

## SHOULD WE COLONIZE MARS?

### THIS ACTIVITY SHOULD TAKE ABOUT 90 MINUTES. IF STUDENTS ARE ABLE TO REVIEW MEDIA FOR HOMEWORK, IN-CLASS TIME SHOULD BE 45 TO 60 MINUTES.

#### INVESTIGATE

Read, watch, and listen to the three media resources on the Thinkalong module. Students can use the Investigate graphic organizer to summarize each piece of media and record new information. Below are summaries of the three pieces of media curated in the Thinkalong module.

#### WHEN WILL HUMANS VISIT MARS? THIS PHYSICIST SAYS THERE ARE 'REAL PLANS' FOR THE 2030S.

NPR| June 27, 2018| Audio 9:25 minutes

A clip from Here and Now in which a physicist discusses the long-term possibilities for Mars exploration, as well as how those plans are subject to change depending on who has the money to fulfill them first.

- Physicist Michio Kaku says there are plans to go to Mars in the 2030s, using the moon as a base.
- The long-term plans for Mars are centered around self-sustainability so as not to create a drain on the economy. Kaku believes that if the temperature of Mars could be raised by 6 degrees, solar satellites could melt the ice caps, bioengineered plants could thrive, and there could be mining to extract drinking water.
- In the 1960s, space exploration was done by the government, but billionaires like Elon Musk and Jeff Bezos have both expressed interest in privately exploring space.
- Elon Musk claims he can lower the cost of putting one pound of anything into orbit from \$10,000 to \$1,000. Musk's vision for the future consists of a multi-planet species.
- Jeff Bezos wants to put polluting industries into outer space and turn Earth into a garden with a clean environment.

#### IS LIFE ON MARS A POSSIBILITY?

PBS|June 11, 2018|Video 4:30 minutes

A Scitech Now video discussing the problems of self-sustainability on Mars that scientists are struggling to solve.

- There is currently technology to get to Mars, however science reporter Dave Mosher says that the issue now is figuring out the technology needed to sustain human life on Mars.
- Scientists have yet to decide on the best way to limit humans contact with the vast amount of radiation that exists on the surface of Mars. Some have proposed the caves of Mars while others have suggested building a greenhouse-like structure and covering it with soil.
- Mosher says the most pressing issues concerning self-sustainability on Mars are how people will grow their own food, deal with waste, and recycle air.
- Every aspect of habitation on Mars will have to be managed daily; Mosher does not believe that people truly understand that amount of daily work required to facilitation self-sustainability.

#### SHOULD WE COLONIZE VENUS INSTEAD OF MARS?

Using public media — video, audio and digital reports — about newsworthy topics, these classroom-based exercises help students to think critically about media messages, develop informed opinions, and practice how to take a stand.



PBS Digital Studios | March 4, 2015 | Video 7:36 minutes

A video from SpaceTime about an alternative inter-planetary colonization plan: Venus' upper atmosphere.

- President Obama, President Bush, and the Chinese government have outlined plans for manned missions to Mars, but Venus is never mentioned even though it may be a less costly and easier target for colonization than Mars.
- Venus is closer to Earth and the round trip would be 30 to 50% shorter, which could mean less fuel, less food and water, and less radiation.
- Venus has a thicker atmosphere than Mars, so there is better protection from space radiation and meteorites, and available carbon dioxide from which to extract oxygen. Venus' gravity level is also closer to Earth's, lessening the risk of decreased bone density.
- The host believes Venus is not a popular destination because humans cannot land in the planet's surface (it is too hot and the barometric pressure could crush a submarine).
- About 50 kilometers above Venus' surface is a livable area because the temperature drops to 70 degrees Celsius (still very hot but doable with firefighting equipment) and the barometric pressure drops. This means that humans would need heat resistant clothing and oxygen, but no space suits.
- NASA has unveiled blueprints of possible floating cloud cities above Venus, called HAVOC (High Altitude Venus Operational Concept).

#### **KEY WORDS**

Look out for these important keywords in the news stories. Discuss the definitions with your classroom and see how they affect the understanding of the story.

- Colonization
- Fossil Fuels
- Radiation
- Bioengineer
- Atmosphere
- Sustainable

#### CONTEMPLATE

Students will use media literacy questions to critically engage with news by thinking about its purpose, searching for bias and discussing missing perspectives. They will answer the 5 Key Questions of Media Literacy created by the Center for Media Literacy, which are:

- 1. Who created this message?
- 2. What creative techniques are used to attract my attention?
- 3. How might different people understand this message differently than me?
- 4. What values, lifestyles and points of view are represented in, or omitted from, this message?
- 5. Why is this message being sent?

Using public media — video, audio and digital reports — about newsworthy topics, these classroom-based exercises help students to think critically about media messages, develop informed opinions, and practice how to take a stand.



A graphic organizer is included in this guide and the Thinkalong website to help students answer these five questions about each piece of media.

### DEBATE

Students will engage their peers in an evidence-based debate using the media they just analyzed. Use the debate tool on the module webpage to help form an evidence-based response to the debate question.

In addition to rich in-class discussions, teachers can also connect with other classrooms through the Thinkalong website.

## LET'S INVESTIGATE

NAME:

DATE:

Use this worksheet to help you investigate the media sources in the Thinkalong module.

SUMMARIZE THE TOPIC

**KEY VOCABULARY** 

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## **MEDIA RESOURCE 1**

TITLE

DATE PUBLISHED

MAIN IDEAS



## **LET'S INVESTIGATE**

## **MEDIA RESOURCE 2**

## TITLE

## DATE PUBLISHED

MAIN IDEAS

## **MEDIA RESOURCE 3**

TITLE

DATE PUBLISHED

MAIN IDEAS



# CONTEMPLATE YOUR SOURCES



### NAME:

DATE:

After watching the media in the module, answer the questions below.

1. AUTHORSHIP: Who created this message?

MEDIA 1

MEDIA 2

MEDIA 3

2. FORMAT: What creative techniques are being used to grab my attention?

MEDIA 1

MEDIA 2

MEDIA 3



MEDIA 1

MEDIA 2

MEDIA 3

4. CONTENT: What values and points of view are represented? What's left out of this message?

MEDIA 1

MEDIA 2

MEDIA 3

5. PURPOSE: Why is this message being sent?

MEDIA 1

MEDIA 2

MEDIA 3



# CREATE YOUR ARGUMENT

NAME:

DATE:

Create strong arguments for both sides from the resources in the Thinkalong module.

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