Why Geology?
Podcast Active Listening

Teacher Guide
Using a podcast with your students can be a great way to get some other voice and perspectives into your classroom. You can do that in a number of ways - either have the entire class listen to a podcast that you play over your classroom sound system, or have students listen to the podcast on their own devices. Either way, you can also just have the class listen and then pose them a number of questions to reinforce the lessons in the podcast, or have them involved in an 'active listening' activity, which is a set of questions they read before they listen and answer while or after they have finishing listening.

This episode
This episode covers the following concepts:

Why did a geologist get hooked on geology?
What are the four reasons geology is important?
- Understanding the past is the key to the future
- Understanding how geology influences food and water
- Understanding how geology affects resources and energy
- Minimizing the risk to humans of natural hazards.

How can you get involved in geology activities

The full transcript of the podcast is at the bottom of these notes.

How to listen to the podcast

You can find the podcast here : https://tinyurl.com/rs9sk3b

Or scan this QR code

GEO etc
www.geoetc.com

My thanks goes to Chris (Fez) Ferry for inspiring this activity concept.

STUDENT ACTIVITY

Why Geology?
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Read through the questions so you know what information you are needing to capture.

Question 1. What were the two things that Gary suggests influenced him into becoming interested in geology?

Question 2. What are the four reasons that Gary gives for why he thinks geology is important?

Question 3. What is the advice Gary gives to people wanting to start out in Geology?

Discussion

Which of the four reasons Gary gives for why geology is important do you think is the most important and why?

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Why Geology?

Podcast Transcript

[00:00:01] Hi, everyone. I'm Gary Lewis and welcome to the GEO podcast. In this episode, I'm going to be talking about why geology? Why is it important? And what is the hook that got me so interested in all things geoscientific?

[00:00:22] Just where to start? Okay, look, let me talk about why I got involved in geology. So I guess I want to start by saying that there was nobody in my family who were geologists or even had jobs related to geology. But one thing my family did when I was a small kid was go on holidays a lot. My dad was a surfer. And so we spent a lot of time at the beach. My brothers went out with him, but I really wasn't interested in surfing. So I spent a lot of times looking at the rocks on the headlands from where my dad was surfing. And I guess that's where my first interest started. I'd pick things up, not know what they were, and really wish I could understand what I was looking at. And then another influence was my grandfather once or twice. My grandfather decided that he wanted to go and find our fortune's gold panning. And he and I and sometimes one of my brothers would get in his VW Colby van and we drive over the mountains for him, our home in Sydney, and we would go looking for gold in what was the historic Goldfields area of Sofala and Hill End. And I loved that time with my grandfather. He wasn't a geologist or an expert, but the idea of camping by a river when there was nobody else around and then going and seeing whether we could find gold in the creek just using a gold pan was a real hook for me.

[00:01:55] Gold panning in Australia even as a kid meant you would find some color in the bottom of your pan. And I've gone panning here in the United States and really struggled to find anything that I would look and say, “hey, there's true gold”. And as a kid I became really good at gold panning and even my own children are really good at gold panning. But that's an aside.
So I guess from going on holidays with my family and looking at the rocks around rock platforms at the beach and then my grandfather dragging us out to go gold panning. That is where my hook for getting involved in geology really started.
So if I scrub all the family site away, I think what it boils down to is I got really interested in collecting things, collecting rocks and fossils from the rocks where we used to go on

holidays and then with my grandfather collecting minerals and gold when we went on his camping expeditions into the Goldfields in Australia. And I am sure that there are many of you who are listening who are really interested in collecting and would love to learn more about geology, to understand what you're looking at. And I'm sure there are some people who are listening who have to teach geology or earth science in the classroom and want to learn how to make it more exciting for their kids.

[00:03:17] Or maybe you're about to embark on doing some geology or geoscience at university or college and want to find out more. What's it really like? And maybe you're here for some other reason. And I'd really like to find out why.
But for now, I want to come back to the original question that I thought about talking about in this episode, and that is like, why geology?

Why is geology important and why is it such a fascinating thing to get involved in? So for me, there are four reasons why geology is really important. Maybe you have different reasons, but these are mine. The first reason is about understanding the history of the Earth so we can better understand what's going to happen in the future as people come more aware of the impact of climate change in our planet. Understanding how the planet has dealt with catastrophes like this in the past might actually help us moving forward into the future. So understanding geology and all of the big processes like plate tectonics is really important for us to understand how our planet has changed over time and what might take place in the future. Now, for some, that's a real academic reason why geology is important, but we really need to understand that geologic layer.

[00:04:44] Whenever we talk about any major science impact that's taking place to our planet. So I honestly believe that you can't understand the biology of the planet without having an understanding of the layer of the geology below it. And it doesn't matter if you're talking about the crops that we need to grow to feed ourselves, whether it's the water resources we're going to need to provide drinking water as well as agricultural water to folks. It doesn't really matter whether you're talking about changes to the atmosphere or talking about sea level rise. All of those things have a geologic component that really needs to be understood to understand the full picture. So to me, it's really important that we understand what's happened on our planet in the past so we can understand what's going to take place in the future. And that may be the geoscience world may have some answers or at least part answers to the solution of how we deal

with things like climate change. The second reason is really about resources. The two things that humans really need to be able to survive is going to be food and water. Food grows in soil and we need to have an understanding of how the soil system works. And the soil is developing on top of the geology. So understanding the geology will really help us to have a greater understanding of the soils.

[00:06:14] And in fact, soil science really is part of the geosciences as we know it. And sometime in a future episode, we'll talk more about soil.
Add to that a water resources. You know, a very small percent of the water on earth is fresh that we can drink and sustain humankind. And as time goes on, we are doing things on our planet that put those things at risk. More importantly, the vast majority of those freshwater supplies actually occur underground. Groundwater supplies, water that is in geologic layers that we want to be able to tap into to keep our water supplies going, to keep society alive. So, understanding geology is about those types of resources on top. Those resources we have the resources that we need to keep our society rolling in, the style to which we're accustomed. So every single thing that we use on earth has come from minerals, whether it's the toothpaste that you clean your teeth with or the metal in your car or the gold and rare earth metals that we need to keep our phones, our smartphones and our computers running. We require those resources as well. And all those resources have come from the earth. Those resources aren't just conjured up. And humans can't just create those resources. They've got to take something from the earth, which mostly means mining and then adjust the substance into a form that we want to be able to use.

[00:07:47] So geology is really important if we want to sustain the lifestyles that we're all accustomed to, because the vast majority of those resources cannot just be reused and renewed, but new resources need to be added.
So that really brings me to the third reason my geology is important, and that is really understanding the resources that we need beyond water in the soil. So, where minerals found. How are they concentrated? How can we extract them? How can we do so and not create an environmental disaster for the planet? And likewise, not only just the minerals that give us metals for building things, but we also need to think about those resources that come from the earth that provide us energy. We're currently in a phase of our society that relies very heavily on the fossil fuels and the fossil fuels. Oil and coal really provide the energy that drive our society. But as time goes on, we're using more

and more of the alternative energies. But those also require things from the Earth. So our wind generators, for example, requires rare earth minerals and elements from the earth to create the magnets that are used within those generators. Likewise, solar cells in solar energy require us to be able to obtain high quality, pure silicon that the cells can be made out of. So, no matter what energy source that we use, eventually we are going to be using materials from the planet.

[00:09:27] I'll also put a plug in here that environmental geology is so important as well. And that is understanding when we extract those materials. What we need to do to make sure that the environmental impact of taking those minerals from the earth is minimized and the whole field of environmental geology is expanding as more and more companies realize their obligation to make sure that environmental concerns are always met.
The final thing. Why geology is important is for human safety. There are lots of hazards on this planet that are caused by geological phenomena like earthquakes, tsunamis, volcanic eruptions, landslides, just to name the big ones. And understanding those is the role of a field of geology that involves natural hazards. So, geology is important to understand these hazards and to be able to help us predict and therefore minimize the risk of people that live in areas that the risk is high.

So just to recap, the four reasons I think geology is important is, one, understanding the history of the geology of our planet so we can better understand what's going to happen in the future. The second is being able to find and look after our water and soil resources. Again, role of geology there. The third is being able to sustain our society's need for resources, minerals and energy in particular.

[00:11:05] And the final one is to understand the natural hazards caused by geological processes, volcanoes, earthquakes and armies, etc. so we can minimize the risk to humankind.

[00:11:18] So I've been rambling on about why geology is important and why I got involved in geology, but I want to end this episode to talk about why you can get involved in geology. You know, you don't need to have a degree from a university or college in geoscience or earth, science or geology to get involved in geology. And that's what makes it so cool. I am continually amazed at the knowledge that some groups, like

the rock hounds out there, have for minerals on the planet, just their experience of going out and collecting minerals over time. Not only do they provide a huge knowledge base of minerals, they're naming what they look like, what they're associated with, but also an understanding where they found that mineral gives them a greater appreciation of our planet and the minerals that it contains.

[00:12:11] And the vast majority of the people that I bump into when I am out rock hounding, if you like, are people who have never been to university or college. And yet their knowledge of the minerals and the mineral systems is far, far greater than I would ever imagine that I could have. And if you're just starting out in the world of rock counting and collecting, or you're just starting to learn about geoscience because you go into college or you have to teach it in a classroom, then there are still great ways that you can learn about geology by wandering around and looking at the rocks that you've got around you right now.
You know, one of the things that people often say to me is, you know how fortunate you are that you've managed to be able to travel to places around the world to see amazing geologic sites. I have to admit that I have been very, very fortunate. But it was the rock platforms that I wandered around to as a kid when I was on holidays and the rocks around my home and the rocks when I went down into the local creek and played as a kid. They're the ones that really started me off. It wasn't the rocks in Hawaii or Iceland or wherever I've been to collect, but the local stuff that got me hooked.

[00:13:24] So my advice to people who were just starting out with an interest in geology is to learn a lot more about the stuff that's already around you before you're worrying about going further afield. I also encourage you to go and join local rock collecting or Minerals Club or go and do a course at college or read materials that are on the internet like what you'll find at GEOetc.com and really get yourself involved in immersed with other people who've got more knowledge than you and ask lots and lots of questions and never, ever, ever give up your passion for things of the planet.
If you know nothing about minerals, ask questions. Learn about the things you need to do to identify a mineral like finding out its streak and its hardness. Learn these skills and keep on collecting. Because as we say in geology, the best geologist is the person that's seen the most rocks. And likewise, the person that's seen the most rocks and collected those rocks out in the field are going to have a greater appreciation of how geology affects our planet.

So I guess I've been rambling a lot today, but I wanted to give this like overview of what this GEO podcast is going to be about. And in future episodes, we're going to cover topics that are as basic as rock classification.

[00:14:36] But we'll also look at things like specific minerals and talk about specific geological environments like volcanoes. And why do earthquakes take place and why are there tsunamis in some parts of the world and not others? And we're going to look at all of those things as well as trying to provide you with the skills to get involved in things geological around your own backyard, school ground or wherever you happen to roam. So I can't thank you enough for bearing with me and listening to this preamble and rambling of an old Australian geologist.

And I hope that you will come back and find more episodes as we develop more and more of this GEO podcast.