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Where Did I Come From?

heredity, offspring, genes, instructions

Genetics Unit

Children often ask their parents: “Where do babies come from?” The easy answer is that when an egg and a sperm come together, they form the beginnings of a new person. Of course, there’s a lot more to it than that. Scientists have been studying this subject for thousands of years, and some answers have been easier to figure out than others. You may know you came from your parents and that most people look a little like both of their parents. Science helps us to understand all the other interesting things that go into making people the way they are on the inside and the outside.

When you look around your classroom at school, what do you see? You might see friends or teammates or even some kids that you do not know very well. You may all have very different hair colors, heights, or taste in the things you like to eat and games you like to play. However, no matter how many differences you have, you are all children that came from parents. Most people may use the word children, but scientists use a different name to talk about living things that come from parents. **Offspring** are new living things that come from one or more parents. In some living things, like plants, there might be only one parent. A tree can make another tree with one seed that falls from its own branches. Human beings are different because they need two parents – a mother and a father – to make each child.

You may have noticed the ways you look like your parents. Maybe you have dark hair like your mother or brown eyes like your dad. If your grandmother is tall, you might grow to be tall as well. You may look the same as your mother in some ways, but different from her in others. The reason we do not look exactly like just one of our parents is because we get some traits from the other parent, too. Together, both of your parents contribute to you. You are absolutely your own person, but you are more likely to look like your parents, and their parents, than like any other person in the world. This is because all of your traits were given to you by your parents, and theirs were given to them by their parents, and so on. **Heredity** is

the passing of traits down from parents to offspring.

How exactly do our parents give us these things like hair color and eye color? Imagine a really long, thin piece of paper that stretches across your classroom. Write a list of everything about yourself on that paper. That list has every part of you on it and even has directions for how to make each part. Now imagine rolling that piece of paper up into a little ball and sticking it inside of a small bag. Inside that little bag is all the information that makes you what you are. Every one of the cells in your body is just like the bag with the piece of paper inside it. From your skin cells, to your blood cells, to your eye cells, each cell in your body has all of these written directions stored inside.

Your mother's egg cells and your father's sperm cells also have directions stored inside of them. However, those cells each have only one half of the directions that make them who they are. When one of your father's sperm and one of your mother's eggs came together, each gave half of their directions. Together, they created you. Even though you are a completely new person, you include one half of the directions that made each of your parents. That is why you look so much like them. **Genes** are the directions that we get from our parents that tell our bodies what they will look like.

For every single part of us, there is a gene that decides how that part will look. If you have brown hair, it's because the codes for hair color that you got from each one of your parents added up to brown when they were put together. This is the case even for things that will form later, like what your teeth are going to look like or the full-grown size of your feet. You may not know how tall you are going to be when you grow up, but your genes had the directions for your height before you were even born!

Think about your school. How do you think it got there? It didn't just magically appear. It took time and planning. Someone starts by making drawings that show what parts the building needs to have and where they need to go. These drawings are given to someone else who gathers all the pieces needed to start to build the building. That builder needs to see the drawings and measurements to find out what size to make the building, how many stories to build, and how big to make the rooms.

Every single part of the building is connected to all of its other parts. Like that building, you came with a set of plans and directions that work together to build you! **Instructions** tell how to make something and how it will work, just like your genes do for your body. Everything about how you are made is inside of you and was given to you by your parents. So, if you ever start to wonder how big your ears are going to grow or why your hair is curly, just take a look at your family. Your body got the instructions from them!

