THIS IS PLANET ED

aspen institute

YOUTH CLIMATE LITERACY

A 2025 National Snapshot

EXECUTIVE SUMMARY

From heat to flooding to wildfires, the 74 million children and youth in the United States increasingly face the realities of climate change. Despite this increasing impact on their lives, children and youth have insufficient opportunity to learn about climate change—its causes, consequences, and solutions.

More than four in five Americans agree that we must help young people develop knowledge and skills to address climate change and build a sustainable world. While progress is being made by some states, districts, and educators in fostering climate understanding among young people, recent surveys reveal persistent misconceptions and worry among teenagers.

We partnered with the EdWeek Research Center to survey teenagers to better understand their awareness of climate change, its impacts, and its solutions.

KEY FINDINGS

Teenagers do not feel confident about their understanding of climate change and solutions.

- 12% of teens feel they know "a lot" about the causes of climate change.
- 10% of teens feel they know "a lot" about the solutions to climate change.

Teens demonstrate misunderstandings about climate change: its causes, consequences, and solutions.

Causes:
Only 54% of teens identified greenhouse gas emissions from human activity as the biggest contributor to climate change.

Consequences:
Only 33% of teens see climate change as impacting the area where they live now.

Solutions:

- Teens overestimate the role of recycling in solutions. 57% identified recycling as having a large impact on climate change, higher than any other solution.
- Slightly over 40% of teens recognize that talking, learning, collaborating, and advocacy can have an impact on climate change.

CALL TO ACTION

Parents, educators, media, and more can help empower children and youth with a better understanding of core climate concepts to prepare them for success in our changing world.

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ABOUT US

This Is Planet Ed, an initiative of the Aspen Institute's Energy and Environment program, aims to unlock the power of education as a force for climate action and solutions. We believe young people will drive the necessary and sustained action we need to address climate change, and we must partner with them to advance a more sustainable, resilient and equitable society. **www.ThisIsPlanetEd.org**

The Aspen Institute is an educational and policy studies organization based in Washington, D.C. Its mission is to foster leadership based on enduring values and to provide a nonpartisan venue for dealing with critical issues. The Institute has a campus in Aspen, Colorado. It also maintains offices in New York City and has an international network of partners. **www.AspenInstitute.org**

The Aspen Institute Energy and Environment Program (EEP) provides nonpartisan leadership and a neutral forum for improving energy and environmental policymaking through values-based dialogue. The Program convenes strategic groups of experts from government, business, academia, and nonprofit organizations in dialogue structured and moderated for discussion, exploration, and consensus building.
www.AspenInstitute.org/EEP

ACKNOWLEDGMENTS

Thank you to the team from EdWeek Research Center for their work on the survey featured in this report. Thank you to Shiva Rajbhandari, Sophia Powless, and Adam Casey for their work on this report.

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INTRODUCTION

Climate change shapes the future for today's children and youth, impacting everything from job prospects and economic security to health and well-being. It's also affecting their lives now: school closures for "heat days," wildfire smoke keeping kids indoors, and floods displacing families. Yet, despite these impacts, children and youth have insufficient opportunities to learn about the causes of climate change, its impact on their lives, and how to advance solutions.

In 2020, we released a State Policy Landscape where we found considerable variability in how climate change was included in state science and social studies standards. Some states require teaching human-caused climate change, while others do not.

Teens are worried:

85% of US youth indicate moderate to extreme worry about climate change.

Teens have misconceptions:

46% of teens believed a hole in the ozone layer was a major driver of climate change, according to a 2022 EdWeek survey.

Children and youth have insufficient opportunity to learn about it in school:

Only 32 states and DC include human-caused climate change in science standards, and only 9 states and DC include it in social studies standards.

Through our Planet Media work, in collaboration with The Nature Conservancy and its Chief Scientist, we've developed four essential climate principles to define a foundational understanding of climate change.

- **Earth is our home.**
- **Earth is getting hotter because of us.**
- **Our climate is changing now, and that harms us.**
- **But, together, we can build a brighter future.**

To better understand teen awareness of these core principles, we commissioned a survey with the EdWeek Research Center. In this brief, we highlight the findings from this survey along with an updated analysis of how climate change is included in state science and social studies standards.

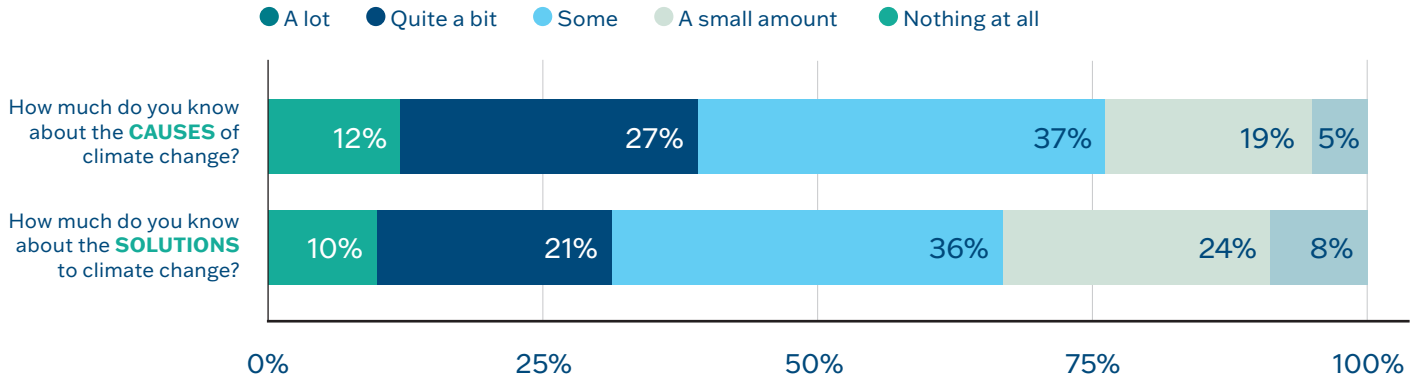
SURVEY METHODS

The survey was carried out online by the EdWeek Research Center from January 13-17, 2025. In total, 1,017 teenagers (13-19 years old) completed the survey from across the US. See appendix for additional demographic details.

FINDINGS

Few teens felt confident in their understanding of climate change and climate solutions.

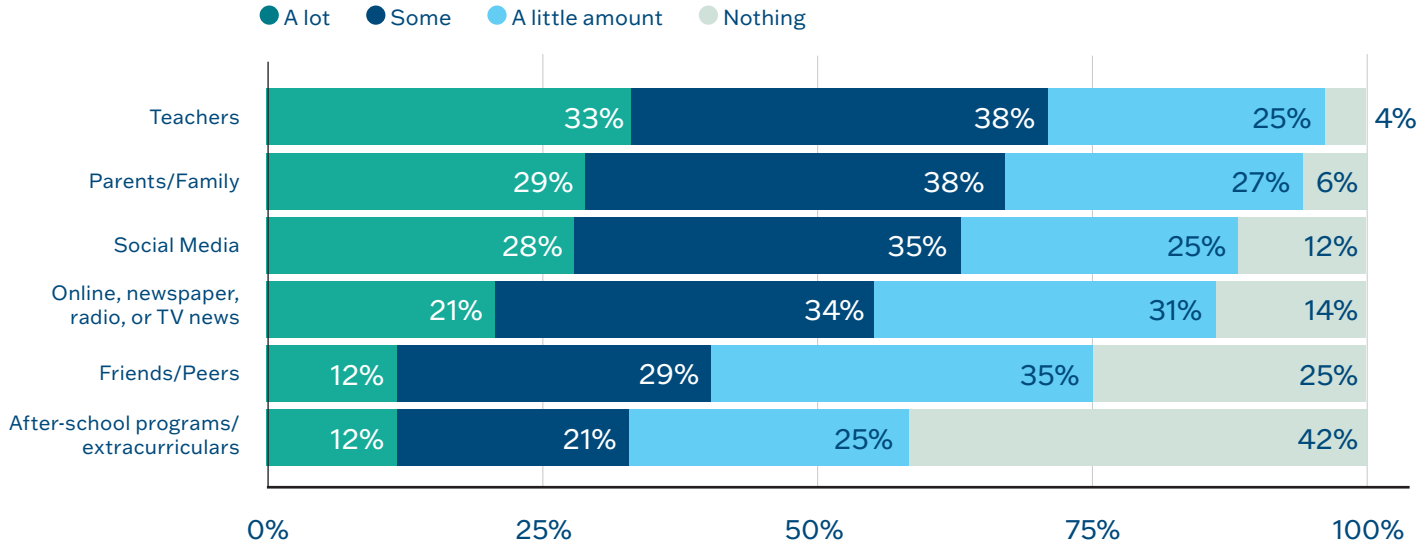
Among survey respondents, only 12% of teens felt they knew “a lot” about the causes of climate change, and only 10% felt they knew “a lot” about climate solutions.



Most teens get their information on climate change from teachers, parents, and social media.

In learning about climate change, 71% of respondents indicated they learned “a lot” or “some” from teachers, 67% from parents and family, and 63% from social media.

How much have you learned about climate change from the following sources of information?



The Causes of Climate Change

CLIMATE PRINCIPLES: THE CAUSES

EARTH IS OUR HOME.

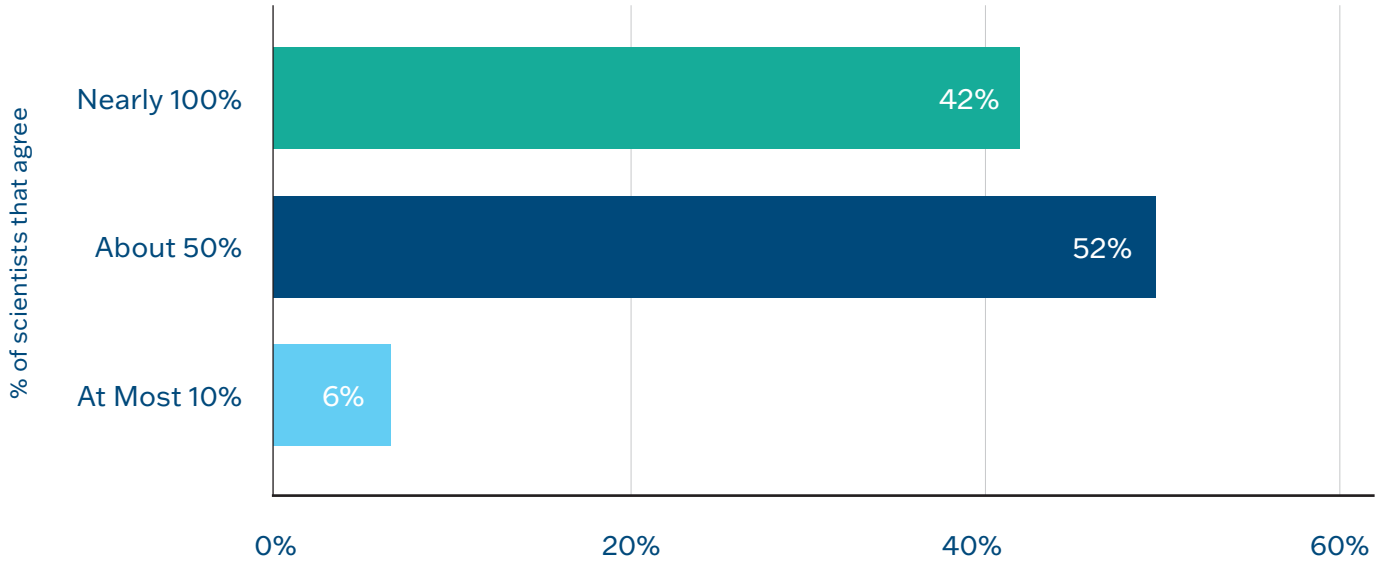
Our Earth has an invisible blanket of heat-trapping gases that naturally traps just the right amount of heat to create the perfect temperature for us to live— it's not too hot or too cold.

EARTH IS GETTING HOTTER BECAUSE OF US.

Humans are making our planet's natural blanket thicker by adding more heat-trapping gases to the atmosphere.

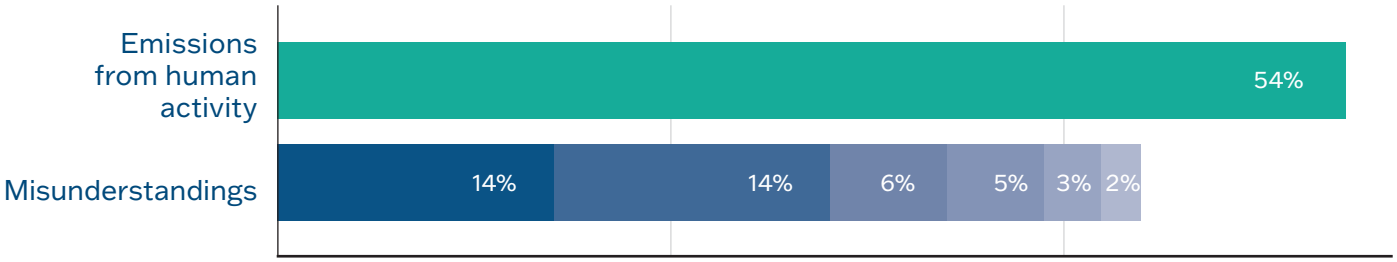
Only 42% of teens recognize the overwhelming scientific consensus on human-caused climate change.

What percentage of climate scientists agree that human activity is causing climate change?



Only 54% of teens identify greenhouse gas emissions related to human activity as a major contributor to climate change.

What is the biggest contributor to climate change?

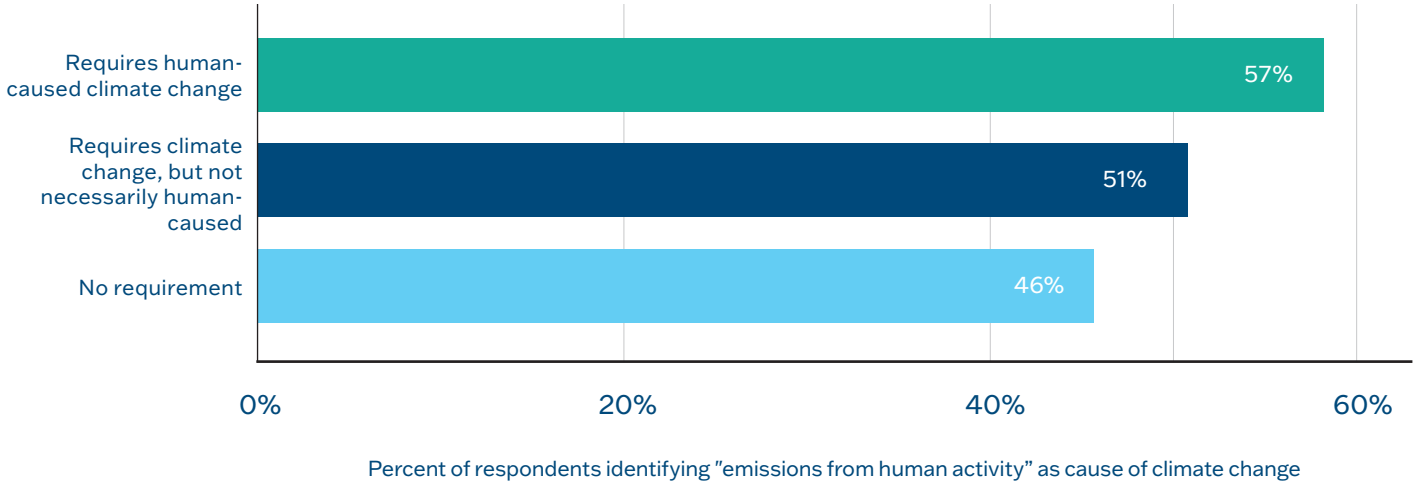


ANSWER CHOICES		%
✔	Emissions from human activity have increased the amount of greenhouse gases in the atmosphere	54%
✘	A hole in the ozone layer is allowing more ultraviolet rays to reach the earth from the sun	14%
✘	Earth's natural cycles—which have always led to peaks and valleys in temperature	14%
✘	I don't know	6%
✘	Changes in the sun are changing the climate on Earth	5%
✘	Cloud seeding to make it rain or snow—and other human efforts to change weather	3%
✘	The climate is not changing	2%

STATE STANDARDS

In states requiring the teaching of human-caused climate change in science standards, 57% of teens correctly identified human-related emissions as a major contributor. This figure dropped to 51% in states that include climate change but not specifically related to human activity and further to 46% in states with no climate change requirement.

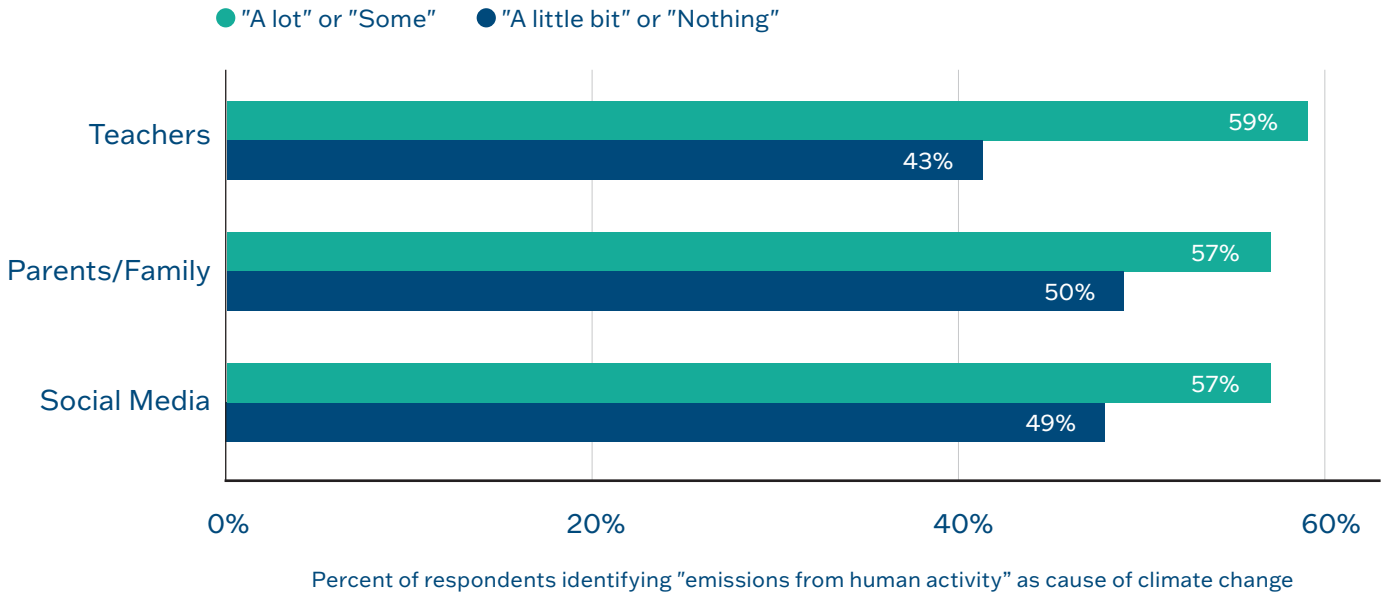
What are the main sources of our emissions causing climate change?



SOURCES OF INFORMATION

Teens who indicated hearing “some” or “a lot” about climate change from teachers, parents, and social media were more likely to recognize human-related emissions as a major contributor to climate change.

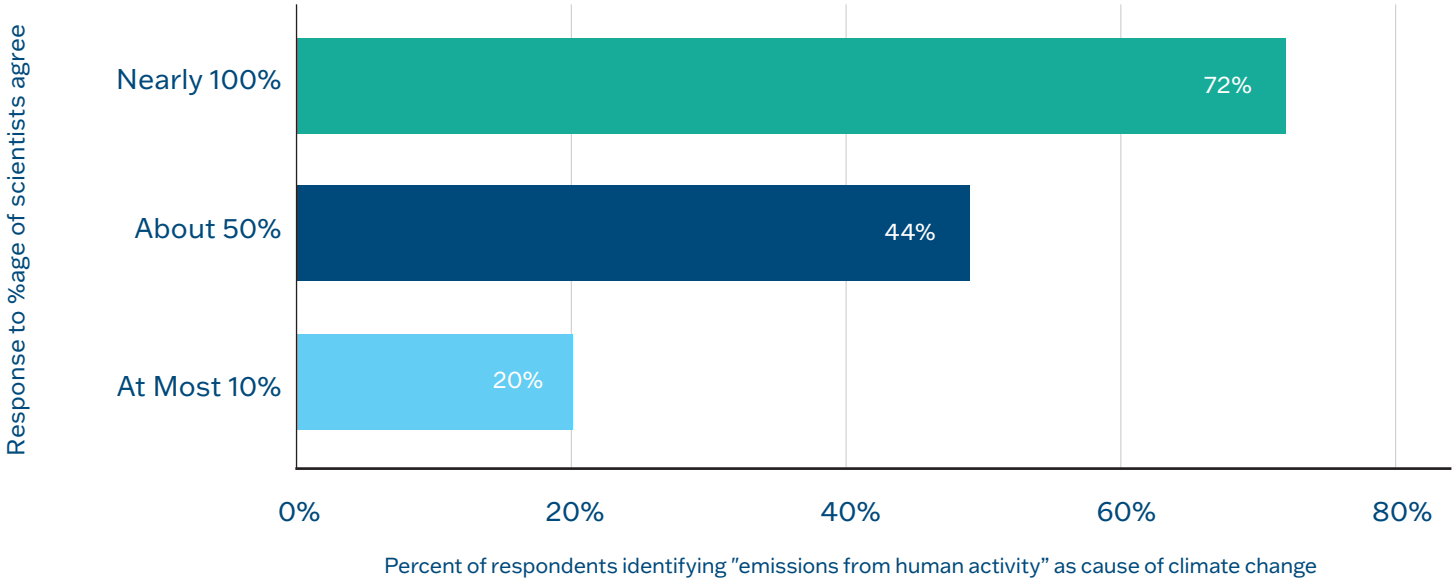
Percent of respondents identifying "emissions from human activity" as cause of climate change by source of climate information.



SCIENTIFIC CONSENSUS

72% of teens who understand the overwhelming scientific consensus on climate change also correctly identify emissions from human activity as the main cause of climate change, as compared to 44% of teens who think half of scientists agree and 20% who think there is limited consensus.

Percent of respondents identifying "emissions from human activity" as cause of climate change by understanding of scientific consensus on climate change.

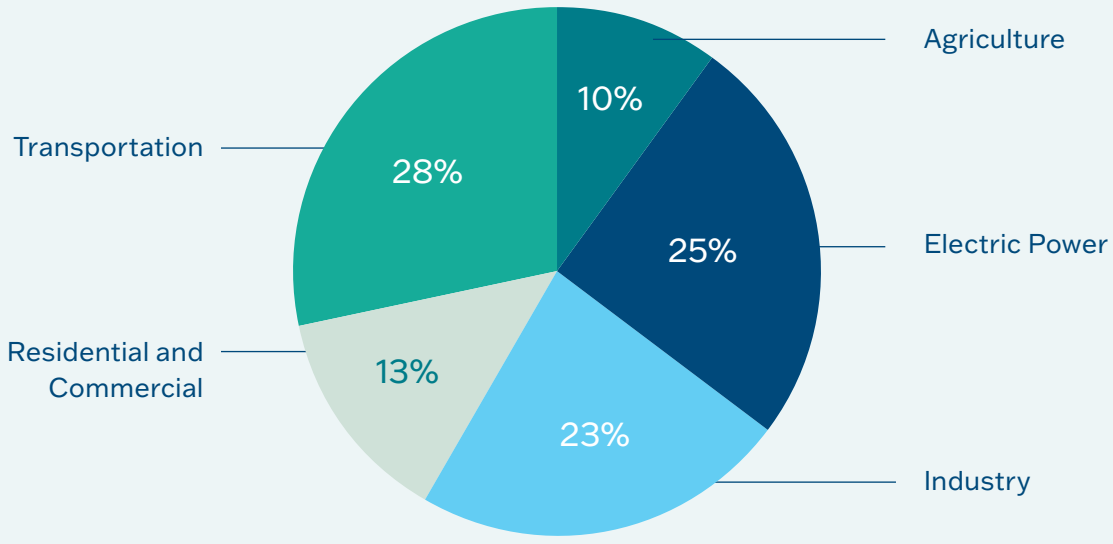


CLIMATE PRINCIPLES: MAIN SOURCES OF EMISSIONS

EARTH IS GETTING HOTTER BECAUSE OF US.

Our extra carbon pollution comes from electricity (how we make power), transportation (how we get around), manufacturing (how we make things), food (how we grow things to eat), buildings (how we live), and land-use (how we change the land and take care of nature).

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2022

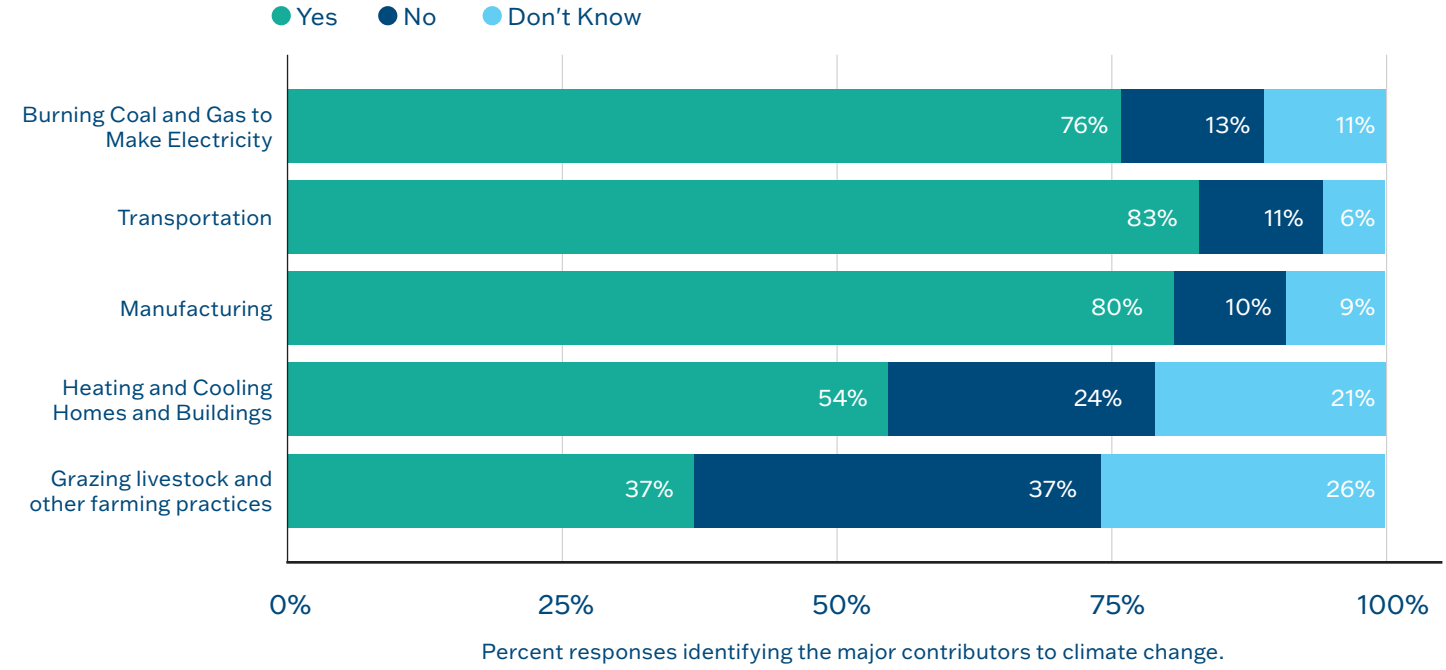


Source: EPA, 2024.

Many teens recognize transportation, manufacturing, and burning coal and gas for electricity as connected to climate change, but far fewer see the connection with buildings and agriculture.

- While 83% of teens identified transportation as a major cause of climate change, only 37% identified agriculture as a major cause of climate change.

What are the main sources of our emissions causing climate change?

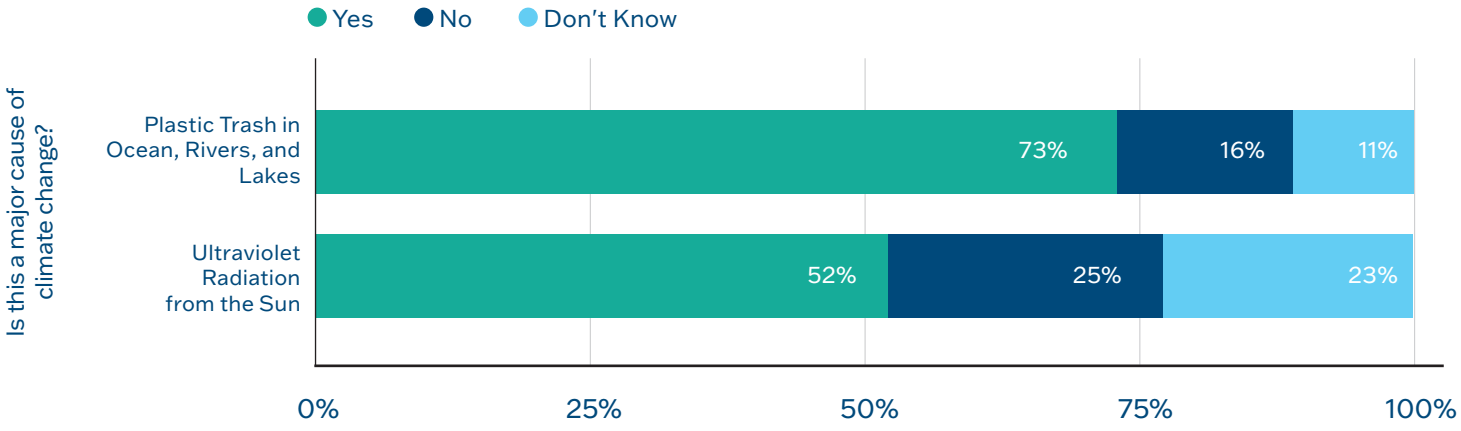


Percent responses identifying the major contributors to climate change.

Despite not being a major cause of greenhouse gas emissions, many teens believe plastic trash and ultraviolet radiation from the sun are a major cause of climate change.

- Only 16% of respondents indicated that plastic trash in our oceans, rivers, and lakes was ***not*** a major contributor to climate change, and only 25% indicated that ultraviolet radiation from the sun was ***not*** a major contributor to climate change.

Percent responses misidentifying major contributors to climate change.



The Consequences of Climate Change

CLIMATE PRINCIPLES: THE CONSEQUENCES

OUR CLIMATE IS CHANGING NOW, AND THAT HARMS US.

As the planet warms, our weather and climate change. Wet is wetter, dry is dryer, and hot is hotter. Storms, floods, and wildfires are more dangerous. This is affecting what we do, the way we work, and how we live. It's impacting us all, but it is hurting some people more than others: people who have less are being harmed more.

Teens better understand the impacts of climate change on extreme weather damaging property and animals losing habitats over impacts on people.

- While 69% of respondents saw climate change resulting in extreme weather damaging homes and 58% identifying polar bears and other animals losing their habitats, fewer understood the impact on people's health. Only 45% understood the impact of climate change on allergies and asthma and only 43% on hunger and malnutrition.

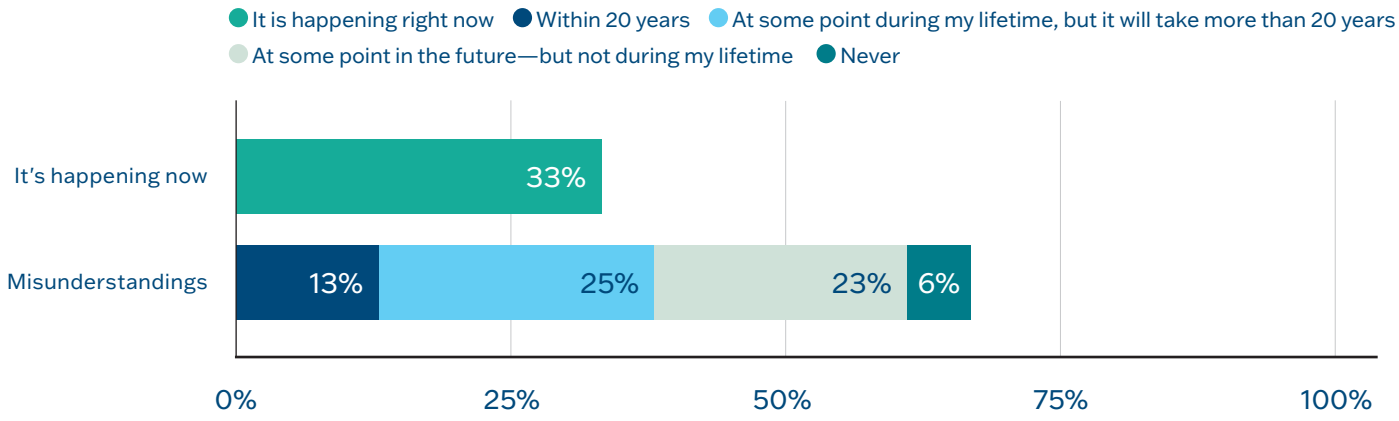
What are the impacts of climate change? Select all that apply. As a direct result of climate change:

ANSWER CHOICES		%
Evidence-based Impacts	Floods, fires, and storms are damaging more homes	69%
	Polar bears and other animals are losing their habitats	58%
	Allergies and asthma are getting worse	45%
	Hunger and malnutrition are increasing because it is harder to grow and transport food	43%
Misunderstandings	The ozone layer is shrinking	51%
	There are more giant explosions on the sun (solar flares)	28%
	I don't know	7%
	Not applicable—climate change is not currently impacting the earth	5%

Only 1 in 3 teens see climate change as having a major impact on the area where they live right now.

- More than half of the survey respondents did not think climate change will have a major impact on the area they live within the next 20 years.

When—if ever—do you expect climate change to have a major impact on the area where you live?



OUR WORLD IS CHANGING, BUT, TOGETHER, WE CAN MAKE THE CHANGES WE NEED FOR A BRIGHTER FUTURE

The Solutions to Climate Change

CLIMATE PRINCIPLES: THE SOLUTIONS

TOGETHER, WE CAN BUILD A BRIGHTER FUTURE.

MITIGATE: We can get rid of carbon pollution in how we make power, get around, make things, live, and grow food to eat. This includes shifting to clean energy, sustainable food systems, and nature-positive actions.

ADAPT: We can prepare for the ways climate change might impact us and make decisions to help keep our homes and communities safe.

COMMUNICATE: We can use our voice! We can tell people why this matters, what we are doing, and what they can do to help.

LEARN: We can learn more about climate change, including new jobs and other things we can do to make a difference, and we can create new ideas to help our communities and the world.

COLLABORATE: We can care for each other and our planet. We can make a difference—in our homes, our schools, and our communities—when we work together. We can create a pathway to a brighter future.

Many teens saw systemic changes and voluntary behavior changes as potential solutions to address climate change, while fewer identified the role of policy.

- 69% of respondents emphasized the importance of systems when advancing climate solutions, while 54% identified the benefits of individual behavior. Fewer saw advances to technology (42%) and changes to policy (37%) as important in reducing the impacts of climate change.

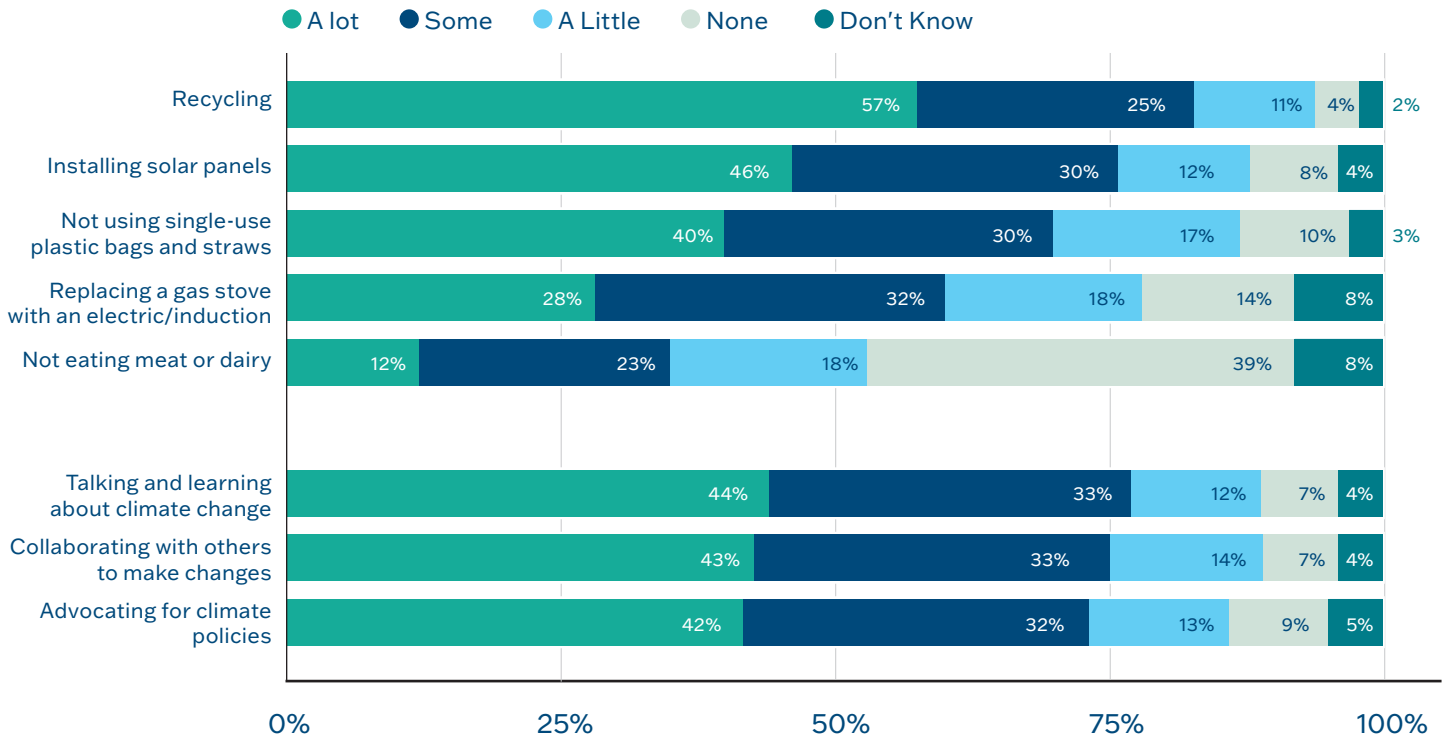
In your view, what is likely to reduce the impact of climate change? Select all that apply.

ANSWER CHOICES	%
Changes to systems like energy, transportation, agriculture, and business	69%
Voluntary changes to the behavior of individual people like me	54%
Advances in technology	42%
Changes to policy and law	37%
It's too late—there's nothing we can do	8%
Nothing—climate change does not exist	7%

Many teens overemphasize the role of recycling in advancing solutions, while fewer recognize communication as an important solution.

- 57% of teens thought recycling would impact climate change “a lot,” however, only 12% saw dietary choices and only 28% saw replacing gas stoves as a similarly impactful solution.
- While a majority of teens (57%) believe recycling has a significant impact on climate change, fewer see the importance of advocating for climate policies (42%), discussing and learning about climate change (44%), or collaborating with others to make changes (43%).

How much do you think each of the following actions would impact climate change?



Note: Some percentages represented in the charts in this report do not add to 100% due to rounding.

STATE STANDARDS: 2025 UPDATE

In 2020, we conducted a state policy landscape which included an assessment of state science and social studies standards to determine the extent to which they included human-caused climate change. We reviewed the K-12 science standards for all 50 states and the District of Columbia for any mention of climate change. We sorted these standards into three categories:

- Requires teaching human-caused climate change
- Requires teaching climate change but not as predominantly human-caused, and
- Climate change only included in optional high school classes, if at all.

In this snapshot, we have updated our state standard analysis for 2025. Importantly, as of 2025:

- In science, 32 states and DC require teaching human-caused climate change in science classes; 15 require teaching climate change but not necessarily human-caused; and 2 states have including climate change as optional in high school courses.
- In social studies, 9 states and DC require teaching climate change in social students although not necessarily human-caused; and 16 states and DC require teaching sustainability.

DO STATE SCIENCE STANDARDS ADDRESS CLIMATE CHANGE?

States	Requires teaching human-caused climate change	Requires teaching climate change but not as predominantly human-caused	Climate change only included in optional high school classes
Alabama*			
Alaska	✘		
Arizona	✘		
Arkansas	✔		
California	✔		
Colorado	✘		
Connecticut	✔		
Delaware	✔		
Florida		✘	
Georgia			✘
Hawaii	✔		
Idaho*		✘	
Illinois	✔		

Indiana*	✘		
Iowa	✔		
Kansas*	✔		
Kentucky*	✔		
Louisiana	✘		
Maine	✔		
Maryland	✔		
Massachusetts	✘		
Michigan	✔		
Minnesota		✘	
Mississippi		✘	
Missouri		✘	
Montana		✘	
Nebraska		✘	
Nevada	✔		
New Hampshire	✔		
New Jersey*	✘		
New Mexico	✔		
New York	✘		
North Carolina*		✘	
North Dakota	✘		
Ohio		✘	
Oklahoma		✘	
Oregon*	✔		
Pennsylvania*	✘		
Rhode Island	✔		
South Carolina*	✘		
South Dakota		✘	
Tennessee	✘		
Texas*			✘
Utah*		✘	
Vermont	✔		
Virginia		✘	
Washington	✔		
Washington D.C.	✔		
West Virginia*		✘	
Wisconsin	✘		
Wyoming*		✘	
TOTALS	**33**	**15**	**2**

* = Standards updated since July 2020 ✔ = Uses NGSS

DO SOCIAL STUDIES STANDARDS ADDRESS ENVIRONMENTAL ISSUES?

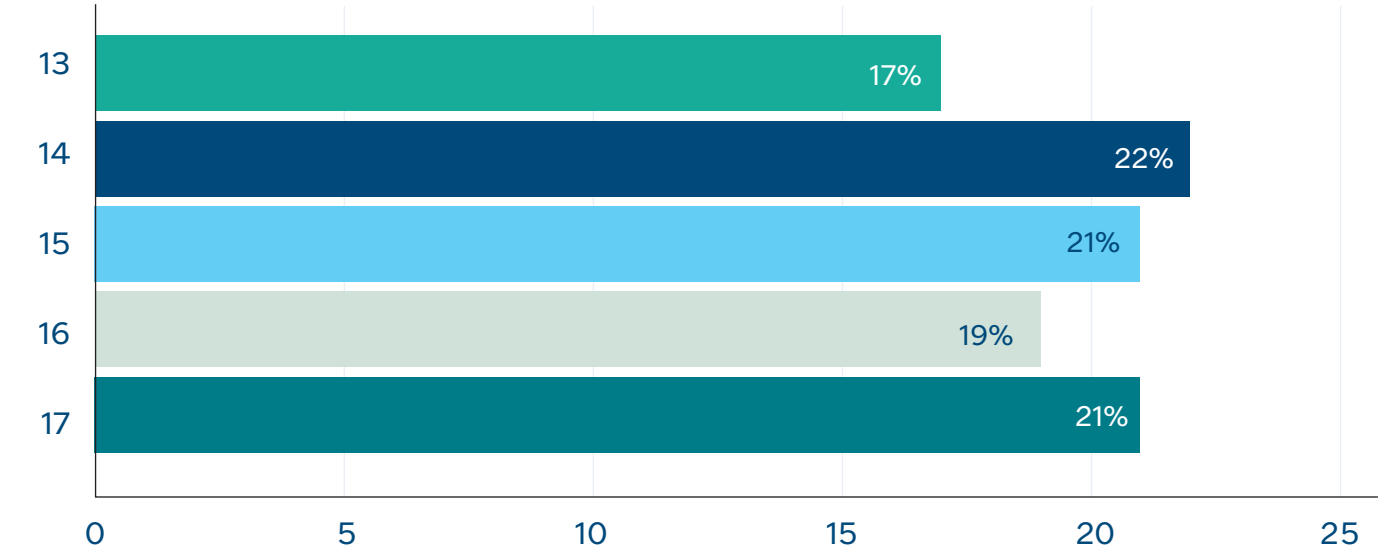
States	Climate Change		Sustainability	
	Requires teaching climate change (not necessarily human-caused)	Allows but does not require teaching climate change (optional content or optional class)	Requires teaching sustainability	Allows but does not require sustainability (optional content or optional class)
Alabama*		✘		
Alaska*	✘		✘	
Arizona			✘	
Arkansas*			✘	
California		✘*		✘*
Colorado*			✘	
Connecticut				
Delaware*				
Florida*				
Georgia*			✘	
Hawaii	✘		✘	
Idaho*				
Illinois*				
Indiana*	✘			✘
Iowa*				
Kansas		✘		
Kentucky*				
Louisiana*				
Maine				
Maryland*	✘		✘	
Massachusetts	✘			
Michigan		✘		
Minnesota*	✘			
Mississippi*				✘
Missouri				
Montana*				
Nebraska		✘		
Nevada				
New Hampshire		✘		
New Jersey	✘		✘	
New Mexico*		✘	✘	
New York				
North Carolina*		✘		
North Dakota				
Ohio			✘	

Oklahoma	✘		✘	
Oregon		✘	✘	
Pennsylvania				
Rhode Island*	✘			
South Carolina			✘	
South Dakota*				
Tennessee				
Texas*				
Utah*		✘	✘	
Vermont		✘		
Virginia*				
Washington			✘	
Washington, D.C.*	✘		✘	
West Virginia		✘		✘
Wisconsin			✘	
Wyoming				
TOTALS	**10**	**12**	**17**	**4**

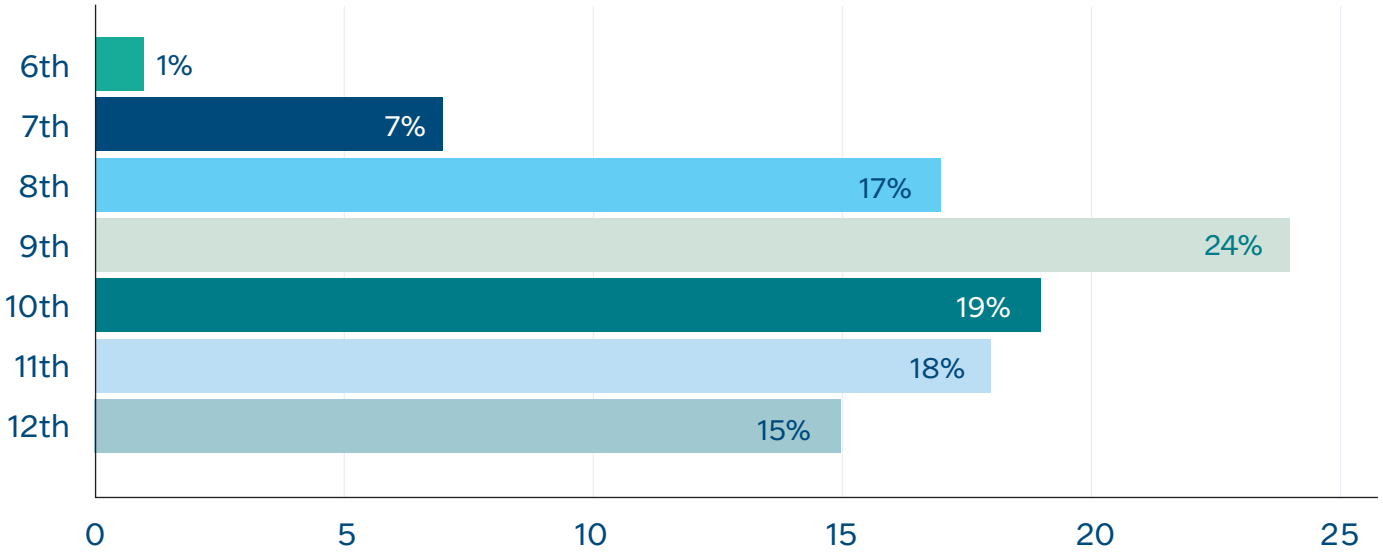
* = Standards updated since July 2020

APPENDIX: SURVEY DEMOGRAPHICS

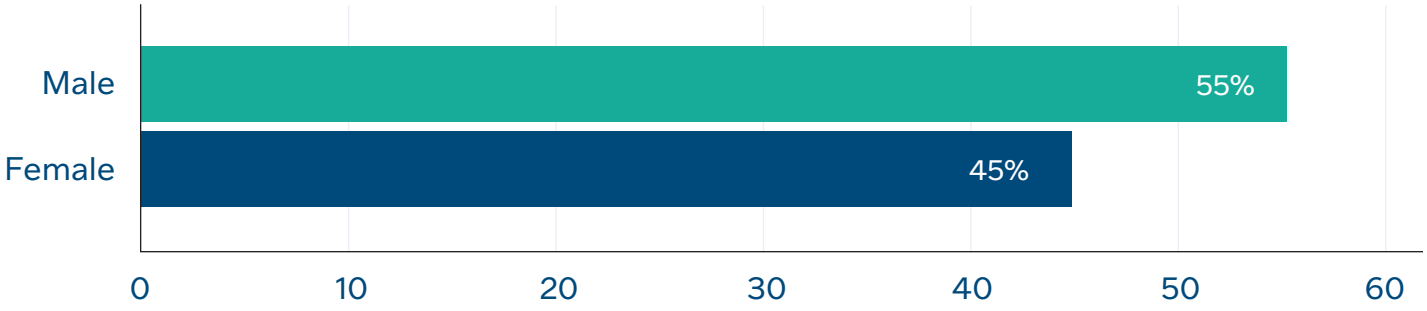
Age



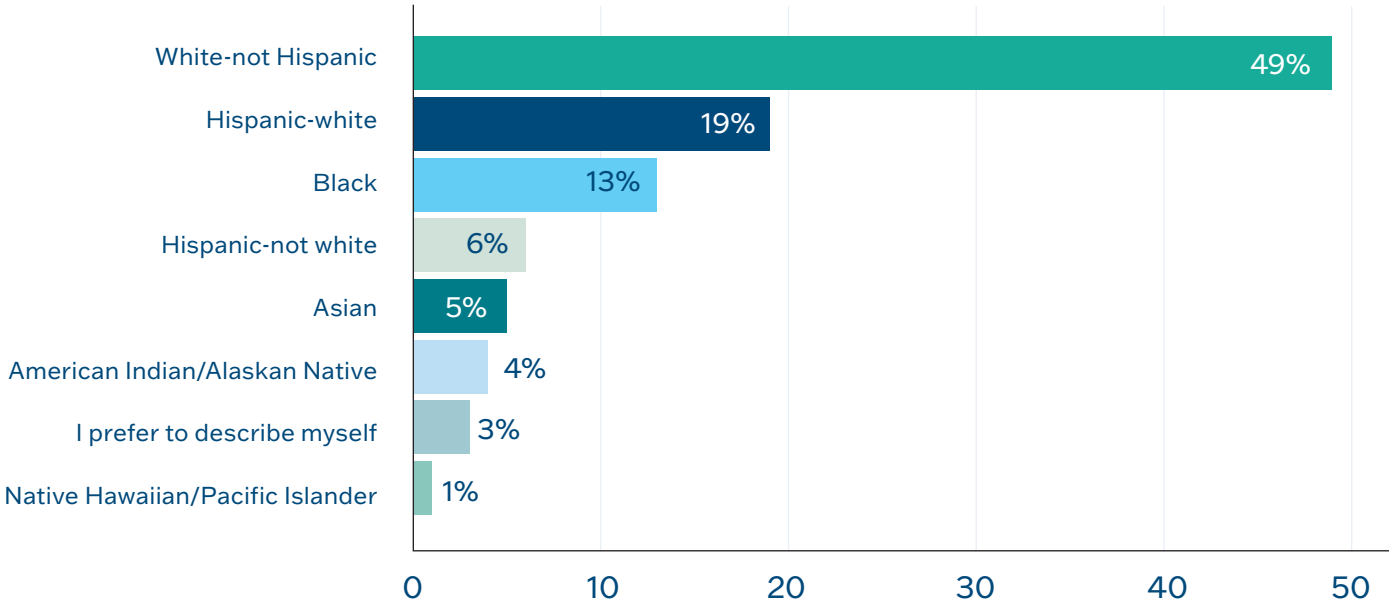
Grade



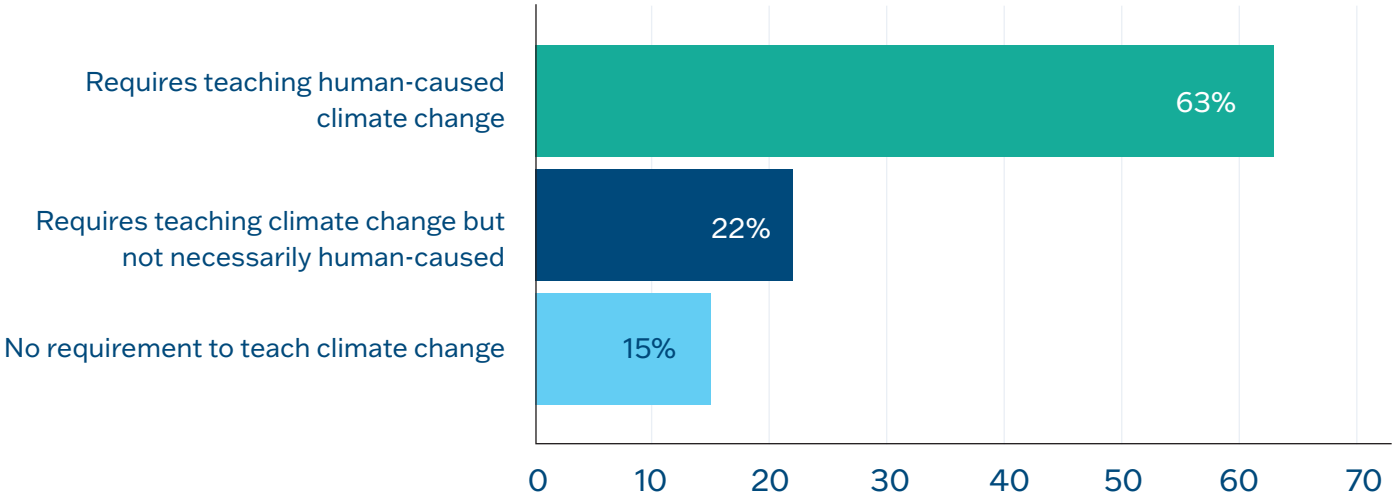
Gender



Race/Ethnicity



Science Standards Code based on respondent's state of residence



OUR CHANGING CLIMATE SHAPES THE FUTURE FOR TODAY'S CHILDREN AND YOUTH

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