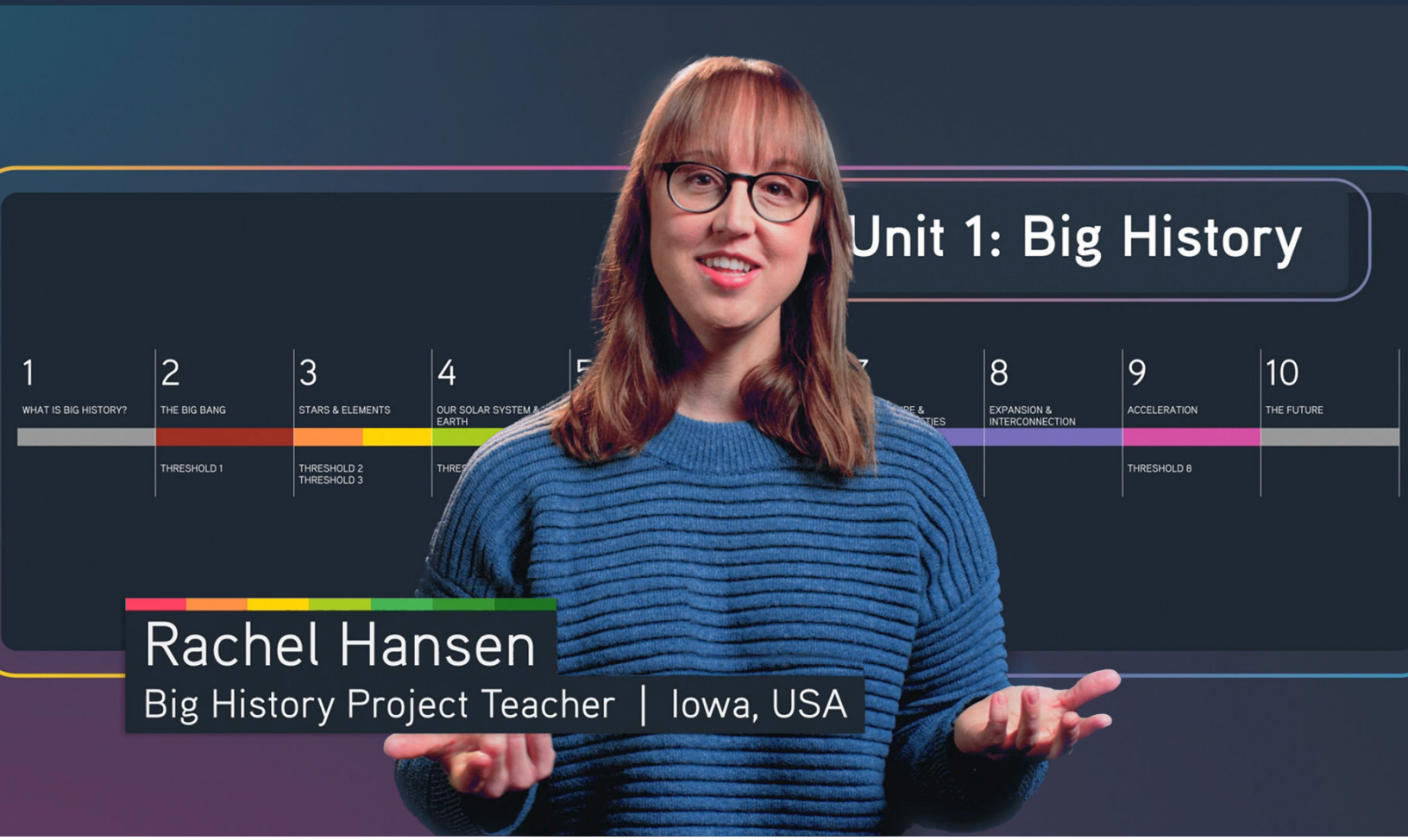

BHP Unit 1 Overview | OER Project

Why should we study the history of the Universe? How is the Universe really connected to human history? What do scale switching, thresholds of increasing complexity, and claim testers mean? And why am I studying science in my history class? These are all important questions, and Rachel Hansen, our guide through the Big History course, has all (well, most) of the answers!

0:13

Geometric animation over image of the night sky.

Where do we come from? Where are we going? Who are we? If you ever looked up into the sky at night and asked yourself any of these questions, you're not alone.

Host Rachel Hansen.

I don't have all the answers, unless your question is "Who is that?" which I totally know. I'm Rachel Hansen.

Course timeline with ten units and the text "Unit 1 Overview".

And while I can't predict the future, I do know that you'll be seeing me nine more times this year in each unit overview to learn about something we call Big History.

Images of ancient ruins and of pyramids.

Ever since we developed language, humans have been telling each other stories about the origins of the world and our place in it. These origin stories all try to do something similar, they seek to tell the listener that there's some sense to it all, that the universe has structure, and that we fit into it.

1:00

Text "Historical Narratives"

Different people tell many different stories about the past. In the Big History Project we call them narratives. Depending upon what your evidence tells you and which elements you highlight your narrative will change. There's no single story about past events that can tell us everything.

For example, think about the last time you had an argument with a friend. Afterward, did you both agree about who was right and who was wrong? Did you both remember your fight the exact same way? Did you both bring up the same evidence to show that you were right? I'm guessing probably not. I'm guessing you both had two very different narratives about that past event.

1:44

Text "Big History Project", "13.8 Billion years of history".

That's a small example, but in Big History we have a really big narrative about the universe and our place in it. It starts 13.8 billion years ago with the big bang and continues into the distant future.

To support this narrative we'll be using a lot of historical evidence but our narrative starts long before humans even existed. So we'll often look to science for our evidence.

Text "10 Units","8 Thresholds of Increasing Complexity", "Thresholds".

Our course is divided into 10 units you'll see me in an introductory video like this at the beginning of each unit. But the narrative of this course is also marked by eight thresholds of increasing complexity, or just thresholds.

I know! Ten units?! Eight thresholds?! What?!

Course timeline with ten units.

But just think of it this way: the ten units are like chapters in a book. They divide the big history story into blocks of time that will help us organize things.

Text of Thresholds definition.

The eight thresholds, on the other hand, are crucial turning points in the big history narrative when something really big changed.

Graphics for each thresholds flash on side of video.

Something like the sun was born or living things exist now. Some units have multiple thresholds and some have none. As we move through the 10 units of this course we'll explore these eight thresholds of increasing complexity as we try to understand how we got to where we are.

3:07

Text of student questions appear before images of Neil DeGrasse Tyson and of a statue of [insert scientist].

Oh! It's time for questions from the audience! Which is weird, because this is pre-recorded. The first question is What's all this science doing in my history class? And this one says Why do i have to learn history to understand astrophysics? Two very good questions from two very inquisitive students.

Text "How do we know what we know?", "How has that changed over time?"

Well, in these ten overview videos I'm going to help you answer both of those questions. As we move through the course, I'll help you understand how we know what we know. And we'll also investigate how people living in many periods have changed and deepened their understanding of the universe and everything in it. That's the history part.

3:53

Close up image of the sun.

And yes, okay, for a history class it might seem like a lot of science talk, but it's still history! Science might seem like an unchanging story. Stuff like, the law of gravity sound pretty darn permanent, and historians can't change how gravity works.

Host drops marker to the floor.

Every time.

Video of crowd of people walking.

But, our understanding of gravity can change because we're humans. We've got these squishy little brains filled with funny ideas and nagging questions. How humans understand and explain the world around us changes all the time.

Image sequence of astronomers throughout history.

And it's changed a ton in the last few thousand years. Reshaping how we interact with our world and the stories we tell about our place in it.

Image of five satellites.

That's why history and science go together like peanut butter and jelly or like flannel and Fridays.

4:46

Image sequence of different things in the universe.

We think you'll understand humanity's place in this universe better if you learn how we fit in with all the supernovae black holes, quarks, and chemical compounds that make it up.

Images of cave paintings and a telescope.

But we also think you'll understand all those sciency bits a little better if you understand the history of human thought. From how our ancestors explain the origins of their world to the scientists using a telescope the size of a school bus to peer back in time at the explosive origins of our universe.

5:15

Text "Unit 1 Preview" Images of a galaxy and an atom.

In Unit 1 you're going to learn about some big stuff. But you're also going to encounter some teeny tiny stuff like atoms and molecules.

Video of satellite map zooming out to image of earth and zooming in to original map image. Text definition of Scale Switching

So, you'll need to learn how to zoom out to identify big patterns and zoom back in to comprehend smaller changes. That's called scale switching, and it's an important tool in your historian toolbox.

Different header images and articles from Unit 1 flash on screen.

Next, you'll dive into some narratives that people in the past have used to explain the existence of life, the universe, and everything.

Text definition of Origin Story.

You'll compare these ancient origin stories with the modern scientific origin story offered by Big History.

Video of Bob Bain above text "Historian Bob Bain".

Finally, you'll meet historian Bob Bain, who will introduce you to one of the most important tools of a historian: claim testing.

Claim Testing graphic.

How do we know what we know? And how do we choose which narratives to believe? You'll learn how to use intuition, logic, authority, and evidence to evaluate claims made by others.

6:18

Understanding chemistry, astrophysics, forensics, archaeology, and a bunch of other schools of thought will give you more evidence to examine historical claims. That's another reason we've put all this science in your history class.

Host holds a paper clip and an animated paper clip spins on screen.

Some historians think of history only in terms of recorded history, meaning that it started only five thousand years ago when we started writing things down. But look at this. This paper clip represents five thousand years. That's all recorded history. All the clay tablets, Egyptian hieroglyphics, Greek plays, Chinese philosophy, all the religious texts ever written, all your favorite novels, all the social media posts.

Text comparing paper clip to length of time.

It all fits in these 5,000 years. In this one inch.

Get ready for some scale switching.

7:06

Host holds a paper clip chain alongside text comparing paper clip to length of time.

I would need 50 paper clips to get to 250,000 years, which is how long our species has been on the planet. To represent the 4.56 billion years our planet has existed, I'd need over 14 miles of paper clips.

Images of Manhattan.

That's longer than the island of Manhattan!

Text comparing paper clip to length of time alongside image of Delaware.

And to reach 13.8 billion years, the age of our universe, my paper clip chain would stretch 43.5 miles, stretching across the state of Delaware and into the Atlantic Ocean. That's an awful lot of time that recorded history leaves out.

7:48

If we only pay attention to what's been written down, we lose a lot of the rich diversity of human experience. We also miss the connections between our universe, solar system, planet, and us. Comprehending the origins of the universe requires the tools of chemistry and physics and a bunch of other disciplines. But we'll also need the tools of the historian like scale switching and claim testing if we're going to understand how we know what we know and why that matters.

Host holding a chain of paper clips. Lights in studio flash on and off.

Okay that's 1,000 paper clips just 2 million 759,000 more to go to get to 43 and a half miles. It's gonna be a long night.

Animation of several paper clips plays behind Rachel Hansen.

Lights in studio turn off and on.

Hey! I'm clipping here!

Animation of paper clips plays behind host.

What?! We can do the paper clip thing with CGI?! Well, that would have been nice to know about 999 paperclips ago. Wish I had a time machine.