapioca, which prohibits the crystals in the sugar to recrystallize. And so we're able to kind of work with those where we'll add different colors, we cool it down until it's kind of like Play-Doh. Or clay. And then we work on a heated table that keeps the candy kind of squishy, malleable for us to kind of sculpt each element of the design in three dimensions.

Jane 05:14

Let's break this down. Craig starts with sugar crystals and water and heats them together to make a boiling hot liquid. He also adds another kind of sugar to keep those sugar crystals from turning back into crystals when they cool down. You can actually make your own rock candy without that other type of sugar, and you'll find your finished candy looks like, well, crystals. It has lots of little crystals attached to one another. But Craig and other candy makers want a hard candy that is smooth, so they add that other type of sugar, glucose, or corn syrup, for example, to help make sure it stays smooth as it cools down and hardens.

Craig Montgomery 05:52

Fun fact, back in the day when they would do like old Western movies and the stuntmen would jump through that pane of glass, it was actually sugar cooked up this way because it is very transparent and it looks like glass, but with stuntman's glass, and so they could jump through a window, it'd have that breaking effect, but it wouldn't be stuck in their skin to where they'd have to be having it removed. So it would basically kind of turn into something like glass.

Jane 06:20

But Craig doesn't want a thin sheet of glass. So when the candy is in that hot lava or Play-Doh stage, they take it out of the pot and mix in food coloring to make the candy lots of different colors. And then they stretch and pull it to mix in air bubbles and make it nice and shiny. This is when they start building the candy pieces with words or pictures in the middle. You might eventually pop one little piece of candy into your mouth, but when they start building the candy pictures, they make them really big, way too big to fit in your mouth.

Craig Montgomery 06:52

As we make it, it's probably about six to eight inches in size, and we typically try and work in squares or circles. So if we're creating, like, say, an apple shape, we start out with it round as like a cylinder, or

almost like a pipe with unstretched candy wrapped around stretched candy, to give it kind of this, like apple skin definition. And then we put a little indent in the bottom, like your normal apple has a little apple bottom, and then we put a little bit of white inside of that crease to then create that shape. So for every shape we make, we have to put an inverse negative space in that, so that, because the candy always wants to kind of go flat because it's hot.

Jane 07:44

So then they have a giant pipe of candy with that picture in the middle, but it's still way too big to eat. So quickly, before the candy gets hard, they pull and stretch that cylinder or pipe of soft sugar until it's really, really thin. I guess you could kind of imagine, like how you roll out dough to make a pretzel, or maybe if you play with Play-Doh until it's a thin snake, they're kind of doing that. The picture in the candy gets stretched and shrunk down as the candy gets pulled out, and what you're left with is a rock hard candy with little letters or pictures in it. You can cut that stick of candy into bite-sized pieces, and voila, you've got your rock. Coming up, more answers to your questions about candy.

Jane 08:30

I'm Jane Lindholm, and this is But Why, a Podcast for Curious Kids. We are learning about delicious candy and how it's made. Today we have another candy maker joining us? Well, actually. two.

Steve Andrianos 08:43

I'm Steve Andrianos, owner and candy maker.

Julia Jackson 08:47

I'm Julia I'm a candy maker as well. At Steve's place of business.

Jane 08:52

Steve Andrianos owns Hercules Candy. The company was started over a hundred years ago by Steve's grandfather in East Syracuse, New York. Julia Jackson is one of the candy makers who works with Steve.

Steve Andrianos 09:05

We basically make candy the old fashioned way. A lot of things are made by hand. A lot of things. We have some in robbers, which chocolate cover things, and we make hard candies and clusters and sorted chocolates and ribbon candy and all kinds of things.

Jane 09:22

They even use many of Steve's grandfather's recipes. Julia describes the process for us.

Julia Jackson 09:28

It's pretty simple, actually. You just take sugar, corn syrup and water, and you heat it up. It's called like a hard crack stage, which you heat it up to 310 and then we just manipulate it until little pieces that we want add the flavor that we want. Once it's heated up to the temperature we want, it's like this really hot, like liquid lava, and then you pour it onto a cold surface, and eventually, over time, minute by minute, it gets more moldable, kind of like Play-Doh. I sh, for people who don't look at it and. So it's at a point where you can handle it and you can cut it into the little pieces. So it's basically just, it's basically just cooling off.

Jane 10:08

Some candy gets bent or folded or molded into special shapes that can take some practice.

Julia Jackson 10:14

My favorites is candy canes. I love making candy canes. No one else likes it because it's hard and difficult. But I love the little challenge.

Steve Andrianos 10:22

Ribbon candy, that's, we all, that's all made with our fingers, making ribbon candy because we pull it out really nice and thin, like a ribbon, and we cut it off, and then the next person takes it with their fingers. They twist it so it looks like a ribbon.

Julia Jackson 10:41

And it's hard candy, so you bring up little pieces and crunch on it.

Steve Andrianos 10:44

It hardens up within five to 10 seconds so you gotta do it fast.

Ava 10:51

Hi. My name is Ava. I live in Syosset, and my I'm eight, and my question is, why is candy so sweet? I'm asking this because it's Halloween. When I recorded this.

Steve Andrianos 11:05

most candies made with corn syrup, which is sugar, yeah, and then more sugar. So basically it's just...

Julia Jackson 11:13

A sugar, sugar....

Steve Andrianos 11:16

Sugar concoction.

Meera 11:17

Yeah. My name is Meera. I'm three years old. I live in Cary, North Carolina. And my question is how are gummies made?

Steve Andrianos 11:32

Gummies and jelly beans are made starch casting, they call it.

Jane 11:37

Starch casting is the method for making a mold for the shape of a gummy so you don't have to try to get a gummy bear out of a tricky silicone or metal mold. You just push the shape you want to make into cornstarch, which is a nice, smooth edible powder. The candy itself is heated up liquid made from sugar and water and flavorings and some gelatin or pectin that gives the gummy a nice gummy texture. Gelatin contains proteins that will hold the little sugar molecules in suspension. So you pour that nice hot mixture into the molds you made out of cornstarch, let them cool down and harden into a gummy texture. And then when they're all cooled down, you can just take them out and let that powder be used for something else.

Knox 12:23

Hi. My name is Knox. I'm six years old. My question is, how does Candy Corn get made?

Jane 12:34

Candy Corn are tri colored, triangle shaped candy you often see around Halloween. Their shapes are made through starch casting as well. Candy Corn includes an ingredient called mallow creme, which gives it that kind of pasty feeling and color. Candy Corn actually first appeared in the 1880s in Philadelphia, and back then it was called chicken feed!

Oliver 12:55

Hi, my name is Oliver, and I'm six years old, and I live in Millersburg, Ohio, and my question is, why does hard candy melt in your mouth?

Stella 13:07

Hello. My name is Stella. I'm seven years old. I live in Long Valley, New Jersey. And my question is, why does cotton candy dissolve when it's wet?

Steve Andrianos 13:16

That's just like take, if you just took a tablespoon of sugar and put it in a cup of water, it will just dissolve, dissolve away. So the same effect will happen in your mouth. Or when the hard candy, it will just dissolve.

Julia Jackson 13:30

Yes, bigger likes warm, wet areas, yeah, it just dissolves, just the sugar.

Jane 13:35

What's happening in your mouth when you put a piece of hard candy in there is that saliva breaks down the bonds between the sugar molecules and they dissolve. Okay, a few more candy questions.

Evan 13:46

My name is Evan. I'm almost five years old, and my question is, what are Nerds?

Jane 13:53

If you're unfamiliar with Nerds, they're tiny, colorful pieces of candy that come in small boxes, usually one flavor on one side of the box and a second flavor on the other side, so you can eat them one at a time or mix the flavors, whatever you prefer. Nerds are made from a sugar crystal that is coated with multiple layers of liquid corn syrup. It then gets spun in a pan so that more layers grow on it. They then take on all the odd shapes you expect from nerds, and they get colored. If you like, Nerds Ropes and Nerds gummy clusters, that's just gummy candy with a lot of Nerds spread onto it. Sometimes the nerds are stuck to a small gummy ball. For ropes, they're stuck to a longer piece of gummy... How do they even come up with these things?

Daisy 14:38

My name is Daisy, and I'm four and a half years old, and I'm from Florida. I want to know why popping candy pops in your mouth.

Will 14:48

Hi, my name is Will. I'm eight years old. I live in Richmond, Virginia, and my question is, how do Pop Rocks pop?

Jane 14:58

Have you ever heard a popping candy like Pop Rocks? That's a candy that creates a fizzy, popping sensation when you put it on your tongue. I actually have a packet right here with me. I'm going to eat some and see if you can hear them popping.

Jane 15:24

They're definitely fizzing on my tongue. It's pretty cool. So how does this actually work? Well, Pop Rocks are made from the same thing as hard candy: sugar, corn syrup, water and flavoring all heated up, so the candy all melts. But popping candy is then infused with carbon dioxide, which is trapped in the cooling candy in lots of little bubbles. In fact, if you look closely, you can probably even see the bubbles, though you might need a magnifying glass. When you put the candy in your mouth, the sugar dissolves and the carbon dioxide bubbles pop and the gas is released. Don't worry, it's perfectly safe... and pretty cool.

Jordi 16:02

My name is Jordi. I'm from Somerville, Massachusetts. I'm six years and my question is, why can't we eat candy all day?

Jane 16:13

I like the way you asked this question, Jordi, why can't we eat candy all day? Most of the experts in human nutrition, that's the study of food and the nutrients in food, agree that occasional candy is fine if you're otherwise feeding your body all of the other things it needs to function. But if you're filling up on a lot of candy, your body isn't getting all the stuff it needs, and too much sugar in your body isn't great. A few years ago, we talked with a nutritionist named Wesley Delbridge about why eating too much sugar isn't such a good idea. Here's what he told us.

Wesley Delbridge 16:48

It's because, if you're only eating sugar, like let's call sugar sweetened beverages like soda or candy, all it has is sugar, and so when you eat that, your body absorbs it very quickly, and your blood sugar jumps up, and you get this shot of energy, and you feel good, and maybe you're a little hyper, but then the body gets rid of that energy very quickly. And then when we get what we call low blood sugar, and that's where you feel really tired and really sluggish, and you don't want to do anything, and you can't concentrate. And so even though you're getting that energy, there's nothing else with it. And so your body gets it, absorbs it, feel good, and then all of a sudden you feel really bad. And so that's why we want to have a healthy, balanced diet with, you know, those "sometimes foods," but if you only eat high sugar items, you're not going to feel good at all. You're not going to get the nutrients that you need. You're not going to be able to concentrate in school. You're not going to be able to do well in sports or play on the playground. You're not going to feel good even though the things that you're eating taste good.

Nora 18:00

My name is Nora, and I'm five, and I live in Grand Rapids, Michigan, and my question is, why is candy be bad for your teeth?

Jane 18:11

Yeah, sugar isn't great for your teeth, either. Certain bacteria love sugar, and they create something called acid in your mouth when you eat it. Acid makes holes or cavities on the enamel, the outer coating on your teeth. That's why it's important to brush those germs away after you have a treat. Okay, that's it for this episode. Thanks so much to Craig Montgomery at Sticky and Steve Andrianos and Julia Jackson at Hercules Candies. As always, if you have a question about anything, send it to us. We get lots of questions, and we can't answer all of them. But even if we can't answer your question, we love to hear what's on your mind and what you're curious about. You can have an adult help you record you asking a question using a free app on a smartphone or tablet, then have your adult send the file to questions@butwhykids.org if you like our show, please leave us a review or some stars on whatever

platform you use to listen. It helps other kids and families discover us. Our show is produced by Sarah Baik, Melody Bodette and me, Jane Lindholm at Vermont Public and distributed by PRX. Our video producer is Joey Palumbo, and our theme music is composed by Luke Reynolds. We'll be back in two weeks with an all-new episode. Until then, stay curious.