# Part(icles) of Your World: Crash Course Kids #3.2

Physical Science
https://youtube.com/watch?v=npv74D2MO6Q
https://nerdfighteria.info/v/npv74D2MO6Q

[upbeat intro music plays and stops]

SABRINA: You ever hear someone say you look like a million bucks? Well you do, but you also look like a million particles. Let me explain. You and I are both made of matter. I don't mean we matter, like we're important, even though of course we are. I mean we actually are matter.

Matter, as you know, is anything tat has weight and takes up space. And we did a whole video about it. But what is matter made of?

[airy chimes play and stop]

SABRINA: It's made of particles. So you, as a big thing of matter are made of particles. The device you're watching this on is made of particles, your dog is made of particles. Ya get the idea.

Particles are so tiny though. You can't see them. Just picture them as super-small balls packed together to form an object. And how an object looks and behaves which we call it's properties, has a lot to do with those tiny particles that it's made of. Let's take a look.

[bass guitar plays and stops]

You know that most matter comes in three states: solid, liquid, or gas. Particles in a solid are packed so tight that they don't move. And they keep you from moving through it, like a brick wall. Now, don't try running through a brick wall, just trust me on this.

But in a liquid, there's more space between particles. That extra room between them allows them to slide around. That's why you can stick an object into or through a liquid. Like dropping a straw in a glass of soda or wading through a pool of water.

And there's so much space between the constantly moving particles in a gas, that you can move around in them easily. In fact, when you walk from one side of the room to the other, you've walked through a bunch of gases that make up air.

But if something is a solid, will it always stay a solid?

Is a liquid always a liquid?

Do gases ever become non gases?

To find out if matter can change states, let's find examples of when objects properties change. Then we can figure out what's happening to their particles. Here's one, a candle. It's solid right, made of wax? But when you light the candle, the packed particles loosen up and the wax  begins to melt, liquid wax. So a solid can become a liquid.

Now, here's another. Let's say you've got a pot of water on the stove, if you heat a liquid up, it's particles  will move around so fast that they can't hold on to each other. When  that happens, all of the particles fly apart and become a gas, like the steam you see when you boil water. So a liquid can become a gas.

Okay, one more. How about a forest on a really cold night or even on your front lawn. When it's cold enough, water vapour, a gas in the air, turns into tiny crystals of frost, which you see on trees or grass. The free floating particles in the gas join together and form a solid around the plants. So a gas can become a solid.

But my favorite example of state of change? The Wizard of Oz, definitely. Remember when the Wicked Witch of the West melts at the end? She totally goes from a solid to a liquid. Okay, but seriously, what does all of this mean?

[mellow music plays and stops]

An object made of matter can change its properties when it changes states. And remember, it doesn't make a difference which state of matter an object is in: solid, liquid, or gas. It's still always matter.

To sum up. Matter is everywhere. Matter is made of particles. Therefore, particles are everywhere. So, like I always say, "Never trust a particle, they make up everything."

[upbeat outro music plays]