

## **But Why: A Podcast for Curious Kids**

Who Invented the President?

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[Jane] This is But Why: A Podcast For Curious Kids from Vermont Public Radio. I'm Jane Lindholm. On this show we take your questions and find people who can help you find answers. We know you have thoughts about all kinds of things: ethical questions, history questions, musings about the world around you, and we love to tackle all of them on this show. So if you have a question get an adult to help you recorded on a smartphone and send it to [questions@but why kids dot org](mailto:questions@butwhykids.org).

This week we're going to go for a walk in the woods and answer questions about these. That's right, leaves. In particular fall leaves and how trees go from green to fiery red, orange ,and yellow.

But first if you're in a family that listens to or watches the news you've probably been hearing a lot of this lately.

[News clips] The campaign of Republican presidential hopeful Donald Trump says... Hillary Clinton isn't the...the campaign of Donald Trump... against Hillary Clinton....tape of Donald Trump....Before we get to Hillary Clinton, just Donald Trump...

[Jane] One of those names might even be coming up at your family dinner table or at school. As we record this episode a big election is just a couple of weeks away. American citizens all over the country and beyond are making their decisions about who they would like to see be the next president of the United States. You have to be 18 to vote in this country so I'm guessing most of you are sitting this one out. But that doesn't mean you aren't paying attention and wondering about the political system we've got here.

[Elizabeth] My name is Elizabeth. I am six years old. I live in Palo Alto, CA and my question is, who invented presidents?

[Davis] This is Kenneth C. Davis and I'm the author of *Don't Know Much About History* and other books in the *Don't Know Much About* series.

And we're so happy to have Ken Davis on the podcast to answer Elizabeth's question who invented the president.

[Davis] What a good and interesting question and it's actually a question I've kind of posed myself: Where did we come up with this idea of the president? There was no other national president before the United States created this office. When the men who

wrote the Constitution in the summer of 1787 in Philadelphia in the same place where a few other men, some of them the same had written the Declaration of Independence 11 years earlier, they had some really big decisions to make as they were creating the new operating system for the American government. Under the existing system which was called the Articles of Confederation, there was really nobody in charge. All of the decisions were being made by Congress which at that time was made of 13 states, each state having one vote and they all had to get together and debate and sometimes talk endlessly about things. So it was very difficult to make quick decisions about important matters.

And that's why the framers of the Constitution, as we call them, the men who wrote this document felt it was very important to create an office where someone could respond quickly to an emergency and make decisions that were outside of the long debate that Congress might have to make.

[Jane] And a person, as you said, who also a government that had checks and balances we often hear that phrase "checks and balances," and so the idea was the president, even though he was elected, was not going to be the only person in charge of deciding the future of the country.

[Davis] This is exactly right. These men understood very clearly that they needed to have a more effective form of government than what the United States was working on from about 1782 to 1787 because it was not a very effective way of government under what was called the Articles of Confederation. So they knew they needed someone who could act quickly with what Alexander Hamilton called vigor and that doesn't mean getting up and running around a lot, but the ability to respond quickly and decisively, especially in a crisis and to be able to negotiate terms with another nation or another group.

So those were the things they wanted him to do but they were also very fearful of giving that office the office that came to be called president too much power. And you're absolutely right. That's why we have a system called checks and balances. The three parts of our government are divided. We have something very important called separation of powers. Each one of those three branches the executive the legislative, which is Congress, and the courts, which is the Supreme Court and all the other federal courts. Each has powers and each and every step along the way one of the other two can prevent one of those branches from taking too much power away.

And we've had a long history in this country of a pendulum swinging back between very strong presidents and very weak presidents. And we're trying to always get the kind of "Goldilocks president" not too strong, not too weak, just right.

[Jane] Ken, a couple of times you have said the word “man” or “men” or “him.” And I want to pause because when you talk about when this country was founded and the men who created this system you're not just leaving out the word “women” because it's easier to say one word. These were all men. There were no women who were involved at that level of power in creating and crafting the Constitution and the government that we have now.

[Davis] Indeed I'm very being very precise when I say “these men” and I could say something further very literally that these were all white men of a certain class in that time period.

[Jane] Basically they were white men with money and land.

[Davis] They were white men with money and land. Most of them were well-educated. I suppose you could call them today, we might call them elites or the one percent perhaps

[Jane] In the 1700s women and minorities had very little political power. They have had to fight to get those rights over time. We also had another question about the president.

[Aiden] My name Aiden and I'm six years old. I'm from Philadelphia, Pennsylvania. My question is what country had the first president and who was it?

[Davis] Well, Aiden has another good question: what country had the first president? Actually the United States is the first country to have a president in terms of the leader of the country. Harvard University, Harvard College at the time, had a president he was the person who was in charge of the college but it was never quite a political term in the United States. But there were presidents in the United States before George Washington became what we call the first American president. This was a title that was used for the man who was sitting at the front of Congress, the man who presided over Congress.

And that really begins in 1774 with a man named Peyton Randolph from Virginia. But in fact he died in 1775 before we even had a United States of America. So we can't call him the first president of America. We're talking about the president as we understand it today of course it's the president who was elected first under the United States Constitution, which was written in Philadelphia in 1787, and created the three separate branches of government that we have today. The executive which is the president the legislative which is the Congress, both the Senate and the House of Representatives, and the court system, the judiciary, which includes not only the Supreme Court but all of the federal courts and other lower courts in the federal system.

[Jane] So all of the countries that now have presidents in some ways have the United States to thank for coming up with that system?

[Davis] Yes, but very few of them have a president in quite the same way that we have it in the United States. The president in the United States is of course the chief executive of the country. Other countries have presidents and it's sometimes more a ceremonial role or a role that isn't quite as powerful as the United States presidency is. So different countries have different definitions of what the president is and what he or she does depending on their own constitution. Many countries for instance have what we call a parliamentary system. It's usually the leader of the party that has the most seats in the parliament who becomes the chief executive the head of the government.

[Jane] That's how it works in Canada, for example, or the United Kingdom.

[Davis] That's how it works in Canada, in the United Kingdom, and that's the prime minister or in Israel. In Israel for instance there is a prime minister and a president, but the president, again, is much more of a ceremonial role. He'd be the person who fulfills many of the functions of meeting foreign dignitaries, of traveling. Sometimes they're involved in negotiations and can be otherwise influential but they do not have the constitutional power that the American president has under our system.

[Jane] There are also leaders with other names. So we've mentioned prime minister and president. You might hear of somebody who's called a premier or a chancellor. So you have to rely on what the rules of the country are to understand what that person does not just his or her name or title.

[Davis] That's exactly right. Every country has its own, for the most part, its own constitution and set of rules for how the country is governed, how the government functions. Very many of those constitutions have been modeled in part on the United States Constitution which is the oldest existing constitution in use today, but many other countries which have written constitutions since 1787, have said well the Americans did it that way but we're going to do it slightly differently. And that can relate to how they elect their leaders, who has the power in the country. So the United States system is still somewhat unique in many respects.

[Jane] Thank you so much to Kenneth C. Davis for answering our Presidential Questions. He writes books for both kids and adults in his don't know much about series. He's written a lot of books about a lot of things. So you would think he might be an expert in almost everything by now. But like many of you Ken Davis is still a very curious person.

[Davis] I always like to say when you don't know much, ask and there are certainly subjects I don't know much about. And I also feel like if I go through a day and I haven't learned something it's not a good day. So I think the most important thing understand is that questions are really important. Asking them and then looking for good answers. And that's what I've tried to do in my career. And I like to answer a new question every day.

[Jane] His most recent book which is just out is called *In The Shadow of Liberty: The Hidden History of Slavery, Four Presidents and Five Black Lives*. It's written for about the sixth grade reading level.

[Music Break]

[Jane] Something is happening in the northern hemisphere. If you've been on a walk in the woods lately you've probably been hearing the familiar bunch of colorful fallen leaves underneath your feet.

[Bella] My name is Bella. I live in Chicago. I'm seven years old. I want to know why leaves only change in fall and they stay green in the summer and spring.

[Liam] Why do leaves change color in the fall?

[Tallulah] Why do leaves change color like red orange, even pink?

[Emma Jane] Why do leaves change color in the fall?

[Jane] That was Emma Jane from Shreveport, Louisiana. And we also heard from Tallulah in Weybridge, Vermont and Liam in Burlington, Vermont. Leaves turn in a lot of parts of the world but here in Vermont, where we make this show, we take fall foliage very seriously. So we were delighted but not surprised to get lots of questions about leaves from our fellow Vermonters. For some answers, we met up with this guy.

[Snyder] My name is Mike Snyder. I'm the Commissioner of Vermont's department of forest Parks and Recreation.

[Jane] Mike got his start as a forester.

[Snyder] Foresters are the professionals with extensive knowledge and experience about our forests and our main job is to take care of forests, and to help people interact with forests and healthy and sustainable ways.

[Jane] Before Mike could tell us why leaves turn bright colors in the fall, you have to understand why leaves are green in the first place and that's what Kyle wanted to know.

[Kyle] I live in California, I'm seven years old. Why are the leaves green?

[Snyder] This is the most important question because we benefit so much by the leaves being green. All green plants are green because they contain a pigment, which is a chemical that makes a color. The chemical is a very important part of what goes on in leaves that allows leaves to make their own food. Chlorophyll is the chemical within the leaves that not only makes it green but allows it to harvest sunlight and use that with water and minerals from the soil to make food for themselves, starches and sugars that they use to grow and live. And it really it's that process of photosynthesis is based on chlorophyll being formed in a leaf. And when it's formed in the leaf to allow that making of one's own food it just happens that it looks green.

It is actually reflecting the green wavelengths from the sun. The sun is transmitting electromagnetic radiation onto this planet and which we all receive. It is a beautiful sunny day, that sunshine has many different wavelengths of light. It's absorbing light of the blue and red wavelengths in the process of photosynthesis and reflecting green. And that's what our eyes picking up on. That's why it looks green to us. It's the reflected wavelengths of light from the chlorophyll within the leaf that look green to us.

[Jane] OK so the leaves are green when they're making chlorophyll. That's their food. So what's happening in the fall?

[Snyder] We know a lot now about the science of fall foliage and the colors and why and how they develop. I want to be clear that we don't know everything and some of the magic in the mystery of it still exists. That said much of the science that's been conducted right here in Vermont has helped us understand the process. Why do the leaves turn color in the fall? First remember not all of our trees have leaves that turn color. We have some trees that are called evergreens because they remain green throughout the year. Our spruces and pines and firs and cedars. The rest of the trees, what we call hardwoods or broad leaved trees, they don't keep their leaves on through the winter.

So this is the key as the summer turns to fall, we notice the days are getting shorter the amount of daylight, the trees can tell time that way too. And they are triggered by the shortening day lengths to say but we've got to get ready for winter because we're going to drop our leaves. Well, they spent all summer building that leaf, creating the chlorophyll and the leaf and refreshing it on a regular basis. That's an expensive kind of machinery. And they've invested a lot in it. So this is a way a sort of recycling that the tree does. As the days get shorter the tree kind of knows it's time to prepare for winter. One of the first things it does is it stops making chlorophyll. That means the green color fades and what that does is it unmask a couple of other colors that were there all along but were overwhelmed by the green from the chlorophyll. These pigments the carotenoids and xanthophylls are producing yellow and orange colors. And so when the chlorophyll stops being made the green color dissipates and that kind of unmask the

yellow and orange colors. Then as the fall progresses and we get some cool nights, not freezing, but cool it triggers yet another pigment. The anthocyanins pigment, another chemical that creates the red colors that happen later as the tree is advancing towards closing down for winter.

As the reds begin to develop during the fall season another process is happening where the leaf is actually forming a boundary between where the leaf attaches, the leaf and the twig, where it attaches to the twig and that's signaling kind of the last roll for the leaf before the wind or rain might blow it or push it off the twig. The reason they want to drop the leaf is that these broad-leaved, like maples and beech, Elm, birch, and Cherry, their leaves are not as tough as an evergreen leaf and can't withstand snow and ice so if they were to keep their leaves on during the winter it would really damage the plant. And again all of it is about the tree knowing that it needs to -- you can't run to Florida for the winter -- it's going to be here for a Vermont winter --and if it wants to be as prepared as possible so it shuts down the leaf. The green color fades. The other colors emerge and then eventually the leaf falls and the tree is not dead it's dormant. It's slowing down it's not going to be producing any food for the winter it's going to live on what it has stored during the summer. But then the leaves for next year have all been packed away in a bud, in all the different buds throughout the twigs.

The next phase is next spring after a long winter when the days begin to get longer again and the temperature starts to rise. The tree says "time to wake up, time to get back to work." Those buds open up and leaves, new leaves for next year, emerge that were created this year. In some cases and then they make new ones as they developed in the next spring. That's called bud break. And when the winter ends and the buds on the trees break in new leaves emerge there's also a period of color that happens then because it's a transition time between winter and summer and you see particularly a nice red hue to those early leaves, as the buds are breaking and before they green up so we have kind of two seasons of color. The fall season of fall foliage is the most famous because, well just look around and for those of you on radio, trust me it's beautiful.

[Jane] Vermont likes to think it owns fall foliage. It's something the state is very proud of. But Mike Snyder says you can probably see colors near you wherever you are too.

[Snyder] Wherever there are broad-leaved, deciduous trees, the ones that have these tender leaves that can't remain through winter, and the seasons, indeed you have leaves changing color. Vermont is heavily forested, about 75 percent forested and we have very relatively healthy forests. And because of our varied topography and the climate here and the land use history, we do believe that it's the world's best foliage.

But sure other states have trees that turn colors and it's beautiful there too.

[Jane] Let us know what you like to do with fall leaves : do you rake them up and jump on them? Do you use them for art projects? Send us a picture send it to [questions@butwhykids.org](mailto:questions@butwhykids.org).

Thanks to Mike Snyder and Kenneth C. Davis for answering questions today. And thanks to you guys for being such wonderful curious beings. We'd love to hear more of what you're thinking. You can record a question on a smart phone with the help of an adult and send the file to [questions@butwhykids.org](mailto:questions@butwhykids.org).

Let us know how you're making sense of this year's presidential election and anything else that's on your mind. And if you like this show would you give us your review in iTunes?

We want other families to discover the podcast and those reviews helped keep the show front and center. Plus we want to know what you like and don't like about the show. But why is produced by Melody Bodette and me, Jane Lindholm, from Vermont Public Radio. Our theme music is by Luke Reynolds. We'll be back in two weeks with an all new episode. Until then, Stay Curious!