

# CLIMATE CHANGE EDUCATION RESEARCH

POLICIES AND IMPLICATIONS

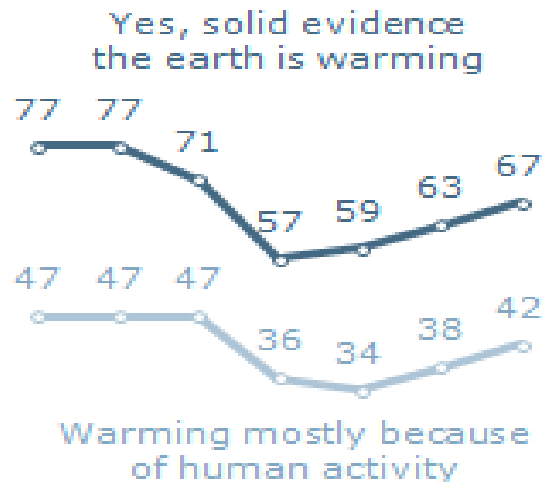


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# PUBLIC THINKING ABOUT CLIMATE CHANGE IN USA

- Recent Pew Center data:

## Two-Thirds Say the Earth Is Warming

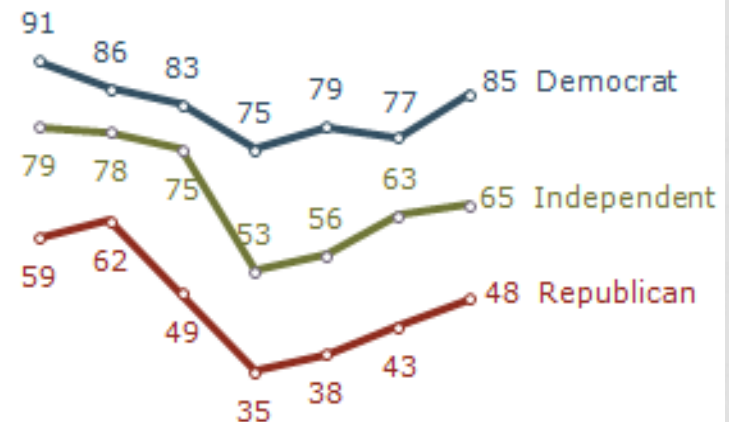


2006 2009 2012

PEW RESEARCH CENTER Oct. 4-7, 2012.

## Across Party Lines, More Say There Is Evidence of Warming

% saying there is solid evidence of warming

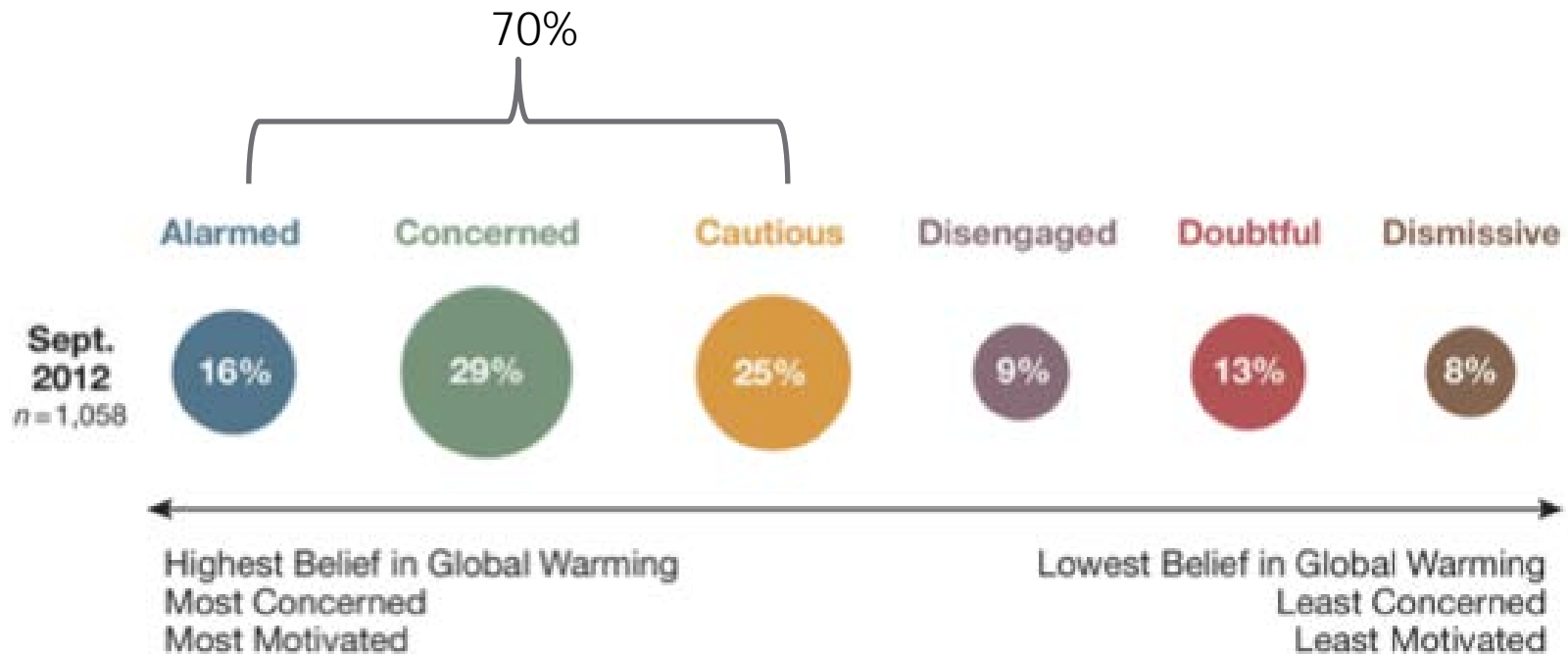


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# GLOBAL WARMING'S SIX AMERICAS

## The Six Americas Audience Segments



Proportion represented by area

Source: Yale / George Mason University

# NATIONAL PUBLIC RADIO STORY (USA)



news

arts & life

music

listen

December 26, 2012

news ▶ opinion ▶ commentary

## Climate Change Gets Real For Americans

by ADAM FRANK



# NATIONAL PUBLIC RADIO STORY (USA)



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news ▶ u.s. ▶ education

## A Hot Topic: Climate Change Coming To Classrooms

Classroom debate?

by **JENNIFER LUDDEN**

March 27, 2013 3:31 AM



[Listen to the Story](#)

Morning Edition



# NEXT GENERATION SCIENCE STANDARDS

## “ESS3.D: Global Climate Change

- If Earth’s global mean temperature continues to rise, the lives of humans and other organisms will be affected in many different ways.
- Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth’s mean surface temperature...”



# MADE-CLEAR



Maryland and Delaware Climate Change  
Education Assessment and Research

- Maryland (MD) and Delaware (DE) Climate Change Education, Assessment, and Research
- Phase II Climate Change Education Partnership
- Build climate change education partnerships among two states' (MD & DE, USA):
  - research and teaching universities
  - public schools
  - federal agencies
  - public and private sectors



# MARYLAND (MD), USA

- MD first state in USA to pass environmental literacy graduation requirement (2010)
- Environmental Literacy Standards

Example:

**STANDARD 5                      HUMANS AND NATURAL RESOURCES**

**The student will use concepts from chemistry, physics, biology, and ecology to analyze and interpret both positive and negative impacts of human activities on earth's natural systems and resources.**

**Topic A: Human Impact on Natural Processes**

Indicator 1: Analyze the effects of human activities on earth's natural processes.

Indicator 2: Analyze the effects of human activities that deliberately or inadvertently alter the equilibrium of natural processes.

**Topic B: Human Impact on Natural Resources**

Indicator 1: Analyze, from local to global levels, the relationship between human activities and the earth's resources.



# DELAWARE, USA

- All public schools teach same statewide curriculum
- Climate (change) not in current curriculum
- Revising state curriculum based on NGSS
- Climate change is in NGSS

# CULTURALLY RELEVANT LEARNING PROGRESSIONS

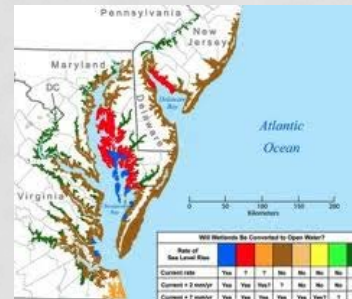


Maryland and Delaware Climate Change Education Assessment and Research

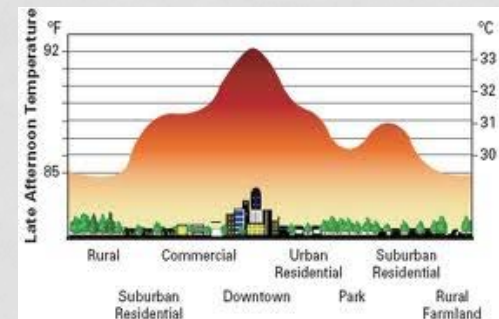
## 1. Extreme Weather



## 2. Sea Level Rise



## 3. Urban Heat Island Effect



# DEVELOPMENT OF OUR LEARNING PROGRESSIONS (LP)

## Learning Progressions Research

- AAAS Atlas
- NGSS based on prior LP research
- What else should we say...

## Our Learning Progressions

- Based on NGSS draft
- Built on prior research (e.g. Jin & Anderson, 2012)
- Tapped “misconceptions” literature base

# RESEARCH GOALS WITH LEARNING PROGRESSIONS



Maryland and Delaware Climate Change  
Education Assessment and Research

To investigate:

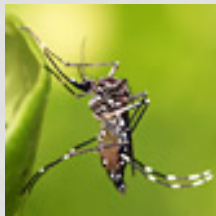
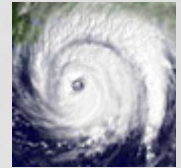
1. how teaching a particular climate change impact helps students in a particular geographic region to learn about climate change science.
2. how teachers can use these learning progressions to teach about climate change science.
3. growth over time of students' knowledge of climate change.



# QUESTIONS



Maryland and Delaware Climate Change  
Education Assessment and Research





# THANK YOU!



Maryland and Delaware Climate Change  
Education Assessment and Research

University of Maryland Learning Sciences Team

[www.ClimateEdResearch.org](http://www.ClimateEdResearch.org)

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