

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 1 – LESSON 1

Episode Summary:

The series premiere of this globetrotting docu-series about the human impacts of climate change explores the devastating effects of extreme drought and deforestation. Harrison Ford travels to Indonesia to investigate how the world's appetite for palm oil - an ingredient in everything from candy bars to laundry detergent - has led to massive deforestation and turned that country into one of the world's largest emitters of greenhouse gases. Back in the U.S., Don Cheadle visits Plainview, TX where a community once reliant on a meat-packing plant for its livelihood is looking for answers. Many blame the drought that caused the plant's closure on the will of God or say it's part of a natural cycle, however, Katharine Hayhoe—a climate scientist and Evangelical Christian—has a very different explanation. And, Pulitzer Prize-winner Thomas Friedman embarks on his first of three Middle Eastern trips to examine how climate change can be a stress point in a volatile political situation and push it over the edge. His first stop: Syria.

LESSON SUMMARY

Students will use the stories in episode 1 to better understand fact and opinion while engaging in argument, discussion, and writing to hone this critical skill.



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Story 1 – Last Stand

Correspondent: Harrison Ford

Location: Los Angeles, Sumatra, Borneo, and Indonesia

Story: *YEARS* correspondent Harrison Ford travels to Indonesia to investigate how corruption, illegality and the world's seemingly unquenchable appetite for palm oil have combined to ravage the landscape and make the country the world's largest emitter of greenhouse gases through deforestation.

Story 2 – Pray for Rain

Correspondent: Don Cheadle

Location: Plainview, TX and Lubbock, TX

Story: Last year, Cargill, the largest privately-held company in the U.S., closed down its huge meat-packing plant in Plainview, TX. The company said that because of the drought there just weren't enough cattle to make it worthwhile to keep the plant open. Don Cheadle visits Plainview and finds that most people blame the drought on the will of God or say it's part of a



natural cycle. Katharine Hayhoe, a climate scientist and Evangelical Christian, has a very different explanation.

Story 3 – Climate Wars

Correspondent: Thomas Freidman

Location: Washington D.C., Turkey, and Syria

Story: The Pentagon has long seen climate change as a “threat multiplier,” a “stressor” that can take a volatile political situation and push it over the edge. *YEARS* correspondent Thomas Friedman witnesses this effect in three Middle Eastern countries: Egypt, Syria and Yemen.

LEARNING OBJECTIVES EPISODE 1: LESLEARNING OBJECTIVES EPISODE 1: LESSON 1

1. In a time of mass media, students will strengthen their ability to discern fact from opinion.
2. Differentiate between evidence that is strong and evidence that is weak.
3. Evaluate the strength of specific evidence related to environmental issues.

TEACHER BACKGROUND

Argument – evidence – claims – credible sources – all skills that students need to discern the world around them. As students engage in the stories, they will have to negotiate their understanding which will require learners to construct a richer version of the concept, in this case, climate change, and transform their understanding from where they originally started.

Traditionally, science laboratory activities are structured around the laboratory report format. Students are expected to engage in a format the outlines the hypothesis, procedures, observations, results, and discussion. Unfortunately, this format is typically used by scientists only to report their work to journals for publication. This is not what occurs in science laboratories. Scientists are involved in posing questions, making claims, providing evidence, debating with each other, comparing their answers with others in the field, and attempting to look for patterns across their results. Scientific argument is at the very core of science activity. Having completed this process of argumentation, scientists then prepare their written reports for publication. *Questions, Claims and Evidence, 2008*

According to Meier, Hand, Hockenberry, and Wise, it is important to remember that the learner controls learning and it is up to you, the classroom teacher, to orchestrate opportunities where students can share and expand their developing understandings.

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MATERIALS

1. Evidence Organizer handout
2. Fact/Opinion Sorter handout
3. Fact/Opinion Overview - PowerPoint

VOCABULARY

Carbon cycle, carbon sinks, climate, climate change, corruption, credible, deforestation, distribution, drought, equal and just, evidence, deforestation, emissions, fact, greenhouse gases, Green Peace, interconnectedness, impact, local v. global, natural cycle, opinion, peat, religion, scarcity, science, sequester, trend line, want versus need, weather



WHAT TO DO

Before beginning determine where your students stand on their understanding of fact versus opinion. If they are well versed then proceed with the Engage. If you feel your students need a refresher please follow these instructions before starting at the **Engage**.

Prerequisite Knowledge: Discerning Fact from Opinion

1. Have students decide whether the statements are fact or opinion on the **Fact/Opinion Sorter** handout.
2. Have a discussion around the **Fact and Opinion PowerPoint**.
3. Now have the students look at their **Fact/Opinion Sorter** handout again. Are there changes they want to make? Ask them to explain the why behind each change they made.
4. Now proceed to the **Engage**.

Engage: 20 minutes

Track this discussion on the "board". Ask students about forensics shows on TV.

1. What do they watch?
2. What are some facts the investigators might collect?
3. What are some opinions the investigators might run in to?
4. What kinds of evidence are used to prove a case?
5. What kinds of evidence are the most credible?



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Explore: 45 minutes

1. Distribute and/or project the Evidence Organizer with the criteria for determining the strength of evidence. Use a think-aloud approach to model classifying evidence by strength. Do this for the first group of evidence, under “Rank the Evidence”, and begin engaging students who understand in the second argument.
2. In groups of 3-4 ask students to describe a case they recall from a TV forensics show, layout three or more pieces of evidence and classify them as a class.

Explain: 55 minutes

1. If time allows watch Episode 1 in its entirety and then come back to the specific clips. If you are unable to watch the entire episode please watch the clips below, from Showtime’s Years of Living Dangerously, and have students answer the questions after each segment in small groups and in their science notebooks. You may want to show all clips in one day or separate them into two days.
 - a. Harrison Ford Learns About Deforestation with NASA Scientists 1:35 to 2:20 and 10:05 to 12:29 [insert link to video here]
 - What evidence supports impacts related to climate change? (at least 3)
 - What opinion(s) are voiced in these clips?
 - b. Don Cheadle Talks with Dr. Hayhoe about the Intersection of Climate Change and Faith – 27:39 to 30:11 and 37:50 to 40:14 [insert link to video here]
 - What evidence supports Katherine Hayhoe’s point of view?
 - What opinion(s) are voiced in these clips?
 - c. Thomas Freidman, Climate Wars 4-6:08 and 53:45-55:56 [insert link to video here]
 - What evidence supports Thomas Freidman’s point of view?
 - What evidence supports Syrian community member’s points of view?
 - What opinion(s) are voiced in these clips?

Discussing the evidence and opinions found in each clip is important in helping students increase their critical thinking skills related to the world they live in including issues that affect us locally and globally.

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2. Have each group trade science notebooks with another group. Using the Evidence Sorter (either handed out earlier (see Explore) or project it for the class), have students evaluate the evidence using the scale referenced in the handout - strong, medium, or weak. As a group, the students not only choose their rating, but must also justify the rating with a full explanation.

For example:

Evidence: Nelly Montez says, when asked about why there has been such extreme drought conditions in Plainview that she believes “it’s biblical”.

Evidence: Strength: weak

Explanation: Nelly did not provide evidence to support her claim that the conditions in Plainview could only be described as biblical. Nelly needed to provide evidence or specific details to support her claim, such as Genesis 2:15 “The Lord God took the man and put him in the Garden of Eden to work it and take care of it.” “Take care of it” (shamar) is literally “guard” in Hebrew; the word means to superintend and protect in all ways.

3. Have the groups give their notebooks back and then bring the two groups together for them to discuss why they agree and/or disagree with their feedback. As this occurs, the educator should actively monitor the dialogue taking place.

For example: Group1 and Group2 have exchanged notebooks. They will each evaluate each other’s work and provide feedback. Then they will come together, 2 groups become 1, and discuss whether or not they agree or disagree and why.

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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.
 - Climate change is supported by 99% of scientists.
 - You can’t be a scientist and be religious or vice versa, you can’t be religious and believe in science.
 - Climate change is not a global problem.
 - Water scarcity cannot cause war.
 - Climate change affects wildlife.
 - Natural cycles and human induced actions play an equal role in their effect on Earth Systems.
 - Water scarcity is a non-issue because about 70% of the Earth’s surface is covered in water.



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Evaluate: 10-15 minutes

Assessment Tools:

- A. Justified True/False see page 8
- B. Online Pre/Post Quiz

TAKE OUR ONLINE QUIZ:

1. Climate change is occurring now. **True/False**
2. Climate and weather are actually synonyms. **True/False**
3. Humans are having a significant impact on the Earth's systems, hydrosphere, atmosphere, lithosphere, and biosphere. **True/False**
4. Since I don't live on the coast, I don't need to worry about sea level rise. **True/False**
5. There is a correlation between climate change and changing weather patterns, such as extreme weather events, such as super hurricanes, drought, fires, and floods. **True/False**
6. Seventy percent of the Earth's surface is covered by water, therefore I don't need to worry about water conservation; there will always be enough. **True/False**
7. Scientists cannot gather evidence about past climates from fossil corals, ice core samples, and sediment facies. **True/False**
8. Renewable energy has an overall positive impact on the environment by the Earth system's renewable resources to engineer design solutions to our energy problems. **True/False**
9. Wild fires are a natural occurrence in the biosphere and are not affected by climate change. **True/False**
10. The impacts of glacial retreat due to melting in the Arctic will have a ripple effect that will impact, humans, wildlife, and wild places. **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. CO ₂ amounts fluctuate seasonally.			
2. Total atmospheric amounts, in ppm have decreased over time. The Mauna Loa graph shows a downward trend.			
3. Scientists believe atmospheric CO ₂ will continue to increase without human intervention and mitigation.			

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 and Twitter, share how you are taking action to combat climate change or if you've designed potential solutions share those on Instagram 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

Want the opportunity to showcase your investigative reporting skills?

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

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WRITER'S CORNER

1. Writing from the perspective of a Hot Shot, write 5 journal entries that take place over the course of a week depicting the experiences encountered while fighting a wildfire in California.
2. Check out your city's water department website. Research what the city has in place to address drought conditions and/or water conservation. Create a flyer or brochure that will help community members be water wise.
3. Think of a local park. If the entire park was cleared describe the consequences of that clearing. Include thoughts on wildlife and other consequences related to deforestation.

CAREERS – AGENTS OF CHANGE

- Environmental Law – http://www.law.cornell.edu/wex/environmental_law] or general information about practicing law go to the Department of Labor Statistics – [<http://www.bls.gov/ooh/legal/lawyers.htm> Lawyers advise and represent individuals, businesses, and government agencies on legal issues and disputes.
- Big Data Engineers - <http://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm> Computer and information research scientists invent and design new approaches to computing technology and find innovative uses for existing technology. They study and solve complex problems in computing for business, science, medicine, and other fields.
- Environmental Scientist - <http://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm> Environmental scientists and specialists use their knowledge of the natural sciences to protect the environment and human health. They may clean up polluted areas, advise policy makers, or work with industry to reduce waste.

RESOURCES AND LINKS

- Bataineh, Anke al-. Fact, Opinion, and Evidence. Accessed: 3-17-14. www.betterlesson.com.
- Denison, James, Dr. Is God Green? Climate Change and the Scriptures. Accessed: 3-17-14. http://www.godissues.org/pdf/Climate_change_and_the_Scriptures.pdf
- Department of Labor Statistics. <http://www.bls.gov/ooh/home.htm>

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21st CENTURY SKILLS	NGSS SCIENCE AND ENGINEERING PRACTICES
LEARNING & INNOVATION	1 Asking Questions & Defining Problems
Critical Thinking and Problem Solving	2 Developing & Using Models
Communication and Collaboration	3 Analyzing & Interpreting Data
INFORMATION, MEDIA, & TECHNOLOGY SKILLS	4 Using Mathematics & Computational Thinking
Media Literacy	5 Constructing Explanations & Designing Solutions
LIFE & CAREER SKILLS	6 Engaging in Argument from Evidence
Flexibility and Adaptability	7 Obtaining, Evaluating, & Communicating Information
Social and Cross-Cultural Skills	

NGSS
ECOSYSTEMS: INTERACTIONS. ENERGY, AND DYNAMICS
Middle School Students who demonstrate understanding can:
<i>MS-LS2-1.</i> Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
<i>MS-LS2-4.</i> Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
<i>MS-LS2-5.</i> Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
EARTH'S SYSTEM
Middle School Students who demonstrate understanding can:
<i>MS-ESS2-6.</i> Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
EARTH AND HUMAN ACTIVITY
Middle School Students who demonstrate understanding can:
<i>MS-ESS3-4.</i> Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
<i>MS-ESS3-5.</i> 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/LITERACY

Middle School

RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.

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.

RI.8.8 Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.

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

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

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

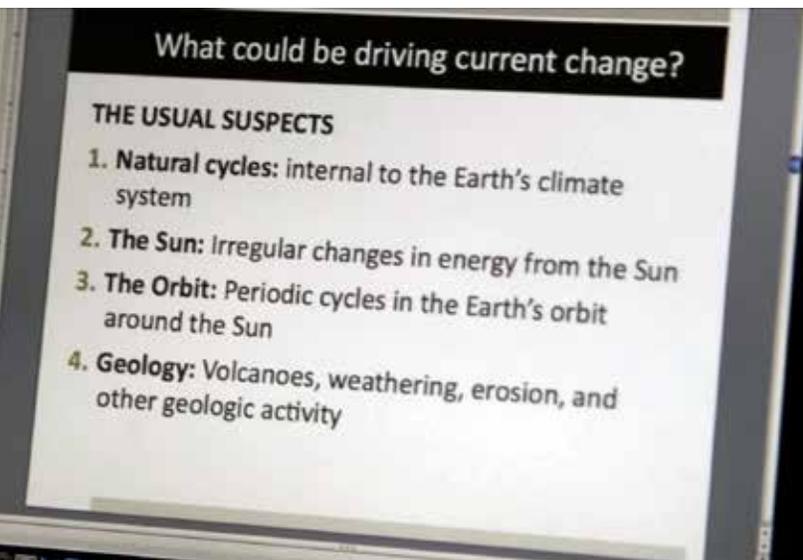
WHST.6-8.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline- specific tasks, purposes, and audiences.

RH.6-8.1 Cite specific textual evidence to support analysis of primary and secondary sources.

RH.6- 8.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to 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.

RH.6-8.8 Distinguish among fact, opinion, and reasoned judgment in a text.



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NCSS

CULTURE

Middle School

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.

PEOPLE, PLACES, & ENVIRONMENTS

Middle School

Learners will understand:

The theme of people, places, and environments involves the study of the relationships between human populations in different locations and regional and global geographic phenomena, such as landforms, soils, 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 the cooperation's and conflict among peoples of the nation and world, including language, religion, and political beliefs.

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, GROUPS, & INSTITUTIONS

Learners will understand:

That groups and institutions change over time;

That institutions may promote or undermine social conformity;

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.

Learners will be able to:

Understand examples of tensions between belief systems and governmental actions and policies;

Investigate conflicts between expressions of individuality and group conformity;

Evaluate how groups and institutions work to meet individual needs and promote or fail to promote the common good.

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NCSS CONTINUED

POWER, AUTHORITY & GOVERNANCE

Learners will be able to:

Examine persistent issues involving the rights of individuals and groups in relation to the general welfare;

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

Evaluate the role of technology as it contributes to conflict and cooperation among nations and groups, and as it contributes to or detracts from systems of power, authority, and governance.

PRODUCTION, DISTRIBUTION, & CONSUMPTION

Learners will understand:

Individuals, government, and society experience scarcity because human wants and needs exceed what can be produced from available resources;

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

Learners will be able to:

Ask and find answers to questions about the production and distribution of goods and services in the state and nation, and in a global context;

Compare their own economic decisions with those of others, and consider the wider consequences of those decisions for groups, communities, the nation, and beyond;

Analyze various methods for allocating scarce goods and services at the state, national, and global levels, describing the possible impacts of these choices.

SCIENCE, TECHNOLOGY, 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;

How media are created and received depends upon cultural contexts;

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;

Use diverse types of media technology to read, write, create, and review a variety of messages;

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;

Universal human rights cut across cultures but are not necessarily understood in the same way in all cultures.

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;

Describe and explain the relationships and tensions between national sovereignty and global interests in such matters as territorial rights, natural resources, trade, the different uses of technology, and the welfare of people

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;

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;

Build background through research in primary and secondary sources, make decisions, and propose solutions to address problems;

Identify assumptions, misconceptions, and bias in sources, evidence, and arguments used in presenting issues and positions;

Identify, seek, describe, and evaluate multiple points of view about selected issues, noting the strengths, weaknesses, and consequences associated with holding each position;

Develop a position on a public policy issue, and defend it with evidence.

