

THIS THRESHOLD TODAY – THE BIG BANG

Purpose

In this activity, students will read news articles that reveal unexpected connections between today’s world and the Big Bang to understand how things we learn today are related to what we know about the Big Bang. Understanding the relevance to today should help students engage more with the theories related to the Big Bang, which are sometimes tricky.

Practices

Reading

As part of this activity, students will be reading news articles from the internet. These will be of varying levels of difficulty and varying styles, so, where possible, have students use the skills they’ve learned as part of the Three Close Reads process to help them better understand these texts.

Process

Remind your students that out of the Big Bang came everything in the Universe. All of the matter that formed Earth, all of the materials that formed the stars and galaxies that light up the night sky, and all of the building blocks for everything in the Universe were once contained in a tiny singularity. Even space and time as we know them emerged from the Big Bang. All of these details help to explain why the Big Bang is considered the first “new complexity” in the Universe and the first major threshold of increasing complexity in this course. Scientists, along with the rest of us, continue to learn more about the Big Bang and how our Universe formed.

Your students can join in this process of discovery by searching for new stories about the Big Bang and the history of our Universe. Have students use some of the suggested articles or find ones on their own that highlight new information that they think contributes to a discussion of the Big Bang today. The articles listed in the activity have been vetted for their credibility; however, it’s never a bad idea for students to confirm the trustworthiness of material themselves. They should certainly do this for any articles they seek out that are not on this list.

To determine an article’s credibility, have students ask themselves:

- What authority does the author have about the topic?
- What authority does the website have about the topic?

In thinking about these questions, students should consider *achieved authority* and *attributed authority*. Achieved authority is *earned*, often by virtue of the author having studied in a certain field or having earned special licensure or having undergone special training. Attributed authority is *given*, often due to things such as race, gender, and socioeconomic status. Attributed authority isn’t always explicitly stated. However, it is often helpful to ask whether we are assuming someone is an authority because of their attributes, rather than their earned credentials. This won’t always be relevant.

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Students can ask themselves some of the following types of questions to assess authority:

- Does the person have a degree or extensive education or experience in the field they're writing about?
- Is this person respected by their peers?
- Do they have publications in the field that are cited by others?
- Is the website hosting the content known and respected for featuring that type of content?

When determining credibility, students should think about these factors, along with attributed and achieved authority, and do the necessary research to find out more about the source. Additionally, they should consider why an article was written in the first place, and who the intended audience is for the article. This can help uncover bias in an article or website.

Once you've discussed this with your students, hand out the This Threshold Today: The Big Bang Worksheet. Have your students use the worksheet to record their sources and some of the details about what they discover. Be sure to review their worksheets to determine if they need more scaffolding around the research process.

Check out [Newsela.com](https://www.newsela.com) for great articles. You and your students can also look at these websites to help you get started:

- [How Do We Measure the Size and the Age of the Universe?](#)
- [Cosmology Is in Crisis Over How to Measure the Universe](#)
- [In 10 Years, the Large Hadron Collider Was a Smash--With More Discoveries to Come](#)
- [Researchers Find New Way of Exploring the Afterglow from the Big Bang](#)
- [Supersonic Gas Streams Left Over from the Big Bang Drive Massive Black Hole Formation](#)



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Practices

Reading

As part of this activity, you’ll be reading news articles from the internet. These will be of varying levels of difficulty and varying styles, so, where possible, use the skills you’ve learned as part of the Three Close Reads process to help you better understand these texts.

Process

Out of the Big Bang came everything in the Universe. All of the matter that formed Earth, all of the materials that formed the stars and galaxies that light up the night sky, and all of the building blocks for everything in the Universe were once contained in a tiny singularity. Even space and time as we know them emerged from the Big Bang. All of these details help to explain why the Big Bang is considered the first “new complexity” in the Universe and the first major threshold of increasing complexity in this course. Scientists, along with the rest of us, continue to learn more about the Big Bang and how our Universe formed.

You can join in this process of discovery by searching for news stories about the Big Bang and the history of our Universe. Use some of the suggested articles below, or find ones on your own that highlight new information that you think contributes to a discussion of the Big Bang today. Be sure to carefully evaluate the articles you choose by thinking about the credibility of the authors and of the websites you have chosen:

- [How Do We Measure the Size and the Age of the Universe?](#)
- [Cosmology Is in Crisis Over How to Measure the Universe](#)
- [In 10 Years, the Large Hadron Collider Was a Smash--With More Discoveries to Come](#)
- [Researchers Find New Way of Exploring the Afterglow from the Big Bang](#)
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As you carry out research for this class and others, document the sources that you come across and the information in them. Use the research cards provided on the worksheet to do just that. This will be a functional practice to use later in the course, when conducting research for your Little Big History Project.

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Name: Date:

Directions: Use some of the suggested articles below, or find ones on your own that highlight new information that you think contributes to a discussion of the Big Bang today. Complete the research cards below for three articles.

- How Do We Measure the Size and the Age of the Universe?
<https://newsela.com/read/lib-nasa-size-age-universe/id/23732/>
- Cosmology Is in Crisis Over How to Measure the Universe
<https://www.wired.com/story/cosmology-is-in-crisis-over-how-to-measure-the-universe/>
- In 10 Years, the Large Hadron Collider Was a Smash--With More Discoveries to Come
<https://www.livescience.com/64392-large-hadron-collider-discoveries.html>
- Researchers Find New Way of Exploring the Afterglow from the Big Bang
<https://www.sciencedaily.com/releases/2018/04/180419100114.htm>
- Supersonic Gas Streams Left Over from the Big Bang Drive Massive Black Hole Formation
<https://www.sciencedaily.com/releases/2017/09/170928142003.htm>

Threshold 1: The Big Bang	
Headline/Title:	
Date of article:	
Name of website:	
Author:	
Authority	
What makes the author an authority on this topic?	

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Name:

Date:

Threshold 1: The Big Bang	
Headline/Title:	
Date of article:	
Name of website:	
Author:	
Authority	
What makes the author an authority on this topic?	
What makes the website an authority on this topic?	
Relevance to This Threshold	
How does the information in the article support what you already know about Threshold 1?	

