



SPACE MESSENGERS

STEMarts Activity Guide

Futures Thinking: Reimagining Humanity

RICK GUIDICE

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SPACE MESSENGERS' WORKSHOP Futures Thinking: Reimagining Humanity



OVERVIEW

In this lesson you will prepare your students for the last day of the Space Messengers workshop called Futures Thinking: Reimagining Humanity. Through the Space Messengers project we have been asking ourselves the very big question- *What are your thoughts about and wishes for a sustainable interplanetary future?* In this lesson they will learn about 'futures thinking' and how it is applied to solve global problems and in our everyday life. They will use these ideas to synthesize what they learned in the workshop through writing and drawing activities. We ask- What have you learned in this workshop that gives you ideas for a new way of thinking, creating, building? What is an alternative future that you can imagine in your home? Your community? Your town? Your country? The world? Can you draw it? Write about it? Talk about it?

Subjects

Futures Thinking and Literacy, Sci-art integration

Estimated Time

Several class periods throughout the week and home activities for students.

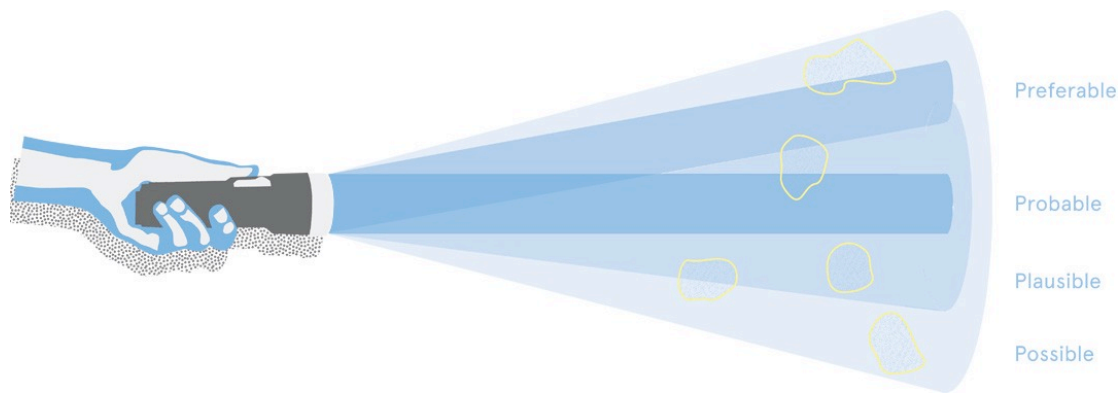
Grade Level

6-12

Objectives

Students will be able to:

- Investigate CERN, The UN and Science Fiction as models to understand how complex problems are solved through international cooperation and diplomacy
- Explore the 'futures thinking' approach and discover how being futures literate can help us re-imagine humanity to address the complex challenges of the 21st century.
- Apply 'futures thinking' to the Space Messengers activity to experience the way it expands the way one approaches questions and problems.



BASED ON A WELL-KNOWN TAXONOMY OF FUTURES, FIRST VISUALISED BY JOSEPH VOROS, THE 'FUTURES CONE' IS A VISUAL TOOL THAT HELPS TO CATEGORISE DIFFERENT FUTURE SCENARIOS ACCORDING TO LIKELIHOOD AND PREFERABILITY. (<https://medium.com/touchpoint/futures-thinking-a-mind-set-not-a-method-64c9b5f9da37>)

INTRO

All the amazing discoveries in science and technology provide us with an opportunity to create a future that is sustainable for all people. And yet, as a civilization we continue to imagine and build a future where science and technology threatens our survival with climate change, species extinction and pandemic diseases. Many warnings from climate change scientists say that it is already too late and that the planet will be destroyed. Is this future possible? Plausible? Probable? Preferable? Luckily there are people and organizations from all disciplines around the world that are coming together to imagine other possibilities, other futures. Can you imagine alternative futures? Below are some excerpts from the UNESCO: Futures Literacy, an essential competency for the 21st Century resource to get you thinking.

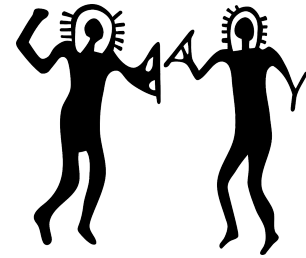
Futures Thinking tells us that the future is not something that will happen to you tomorrow but is being created by everyone today. Future Thinking is a mindset and we are all Future Imaginers!

“Futures literacy is the ability to anticipate and create invisible stuff – the future – through improvisation, experimentation, and invention (Miller, 2018). Futures Literacy is a capability. It is the skill that allows people to better understand the role of the future in what they see and do. Being futures literate empowers the imagination, enhances our ability to prepare, recover and invent as changes occur. The term Futures Literacy mimics the idea of reading and writing literacy because it is a skill that everyone can and should acquire. And it is a skill that is within everyone’s reach. People can become more skilled at ‘using-the-future’, more ‘futures literate’, because of two facts. One is that the future does not yet exist, it can only be imagined. Two is that humans have the ability to imagine. As a result, humans are able to learn to imagine the future for different reasons and in different ways. Thereby becoming more ‘futures literate’ ”

SYNTHESIS

Futures Thinking: Reimagining Humanity

Agnes Chavez



We live in a time of extraordinary scientific and technological advancements that are expanding our knowledge of the universe and our potential to create a better world that is sustainable and equitable for all.

The past decade has been called the Golden Age of Astronomy because incredible new instrumentation has shown us previously invisible realms in space. We learned about this from astrophysicist, Dr. Nicole Lloyd-Ronning who showed that ripples in space-time from two black holes colliding can be felt here on earth revealing how interconnected we are to what is called 'outer' space. We learned about multi-messenger particles which inspired the title of this project- Space Messengers- and how different particles from space send us messages that reveal the different dimensions of our universe.

From CERN physicists, Steven Goldfarb and Johan Sebastian Bonilla, we learned how scientists worked together to build a machine that would visualize particles that they imagined existed but could not see. These discoveries revealed how particles acquired their mass and how the elements we are made of came from exploding stars. From this fundamental research in particle physics we also developed new technologies that change our future such as MRIs, X-rays and the world wide web.

From Steve Tamayo and Dr. Greg Cajete we learned how indigenous people studied the stars, the weather patterns and their creative relationship to all species through observation and storytelling. In this way they developed a way to live in balance with the earth and all the species as an interdependent whole. What can this way of thinking teach us today that could help us solve the future problem of climate change caused by human impact?

Catarina Pombo Nabais, Science-art curator and philosopher of science showed us how philosophy, art and science are unique and different ways of understanding the world around us. She shared how artists use their imagination to imagine new ways to see and understand the universe through physical creations and how their ideas often inspire or inform science, and visa versa.

Michele Hanlon, Air and Space Lawyer and Frank Tavares, Researcher at the Space Enabled Research Group at the MIT Media Lab, shared with us how space exploration today is accelerating and offering amazing possibilities for our future. Yet at the same time we are repeating the ways of thinking from our past that created the environmental and social problems of the present. We learned about bio-spills on Mars, satellite pollution and moon advertising and mining. We learned that the Outer Space Treaty of 1968, an international attempt to protect outer space from harm, has not been updated or enforced and that there are no regulations in place at the moment. They shared how using science fiction can help to imagine alternative futures for space exploration that are more sustainable and equitable, and how we can be advocated for space.



LESSON PLAN

“When people are supported to become creative and rigorous futures imaginers, they come to realize that the future is not something that will happen to them tomorrow but is being created by everyone today.” Riel Miller (2003)



Preparation

7.1

1. Start by reading the excerpt from the PDF book we included in this activity called Transforming the Future: Anticipating in the 21st Century by Riel Miller, Head of Futures Literacy at UNESCO, Paris, France. It captures the essence of Futures Thinking and might help you to understand and then guide your students in this week’s Space Messengers writing activity.



2. Watch this video and explore these links about the United Nations and CERN to demonstrate successful models for international cooperation that exist today. Discuss with the class. How did the UN video The Future is Now make them feel? Did it give them hope? Did it make them want to know more about the UN and the people that they saw in the video? What did they learn about CERN as an organization? A particle physicist will be available in the Zoom session to answer any questions they have about the CERN model. Help them to make connections to the topics we are exploring in this workshop. Ask them how the Space Messengers project contributes to this global initiative.

- **The future is now** <https://www.un.org/sustainabledevelopment/blog/2016/05/the-future-is-now/>
- <https://home.cern/about/who-we-are>
- <https://home.cern/about/who-we-are/our-mission>
- <https://home.cern/about/who-we-are/our-history>

3. Watch these videos on Speculative Design that was created in partnership with the United Nations. Have them explore others on their own. In these videos youth leaders share their winning proposals on ‘Futuring peace’. The videos and the project links show some real world examples of futures modeling that might help to inspire their drawings and writing for this week.

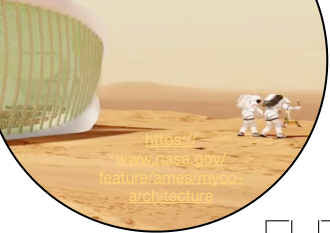
- **Speculative Design: Futuring Peace:** <https://vimeo.com/480022480>
- **Futuring Peace Projects:** https://futuringpeace.org/index.html#home_portfolio

4. Storytelling is a power tool for human visions of the future. Science fiction is a whole genre of storytelling dedicated to these speculative visions and has predicted some of the innovations and complexities of our modern world. Watch these videos and discuss,



- **How can science fiction predict the future?** <https://ed.ted.com/lessons/how-science-fiction-can-help-predict-the-future-roey-tzezana>
- **Re-Imagine the future:** https://www.ted.com/talks/angela_oguntala_re_imagine_the_future/up-next





7.2

FUTURES ACTIVITY

In the workshop we started with a question about your vision for an interplanetary future. Now that we have learned more about our universe, we would like to revisit the question with fresh eyes. Futures Thinking is not only exploring visions for the future but creating plans to get there.

In this activity students will create a drawing that imagines an alternative future. They should be encouraged to think about what they have learned in this workshop and let their imaginations run wild. Then ask them to write a statement that describes what they created. If they prefer they can start with the statement and then do the drawing. Provide prompts to give them possible ideas to work with:

- a. Explore the collected space board messages or choose/write one of your own messages from the Space Board to inspire your future. For example the one asking about the nature of the wormhole could lead to a drawing showing what a community might look like if wormholes existed.
- b. Let your imagination lead you deeper into a question or idea posed by your peers.
- c. Use your unique cultural voice to imagine an interplanetary future.
- d. Create a drawing that shows your vision for a sustainable interplanetary planetary future. i.e. Transform your community into a fantastic future city.
- e. Ask a family member or elder to answer the question: *What are your thoughts and wishes for an interplanetary future?* Write their answers on the Space Board. How might different generations answer this question?
- f. Choose one of the 17 SDG like ocean pollution, species extinction, poverty and one of the science facts/theories you learned and combine to imagine a solution- as wild as it may seem. i.e. gravitational waves- ocean pollution, multi-messenger particles - species extinction, Space exploration -climate change



INSPIRATION RESOURCES

Futures Literacy

<https://en.unesco.org/futuresliteracy/about>

Futuring Peace

<https://futuringpeace.org/>

Now is the best time to embrace the futures: SDGs success depends on strategic foresight

<https://unsdg.un.org/latest/blog/now-best-time-embrace-futures-sdgs-success-depends-strategic-foresight>

Nasa Art shaped visions of our future

<https://www.artsy.net/article/artsy-editorial-nasa-art-shape-vision-future>

Imagining the future is just another form of memory

<https://www.theatlantic.com/science/archive/2017/10/imagining-the-future-is-just-another-form-of-memory/542832/>

More inspiration links are hyperlinked in the picture bubbles on the previous page

