

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

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.

Story 1 – Last Stand

Correspondent: Harrison Ford

Location: Los Angeles, Sumatra, Borneo, and Indonesia

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

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.



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Story 3 – Climate Wars

Correspondent: Thomas Freidman

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

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: LESSON 1

1. Students will strengthen their ability to discern fact from opinion in a time of mass media.
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

STANDARDS

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	



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NGSS

ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

High School

Students who demonstrate understanding can:

HS-LS2-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

EARTH'S SYSTEM

High School

Students who demonstrate understanding can:

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth's systems.

EARTH AND HUMAN ACTIVITY

High School

Students who demonstrate understanding can:

HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

HS-ESS3-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

CCSS – ELA/LITERACY

High School

RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

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CCSS – ELA/LITERACY *Continued*

RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

WHST.9-12.1 Write arguments focused on discipline-specific content.

WHST.9-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

NCSS

CULTURE

High School

Learners will understand:

How culture develops and changes in ways that allow human societies to address their needs and concerns;

That behaviors, values, and beliefs, of different cultures can lead to cooperation or pose barriers to cross-cultural understanding;

That awareness and knowledge of other cultures is important in a connected society and an interdependent world;

That the cultural values and beliefs of societies influence their analysis of challenges, and their responses to these challenges.

Learners will be able to:

Construct reasoned judgments about specific cultural responses to persistent human issues;

Analyze historic and current issues to determine the role that culture has played;

Explain and apply ideas, theories, and modes of inquiry from anthropology, sociology, history, geography, and economics in the examination of persistent issues and social problem.

TIME, CONTINUITY, AND CHANGE

High School

Learners will understand:

The importance of knowledge of the past to an understanding of the present and to informed decision-making about the future.

Learners will be able to:

Use historical facts, concepts, and methods to evaluate an issue of importance today, and make informed decisions as responsible citizens to propose policies, and take action on it.

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NCSS *Continued*

PEOPLE, PLACES, & ENVIRONMENTS

High 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;

Concepts such as: location, physical and human characteristics of national and global regions in the past and present, and the interactions of humans with the environment;

Consequences of changes in regional and global physical systems, such as seasons, climate, and weather, and the water cycle;

The causes and impact of resource management, as reflected in land use, settlement patterns, and ecosystem changes;

The social and economic effects of environmental changes and crises resulting from phenomena such as floods, storms, and drought;

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:

Evaluate the consequences of human actions in environmental terms.

INDIVIDUAL DEVELOPMENT AND IDENTITY

High School

Learners will understand:

That complex and varied interactions among individuals, groups, cultures, and nations contribute to the dynamic nature of personal identity;

That each individual has personal connections to time and place.

Learners will be able to:

Discuss the nature of stereotyping, bias, altruism, and conformity in societies, and their implications for personal, group, and national relationships.

INDIVIDUAL, GROUPS, AND INSTITUTIONS

High School

Learners will understand:

How various forms of groups and institutions change over time;

The impact of tensions and examples of cooperation between individuals, groups, and institutions, with their different belief systems;

How the beliefs of dominant groups tend to become norms in a society;

How groups and institutions work to meet individual needs, and can promote the common good and address persistent social issues.

Learners will be able to:

Examine the belief systems of specific contemporary and historical movements that have caused them to advocate public policies;

Investigate how groups and institutions work to meet individual needs, promote or fail to promote the common good, and address persistent social issues.

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NCSS *Continued*

POWER, AUTHORITY, AND GOVERNANCE

High School

Learners will be able to:

Examine, persistent issues involving the rights, responsibilities, roles, and status 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.

PRODUCTION, DISTRIBUTION, AND CONSUMPTION

High School

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;

Evaluate the possible economic consequences of proposed government policies.

SCIENCE, TECHNOLOGY, AND SOCIETY

High School

Learners will understand:

Science and technology have had both positive and negative impacts upon individuals, societies, and the environment in the past and present;

That the world is media saturated and technologically dependent;

Consequences of science and technology for individuals and societies;

Decisions regarding the uses and consequences of science and technology are often complex because of the need to choose between or reconcile different viewpoints;

Prediction, modeling, and planning are used to focus advances in science and technology for positive ends;

Science, technology, and their consequences are unevenly available across the globe;

Developments in science and technology may help to address global issues.

Learners will be able to:

Use diverse types of media technology to access, analyze, evaluate, create, and distribute messages;

Identify the purposes, points of view, biases, and intended audience of reports and discussions related to issues involving science and technology;

Identify and analyze reactions to science and technology from the past or present and predict ongoing effects in economic geographical, social, political, and cultural areas of life;

Formulate possible solutions that utilize technology, address real-life issues and problems, weigh alternatives, and provide reasons for preferred choices and plans of action.

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NCSS *Continued*

GLOBAL CONNECTIONS

High School

Learners will understand:

The solutions to global issues may involve individual decisions and actions, but also require national and international approaches (e.g. agreements, negotiations, policies, or laws);

Conflict and cooperation among the peoples of the earth influence the division and control of the earth's surface;

The actions of people, communities, and nations have both short – and long-term effects on the biosphere and its ability to sustain life;

Individuals, organizations, nations, and international entities can work to increase the positive effects of global connections, and address the negative impacts of global issues.

Learners will be able to:

Describe and explain conditions and motivations that contribute to conflict, cooperation, and interdependence among groups, societies, and nations;

Analyze the cause and consequences of persistent, contemporary, and emerging global issues, and evaluate possible solutions;

Analyze the relationships and tensions between national sovereignty and global interests, in matters such as territorial rights, economic development, the use of natural resources, and human rights;

Identify concerns, issues, conflicts, and possible resolutions related to issues involving universal human rights.

CIVIC IDEALS AND PRACTICES

High School

Learners will understand:

The theme of civic ideals and practices helps us recognize where gaps between ideals and practices exist, and prepares us to work for social justice;

That seeking multiple perspectives is required in order to effectively grasp the complexity of issues involving civic ideals and practices;

The importance of becoming informed as the basis for thoughtful and positive contributions through civic action.

Learners will be able to:

Ask and find answers to questions about how to become informed and take civic action;

Research primary and secondary sources to make decisions and propose solutions to selected civic issues in the past and present;

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

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

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MATERIALS

1. Science notebook
2. Evidence Organizer handout
3. Fact/Opinion Sorter handout
4. 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

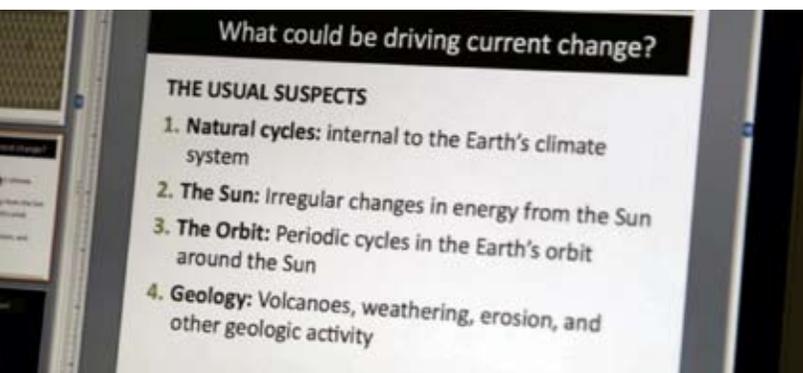
Engage: 20 minutes

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

1. What are some facts the investigators might collect?
2. What are some opinions the investigators might run in to?
3. What kinds of evidence are used to prove a case?
4. What kinds of evidence are the most credible?
5. How are credible sources determined?
6. What types of primary and secondary sources are utilized in an efforts to solve the case?

Explore: 45 minutes

1. Distribute and/or project the Evidence Organizer with the criteria for determining the strength of evidence. On this document there are 3 arguments with supporting pieces of evidence. Use a think-aloud approach to model classifying evidence by strength. Do this for the first argument, under “Rank the Evidence”, and then allow students to proceed to arguments 2 and 3.
2. In groups of 3-4 ask students to create their own argument and provide 4-5 pieces of supporting evidence. You may wish to assign each group with a type, strong, medium, or weak. Allow each group to share their argument and evidence with the class. The class, as a whole, should be able to classify each group’s argument and evidence as either strong, medium, or weak.



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Explain: 55 minutes

1. If time allows watch episode 1, from Showtime's Years of Living Dangerously, in its entirety and then come back to the specific segments highlighted below. If you are unable to watch the entire episode please watch the segments below. After watching each segment pair, have students work in small groups to answer the questions. Students need to record their answers in their science notebooks. You may want to show all clips in one day or separate them into two days. *Important Note* Provide students with these questions prior to viewing.
 - 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 primary and secondary sources are referenced in these two segments?
 - What opinion(s) are voiced in these two segments?
 - Who/what are the credible sources in these two segments?
 - Explain how the credibility of a source is variable dependent upon the source.
 - 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 are the “usual suspects”?
 - How do the usual suspects support Dr. Hayhoe’s argument?
 - What opinion(s) are voiced in these segments and by whom?
 - Would you characterize Don Cheadle’s reporting, as biased or unbiased? Explain.
 - Why do members of the evangelical community change their view point after hearing Dr. Hayhoe’s presentation?
 - Provide examples of primary and secondary sources used in these two segments.
 - Who are the credible sources in these two segments?

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- c. Thomas Freidman, Climate Wars 4-6:08 and 53:45-55:56 [insert link to video here]
- What issue(s) is Thomas Freidman trying to understand?
 - What primary and secondary sources is he using to help further this understanding?
 - What evidence is provided from the Syrian community?
 - How would you classify the sources in these two segments? Credible – Not credible? Explain.
 - What opinion(s) are voiced in these two segments?

Important Note 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.

2. Have each group trade science notebooks with another group (e.g. group 1 trade with group 2). 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.

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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.

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 the students to share why they chose the side they did as well as provide strong evidence for their agreement or disagreement. If this is your first experience with this type of activity, it can be like pulling teeth, but after using this type of learning tool you will find it will strengthen your student's ability to think critically, support claims with evidence, and build their confidence as well.

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.
 - Impacts from climate change are occurring now.
 - Only people with a Ph.D. can be considered credible sources.
 - 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.
 - 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:

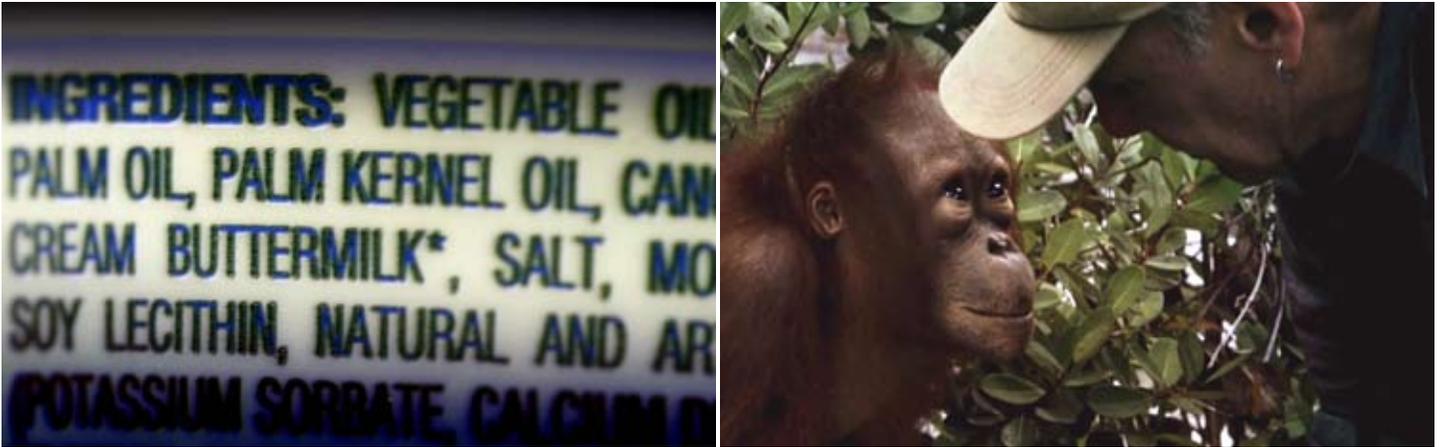
- A. Justified True/False (see below)
- B. Online Pre/Post Quiz

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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TAKING ACTIONS AND DESIGNING SOLUTIONS

To include links to YRE – Eco-Schools USA and specific actions to take.

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

WRITER'S CORNER

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. Research the founding of Green Peace or Save the Bay. How was government related to the environment different at its inception versus today? Then, explain the process you would plan to protect a wooded area, wildlife, or natural green space.
2. Go to Yale's, The Forum on Religion and Ecology. <http://fore.research.yale.edu/climate-change/statements-from-world-religions/> Choose 3-4 religions to briefly research in more depth specific to their beliefs and statements regarding climate change. Create an infographic, a graphic, or art that summarizes what you learned.
3. Do a Google search using key words, such as "lack of water" or "running out of water". Find several pieces of evidence that support water scarcity is a global issue.

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CAREERS – AGENTS OF CHANGE

Inspired by Episode 1? Thinking about your future? You have the power to make a difference today and in the future. Check out the careers inspired by the issues presented in Dry Season.

- Advocay/Policy - <http://www.bls.gov/ooh/life-physical-and-social-science/political-scientists.htm> Political scientists study the origin, development, and operation of political systems. They research political ideas and analyze governments, policies, political trends, and related issues.
- Climatologist or Atmospheric Scientist– [<http://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 Engineers - <http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm> Environmental engineers use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems. They are involved in efforts to improve recycling, waste disposal, public health, and water and air pollution control. They also address global issues, such as unsafe drinking water, climate change, and environmental sustainability.

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>