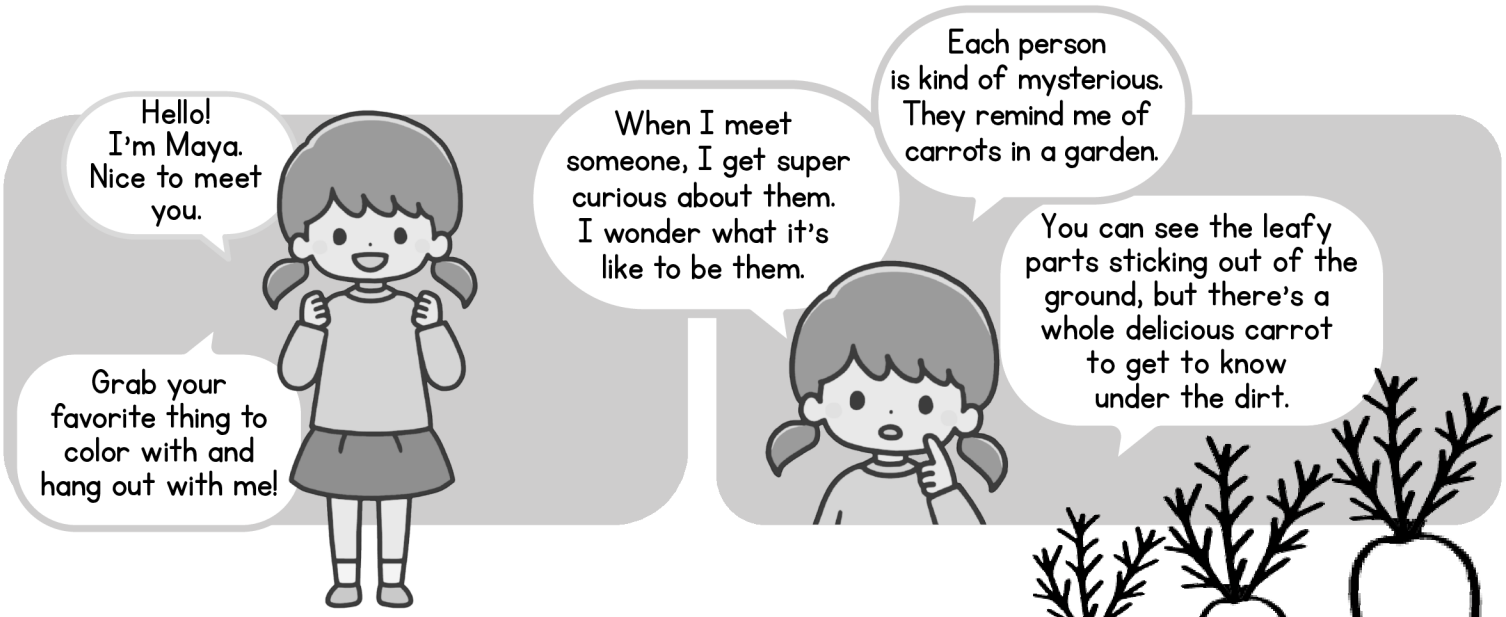
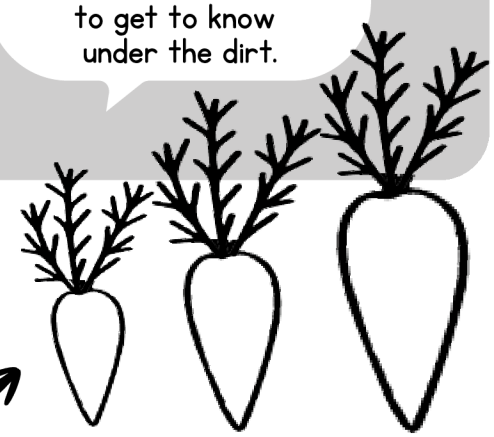
Color to Discover: Curious about Diversity

Celebrate your uniqueness, learn about DNA and the science of skin color!

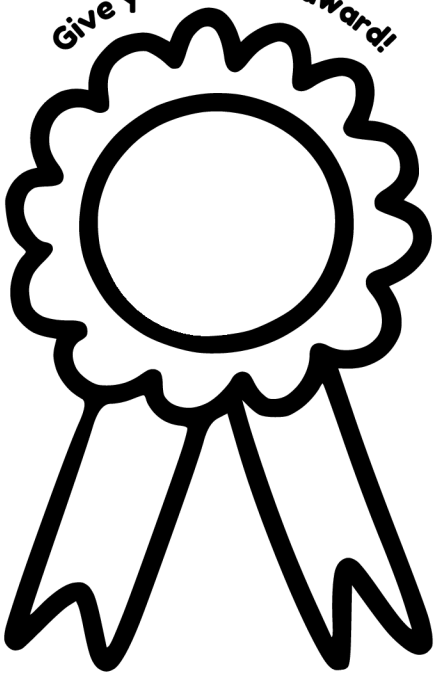


Like, if you just look at me, you might not guess that one of my talents is that I can pick up almost ANYTHING with my toes.



Give these carrots faces! The sillier, the better!

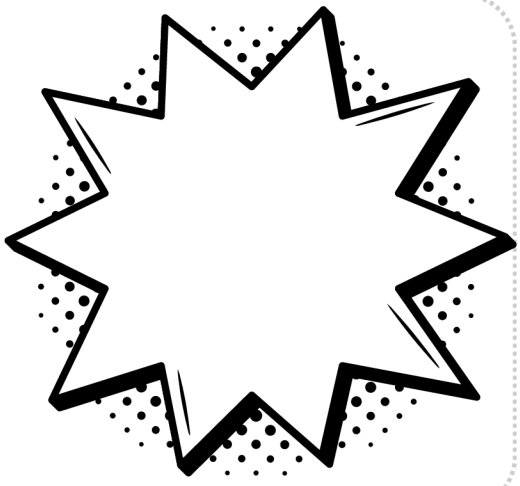
What are your talents? Give yourself an award!



You might not guess that every day on our way to school, my older sister calls me a slowpoke, and I daydream of one day being able to fly right past her.

What superpower do you wish for?

Write or draw it here!



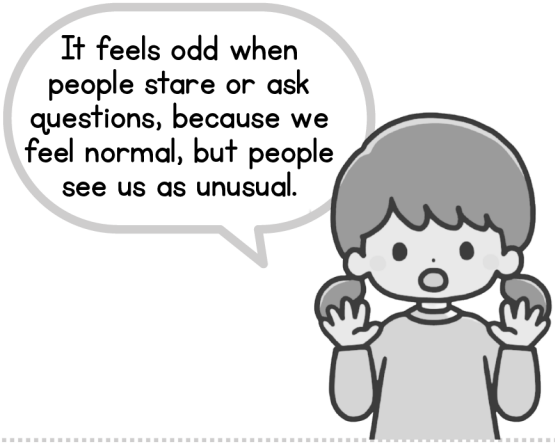
You might not guess that my parents were born on opposite sides of the world from each other, and that when my mom takes us to the grocery store, people get really curious about us.

Partly it's because 5 kids is a lot of kids for one family.

Write or draw 2 things that people might not guess by looking at you!

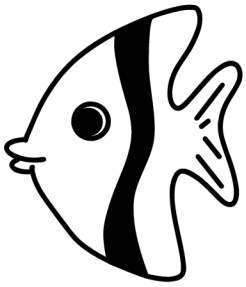
It's also because we don't look a lot like our mom. Don't worry, we're not aliens or anything (though that would be kind of cool).

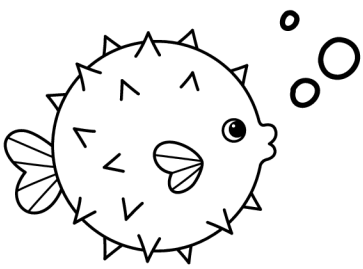
Our hair is a totally different color, and our eyes are a different shape than hers. Even our skin is a different shade than hers. And of course, we all look different from each other.

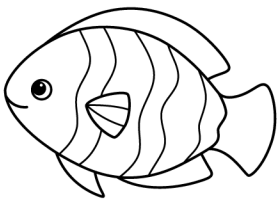


That gets me to thinking about tons of things in the world that have variety.

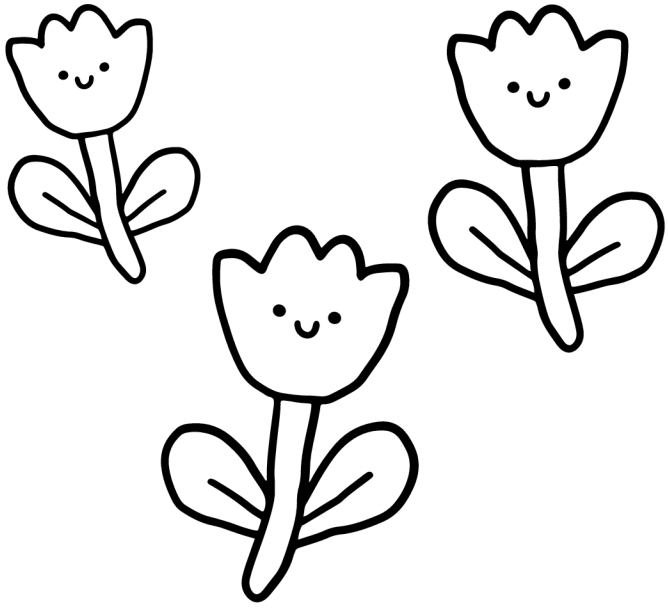
Like, there are so many different kinds of fish.



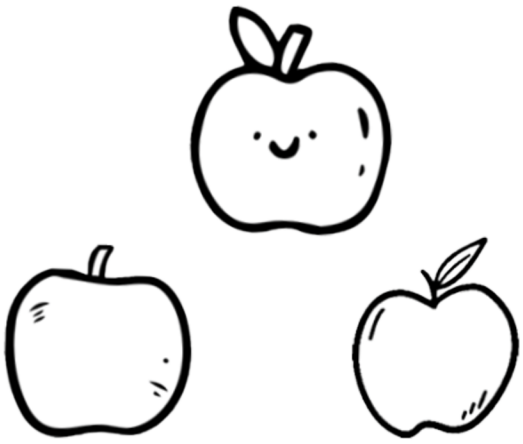




The same kind of flower - like tulips - can come in lots of different colors.



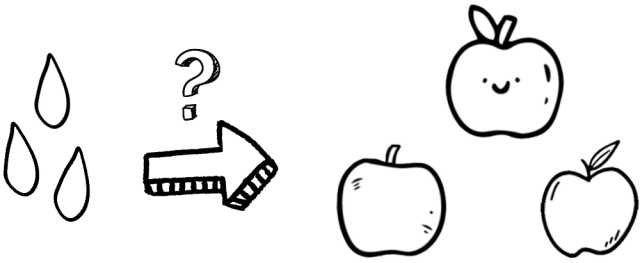
Gosh, even apples have different skin colors, flavors and textures.



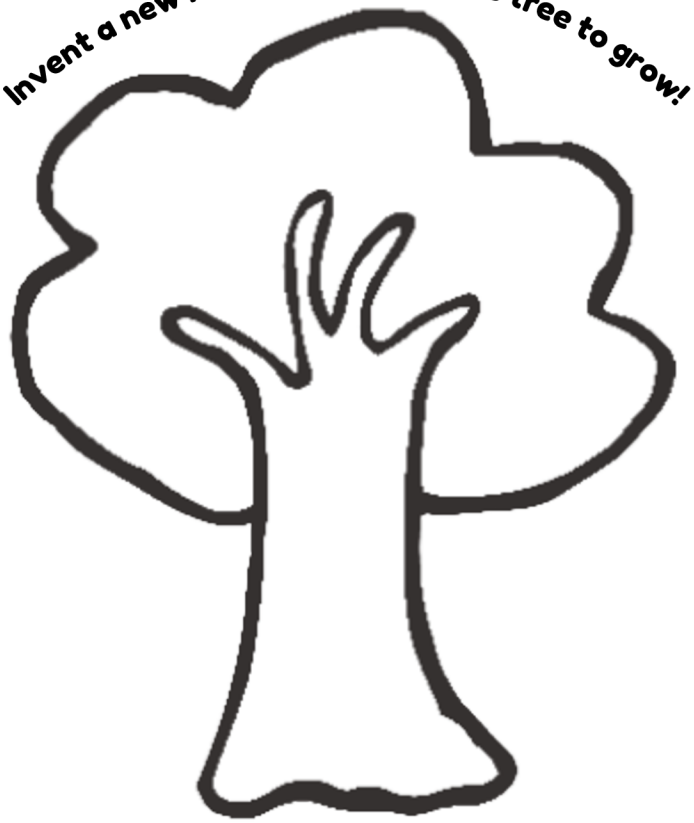
How do you like your apples?

- [ ] A little sweet
- [ ] super sweet
- [ ] crisp
- [ ] soft
- [ ] juicy
- [ ] sour
- [ ] tangy
- [ ]

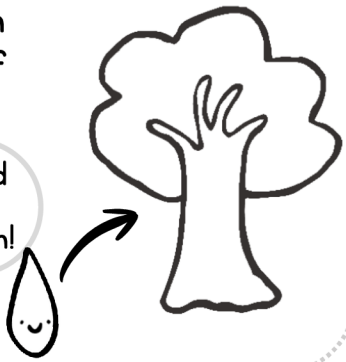
How do the apple seeds know which kind of apple to make?



Invent a new kind of apple for this tree to grow!

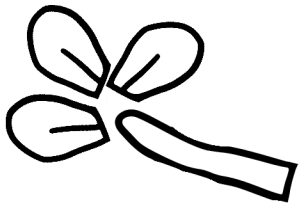


It's wild. Each apple seed contains a baby plant that has an entire cookbook full of recipes for how to make an apple tree.



Once the seed is in a good spot, with enough light, water, and air, the seed opens its cookbook and starts following the recipes.

There are recipes that tell the apple plant how to make roots, branches, bark, tubes, leaves, flowers, sugar, and more!



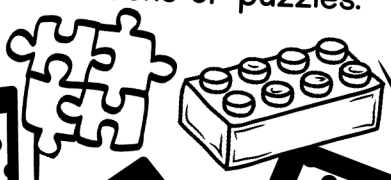
Even apples, which seem pretty simple compared to animals like dinosaurs or octopuses, are complicated!

All living things have recipes - and we all use the same language.

It's called DNA.

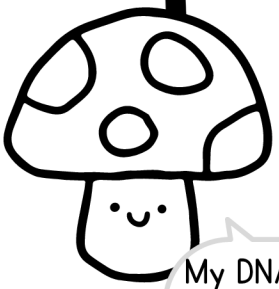
Instead of a written or spoken language, the language of DNA uses shapes to communicate.

It's kind of like a bunch of blocks or puzzles.



Draw some of your favorite animals!

Every living thing has its own cookbook full of recipes and instructions!



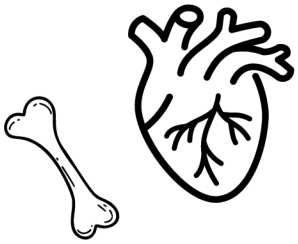
My DNA told me how to grow!

Me too!

Each person has a whole cookbook full of recipes too!

Everything that we can see on the outside like hair and noses and arms...

Plus way more stuff on our insides!



We have recipes for all of our body parts - our heart and lungs, brain, bones, eyes, muscles - EVERYTHING.

YOU have your very own cookbook. You are **unique.**

There's no one else like you!

Draw or write about your favorite part of you!

Draw or write about the music, games, or sports you like.

What makes you laugh?

What do you like to do with your family?

Our bodies are so cool!

Did you know ...

- [ ] Livers can regenerate!
- [ ] Stomach acid can dissolve metal.
- [ ] Laid end-to-end, an adult's blood vessels would circle Earth 2 times.
- [ ] Humans have 206 bones.
- [ ] Our bones are stronger than steel.
- [ ] Smallest organ: Pineal gland
- [ ] Largest organ: Skin

Our Skin

Waterproof!

Keeps germs out!

Helps keep our bodies the right temperature!

Helps us explore the world by sensing temperature, texture, and pressure!

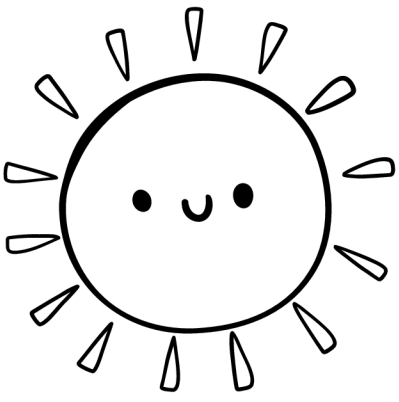
Makes Vitamin D, super important for strong bones, energy, and protecting our DNA.

Our skin is amazing, and it has a bunch of different layers and parts.

Plus, there are at least 169 recipes just for mixing your shade of skin!

Why do we have different shades of skin?

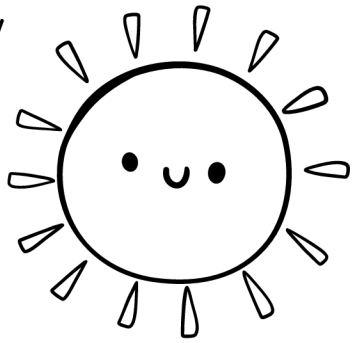
It all has to do with sunlight.



Cool facts about the Sun

- [ ] Sunlight travels about 93 million miles to get to Earth.
- [ ] It only takes 8 minutes for the light to get to Earth.
- [ ] It's about 27 million degrees F in the center of the Sun.
- [ ] The Sun is 20.5 years old (it's traveled around the galaxy almost 21 times).

- Sunlight is super powerful. It's literally sending energy down to Earth.
- Plants need it, and we need plants.
- We also need it to make Vitamin D, important for helping us grow and stay healthy.

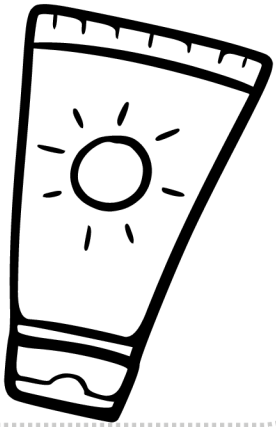


But, sunlight so strong that it can break our DNA, or recipes - and that can hurt us.

So, to protect us from getting hurt from the Sun, our bodies make **sunscreen!**

The name for the sunscreen we make is

melanin.



People with dark skin make a lot of melanin.

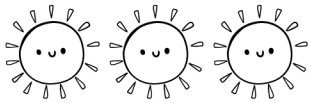
And people with lighter skin make less melanin.

People with really light skin make only a little bit of melanin.

Why do people make different amounts of melanin?

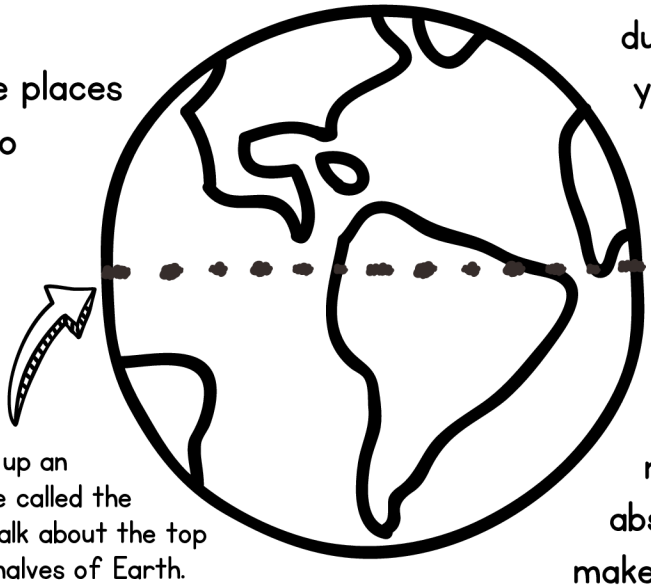
It has to do with protecting our recipes, or DNA, from harmful sunlight, while getting enough sunlight to make Vitamin D, which we need to survive.

Not all places on Earth get the same amount of sunlight.

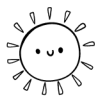


Places near the Equator get a lot of really intense sunlight throughout the whole year.

People living near those places need a lot of melanin to protect their skin, and they still get enough sunshine to make Vitamin D.



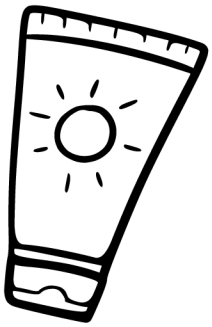
People made up an imaginary line called the equator to talk about the top and bottom halves of Earth.



Other places on Earth don't get much sunlight during some parts of the year, which means it's harder to make enough Vitamin D.

People living in areas that don't get a lot of sunshine don't need a lot of melanin. Having less melanin means they can absorb sunshine more easily to make Vitamin D.

And when people are exposed to more sunlight, like when they travel or they get more sunlight in the summertime, then their bodies MAKES MORE MELANIN to protect their DNA!

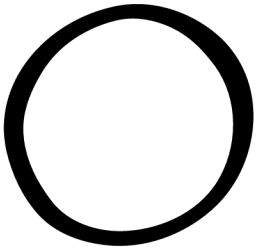


Now that's a superpower!

How much melanin do YOU make?

No matter how dark or light your skin is, your skin is amazing just as it is.

There is no such thing as "too light" or "too dark," too much or too little melanin!



Do your best to color in this circle with the same shade as your own skin!

If your skin makes a lot of melanin (is a rich, dark brown), your ancestors probably lived somewhere near the equator.

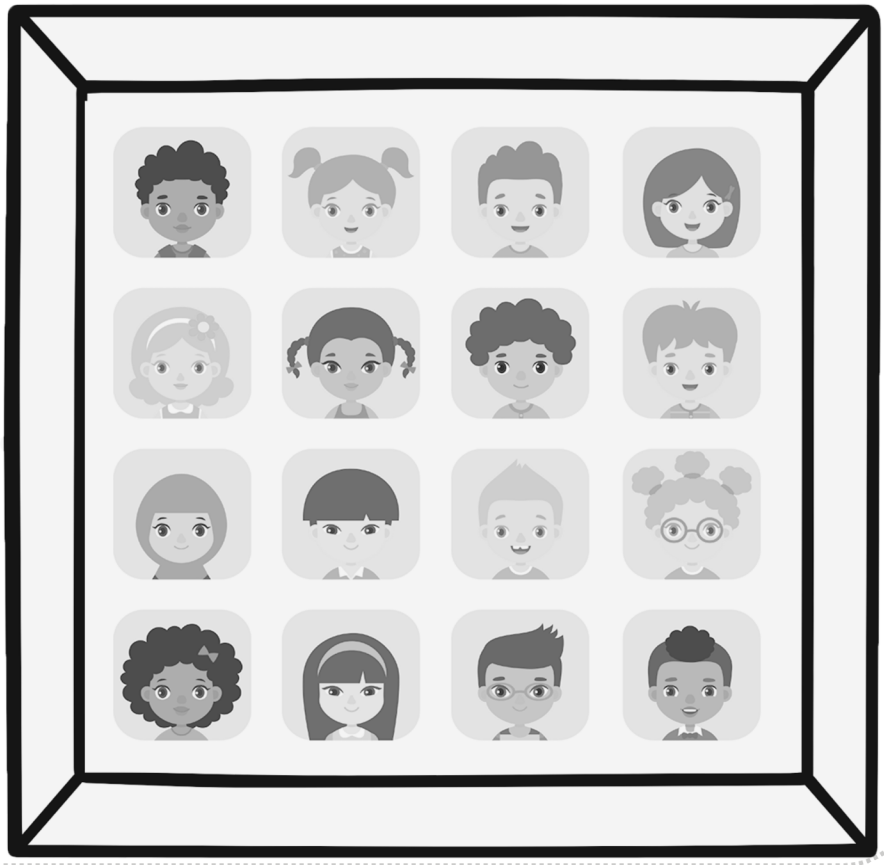
If your skin makes only a little melanin (is a pale, light shade), your ancestors probably lived north or south, far away from the equator.

If you have the same shade of skin as someone else, does that mean you're more related to each other?

Look at this group of kids and take a guess about whose entire cookbooks are most similar to each other.

Use green to circle kids who might be the most closely related.

Use blue to circle kids who might be the least related.



Did you guess – like me – that the kids with similar shades of skin would be more related?

If you did, that makes sense! We learn to group things together by color all the time. That's how we know that green apples are sour.

Even though we can group things like apples by color, people are different!

Each person is mysterious. We can't guess what someone is like or where they're from by looking at them – we have to get to know each other!

Guess what?

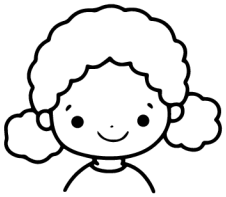
You actually can't tell how closely related people are based on their skin color or how they look.

How can that be?

The recipes for skin color are just a few out of the thousands of recipes we have. We can see the results of these recipes. We can't see the results from the thousands of recipes that make up most of us.

Even if our recipes for how much melanin we make are different, that doesn't mean ALL our recipes are different.

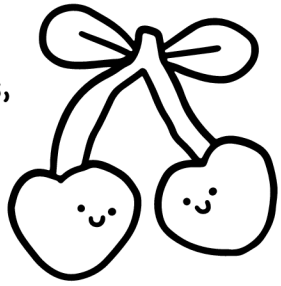
You see, each of us has about 24,000 recipes in our cookbooks.



Even though we all might look different from each other, with different voices, and noses and eyes and skin colors and personalities, almost all of our recipes are the same – 99.5% of them.

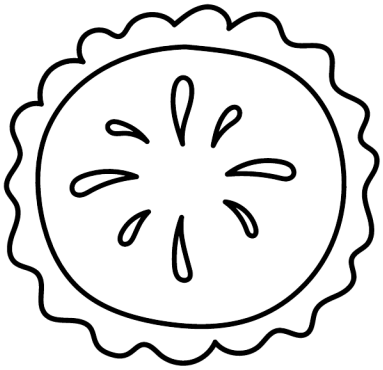
Only a tiny number of recipes, 0.5% of our whole cookbooks, account for ALL the amazing differences between each other that we see and notice.

To help us understand this, let's imagine cherry pies.

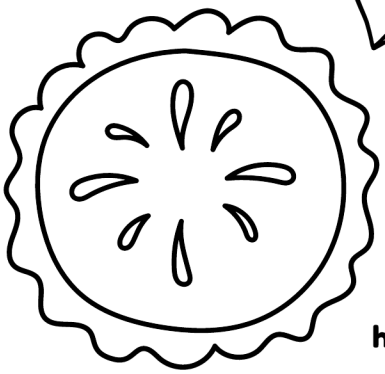


How many recipes to make YOU are different from someone else's recipes?

Imagine a person who looks completely opposite from you in every way. Here's their pie full of their recipes.



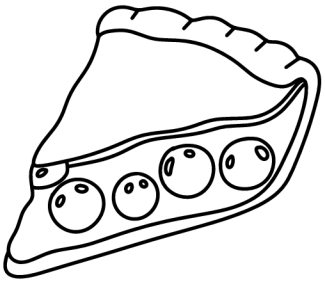
Imagine that this pie represents your cookbook full of recipes.



Take a guess! Imagine how much of your pie, or recipes, would be different from the other person's pie, or recipes.

Color in some of your pie green to show how much would be the same as someone else's and color in some of the pie blue to show how much would be different.

Believe it or not, not even one slice would be different.



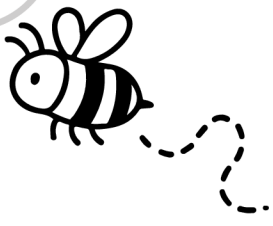
Something like only one cherry from the whole pie would be different. The rest of the recipes, or pie, would be exactly the same.

This might feel really surprising, because we're so used to putting things that look similar into different categories.

It's something human brains are really good at!

Putting things in categories helps me use less energy and think faster!

Yellow and black together mean WATCH OUT!



But when we put people into groups based on what they look like, it isn't helpful or accurate.