

Curriculum Map Module 1 Rob Davies

Climate Crisis: The Time Has Come To Believe What We Know

Essential Questions

1. How do we get people to believe what scientists know and respond with action?
2. How do people find connections with individuals who live and think differently than them?
3. How can I present climate change data to the public that conveys the urgency to act?
4. How is storytelling an effective strategy in addressing the climate crisis?

Learning Intentions– Upon completing this module, students will:

1. Identify and describe an important social issue that motivates them to act toward positive change in the world;
2. Generate a list of approaches for raising awareness around a particular issue;
3. Listen for and present details about how a physicist connects with people to raise awareness about the climate crisis;
4. Analyze and present data to communicate the climate crisis;
5. Retell the scientific story you heard in your unique, artistic voice;
6. Articulate the role of storytelling in building trust and promoting action for change;
7. Create a short film that relies on storytelling to provide knowledge, raise awareness, and promote action toward positive change.

Success Criteria

1. I can retell this climate emergency story using my unique voice and perspective.
2. I can explain how climate change is connected to other systems including economics, biodiversity, culture, agriculture, etc.
3. I commit to picking something I can do and making it mine in response to the climate crisis.

Learning Outline

*This 3.5-hour module is on **Climate Crisis: Pick Something And Make It Yours** video presentations by Physicist Rob Davies. It can be taught as a whole learning experience, or in chosen sections as time allows:*

- 15 minutes: Launch Activity– Pick Something and Make It Yours
- 60 minutes: While Viewing– The Climate Crisis Story
- 5-10 minutes per video: Post-Viewing– Retelling the Climate Crisis Story
- 60 minutes: Demonstration– Data Visualization– Graphing Running Averages to Communicate the Climate Crisis
- 40+ minutes: Making Connections–Retelling the Climate Crisis Story in My Artistic Voice

Standards Targeted Throughout Curriculum(Expanded Version Below)

Module 1: Storytelling and Science Communication

NGSS Science Standards (grades 7-12):

Life Science (LS):

Matter and Energy in Organisms and Ecosystems: MS-LS2-1, MS-LS2-4

Earth and Space Science (ESS):

Human Impacts: MS-ESS3-4

Core Standards for Math (7-12):

CCSS.MATH.CONTENT.6.SP.B.4 (grade 8)

CCSS.MATH.CONTENT.6.SP.B.5.D (grades 9-12)

CCSS.MATH.CONTENT.HSS.ID.A.1,2,3

Core Standards for English Language Arts (7-12):

Reading Informational Text (RI 7.3-12.3)

Writing: (W7.4-12.4; W7.3-12.3)

Speaking and Listening: (SL7.1-12.1; SL7.5-12.5)

National Arts Standards (Visual & Media Arts 7-12):

Creating: Anchor Strands (1-3)

Performing, Presenting, Producing: Anchor Strands (4-6)

Responding: Anchor Strands (7-9)

Connecting: Anchor Strands (10-11)

National Film Study Standards (NFSS)

Standard 5.0 Cross-Curricular Connection

AASL National School Library Standards:

Shared Foundations Anchors:

Inquire

Include

Collaborate

Standards: Expanded

NGSS Science Standards (grades 7-12):

Life Science (LS):

Matter and Energy in Organisms and Ecosystems

MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Earth and Space Science (ESS):

Human Impacts

MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Core Standards for Math (7-12):

CCSS.MATH.CONTENT.6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (grade 8)

CCSS.MATH.CONTENT.6.SP.B.5.D Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. (grade 8)

CCSS.MATH.CONTENT.HSS.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots) (grades 9-12)

CCSS.MATH.CONTENT.HSS.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. (grades 9-12)

CCSS.MATH.CONTENT.HSS.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). (grades 9-12).

Core Standards for Social Studies (7-12):

US Government (U.S.GOV): Civil Liberties, Civil Rights, and Responsibilities (grade 12)

U.S.GOV2.3: Students will explain the purpose and importance of fulfilling civic responsibilities, including serving on juries; voting/ serving on boards, councils, and commissions; remaining well-informed; contacting elected officials; and other duties associated with active citizenship

Core Standards for English Language Arts (7-12):

Reading: Informational Text (RI):

RI 7.3-12.3: Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

Writing (W):

W7.4-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

W7.3-12.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences

Speaking and Listening (SL):

SL7.1-12.1: Initiate and participate effectively in a range of collaborative discussions (one-to-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

SL7.5-12.5: Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

National Arts Standards (Visual & Media Arts 7-12):

Creating: (Anchor Strands 1-3)

Anchor Strand 1: Generate and conceptualize artistic ideas and work.

Anchor Strand 2: Organize and develop artistic ideas and work.

Anchor Strand 3: Refine and complete artistic work.

Performing, Presenting, Producing: Anchor Strands (4-6)

Anchor Strand 4: Select, analyze and interpret artistic work for presentation.

Anchor Strand 5: Develop and refine artistic techniques and work for presentation.

Anchor Strand 6: Convey meaning through the presentation of artistic work.

Responding: Anchor Strands (7-9)

Anchor Strand 7: Perceive and analyze artistic work.

Anchor Strand 8: Interpret intent and meaning in artistic work.

Anchor Strand 9: Apply criteria to evaluate artistic work.

Connecting: Anchor Strands (10-11)

Anchor Strand 10: Synthesize and relate knowledge and personal experiences to make art.

Anchor Strand 11: Relate artistic ideas and works with societal, cultural and historical context to deepen understanding.

National Film Study Standards (NFSS)

Standard 5.0 Cross-Curricular Connections: Students first tap their knowledge of other disciplines to study a film.

They then apply what they have learned about film to other disciplines, making connections between film and literature/language arts, film and history/social studies, film and other arts, and film and sciences.

AASL National School Library Standards

Shared Foundations Anchors:

INQUIRE

Display curiosity and initiative by: Formulating questions about a personal interest or a curricular topic; Recalling prior and background knowledge as context for new meaning.

Engage with new knowledge by following a process that includes: Using evidence to investigate questions; Devising and implementing a plan to fill knowledge gaps; Generating products that illustrate learning.

Adapt, communicate, and exchange learning products with others in a cycle that includes: Interacting with content presented by others; Providing constructive feedback; Acting on feedback to improve; Sharing products with an authentic audience.

Participate in an ongoing inquiry-based process by: Continually seeking knowledge; Engaging in sustained inquiry; Enacting new understanding through real-world connections; Using reflection to guide informed decisions.

INCLUDE

Contribute a balanced perspective when participating in a learning community by: Articulating an awareness of the contributions of a range of learners; Adopting a discerning stance toward points of view and opinions; expressed in information resources and learning products; Describing their understanding of cultural relevancy and placement within the global learning community.

Adjust their awareness of the global learning community by: Interacting with learners who reflect a range of perspectives; Evaluating a variety of perspectives during learning activities; Representing diverse perspectives during learning activities.

Exhibit empathy with and tolerance for diverse ideas by: Engaging in informed conversation and active debate; Contributing to discussions in which multiple viewpoints on a topic are expressed.

Demonstrate empathy and equity in knowledge building within the global learning community by: Seeking interactions with a range of learners; Demonstrating interest in other perspectives during learning activities; Reflecting on their own place within the global learning community.

COLLABORATE

Identify collaborative opportunities by: Demonstrating their desire to broaden and deepen understandings; Developing new understandings through engagement in a learning group; Deciding to solve problems informed by group interaction.

Participate in personal, social, and intellectual networks by: Using a variety of communication tools and resources; Establishing connections with other learners to build on their own prior knowledge and create new knowledge.

Work productively with others to solve problems by: Soliciting and responding to feedback from others; Involving diverse perspectives in their own inquiry processes.

Actively participate with others in learning situations by: Actively contributing to group discussions; Recognizing learning as a social responsibility.