# DECODING THE DATA

**EDUCATOR PAGE**

## GOALS AND STANDARDS

1. Analyze and interpret data to provide evidence for phenomena.
2. Draw conclusions about public perceptions of climate change based on data.

**NGSS Science and Engineering Practices:** Analyzing and interpreting data; Engaging in argument from evidence; Obtaining, evaluating, and communicating information

**Common Core ELA Standards:** RI.6.7, RI.8.7

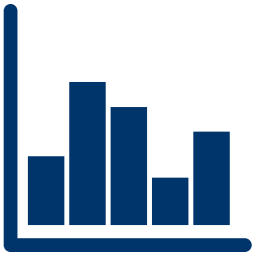
**Common Core Math Standards:** HSS.IC.B.6, MP.2

## LEVEL

8-10 grade or anyone looking to practice data analysis, model manipulation, and storytelling skills in the context of climate change communication.

## BACKGROUND

Through national survey data, YPCCC has identified Global Warming's Six Americas: six unique audiences within the American public that each responds to the issue of climate change in their own distinct way.

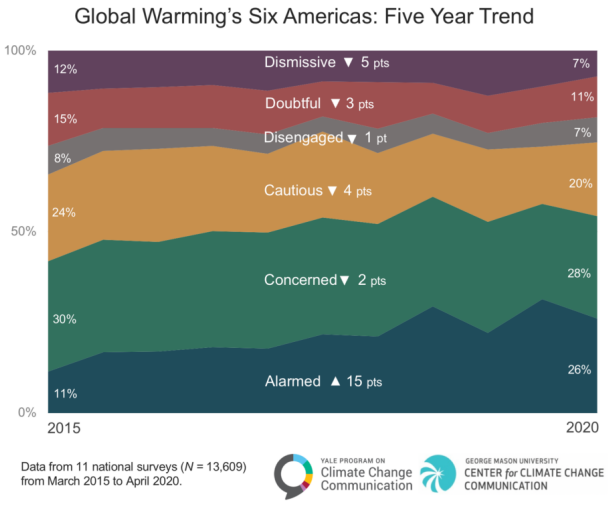


- The **Alarmed** are fully convinced of the reality and seriousness of climate change and are already taking individual, consumer, or political action to address it.
- The **Concerned** are convinced that global warming is happening and is a serious problem, but have not yet engaged the issue personally.
- Three other Americas – the **Cautious** , the **Disengaged** , and the **Doubtful** – represent different stages of understanding and acceptance of the problem, and none are actively involved.
- The final America – the **Dismissive** are very sure it is not happening and oppose any efforts to reduce greenhouse gas emissions.

In addition to identifying the Six Americas, YPCCC has created a 4-question multiple choice survey that will tell you which of the Six Americas you are in. This survey is called the Six Americas Super Short SurveY (SASSY).

## ACTIVITY DESCRIPTION (30 MINS)

The New York Times What's Going On in This Graph? feature consists of more than 60 graphs depicting a wide range of topics for students to analyze. This activity asks students to engage with, and analyze YPCCC graphs in similar ways; students are asked to report what they observe, wonder and can infer about YPCCC graphs. The graphs are all based on Global Warming Six Americas data. An answer key has been provided following the Tips for Success.




## TIPS FOR SUCCESS

- This activity can work well as a written activity, a discussion, or both. Taking the time to discuss the graphs with your students can lead to a deeper understanding of the data and can help students generate more thought-provoking questions.
- You can use the SASSY Group Scoring Tool with your class to produce the pie chart and bar graph seen in Figures 1 and 2. Then, the class can have a discussion around their own data.
- Use the NYT What's Going On in This Graph? feature to continue to practice graph interpretation. You can also continue to Teach About Climate Change With These 24 New York Times Graphs and this recent Climate Threats map.
- For more information on the Six Americas, check out our Six Americas webpage where you can find readings, charts, and graphs, and the 4-question multiple-choice Six Americas quiz that students can take to find out which of the Six Americas they are. You and your students can also take a look at our Meet the Six Americas text, which provides a summary of each of the Six Americas.

# DECODING THE DATA

**ANSWER KEY**

This activity is inspired by the New York Times What's Going On in This Graph? feature and offers you the chance to practice your data interpretation skills with Global Warming's Six Americas data.

What are Global Warming's Six Americas? They are six unique audiences within the American public that each responds to issues of global warming and climate change in their own distinct way:

## GLOBAL WARMING'S SIX AMERICAS


**Alarmed:** Fully convinced of the reality and seriousness of climate change and are already taking action to address it.


**Concerned:** Convinced that global warming is happening and a serious problem, but have not yet engaged the issue personally.


**Cautious:** Not sure if climate change is real or human-caused. If it is real, this group believes that it is only a distant threat.


**Disengaged:** Do not have an opinion about climate change one way or the other, do not know a long about climate change, and do not believe it is an issue that is relevant to them.


**Doubtful:** Not likely to think that climate change is real or human-caused and likely to oppose climate change policies that cost them money (i.e. taxes).


**Dismissive:** Very sure climate change is not happening and actively oppose efforts to reduce greenhouse gas emissions.

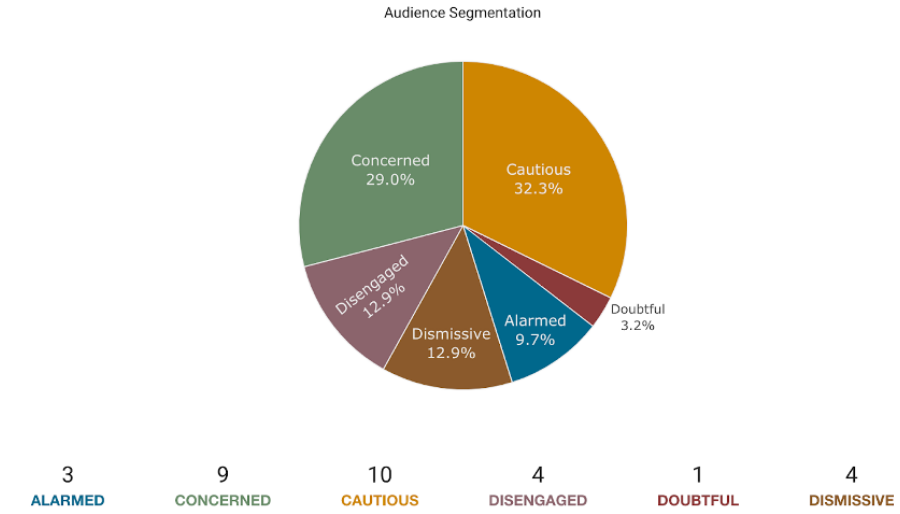
In addition to identifying the Six Americas, YPCCC has created a 4-question multiple choice survey that will tell you which of the Six Americas you are in. This survey is called the Six Americas Super Short SurveY (SASSY).

# ACTIVITY

Use the graphs to answer the questions below.

A group of 31 people took the Six Americas Super Short SurveY (SASSY). The pie chart below shows the breakdown of their results.

**Figure 1.** Six Americas Super Short Survey
Group Data




**1** **What are two things you notice?**

Answers may include:

- Most people in the group are Cautious about climate change.
- The Doubtfuls make up the smallest percentage of the group.
- The same number of people are Disengaged and Dismissive.

**2** **What are two things you wonder based on what you notice? What are you curious about when you look at this pie chart?**

Answers may include:

- I wonder what the Cautious people would need to hear to become Concerned or Alarmed about climate change?
- I wonder if the results of this group of 31 people are reflective of climate change opinions in their community as a whole?
- I wonder if the Dismissives in the group are friends with the Alarmed?

**3** **What kind of data would you need to collect to answer one of your "wonders" (i.e. conduct interviews, take measurements, etc.)?**

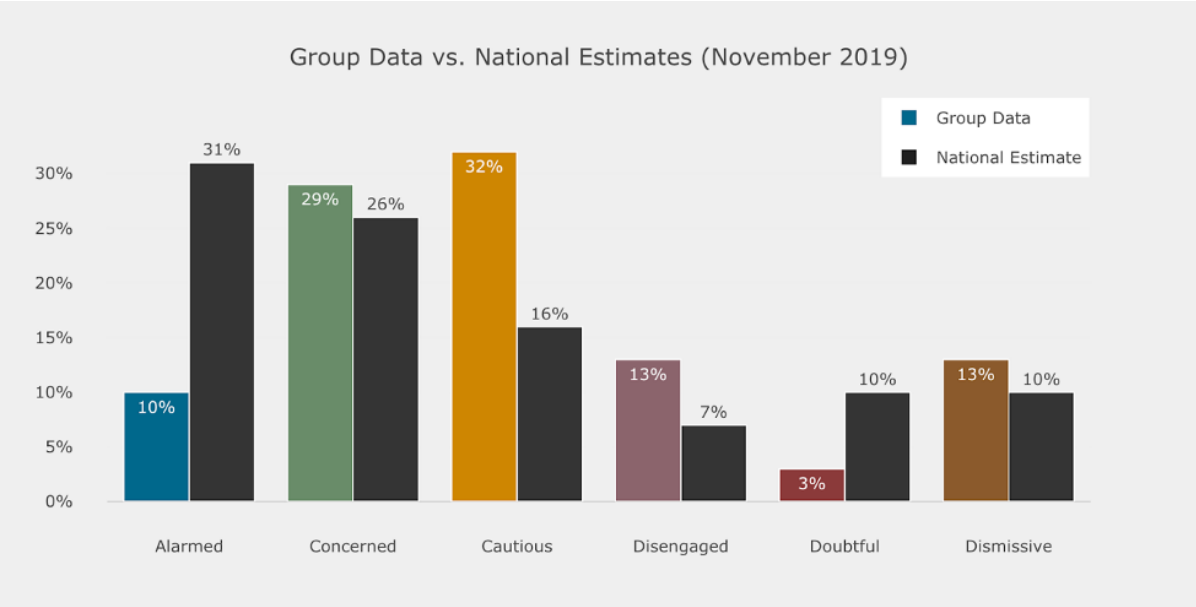
Answers may include:

- Conduct interviews with members of the group to find answers to the question.
- Use Yale Climate Opinion Maps to find out about climate change opinions in the group's county.
- Observe interactions between different members of the group to see how they get along with each other.

**4** **If your class, family, or community took the SASSY quiz, do you think their results would be similar or different from the results of this group of 31 people? Why or why not? (As a follow-up to this activity, you can actually give your class, family, or community members the SASSY quiz and test the accuracy of your predictions.)**

Responses will vary. For example, some might say "My class' results would be different from the original results because I know that most of my classmates are convinced that climate change is real and human-caused. There would therefore be a lower percentage of Disengaged, Doubtful, and Dismissive people in the results." Others might live in places where people are more skeptical of climate change or in places that they believe have a similar makeup of climate change opinions.

**Figure 2.**




Here we can see the data from the group of 31 people (Group Data) compared to the data of America as a whole (National Estimate).

**5** **What would you label the x and y axes?**

**a. X axis:** Something like: SASSY Groups or The Six Americas

**b. Y axis:** Something like: Percentage or Percentage of People in each Group

**6** **What are 2 things you notice about this bar graph? Use evidence to support your claims.**

Answers may include:

- Nationally, a much greater percentage of people are Alarmed about climate change than in the group of 31: 31% of Americans are Alarmed while only 10% of people in the group are Alarmed.
- The group data and the national data were similar for the Concerned and Dismissive: 29% of the group was Concerned, which was only 3% higher than the national estimate. 13% of the group was Dismissive, which was also only 3% higher than the national estimate.

**7** **Now that we see the data from the original group and data from the nation side by side, what inferences might you make about the original group of 31 people? For example, where do you think they might live? How old might they be? What level of education do you think they may have? Do you think they are more likely to be conservative or liberal?**

Answers may include:

- I infer that the original group of 31 people are from a rural area because a much smaller percentage of them are Alarmed as compared to the national data. People in rural areas tend to be less alarmed about climate change than people in urban areas.
- I infer that the original group of 31 people are less educated because most of them are Cautious about climate change. The more educated you are about climate change, the more likely you will be Concerned or Alarmed.

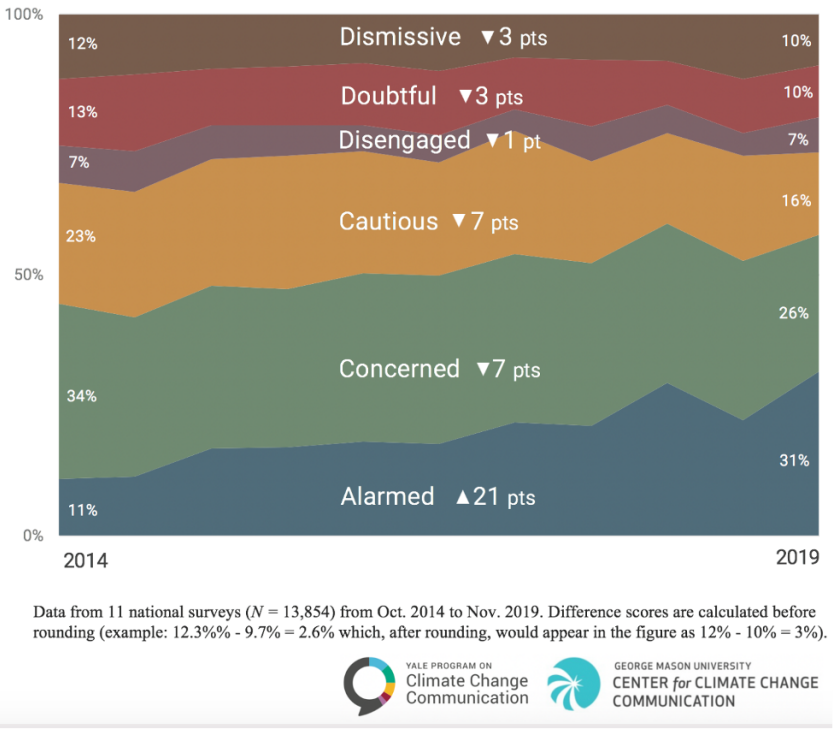
**8** **Now that we see the original group data and the nation's data side by side, does your answer to Question 4 change? Why or why not?**

Answers may include:

- My answer changes because I thought that the group of 31 people represented the opinions of America at large, but that is not the case.
- My answer does not change because regardless of the data, I think that if I were to give my family the SASSY quiz, their results would still be similar to the group of 31's results.

Now we will look at some national data with Figure 3, below.

**Figure 3.**




**9** **What do you notice about this graph? Use evidence to support your claims.**

Answers may include:

- I notice that between 2015 and 2020, the percentage of Dismissives increased by 5 points, from 12% to only 7%.
- I notice that between 2015 and 2020, only the Alarmed group increased as a whole. The Alarmed group increased by 15 points, while all of the other groups decreased in points.I notice that data was collected through 11 national surveys and that 13,609 people were surveyed.

**10** **What do you wonder based on what you notice? What does this graph make you curious to know?**

Answers may include:

- I wonder why we hear so much about people who don't believe in climate change when their numbers have been shrinking over the last 5 years?
- I wonder what has caused the Alarmed group to increase so much between 2015 and 2020?
- I wonder if this data is supposed to represent America as a whole or just a certain part, since they only surveyed 13,609 people?

**11** **What's going on in this graph? In 1-3 sentences, describe what this graph is showing.**

A sample answer: This graph is showing how the percentage of people that make up each of the Six Americas has changed from March 2015 to April 2020.

**12** **Label this graph**

**a. X axis:** Something like: Time or Years

**b. Y axis:** Something like: Percentage or Percentage of People in each Group

**c. Catchy title:** Something like: Six Americas over (almost!) Six Years or Relieved to see an increase in the Alarmed or Ever-changing Six Americas

**13** **As you can see from the graph, people change their beliefs about climate change over time. Which SASSY groups do you think people are changing their minds to over time? For example, do you think that people who were Dismissive in 2015 are Alarmed in 2020? Do you think that those who were Cautious in 2015 are Doubtful in 2020? Explain your thinking.**

Answers may include:

- I think that many people who were Concerned in 2015 are probably Alarmed in 2020. As we learn more about climate change and experience the impacts of climate change more frequently, it makes sense that people who were already worried about climate change (Concerned) would become Alarmed.
- I think that people who were Dismissive in 2015 and are no longer Dismissive are likely Doubtful or Cautious in 2020. They are probably not Alarmed because that is a very extreme shift to make in not a very long period of time. They probably also did not become Disengaged because Dismissives feel very strongly about the issue of climate change and would not be likely to suddenly not want to engage with the topic at all.

**14** **Do you think that this graph is an effective way to show how the SASSY groups have changed over time? Why or why not? Do you think there is a better way to convey this information (i.e. video, book, article, etc.)?**

Answers may include:

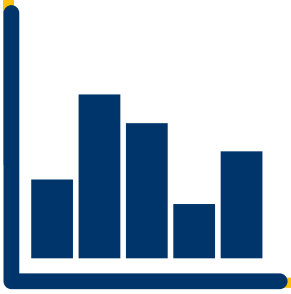
- I think this graph is an effective way to show how the SASSY groups have changed over time. It is helpful to have the visual of the color blocks, as well as the change in points represented as a number. This is good because it makes the graph accessible to a wider variety of learners: both those who are more visual and those who are more numbers-oriented.
- I think this graph could be improved if it were able to show which groups people are changing their minds to over time. It would also be helpful if the x-axis showed the years in between 2015 and 2020 so that we could make inferences about why fluctuations occurred over time (i.e. Why was there a dip in the Alarmed group in 2020? Did it have to do with any event that took place?).

**15** **Display the data in Figure 1, 2, or 3 in a different way. You can represent the data in a different type of chart or graph, or through a different medium (i.e. art, a story, a comic, video, etc.). Explain why you decided to display the data in the way that you did.**

Answers will vary.

## EXTENSION SUGGESTIONS

- Use the NYT What's Going On in This Graph? feature to continue practicing your graph interpretation skills.



- Give the Six Americas Super Short SurveY to your family members, friends, or other members of your community to see which audience they fall into. Do they have the same attitude towards climate change as you do?