thinkalong™
Current events for the curious classroom

SHOULD SCIENTISTS BE ABLE TO MODIFY HUMAN GENES?

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.

CRISPR AND THE FUTURE OF HUMAN EVOLUTION

PBS Digital Studios | May 17, 2017 | Video
6:43 Minutes

A video from PBS Digital Studios about a new gene editing technology called CRISPR and its power to reshape evolution.

- Evolutionary changes are more or less random but humans have been changing our environment, food supply, and medicine for decades allowing us to steer evolution.
- A new gene editing technique called CRISPR is so precise that it has the power to make very specific changes in our genetic codes.
- CRISPR (Clustered Regularly-Interspaced Short Palindromic Repeats) came from bacteria that are attacked by viruses and successfully fight them off. The single-celled organism saves some of the viral DNA in its part of its genome so that it can fight off the virus again later. Scientists realized that CRISPR could do this in any type of cell, and could cut any sequence down.
- But CRISPR has to be done in embryos, which means the changes will be passed on to future generations. This also means that CRISPR can be used to modify humans in unnecessary ways, like making them faster, stronger, or taller.

SCIENTISTS PRECISELY EDIT DNA IN HUMAN EMBRYOS TO FIX A DISEASE GENE

NPR | August 2, 2017 | Audio
3:56 minutes

A news report about scientists attempting to edit the DNA in human embryos for the first time, a process that was previously thought impossible and possibly unethical.

- For the first time, scientists have figured out how to reliably and safely edit the genes of human embryos. Previous attempts by scientists were largely failures, and resulted in harmful mutations.
- Scientists did not create an embryo, but rather worked off of existing DNA molecules and edited the genes using a technique called CRISPR.
- If the technique is proved to be safe and effective, which it has so far, scientists could use the technology to prevent diseases in embryos in the future.

- Some scientists and other critics are concerned that the CRISPR technology could open a Pandora's Box of scary scenarios like designer babies and genetically modified human beings.

NEW REPORT GIVES CAUTIOUS SUPPORT FOR EMBRYONIC GENE EDITING IN HUMANS

PRI |March 19, 2017 | Audio
3:47 minutes

A radio story about the new announcement from the National Academy of Sciences and the National Academy of Medicine on using CRISPR outside of lab experiments.

- The National Academy of Sciences and the National Academy of Medicine announced that scientists could soon be able to use embryonic gene editing in medical treatment.
- Jocelyn Kaiser, a writer for Science magazine, called the report a “yellow light” for embryonic gene editing, which has long been off the table in the United States because something could go wrong and potentially permanently affect a part of the human genetic line.
- The science panel approved the use of embryonic gene editing for serious diseases like Huntington's and Cystic Fibrosis, but some critics are afraid that it will lead to more changes like picking and choosing characteristics such as intelligence or eye color.
- The national academies' report is also not a rule book- it's advice that countries can choose to take or ignore.

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.

- Embryo
- Evolution
- CRISPR
- Protein
- Gene
- Ethics
- Trait
- Heritable

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?

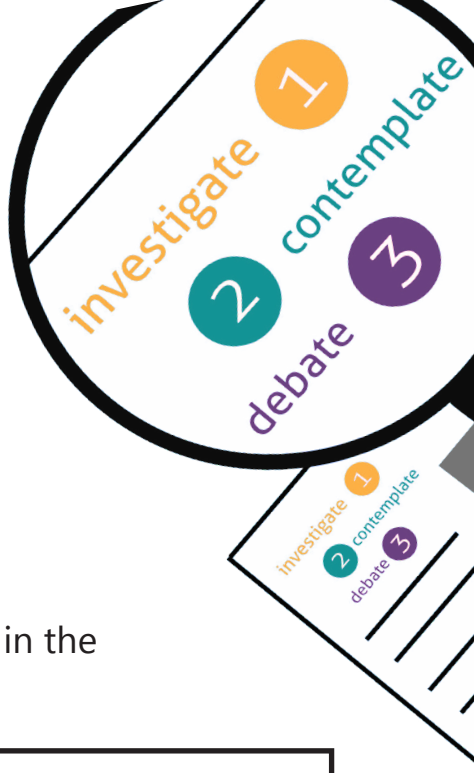
A graphic organizer is included in this guide and the Thinkalong website to help students answer these five questions about each piece of media.

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. Sign up here to be connected.

LET'S INVESTIGATE



NAME: _____

DATE: _____

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

SUMMARIZE THE TOPIC	KEY VOCABULARY

MEDIA RESOURCE 1

TITLE

DATE PUBLISHED

MAIN IDEAS

MEDIA RESOURCE 2

TITLE

DATE PUBLISHED

MAIN IDEAS

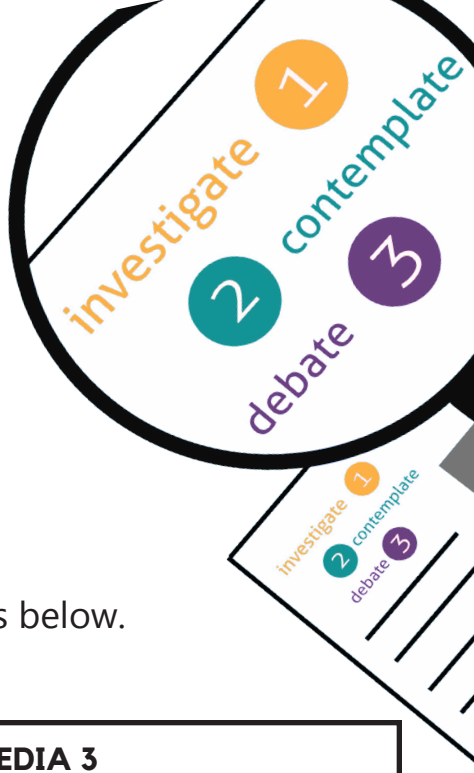
MEDIA RESOURCE 3

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

3. AUDIENCE: How might different people understand this message differently than me?

MEDIA 1	MEDIA 2	MEDIA 3

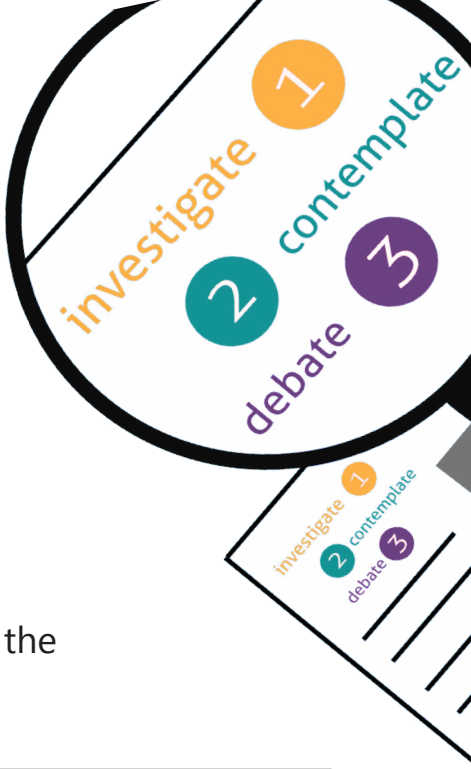
4. CONTENT: What values and points of view are represented? What's left out of this message?

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.

DEBATE QUESTION

PRO ARGUMENT	**CON ARGUMENT**
REASONING	**REASONING**
EVIDENCE	**EVIDENCE**