

YEARS OF LIVING DANGEROUSLY



THE YEARS OF LIVING DANGEROUSLY - EDUCATIONAL COMPANION

Provided to you by the *National Wildlife Federation*

INTRODUCTION

About the Series

This groundbreaking documentary event series explores the human impact of climate change. From the damage wrought by Hurricane Sandy to the upheaval caused by drought in the Middle East, YEARS OF LIVING DANGEROUSLY combines the blockbuster storytelling of top Hollywood movie makers with the reporting expertise of Hollywood's brightest stars and today's most respected journalists.

Purpose

As the educational partner for the *YEARS OF LIVING DANGEROUSLY*, *National Wildlife Federation*...

How To Get The Most Out Of This Educational Experience

Around the country our schools are providing students with unique, experiential, and applied learning opportunities. The Years of Living Dangerously is one of those opportunities you don't want to miss. As the series unfolds the biggest stories of our time students become emotional involved in the lives of those represented and through your instruction and facilitation will become agents of change, empowered by knowledge and evidence to create and solve our problems today and into the future.

EPISODE 3

EPISODE SUMMARY: RISING TIDE

In episode two, Harrison Ford continues his investigation into the global effects of the palm oil industry and further explores the corruption that has ravaged the Indonesian landscape resulting in the country being one of the world's largest emitters of greenhouse gases through deforestation. Meanwhile, [former] Governor Arnold Schwarzenegger joins an elite team of wild-land firefighters—known as the “Hot Shots”—as they battle a new breed of forest fires, one made more deadly by climate change. He also discovers another killer wiping out trees at an even faster rate than forest fires.

LESSON SUMMARY

Students will use the stories in episode two to better understand the long term impacts deforestation and longer wildfire seasons have on the environment.

Story 1 – Rising Tide - Tottenville

Correspondent: Chris Hayes

Location: Tottenville, NY, Washington, D.C. Greenville, SC
Racine, WI

Story: *When Superstorm Sandy killed 24 people on Staten Island, Congressman Michael Grimm worked night and day to help constituents who lost loved ones and were left homeless by the storm. In Sandy's wake, Grimm, a conservative Republican, didn't believe humans have much to do with global warming. Correspondent Chris Hayes follows Grimm for a year to see what he can do for the residents of Staten Island – and what he might learn about climate change.*



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Story 2- Sanjayan's Journey – Christmas Island

Correspondent: M. Sanjayan

Location: Christmas Island, Kiribati

Story: Even when you are the lead scientist of one of the country's most well respected environmental organizations, that's committed itself to the cause of climate change, you may need to see the proof. M. Sanjayan of The Nature Conservancy travels to the ends of the earth to question some of the top climate scientists in their field as they collect key data unlocking the past and future of our planet's changing climate. In this episode he dives with scientist Kim Cobb to the bottom of the South Pacific looking for answers hidden in fossil corals.



LEARNING OBJECTIVES EPISODE 3

1. Students will examine evidence and sources of evidence to draw conclusions and make predictions.
2. Students will analyze weather and climate maps and look for El Niño markers.
3. Students will differentiate between weather and climate

TEACHER BACKGROUND

A little science from Smokey the Bear

Weather and climate are commonly misinterpreted by students as terms that are interchangeable. In fact these terms, while related, are different.

Weather is what we experience on a daily basis. It helps us decide what we should wear for the day or what to bring on an upcoming getaway in the next week. Weather is a prediction based on a variety of data collected in a variety of ways from ground stations to radars and weather maps are created to help us understand what to expect based on the evidence compiled by meteorologists. Climate on the other hand allows us to see long term patterns in weather data collected over time. *Note* “over time” to you and “over time” to your students are completely different, so over time in relation to climate is usually no less than thirty years. Climate can tell us many things from seasonal information and planting zones to increases in global temperatures or carbon dioxide.

El Niño events are weather phenomenon that, depending on their strength, can have significant impacts on global climate patterns. These events are characterized by large-scale warming of surface waters of the Pacific Ocean and occur every 3-6 years. An El Niño typically last from 6-9 months, but may continue upward of a year or more. The ability to predict El Niño's has only been possible since the 1980's, when computer technology allowed large amounts of complicated ocean-atmospheric interaction data to be collected and analyzed.

Their strength is estimated in surface atmospheric pressure anomalies and anomalies of land and sea surface temperatures. When El Niño's occur people around the world suffer from its effects from severe, record breaking floods and droughts, to the intensification or lack of tornado, cyclone, and/or hurricane storm seasons.



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MATERIALS

1. Science notebook
2. Internet access for each student or pair of students
3. Educators - Need the ability to print in color

VOCABULARY

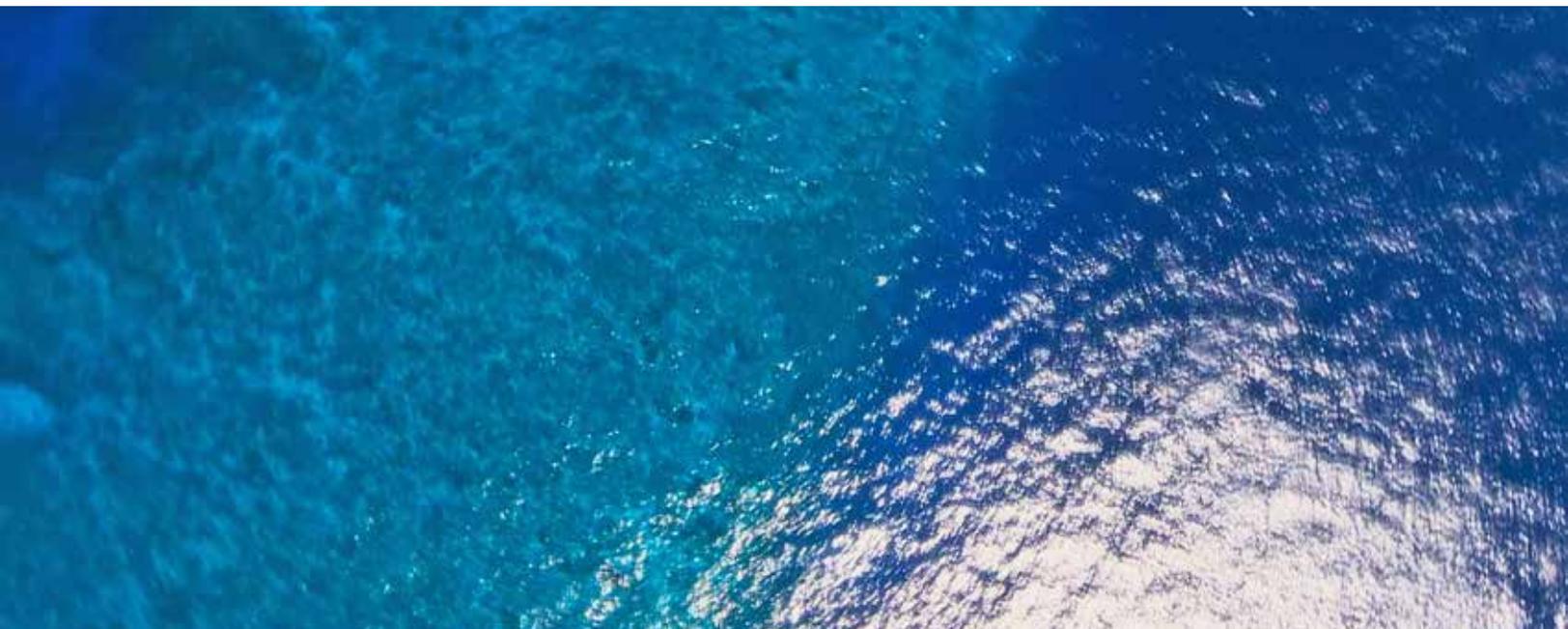
Anomaly, climate, climate change, correlation, credible, currents, drought, El Niño, La Niña emissions, evidence, fact, greenhouse gases, impact, local v. global, natural cycle, opinion, oscillation, paleoclimatology, qualitative data, quantitative data, sea surface temperature, science, trade winds, trend line, weather

WHAT TO DO

Before beginning assess your student's prior knowledge around events and issues presented in the lesson and in episode 3. See page 5 for a print copy or have students take the online version.

ENGAGE: 20 MINUTES

1. Distribute the weather and climate maps, found on page 8, 1 per pair of students.
2. Ask each student to create a T-Chart in their science notebook, labeling one column Map 1 and the other column Map 2.
3. Student will analyze the map for their similarities and differences and noting them in there T-Chart.
4. Next have students work with another pair to discuss their analysis of the maps. Did they come up with the same information? Any differences between groups?
5. Lastly allow students to respond to the following questions and then discuss as a class.
 - Based on what you know about weather and climate and the discussions you have with your peers, identify which map is a weather and which is a climate map, and then explain your reasoning.
 - Come up with your own definition for weather and climate based on your prior knowledge and discussions you've had today.



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EXPLORE: 30 MINUTES

1. Watch episode 3. If you are unable to view episode three in its entirety then students will need to watch the following segments to support their learning experience. As students watch each segment have them stop and answer each of the questions below in their science notebook. At the conclusion of all segments, encourage students to add to or modify their thinking.
 - Minute beginning to 2:58
 - What evidence of weather and climate are depicted or explained in this segment?
 - Minute 3:03 to 5:00
 - What evidence of weather and climate are depicted or explained in this segment?
 - Minute 15:45 to 17:00
 - Explain the evidence corals provide Dr. Kim Cobb?
 - Minute 19:50 to 23:06
 - What evidence does Dr. Heidi Cullen provide to students to explain human caused climate change? What was her “aha” moment?
 - What evidence does Dr. Radley Horton provide to students to explain the excessive storm surge from Superstorm Sandy? Sketch his visual.
 - Minute 44:49 to 46:44
 - What conclusions is Dr. Cobb starting to draw from the corals about the human impact on El Niño's?
 - In two generations, Dr. Cobb expects another meter of sea level rise around Christmas Island. How will this impact her research?



EXPLAIN: 60-75 MINUTES

There are several variables that play a role in predicting the start of an El Niño. In simplest terms they include abnormally warm sea surface temperatures, SST of the tropical Pacific, weakening of the trade winds, and changes in rainfall variability over the Pacific region. Students will be looking at these variables to make predictions about the next El Niño, based on the evidence they analyze. Students will look at sea surface temperature anomalies, SST, and rainfall variability anomalies. Looking at real data may be new for your students. New can sometime equate to frustration. Determine how best to work this section with your students in an effort to quell frustration yet positively impact learning. There is vocabulary that is important to understand, but will best be addressed within context.

1. Provide students with the information in the opening of the Explain section.
2. Students need to understand the word “anomaly”. Simply stated it is something that deviates or differs from normal or what is expected. Ask students to apply this definition to weather and climate. Have them write a working definition for weather and climate anomalies in their science notebook. Also let students know the anomalies they will be looking at are compared to a baseline average period from 1981 – 2010.

3. Table 1 – Oceanic Niño Index and El Niño Impact Map

Table 1 shows the last 64 years of El Niño and La Niña events. Students need to complete and answer the question below in their science notebook.

- Calculate the number of El Niño events, including all weak, moderate, and strong events over the past 64 years. [22]
 - Find what percent of these events are categorized weak, moderate, and strong. [36%, 41%, 23%]
 - What types of weather events can the U.S. expect as the result of an El Niño event? Would the impact vary based on the intensity of the event? Explain.
 - How could an El Niño event affect the economy, especially our goods and services?
4. Figure 1, Niño Regions and Sea Surface Temperature Anomaly Maps for January 2002, 2006, 2009, and 2014
 - Does 2014 look more similar to a weak or moderate El Niño event year? Explain.
 - Is this enough evidence to predict the strength of El Niño this year? Why?
 - Why do you think the ability to predict significant weather events has improved over time?
 5. Figure 1, Niño Regions and Precipitation Anomaly Maps for January, 2002, 2006, 2009, 2014
 - How does 2014 compare to the 2009 El Niño event? Base your response on a closer analysis of Niño Region 4.
 - Again taking a closer look at Niño Region 4 on all four maps, would you say that during these events this region is experience more or less rainfall? Explain how you came to that conclusion.
 - Why do you think it is helpful or not helpful to have access to data from a lengthy period of time, i.e. decades, centuries, versus over just 3-5 years?

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ELABORATE: 20 MINUTES

1. Take a Stand – You will provide students with a statement to which they will either agree or disagree. Assign a side of the room that will represent “agree” and a side of the room that will represent “disagree”. Explain there is no middle ground, thus the title – Take a Stand.
2. Let students know you will be asking to students to share why they chose the side they did as well as provide strong evidence for their agreement or disagreement. If you have never done this before with your students it can be like pulling teeth, but after using this type of tool you will find it has strengthened your student’s ability to think critically, support their claims with evidence, as well as build their confidence.

Important Note This activity should reflect a zero tolerance atmosphere. Students should feel free to share their voice without penalty or criticism from the class.

3. Choose from anyone or more of the following statements.
 - The politics of global warming inhibit our nation from truly safeguarding communities from the impacts of climate change.
 - The majority of politicians do not believe climate change is a priority issue.
 - Superstorm Sandy was a fluke and not the result of a changing climate.
 - 1 meter of sea level rise will have an impact on islands and coastal communities.
 - Human actions have made severe weather more intense.

EVALUATE: 10-15 MINUTES

A. Justified True/False – see page 7

B. Online Pre/Post Quiz

Take our online quiz:

1. Corals are a good indicator of temperature changes throughout recorded history. *True/False*
2. El Nino’s are natural climate phenomenon that reorganize the entire global circulation. *True/False*
3. The energy sector, led by fossil fuel companies has been strong supporters of combatting the impacts of climate change. *True/False*
4. One out of every four carbon dioxide molecules was put in to the atmosphere by humans. *True/False*
5. Paleoclimatology is the study of climate during the age of dinosaurs. *True/False*
6. Weather and climate are considered synonyms. *True/False*
7. During El Nino events, typically cool waters brought to the equator as the result of the trade winds stop. *True/False*
8. An extra foot of sea level rise does not impact coastal locations. *True/False*
9. The El Nino of 1997/1998 caused over \$30 billion in damage worldwide. *True/False*
10. The two most destructive, deadliest, and costliest hurricanes have occurred in the 21st century. *True/False*

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Name: _____

Date: _____

Period: _____

JUSTIFIED TRUE OR FALSE STATEMENTS EPISODE 101 – DRY SEASON

Justified True or False Statements provide a set of claims or statements that are examined by you. You are meant to draw on evidence from what you have learned to analyze the validity of the statements, and then describe the reasoning used to decide whether each claim is true or false.

NOTE Please use grade appropriate spelling and grammar.

STATEMENT	T	F	WHY I THINK SO...
1. El Nino is characterized by unusually cool temperatures along the equator in the Pacific			
2. Hurricanes are not impacted by changes in our global climate.			
3. Coral cores are similar to tree rings in that each year of growth tells a story and provides scientists with historical data about weather and climate events.			

Use this space to include more evidence to support your claim and or to draw a model if applicable.



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Name: _____

Date: _____

Period: _____

JUSTIFIED TRUE OR FALSE STATEMENTS

EPISODE 101 – DRY SEASON

Justified True or False Statements provide a set of claims or statements that are examined by you. You are meant to draw on evidence from what you have learned to analyze the validity of the statements, and then describe the reasoning used to decide whether each claim is true or false.

NOTE Please use grade appropriate spelling and grammar.

STATEMENT	T	F	WHY I THINK SO...
1. Wildfires do not hurt the economy or communities.			
2. Palm oil is found in many of the items we purchase at the grocery store.			
3. Climate change has created shifts in our temperatures which have benefited the pine bark beetle.			

Use this space to include more evidence to support your claim and or to draw a model if applicable.

TAKING ACTIONS AND DESIGNING SOLUTIONS

Taking actions and/or designing solutions to our local, national, and global problems are a personal journey. Via Facebook /yearsofliving and Twitter @yearsofliving #YEARSproject, share how you are taking action to combat climate change or if you've designed potential solutions share those on Instagram - yearsofliving or make a Vine.

Want to engage your school?

Check out these two programs of the National Wildlife Federation, Eco-Schools USA and Schoolyard Habitats www.eco-schoolsusa.org and www.nwf.org/schoolyardhabitats

Want the opportunity to showcase your investigative reporting skills?

Check out National Wildlife Federation's Young Reporters for the Environment-USA

www.yre-usa.org

WRITER'S CORNER

Without language there is no science. To be practicing scientists and derive new knowledge, we need language – reading, writing, talking, listening, enacting, and visualizing. Writing is one way to communicate understanding of our learning while allowing us to be creative in our delivery and provide insight and possible solutions to problems.

1. Mark Twain is one of America's most beloved American authors and thought by some to be the father of American literature. He wrote such classics as, *The Adventures of Tom Sawyer* and *The Adventures of Huckleberry Finn*. Twain was fascinated by science and scientific inquiry. He is quoted as saying, "Climate is what we expect, weather is what we get." Using your knowledge of weather and climate explain what Mark Twain's words mean.
2. Go to <http://buswk.co/1iivK2V>, Bloomberg Businessweek article – El Nino's Arrival Seen by all Models, Australian Bureau Says. After reading, write about the economic impact a powerful El Nino during 2014-2015 coupled with global warming's climate impacts could have for different parts of the world. Explain why this matters where you live.
3. Write a letter to your state and local representatives asking what plans are in place to safe guard the state and its communities against extreme weather events as our climate continues to warm. Think specifically about extreme weather events that impact your state, i.e. flooding, hurricanes, drought, etc. Be sure to provide evidence for your argument based on scientific facts and express why you are concerned, and (depending on your age) you will, in the near future, be a voting member of the community.

www.usa.gov/Contact/Elected.shtml

CAREERS – AGENTS OF CHANGE

Inspired by Episode 3? Thinking about your future? You have the power to make a difference today and in the future. Check out our episode 3 profile on Dr. Charles H. Greene and look into other careers inspired by the issues presented in Episode 3: Rising Tide.

Episode Career Profile

Dr. Kim Cobb

Occupation:

Associate professor in the School of Earth and Atmospheric Sciences at the Georgia Institute of Technology.

Education:

B.A in Biology and Geology – Yale University

M.S. in Oceanography – Scripps Institute of Oceanography, University of California, San Diego

Ph.D. in Oceanography – Scripps Institute of Oceanography, University of California, San Diego

Why She's Involved: "I felt absolutely compelled to do this shoot, as a climate scientist who is deeply invested in science communication, and even more so as a woman in science (and a mother of 4 small children).



While every fieldtrip yields scores of new samples to feed the mass specs, the friendships I made on this one were truly unique. And in a way, that's what the YEARS Project is all about: climate change as a story told by people, from one human to another.

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It's always great to share that passion with my students on-site, but this time, in front of the cameras, I felt both the burden and the privilege of being the face of the corals that have revealed so much about climate change in this region, and the island that has offered up these precious time capsules.

I certainly gave it my all. For science, for women, for Christmas Island, for the planet.”

Learn more about Dr. Kim Cobb and her work - <http://shadow.eas.gatech.edu/~kcobb/index.html>

- Oceanography – [<https://scripps.ucsd.edu/education/careers>] The future of oceanography will require that our nation's brightest minds apply themselves to issues of global concern, the environment, climate change, biodiversity, and sustainable resources.

Disciplines to check out:

- Physical Oceanographers study the circulation of seawater and the exchange of energy and matter across the surface of the ocean. They examine the transport of sand on and off beaches and the processes of coastal erosion. Physical oceanographers also measure deep currents such as those flowing from Antarctic waters into the Pacific Ocean.
- Marine Chemists study how the oceans were formed eons ago, and what determines their composition today. They identify ocean resources that may be beneficial, such as natural products with medicinal properties, and investigate means to protect the oceans from the effects of pollution.
- Marine Physicists develop the means to interact with the oceans. They design and build many specialized research tools, including remotely operated vehicles, sophisticated seafloor instruments, and innovative remote-sensing systems such as acoustic-imaging devices for exploring the oceans. They also develop mechanisms for controlling sand on beaches.
- **Climatologist or Atmospheric Scientist** – www.bls.gov/ooh/life-physical-and-social-science/atmospheric-scientists-including-meteorologists.htm Atmospheric scientists study the weather and climate and how it affects human activity and the earth in general. They may develop forecasts, collect and compile data from the field, assist in the development of new data collection instruments, or advise clients on risks or opportunities caused by weather events and climate change.
- **Environmental Journalist** – www.bls.gov/ooh/media-and-communication/reporters-correspondents-and-broadcast-news-analysts.htm#tab-1 Reporters, correspondents, and broadcast news analysts inform the public about news and events happening internationally, nationally, and locally. They report the news for newspapers, magazines, websites, television, and radio.



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21st CENTURY SKILLS	NGSS SCIENCE AND ENGINEERING PRACTICES
LEARNING & INNOVATION	1 Asking Questions & Defining Problems
<ul style="list-style-type: none"> Critical Thinking and Problem Solving 	2 Developing and Using Models
<ul style="list-style-type: none"> Communication and Collaboration 	4 Analyzing & Interpreting Data
INFORMATION, MEDIA, & TECHNOLOGY SKILLS	5 Using Mathematics & Computational Thinking
<ul style="list-style-type: none"> Information Literacy 	6 Constructing Explanations & Designing Solutions
<ul style="list-style-type: none"> Media Literacy 	7 Engaging in Argument from Evidence
<ul style="list-style-type: none"> ICT (Information, Communications, and Technology Skills) 	8 Obtaining, Evaluating, & Communicating Information
LIFE & CAREER SKILLS	
<ul style="list-style-type: none"> Flexibility and Adaptability 	
<ul style="list-style-type: none"> Initiative and Self-Direction 	
<ul style="list-style-type: none"> Leadership and Responsibility 	

NGSS - MIDDLE SCHOOL

ECOSYSTEMS: INTERACTIONS. ENERGY, AND DYNAMICS

Students who demonstrate understanding can:

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

EARTH'S SYSTEMS

Students who demonstrate understanding can:

MS-ESS2-5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.

EARTH AND HUMAN ACTIVITY

Students who demonstrate understanding can:

MS-ESS3-2. Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

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CCSS – ELA – SCIENCE AND TECHNICAL SUBJECTS, WRITING, AND HISTORY/SOCIAL STUDIES – MIDDLE SCHOOL

CRAFT AND STRUCTURE

RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

INTEGRATION OF KNOWLEDGE AND IDEAS

RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

TEXT TYPES AND PURPOSES

WHST.6-8.1 Write arguments focused on discipline content.

WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

PRODUCTION AND DISTRIBUTION

WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

RESEARCH TO BUILD AND PRESENT KNOWLEDGE

WHST.6-8.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

RANGE OF WRITING

WHST.6-8.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

CCSS - ENGLISH LANGUAGE ARTS – HISTORY/SOCIAL STUDIES

RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

NGSS - MIDDLE SCHOOL

CULTURE

Learners will understand:

- How culture influences the ways in which human groups solve the problems of daily living;
- That culture may change in response to changing needs, concerns, social, political, and geographic conditions.

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NCSS – MIDDLE SCHOOL

CULTURE

Learners will understand:

- How culture influences the ways in which human groups solve the problems of daily living;
- That culture may change in response to changing needs, concerns, social, political, and geographic conditions.

Learners will be able to:

- Evaluate how data and experiences may be interpreted differently by people from diverse cultural perspectives and frames of reference;
- Draw inferences from data about the ways in which given cultures respond to persistent human issues, and how culture influences those responses.

TIME, CONTINUITY, AND CHANGE

Processes – Learners will be able to:

- Use methods of historical inquiry to make informed decisions as responsible citizens to propose policies and take action on an issue of importance today.

PEOPLE, PLACES, & ENVIRONMENTS

Learners will understand:

- The theme of people, places, and environments involves the study of the relationships between human populations in different locations and geographic phenomena such as climate, vegetation, and natural resources;
- Past and present changes in physical systems, such as seasons, climate, and weather, and the water cycle, in both national and global contexts;
- Human modifications of the environment;
- Factors that contribute to cooperation and conflict among peoples of the nation and world; including language, religion, and political beliefs;
- The use of a variety of maps, globes, graphic representations, and geospatial technologies to help investigate the relationships among people, places and environments.

Learners will be able to:

- Acquire, organize, and analyze information and use geographic tools to draw conclusions about historic or current national and global environmental change;
- Evaluate the consequences of human actions in environmental terms.

INDIVIDUALS, DEVELOPMENT AND IDENTITY

Learners will understand:

- How personal, social, cultural, and environmental factors contribute to the development and the growth of personal identity.

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NCSS CONTINUED

Learners will be able to:

- Examine the impact of conformity and altruism on identity;
- Identify the relationships between individual qualities and career or professional choices.

INDIVIDUALS, GROUPS, AND INSTITUTIONS

Learners will understand:

- That groups and institutions change over time;
- That when two or more groups with differing norms and beliefs interact, accommodation or conflict may result;
- That groups and institutions influence culture in a variety of ways.

POWER, AUTHORITY & GOVERNANCE

Learners will be able to:

- Analyze and evaluate conditions, actions, and motivations that contribute to conflict and cooperation among groups and nations.

PRODUCTION, DISTRIBUTION, & CONSUMPTION

Learners will understand:

- The economic choices people make have both present and future consequences.

SCIENCE, TECHNOLOGY, AND SOCIETY

Learners will understand:

- Society often turns to science and technology to solve problems;
- Our lives today are media and technology dependent;
- Science and technology have had both positive and negative impacts upon individuals, societies, and the environment in the past and present;
- Science and technology have changed peoples' perceptions of the social and natural world, as well as their relationship to the land, economy and trade, their concept of security, and their major daily activities;
- Values, beliefs, and attitudes that have been influenced by new scientific and technological knowledge;
- Science and technology sometimes create ethical issues that test our standards and values.

Learners will be able to:

- Ask and find answer to questions about the ways in which science and technology affect peoples' lives today in different places, and have done so in the past;
- Select, organize, evaluate, and communicate information about the impact of science or technology on a society today or in the past;
- Use scientific findings and forms of technology to formulate possible solutions to real-life issues and problems, and predict outcomes.

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NCSS CONTINUED

GLOBAL CONNECTIONS

Learners will understand:

- Spatial relationships that relate to ongoing global issues (e.g. pollution, poverty, disease, and conflict) affect the health and well-being of Earth and its inhabitants;
- Global problems and possibilities are not generally caused or developed by any one nation;

Learners will be able to:

- Analyze examples of conflict, cooperation, and interdependence among groups, communities, regions, societies, and nations;
- Explore the causes, consequences, and possible solutions related to persistent, current, and emerging global issues, such as health, resource allocation, economic development, and environmental quality;

CIVIC IDEALS AND PRACTICES

Learners will understand:

- The theme of civic ideals and practices helps us to learn about and know how to work for the betterment of society;
- Key past and present issues involving democratic ideals and practices, as well as the perspectives of various stakeholders in proposing solutions to these issues;
- The importance of becoming informed in order to make positive civic contributions.

Learners will be able to:

- Ask and find answers to questions about how to become informed and take civic action;
- Identify, seek, describe, and evaluate multiple points of view about selected issues, noting strengths, weaknesses, and consequences associated with holding each position;
- Develop a position on a public policy issue, and defend it with evidence.



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Resources and Links

- Bell, Gerald. "Climate Diagnostic Bulletin: March 2014." U.S. Department of Commerce, 2014. Wed. 28 Apr. 2014.
- Climate Prediction Center. Publications: Monthly Climate Diagnostics Bulletin. Wed. 28 Apr. 2014. www.cpc.ncep.noaa.gov/products/outreach/publications.shtml
- "Climate at a Glance." National Climatic Data Center (NCDC). N.p., n.d. Web. 15 Apr. 2014. www.ncdc.noaa.gov/cag/.
- Department of Labor Statistics. www.bls.gov/ooh/home.htm
- El Niño and La Niña Years and Intensities. Golden Gate Weather Service. Wed. 28 Apr. 2014. <http://ggweather.com/enso/oni.htm>.
- Glebushko, Yerkaterina. "The El Niño Phenomenon: From Understanding to Predicting." The El Niño Phenomenon: From Understanding to Predicting. CSA, 2004. Web. 28 Apr. 2014. www.csa.com/discovery-guides/prednino/overview.php.
- Pielke, Roger A., Jr., and Christopher W. Landsea. La Niña, El Niño, and Atlantic Hurricane Damages in the United States. NOAA, 6 Apr. 1999. Web. 28 Apr. 2014. www.aoml.noaa.gov/hrd/Landsea/lanina/figures.html.
- Scripps Institution of Oceanography. <https://scripps.ucsd.edu/education/careers>
- Weather Impacts of ENSO. The Jetstream. National Weather Service, 11 Apr. 2014. Wed. 28 Apr. 2014. www.srh.noaa.gov/jetstream/tropics/enso_impacts.htm.