Learning Outcomes

Students will:

- ✧ Apply media literacy concepts to evaluate climate change messaging in the media.
- ✧ Analyze content and resources that support credible research.
- ✧ Examine data scientists use to predict climate change impacts.

Essential Question

- ✦ How can we use science, creativity, and different kinds of knowledge to share true and powerful messages about climate change?

Notes to Teacher

- ✦ **Lesson Preparation:** It's recommended that you complete these steps before leading the lesson with your students:
  - ✧ Choose the tools and resources that you will share with your students when they begin the research process.
  - ✧ Decide how your students create citations of their sources in either MLA or APA format
  - ✧ Print or digitally assign the lesson 4 handouts

- ✦ **Importance of Credible Sources:** In today's media landscape we need to be more discerning than ever in regard to how and where we get our information. As students begin research for their CIC projects, it is important to talk about identifying credible sources. Climate change messaging can often be mixed with misinformation, and false claims. Media literacy helps students interact with the digital world by learning how to access, analyze, and discern reputable sources and scientific tools.

- ✦ **Examples:** These previous CIC prize winning videos ("Fashion Crisis" , "Sustainable Seafood", and A High Schooler's Guide to Solar Thermal Energy) exemplify how students used trustworthy sources and provided correctly formatted citations within their videos. We encourage you to use these videos as references for students as they work through the process of identifying and citing reputable research.

✦ CIC Project Research Guide
✦ Identifying Reputable Resources Worksheet

Classroom Discussion and Activities

✦ **Hook: Research Skills** (5 minutes)
   ✧ Guide students through a quick-write and/or discussion on the following prompt: *What makes a strong research question?*

✦ **Develop Strong Research Questions** (30 minutes)
   ✧ Use the CIC Project Research Guide to guide students through the process of writing 2-3 strong research questions for learning more about the **problem, possible solutions**, and the **effects** of the problem.
      ✦ Teachers should model this for students by generating at least one question in each category as a class before students create their own strong questions based on their entry point.
   ✧ Optional sentence frames for helping students develop strong research questions:
      ✦ **Problem:**
         ▪ How is [the problem] measured?
         ▪ How does climate change cause [the problem]?
         ▪ How is [the problem] impacting our planet?
      ✦ **Solution:**
         ▪ What are some solutions for [the problem]?
         ▪ How does [the solution] work?
         ▪ What makes [the solution] effective?
         ▪ How has [the solution] been used effectively before?
      ✦ **Effects:**
         ▪ Where is most vulnerable to [the problem]?
         ▪ Who is most vulnerable to [the problem]?
         ▪ How might [the problem] impact people/animals/plants/places?

✦ **Spotting Credible Sources** (20 minutes)
   ✧ Before starting research, it's important to know how to spot a credible source vs a biased or unreliable source. Complete the CRAAP Test for Credible Sources activity as an exercise in teaching students to review website content for credible sources. You can guide the entire class through evaluating one to two resources, and then students can use either worksheet to evaluate each source they plan to cite within their CIC video as they complete their research.

✦ **Conducting Research** (60 minutes+)
   ✧ *Note: This step may take more than one class period*
   ✧ Students will conduct their research using the table on page 2 of the CIC Project Research Guide
   ✧ Check out the following interactive tools and resources online to get started. This will expose students to reputable research tools researchers use to analyze climate change problems. This will also help students establish credibility in their work to better influence their target audience with reputable facts, statistics, or common sense.

- ✦ General Climate Change Research
  - • [United Nations / Climate Action](#)
  - • [National Aeronautics and Space Administration (NASA): Climate Kids](#)
  - • [EPA Climate Change Tools](#)
  - • [World Wildlife Fund](#)
- ✦ Renewable Energy- [U.S. Energy Information Administration: Energy Kids](#)
- ✦ Sea Level Rise - [NOAA Sea Level Rise Viewer](#)
- ✦ Drought - [North American Drought Mitigation Center's Drought Monitor](#)
- ✦ Wildfire - [USDA Forest Service - Wildfire Risk to Communities](#)
- ✦ Greenhouse Gas Emissions - [EPA - Greenhouse Gas Emissions Data](#)
- ✧ Have students consider reaching out to local subject matter experts for an interview. *CAVU staff can help support interested students in finding experts to interview- please reach out to your education coordinator or email cic@cavu.org*
- ✧ Consider using the program "[Skype a Scientist](#)" as a means to connect with an expert in the field they are studying. Please note that minors need to be accompanied by an adult in order to participate in a Skype a Scientist session. This program also works with more conventional virtual meeting platforms like Zoom or Google Meet.

- ✦ **Citing Sources** (5 minutes)
  - ✧ CAVU requires that all sources must be appropriately cited in CIC projects. This includes, but is not limited to sources of data or information, images, screen grabs, audio, music, graphs, quotes, and interviews.
  - ✧ It recommended that students create their citations as they research by creating the full citation and pasting into the "*Citations for Credible Sources*" column in the [CIC Project Research Guide](#).
  - ✧ APA or MLA Citations can be generated using any online citation generator. It is recommended that students always check their citations properly for accuracy and completeness. Citations generators include:
    - ✦ [EasyBib](#)
    - ✦ [Purdue Owl](#)
    - ✦ [MyBib](#)
    - ✦ [Google Docs in-text citations](#) instructions
  - ✧ Sources can be cited during the project as footnotes or at the end of the project, in a credits page.
  - ✧ For students who are interviewing experts, create a citation using the 'interview' citation approach in either citation process.
  - ✧ Overciting is better than under-citing! Any information that does not originate from your own ideas should be cited.

- [MS ESS-3-2: Earth and Human Activity](#) Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects
- [MS-ESS3-3: Earth and Human Activity](#) Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- [CCSS.ELA-LITERACY.CCRA.R.7](#) Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- [CCSS.ELA-LITERACY.CCRA.W.8](#) Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- [CCSS.ELA-LITERACY.CCRA.W.9](#) Draw evidence from literary or informational texts to support analysis, reflection, and research.
- [CCSS.ELA-LITERACY.RST.6-8.8](#) Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.