

SCALE – HUMAN HISTORY ON A STRING

Purpose

In this activity, students compare the scale of development of the Universe, based on the Big History timeline, to the scale of notable events in human history. The scale of the timeline of the Universe and its major events compared to the scale of the timeline of human history and its major events can be hard to grasp, and this activity should help students gain a better understanding of it.

Process

The Universe is 13.8 billion years old, but humans have only been around for tens of thousands of years. While the history of the Universe is huge, relatively few events took place compared to what's taken place since the beginning of human history.

Break the class into two groups. Each group is going to construct a scale using the exact same amount of string. By doing this, your students will allow physically compare one scale to another. One group will work on a scale timeline of the development of the Universe, and the other group will work on a scale timeline of important events in human history. Have students calculate the numbers they need to figure out where their events go on the string using the Scale of World History on a String Worksheet.

Have students work on their calculations, and make sure to check their work. Once they've finished figuring out their numbers, they'll build their models. To build their models, they'll stretch out their piece of string (you might need to do this in a classroom hallway, in the gym, or outside), and then, using the calculations from their worksheets, they'll measure where each threshold or event goes.

Each group will need to assign certain roles to people on the team. Each group should have:

- Students to measure and mark the pieces of string – they'll mark the appropriate section of the string with the matching threshold or event in human history. The pieces of string can be marked with colored tape or anything else to signify what is what.
- One person to represent each of the thresholds or events in human history. Each person should have a sign that they wear (this can be as simple as the threshold or event written on paper and taped to their clothes) so others can see what each person represents.

Once all of this has been sorted out, the two groups should line up their strings next to one another, with each person standing in the appropriate place to represent their threshold or event. This might be tricky, because each group will have a lot of crowding at one end of their string. Just have them do their best.

Then, moving along the string (the timeline), have each person representing a threshold or event explain what they represent and how long ago they happened. It will become very clear that in the history of the Universe, events were spread out more evenly than those in human history. (Try to take a picture of this if you can – it's a great classroom artifact). Then, discuss the following questions as a class:

- What does the comparison of the two strings show?
- Why does it seem like so much more happen at the end of the timelines?
- Is there truly more happening now? Or do we just think more recent events are more important?
- If there is more happening, why? Is it because of increasing complexity or something else?

SCALE – HUMAN HISTORY ON A STRING

Scale Timeline of the Development of the Universe

Directions: The table below lists each of the Big History thresholds for your scale model. If the length of your string is 100 feet, compute the rest of the values below.

Threshold	Years Ago	Distance on String (in Feet)
Threshold 1: The Big Bang	13,800,000,000	100.00
Threshold 2: Stars Light Up	13,600,000,000	97.83
Threshold 3: New Chemical Elements	13,550,000,000	97.82
Threshold 4: Earth & the Solar System	4,560,000,000	33.04
Threshold 5: Life	3,800,000,000	27.54
Threshold 6: Collective Learning	200,000	0.0017
Threshold 7: Agriculture	11,000	0.00008
Threshold 8: The Modern Revolution	250	0.000002

Note: The last three thresholds are extremely recent on this scale. Students don't necessarily need to mark these milestones on the string, but they do need to note the very brief period of human history in contrast to the Big History of the Universe.

SCALE – HUMAN HISTORY ON A STRING

Scale Timeline of Events in Human History

Directions: The table below lists important events in human history for your scale model. If the length of your string is 100 feet, compute the rest of the values below.

Event in Human History	Years Ago	Distance on String (in Feet)
First humans (Homo sapiens)	200,000	100.00
Conquering of fire	125,000	62.5
Humans migrate to Asia	70,000	35
Agriculture	11,000	5.5
Written language	5,000	2.5
The first Silk Roads (systems of trade)	2,000	1
Flight	110	.06
The Internet	25	.01



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Process

The Universe is 13.8 billion years old, but humans have only been around for tens of thousands of years. While the history of the Universe is huge, not many events happened as compared to what's happened since the beginning of human history.

Your teacher will break you into two groups. Each group is going to construct a scale using the exact same amount of string. The reason for doing this is so you can physically compare one scale to another. One group will work on a scale timeline of the development of the Universe, and the other group will work on a scale timeline of important events in human history. Before you build your model, you have to calculate the numbers you need to figure out where your events go on the string. Use the [Scale of World History on a String Worksheet](#) to do this.

Once you've made your calculations, check in with your teacher to verify they're correct. Then, build your model: Stretch out your group's piece of string, and then, using your calculations from the worksheet, measure where each threshold or event goes.

Decide who in your group is going to fill the necessary roles. You'll need:

- People to measure and mark the pieces of string – you'll mark the appropriate section of the string with the matching threshold or event in human history. The pieces of string can be marked with colored tape or anything else to signify what is what.
- One person to represent each of the thresholds or events in human history. Each person should have a sign that they wear (this can be as simple as the threshold or event written on paper and taped to your clothes) so others can see what each person represents.

Once all of this has been sorted out, line up your string near the other group's string, with each person standing in the appropriate place to represent their threshold or event. This might be tricky, because each group will have a lot of crowding at one end of their string. Just do your best.

Then, going down the line, each person representing an event will explain what they represent and how long ago the threshold or event happened. It will become very clear that in the history of the Universe, events were spread out more evenly than those in human history. Discuss the following questions as a class:

- What does the comparison of the two strings show?
- Why does it seem like so much more happen at the end of the timelines?
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Threshold 6: Collective Learning	200,000	
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Threshold 8: The Modern Revolution	250	

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