

“Evidence of our Environmental Impact on Climate change in Virginia”

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Flooding in Portsmouth, Va., after Hurricane Matthew in 2016. (Steve Earley/AP)

Climate change adversely affecting Virginians’ health, study says

The klaxon sound of a government alert went off on cellphones all over Northern Virginia at 3:35 a.m. Monday; the National Weather Service had issued a flash-flood warning for the region. Hours later, the state climatologist fielded phone calls about tornado watches and warnings in the central part of the state.

Such warnings may become more frequent in the future, and they may have major implications for human health, according to a [new study](#) by the Natural Resources Defense Council, a 48-year-old environmental organization.

The study, “[Climate Change and Health in Virginia](#),” warns that as heat waves increase, the risk of heat-related illnesses and deaths in Virginia will grow. Coastal flooding, which [already threatens Norfolk and the Hampton Roads area](#), is likely to worsen as sea levels rise, potentially impeding emergency medical services.

Allergy season is starting earlier and lasting longer, and asthma attacks are increasing in the southeastern United States. **Washington Post: By Patricia Sullivan – April 12, 2018**



Stakeholder –

As a stakeholder, we must keep in mind that all living things are intimately connected to their physical surroundings. While enjoying the environmental benefits, of our planet, we have a responsibility to reduce our carbon footprint.

Some human induced factors that affect Virginia weather are wildlife, food production, textiles, water supplies and energy usage. Some examples are: Carbon Dioxide Emission; vehicles, chemicals used for lawn care, pesticides in soil from Agriculture, Burning fossil fuels, Cutting down trees, Waste disposal, overall pollution, and inundating our home with non-native plants.

Climate change is having an impact at not only the global level, also at the community and household level. We must be proactive in our efforts to reduce our impact. Our individual impact does not measure up to the amount of global damage that big industries are causing but on an individual level every little bit can help to reduce or slow the effects of global warming. By reducing pollution in your community, you are having a positive impact on the environment.

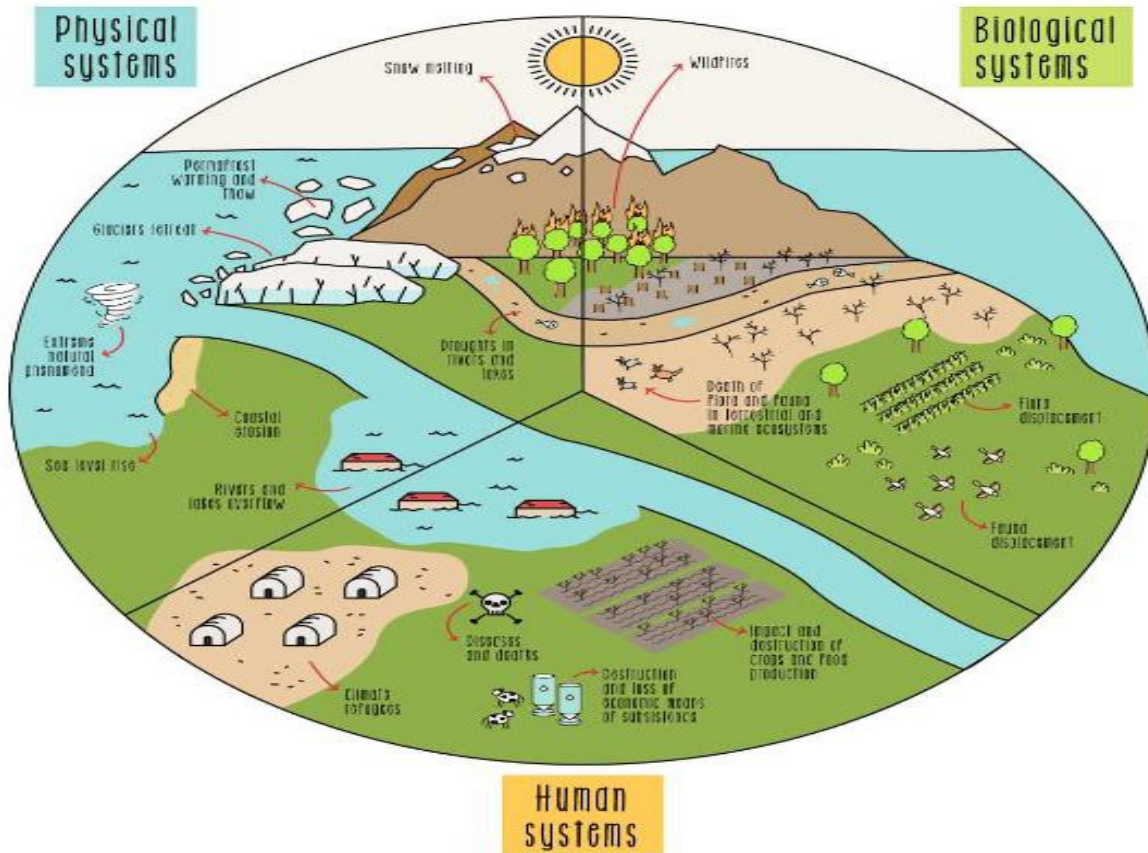
FACT SHEET: Reducing Climate Change in Virginia

Rising global temperatures risk irreversible worldwide ecological and climatic changes, with widespread impacts on human health and ecosystems. The climate threats include more violent storms, droughts, floods, acidifying and rapidly warming oceans, and altered growing seasons. In Virginia, increasing temperatures and rising sea levels due to climate change have resulted in saltwater intrusion, disappearing beaches and more intense storms and floods. We must transition away from dirty fossil fuels like coal, oil and natural gas to clean, renewable energy as soon as possible to prevent the worst effects of a warming planet.

https://www.foodandwaterwatch.org/sites/default/files/fs_1812_va-off-act-web.pdf

Impacts of climate change

The global increase in temperatures causes variations in the:



The changes that affect the different systems are related to each other.

Goals:

- In an attempt to obtain a better understanding of global warming and its effect on climate change across Virginia, Explain why scientists believe human activity is the main driver of climate change.
- Review data exhibiting climate change.
- Describe some of the effects of CO₂ on people and the planet.
- Explain the connection between climate change and human health.
- Discuss ways you propose working to combat climate change and making a difference.

Lab Activities: Lab textbook required –

Activity 1: Five Region Activity from the Virginia Dept. of Education

Lab 1:

***“Applications and Investigations in Earth Science”*, 9th Edition,
Authors: Tarbuck and Lutgens; ISBN 13: 978-0-13-474624-1**

Activities: to be completed prior to beginning your case study research completing a few labs – See student sheet for instructions.

- Five Regions of Virginia Lab - Geology
- Geology- Minerals and Rocks – Chapters 1 and 2
 - Shaping the earth surface: Running and Groundwater and Arid Landscapes –Chapters 8 and 9
- Oceanography - Waves, currents and Tides – Chapter 12
- Meteorology - Heating the atmosphere - Chapter 23
 - Atmospheric Moisture, Pressure and Wind – Chapter 15
 - Global Climates – Chapter 17



Student Notes

Activity	Description	Instructions	Assessment	Grade points	Completed
Lab1	Rocks & Minerals	See activity folder	Graded based on accuracy, summarized	125	
Lab2	Groundwater & Landscapes	See activity folder	Graded based on accuracy, summarized	125	
Lab 3	Oceanography	See activity folder	Graded based on accuracy, summarized	125	
Lab 4	Meteorology	See activity folder	Graded based on accuracy, summarized	125	
Lab 5	Global Climates	See activity folder	Graded based on accuracy, summarized	100	
Activity VA	Five regions in Virginia	See activity folder	Graded based on accuracy, summarized	100	
Case Study	Begin work on Research Area	See activity folder	Rubric	300	
Total points				1000	



Select an area to Research for your case:

Case Study Activities:

1. **Choose a study area** – list below

Roanoke	Richmond	Fairfax	Blacksburg	Suffolk	Christiansburg
Charlottesville	Alexandria	Lynchburg	Petersburg	Staunton	Norton-Wise
Williamsburg	Danville	Newport News	Waynesboro	Lexington	Front Royal
Arlington	Martinsville	Winchester	Abingdon	Radford	Eastern Shore
Fredericksburg	Bristol	Harrisonburg	Culpeper	Blacksburg	Tidewater Area

1. **Select an issue related to climate change** – describe a climate related issue related to Virginia that you would like to address.
2. **Research it** – Compile what you know about the issue. Use the Internet, textbooks, etc. Cite your references.
3. **Brainstorm solutions** – Provide multiple ways to address the issue.
4. **Choose a solution** - Provide a realistic- fact based solution to your issue. (Written report)
5. **Create an Action Plan** – Provide steps to put your solution into action. Explain the resources that you would need.
6. **Share your idea** – Create a 15-minute multimedia presentation to share with the class.
 - a. Introduce your topic
 - b. Provide background information
 - c. Describe your solution
 - d. Explain its effectiveness
 - e. Detail the steps of your action plan



Participation Rubric:

Evaluation Rubric: Student Participation weekly Evaluation

Level of participation	Score
None: Student was absent or, if present, did not actively participate	0
Unacceptable: Student either did not complete evaluations or provided only superficial feedback	1
	2
Acceptable: Student completed all evaluations, with some evidence of substantial feedback	3
	4
Outstanding: Student provides substantive feedback to all items	5

Note: Maximum total Rubric score for course is 100 points. $50 \times 2 = 100$ 50 represent the total points that can be accrued for the semester. Once a score is applied, you have 1 week to question your score.



Use the rubric as a guide for your response

Point grading system for the Rubric is (100-90)16=A; (89-80)12=B; (79- 70)8=C; (69-60)4=D; (<60)0=F

RUBRICS:

Assessment Criteria	SCORE			
	1- Inadequate	2- Developing	3- Proficient	4 - Excellent
Statement of position on Global warming	Not clear on position	Has made a slight choice	Clearly expresses your choice	Has researched thoroughly, shows a clear understanding, and is comfortable speaking about the topic.
Content on response	No clear solution is presented.	A solution is presented in a confusing manner.	Has adequately researched and is knowledgeable about the topic.	Conveys a clear solution while addressing implementation challenges.
Explanation	The writer does not understand.	The writer has difficulty of understanding.	Has adequately researched and is knowledgeable about the topic.	Consistently and clearly supports your decision
Organization	Response is confusing and difficult to follow.	Response is difficult to follow and there is limited organization of information.	Writer can follow most of the speaker's reasoning.	Writer can easily follow the line of reasoning. Ideas are well thought out.



Footprint App

This procedure will be completed at both the start and end of the course. Go to Footprintcalculator.org complete the survey and save your results to a pdf. (Dynamic assessment).



Resource Links to review

Climate Change - Heat Trap Bop:

<https://www.youtube.com/watch?v=gwJ2cvIBRhs>

Adapting to Climate Change

<https://www.youtube.com/watch?v=gmt0r83HABQ>

Richmond Times Dispatch – Climate change across Virginia

https://www.richmond.com/weather/floods-fires-and-rising-seas-new-report-details-how-virginia/article_90a70d07-e988-5bde-837f-97053be61aae.html

UVA Today

<https://news.virginia.edu/content/study-evidence-climate-change-more-compelling-ever>