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# Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies

*55% of Americans expect routine space tourism over next 50 years*

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## How we did this

Pew Research Center conducted this study to understand Americans' views of space issues. For this analysis, we surveyed 10,329 U.S. adults from May 30 to June 4, 2023.

Everyone who took part in the survey is a member of the Center's American Trends Panel (ATP), an online survey panel that is recruited through national, random sampling of residential addresses. This way, nearly all U.S. adults have a chance of selection. The survey is weighted to be representative of the U.S. adult population by gender, race, ethnicity, partisan affiliation, education and other categories. Read more about the [ATP's methodology](#).

Here are the [questions used for this report](#), along with responses, and [its methodology](#).

# Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies

*55% of Americans expect routine space tourism over next 50 years*

In a changing world of space exploration defined by intensifying private efforts and competition between a growing number of nations,

Americans continue to see an essential role for the United States as a leader in space exploration, according to a new Pew Research Center survey.

About seven-in-ten Americans say it is essential that the U.S. continue to be a world leader in space, while 30% say this is not an essential role for the country. Support for a U.S. leadership role in space is widely held across groups, including by majorities of Republicans and Democrats alike.

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## 69% of Americans say it is essential for U.S. to be a leader in space exploration

*% of U.S. adults who say it is \_\_\_ that the United States continue to be a world leader in space exploration*



Note: Respondents who did not give an answer are not shown.  
Source: Survey of U.S. adults conducted May 30–June 4, 2023.  
“Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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More than 50 years ago, space exploration was a race to the moon between the U.S. and the former Soviet Union. In 1998, the International Space Station launch marked a highlight for international cooperation in space between the U.S., Russia, Japan, Canada and Europe.

Today, more countries, such as India and China, are pursuing their own goals in space, which could challenge the U.S. as a world leader. China, a country many Americans [view as a competitor](#), has goals of sending [human astronauts to the moon](#) and expanding its own space station.

Most Americans continue to believe that the U.S. space agency NASA has a critical role to play, even as private space companies like SpaceX, Blue Origin and Virgin Galactic are increasingly involved in space. Overall, 65% of U.S. adults say it is essential that NASA continue to be involved in space exploration, the survey finds. A smaller share (32%) believe that private companies will ensure enough progress is made in space exploration, even without NASA’s involvement.

The new survey takes a wide-ranging look at Americans' attitudes toward space, including the contributions of private companies, priorities for NASA and public expectations for the next 50 years in space. Other important findings from the survey of 10,329 U.S. adults conducted May 30 to June 4, 2023, include:

- **NASA objectives:** Monitoring asteroids that could potentially hit the Earth ranks at the top of the public's priority list for NASA. Monitoring the planet's climate system also ranks highly as a priority for NASA. But relatively few Americans say it should be a top priority to send human astronauts to the moon or Mars.
- **Space tourism:** 55% of U.S. adults expect that people will routinely travel in space as tourists in the next 50 years. However, Americans, on balance, are not enthusiastic about traveling to space themselves: 35% say they would be interested in orbiting Earth in a spacecraft, compared with 65% who say they would not be interested in this.
- **Evaluations of private space companies:** More Americans think private space companies are doing a mostly good than bad job building safe and reliable spacecraft, making important contributions to space exploration, and opening up space travel to more people. Still, many are unsure how private companies are doing in these areas, reflecting limited familiarity with them. And the public strikes a less positive tone when it comes to how private space companies are doing limiting debris in space from rockets and satellites: 26% say they are doing a mostly bad job, compared with 21% who say they are doing a mostly good job (53% say they're not sure).
- **Americans' engagement with space:** 47% of Americans say they've done at least one of four space-related activities in the last year, including 26% who say they've looked at an image from a space telescope, such as the James Webb Space Telescope.

## Future expectations for developments in space

As Americans look to the future of space, a large share expect problems with human-made debris. More than half expect space tourism to become routine. But the public is less confident that other events will happen – including discovering intelligent life and building colonies on other planets.

About seven-in-ten Americans (69%) think there will definitely or probably be a major problem with debris in space from rockets, satellites and other human-made objects over the next 50 years. Fewer (30%) think this definitely or probably will not happen.

When it comes to space tourism, a majority of Americans (55%) expect people will routinely travel to space as tourists by the year 2073, while 44% think this will not happen. The share of Americans who think space tourism will become routine over the next 50 years is up 5 percentage points since 2018, [the last time the Center asked this question](#).

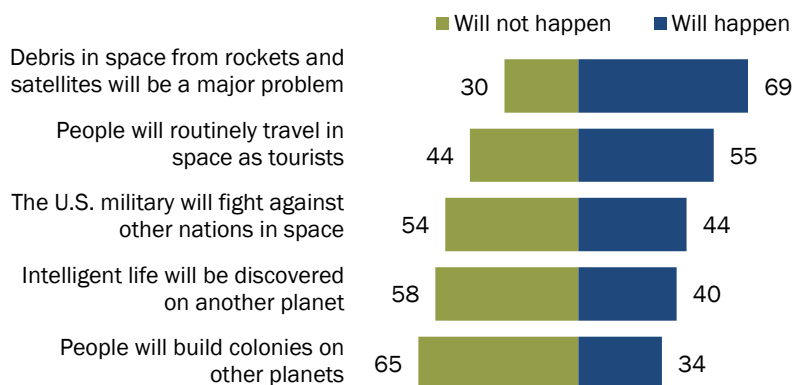
Americans see other futuristic possibilities in space as less likely in the next 50 years. Still, 44% think the U.S. will definitely or probably fight against other nations in space in the next 50 years. In 2019, the U.S. established Space Force as a separate branch of the military.

Four-in-ten Americans believe intelligent life will definitely or probably be discovered on another planet over the next 50 years; 58% don't expect this to happen. In [a 2021 Pew Research Center survey](#), 65% of Americans said their best guess was that intelligent life does exist on other planets.

Only about one-third of Americans say colonies that can be lived in for long periods of time will be built on other planets in the next 50 years, while 65% say this will not happen. The share of

### 55% of Americans think people will routinely travel in space as tourists in the next 50 years

% of U.S. adults who say each of the following \_\_\_ by the year 2073



Note: Respondents who did not give an answer are not shown.

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“Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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Americans who think space colonies will be built in the next 50 years is virtually unchanged since 2018.

## Public views of NASA's top priorities in space

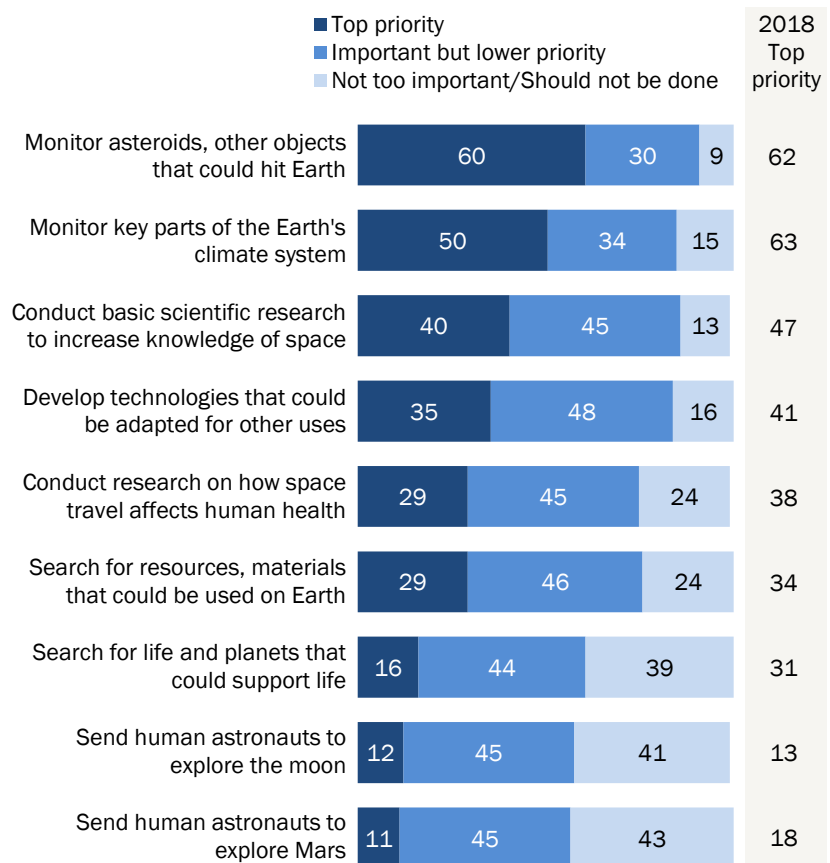
NASA is engaged in a wide range of activities in space, including exploration and applied and basic research. When asked what NASA's priorities should be, Americans rank monitoring asteroids that could hit the Earth and monitoring the Earth's climate system at the top of the list. There's far less public urgency for NASA to send humans to the moon or Mars and to search for other planets that could support life.

Six-in-ten Americans say it's a top priority for NASA to monitor asteroids and other objects that could potentially hit the earth. Another 30% say this is an important, but lower, priority for NASA, and just 9% say this is not too important or should not be done.

Monitoring key parts of the Earth's climate system ranks second on the public's list: 50% say this should be a top priority for NASA.

### Americans place monitoring asteroids that could hit Earth at top of NASA's priority list

% of U.S. adults who say each of the following should be \_\_\_ for NASA



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

"Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies"

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Fewer than half of Americans rate the other seven objectives the Center asked about as top priorities for NASA.

Four-in-ten say conducting basic scientific research to increase knowledge of space should be a top priority. And 35% say developing technologies that could be adapted for other uses should be a top priority. About three-in-ten each say conducting scientific research on how space travel affects human health and searching for raw materials that could be used on Earth are top priorities for NASA. Most Americans, however, say each of these four objectives are either a top or important, but lower, priority for NASA.

Few Americans say searching for life and planets that could support life (16%) should be a top priority for NASA; a larger share (39%) say this is not too important or that NASA should not do this.

Just 12% of Americans say sending human astronauts to explore the moon should be a top priority for NASA, and only 11% say this about sending human astronauts to explore Mars. Larger shares think both of these things are not too important for NASA or that they should not be done (41% and 43%, respectively).

In April, [NASA announced the crew for the Artemis II mission](#), scheduled for late 2024, which would fly around the moon, taking astronauts the furthest from Earth since the 1970s. The next planned mission would be for a lunar landing. [Missions to the moon are considered important preparation](#) for sending astronauts to Mars.

Compared with 2018, Americans see many of these priorities as less pressing than they did five years ago, with declines in the shares who call each a top priority. Still, large shares continue to view most of them as important, but lower, priorities for NASA. (Refer to [the topline](#) for more details.)

### **Large majority of Americans see NASA favorably**

About three-quarters of Americans said they have a favorable opinion of NASA in [a March 2022 Pew Research Center survey](#). Only 9% said they had an unfavorable view. Of the 16 federal agencies included in the survey, NASA had the third-highest favorable rating.

Large shares of Democrats (79%) and Republicans (71%), including those who lean to each party, expressed a favorable opinion of NASA.



**Those most familiar with NASA are more likely to place the highest priority on a range of objectives for the agency**

About one-in-ten Americans say they have heard or read a lot about NASA in the last year. Another 56% say they have heard a little, and 33% say they have heard nothing at all. These shares are virtually unchanged since 2018.

Those most familiar with NASA are more likely than those who have heard less about the agency to say each of the nine objectives included in the survey should be a top priority for NASA. For instance:

- Those who have heard a lot about NASA are about twice as likely as those who have heard nothing at all to say conducting basic scientific research should be a top priority (59% vs. 28%).
- 44% of those who are most familiar with NASA say conducting scientific research on how space travel affects human health should be a top priority, compared with 24% of those least familiar with the space agency.

For more information, [refer to the Appendix](#).

**Men are especially likely to support a U.S. leadership role in space, be familiar with NASA**

Majorities of men and women say it is essential that the U.S. continue to be a world leader in space exploration, though men are 12 percentage points more likely than women to take this view (75% vs. 63%).

Men are also somewhat more likely than women to say they are familiar with NASA, saying they have heard at least a little about the U.S. space agency in the past year (75% of men vs. 60% of women).

Nonetheless, men and women have largely similar views on most of NASA's priorities included in the survey. For instance, nearly equal shares of men (61%) and women (60%) say it should be a top priority for NASA to monitor asteroids and other objects that could potentially hit the Earth.

One area in which there is a sizable difference between men and women is their rating of NASA conducting basic scientific research: 47% of men say conducting basic scientific research to increase knowledge of space should be a top priority, compared with 35% of women.

For more, [refer to the Appendix](#).

## **Republicans and Democrats have much in common in their views on the U.S. role in space and NASA's priorities, but differ on monitoring Earth's climate**

Republicans and Democrats – including those who lean to each party – are nearly equally likely to say the U.S. should be a world leader in space exploration (72% and 69%, respectively). Partisans also have largely similar views on many of NASA's priorities.

For example, majorities of Democrats (64%) and Republicans (57%) say monitoring asteroids that could hit the Earth should be a top priority for NASA. At the other end of the spectrum, relatively few Democrats and Republicans place top priority on sending human astronauts to the moon (12% and 13%) or Mars (12% and 10%).

However, partisans differ over how much priority NASA should put on monitoring the Earth's climate system. About seven-in-ten Democrats say monitoring key parts of the climate should be a top priority for NASA. By contrast, just 30% of Republicans place the highest priority on this (25% say it's not too important or should not be done at all). Previous Center research has shown that Republicans are much less likely than Democrats to view climate change as a major problem and to say it [poses a major threat to the country](#).

Democrats are also more likely than Republicans to prioritize conducting basic research to understand space, though the difference in views is more modest: 47% of Democrats say conducting basic research to increase knowledge and understanding of space should be a top priority for NASA, compared with 35% of Republicans. Past Center surveys have found Democrats are more likely than Republicans to say government investments in [basic scientific research](#) usually pay off in the long run.

For more on views on NASA's priorities by gender, political party and education, [refer to the Appendix](#).

## Americans see NASA playing essential role as private companies become more involved

The private sector has become increasingly involved in space exploration. Companies like Virgin Galactic, SpaceX and Blue Origin are [taking people to space in their own private spacecrafts](#). And NASA is increasingly partnering with private companies to accomplish its missions.

Still, Americans by and large view NASA as critical to space exploration: 65% say it is essential that NASA continue to be involved in space exploration, while far fewer (32%) say private companies will ensure enough progress is made in space exploration, even without NASA's involvement. While the private space landscape has evolved significantly over the last five years, public views on NASA's role are nearly identical to those measured in 2018, the last time the Center asked the question.

The belief that NASA should continue to be involved in space exploration is widely held across demographic groups. For instance, similar majorities of the youngest and oldest adults say it is essential that NASA continue to be involved in space exploration (65% of adults ages 18 to 29 vs. 67% of adults 65 and older).

On balance, more than half of both Republicans and Democrats think it is essential that NASA continue to be involved in space exploration, though Democrats are 20 percentage points more likely than Republicans to hold this view (76% vs. 56%).

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### 65% of Americans believe it's essential for NASA to continue to be involved in space exploration

*% of U.S. adults who say ...*

- It is essential that NASA continue to be involved in space exploration
- Private companies will ensure that enough progress is made in space exploration, even without NASA's involvement



Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

"Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies"

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## **Americans give private space companies more positive than negative ratings on building safe and reliable spacecraft, contributing to space exploration and opening up space travel**

When asked to assess four core areas of private space companies' performance, Americans offer more positive than negative assessments of how private companies are doing at building safe and reliable spacecraft, contributing to space exploration, and opening up space travel to more people.

Ratings are more mixed when it comes to the job private companies are doing limiting debris from objects like rockets and satellites. And across all four areas of performance, many Americans say they are unsure, reflecting the limits of the public's familiarity with the operations of private space companies.

In three of the four areas, Americans are far more positive than negative:

- More Americans think private space companies are doing a mostly good job than a mostly bad job building rockets and spacecraft that are safe and reliable (48% vs. 12%); about four-in-ten say they aren't sure how private space companies are doing at this.
- 47% say private space companies are doing a mostly good job making important contributions to space exploration, compared with just 12% who say they are doing a mostly bad job; 40% of Americans say they aren't sure.
- Public ratings also tilt positive when it comes to the role these companies are playing opening up space travel to more people: 41% say they are doing a mostly good job in this area, while 15% say they are doing a mostly bad job and 43% say they're not sure.

By contrast, evaluations of the job private space companies are doing limiting space debris are much less positive.

Slightly more Americans think private space companies are doing a mostly bad job than a mostly good job limiting debris from rockets and satellites in space (26% vs. 21%). Roughly half of U.S. adults (53%) say they are not sure how private space companies are doing on this issue.

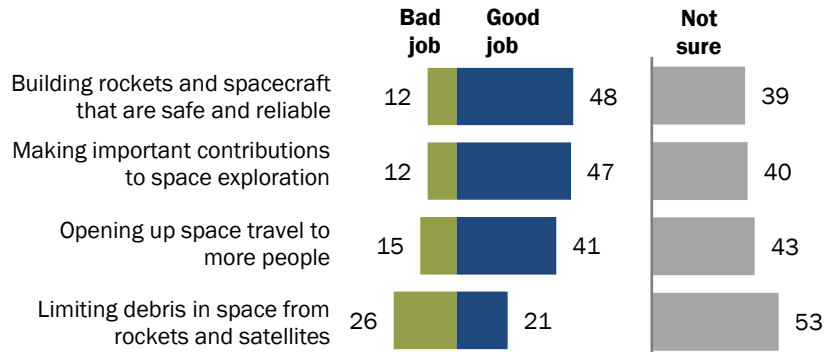
Democrats are especially critical of private space

companies' efforts to limit debris in space. Among Democrats, 34% say they are doing a mostly bad job at this, while just 16% say they are doing a mostly good job (49% say they aren't sure). Among Republicans, more say private companies are doing a mostly good than mostly bad job limiting debris in space (27% to 18%, with 54% not sure).

For the three other aspects of private space company performance included in the survey, partisan groups are largely in agreement, though Republicans offer positive assessments by a wider margin than do Democrats. For more, [refer to the Appendix](#).

## Public ratings of private space companies tilt positive for most aspects of their performance

*% of U.S. adults who think private space companies are doing a mostly \_\_\_ at each of the following*



Note: Respondents who did not give an answer are not shown.

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“Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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## **Americans who are most familiar with private space companies offer largely positive evaluations**

About two-in-ten Americans say they have heard or read a lot about private space companies developing space exploration capabilities, while 54% say they have heard a little about this and 24% say they have heard nothing at all. The share of Americans who have heard at least a little about private space companies' efforts is up 13 percentage points since 2018. Men and those with higher levels of education are particularly likely to say they are familiar with private space companies.

Americans most familiar with private companies' space efforts are especially positive in their evaluations of the job they are doing. Large majorities of those who have heard a lot about private space companies say they are doing a mostly good job building reliable spacecraft and rockets, as well as making important contributions to space exploration.

For example, among those who say they have heard a lot about private space companies, 72% say they are doing a mostly good job making important contributions to space exploration, while 12% say they are doing a mostly bad job and 16% are not sure.

Those with less familiarity are far less likely to give these private companies a positive rating in building reliable spacecraft and rockets and making important contributions to space. Still, small shares in this group give private companies negative ratings; sizable shares say they are not sure.

For more, [refer to the Appendix](#).

## Americans' interest and participation in space-related activities

When it comes to interest in space tourism, more Americans say they would *not* be interested in orbiting Earth in a spacecraft (65%) than say they would be interested in this (35%). Interest is down 7 percentage points from 2018, when 42% said they would definitely or probably be interested in this.

The space tourism industry is expected to expand significantly in coming decades, with multiple companies engaged in commercial spaceflight operations.

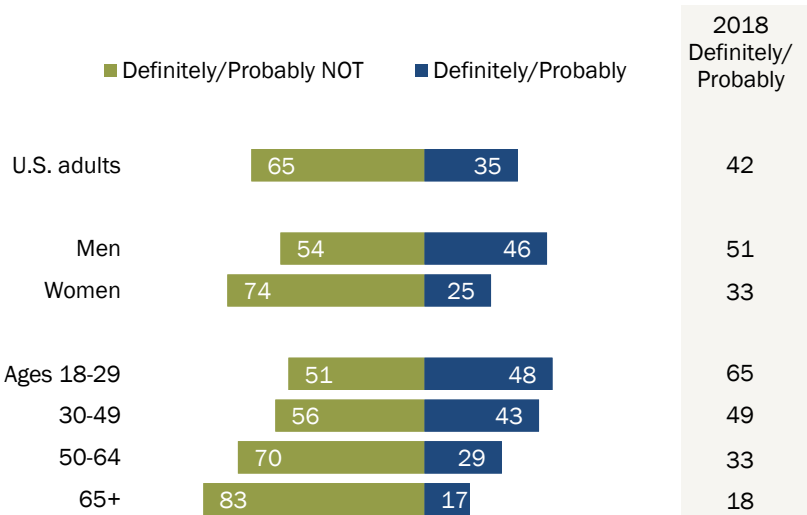
Younger adults are more interested in orbiting Earth

than older ones. About half of those ages 18 to 29 say they would definitely or probably be interested in orbiting the Earth in a private spacecraft. Interest is lower among older adults. For instance, just 17% of those ages 65 and older say they would want to do this. Still, interest among the youngest adults in orbiting the Earth is significantly lower than in 2018, when 65% expressed interest.

In addition to age differences, men (46%) are more likely than women (25%) to say they are interested in traveling on a private spacecraft to orbit the Earth.

### 35% of Americans say they would be interested in traveling on a private spacecraft to orbit the Earth

% of U.S. adults who say they would \_\_\_ be interested in orbiting the Earth in a spacecraft



Note: Respondents who did not give an answer are not shown.  
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## Americans' engagement with space-related activities

The survey measures some of the ways Americans can engage with space-related activities and events in their own lives. Most Americans say they've done at least one space-related activity before, like visiting a planetarium or watching a space launch, though the shares who have done so more recently (within the last year) are more modest.

Overall, 26% of U.S. adults say they have looked at an image from a space telescope, such as [the James Webb Space Telescope](#), in the past year. The James Webb Space Telescope was launched at the end of 2021 and is the largest telescope in space.

A similar share (23%) say they've seen an astronomical event such as an eclipse or meteor shower in the last year, and 19% say they've watched a space launch within the last 12 months. A relatively smaller share (11%) say they've visited a planetarium or space museum recently.

Taken together, nearly half of Americans (47%) say they've done at least one of these space-related activities in the last year.

### Almost half of Americans have engaged in a space-related activity within the last year

% of U.S. adults who have \_\_\_ the following activities outside of work

	Done in the past 12 months	NET Ever done
Looked at an image from a telescope, like the James Webb Space Telescope	26	50
Seen an astronomical event such as an eclipse or meteor shower	23	76
Watched a space launch	19	57
Visited a planetarium or space museum	11	71
Done at least one of these space-related activities	47	90

Note: Respondents who gave other responses or did not give an answer are not shown.  
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Men are more likely than women to say they've participated in at least one space-related activity within the last year (55% vs. 38%). The gender gap is seen across most items included in the survey; the largest gap across these items is in the shares who say they've looked at an image from a space telescope in the last year (36% of men vs. 17% of women).

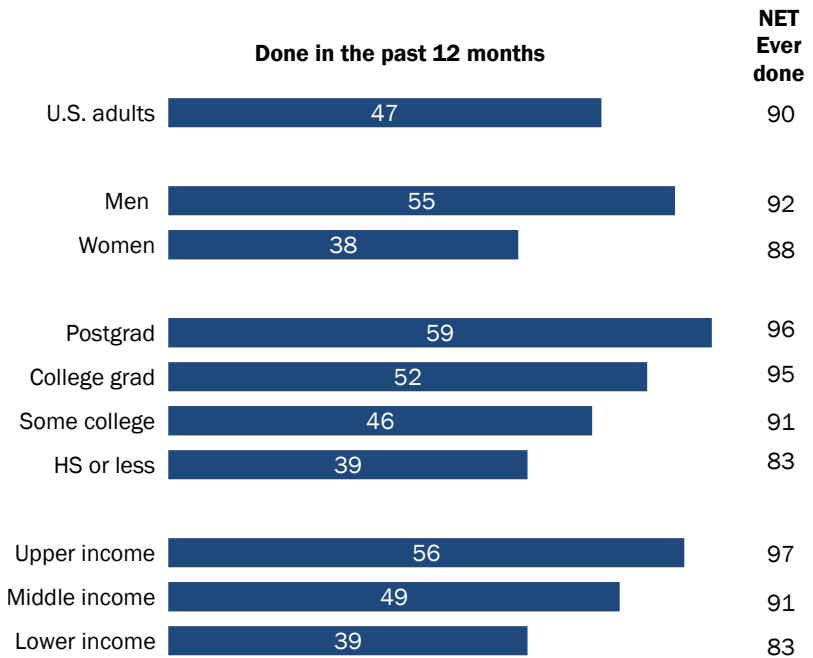
There are also differences in engagement with space activities by education and income levels.

Those with higher levels of education are more likely to have participated in a space-related activity recently than those with lower levels of education. For instance, 59% of postgraduates have done at least one of four space-related activities within the last year, compared with 39% of those with a high school diploma or less education.

There's a similar pattern by income, with higher earners more likely to engage with space activities than those earning less.

**Men are more likely than women to have taken part in a space-related activity recently**

*% of U.S. adults who have \_\_\_ at least one of four space-related activities*



Note: Respondents who gave other responses or did not give an answer are not shown. Space-related activities include having viewed an image from a space telescope; seen an astronomical event such as an eclipse or meteor shower; watched a space launch; and visited a planetarium or space museum. Family income tiers are based on adjusted 2021 earnings.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

"Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies"

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In addition, the project benefited greatly from the guidance of the Pew Research Center methodology team: Courtney Kennedy, Andrew Mercer, Ashley Amaya, Dorene Asare-Marfo, Dana Popky and Arnold Lau.

## Methodology

### The American Trends Panel survey methodology

#### Overview

The American Trends Panel (ATP), created by Pew Research Center, is a nationally representative panel of randomly selected U.S. adults. Panelists participate via self-administered web surveys. Panelists who do not have internet access at home are provided with a tablet and wireless internet connection. Interviews are conducted in both English and Spanish. The panel is being managed by Ipsos.

Data in this report is drawn from ATP Wave 128, conducted from May 30 to June 4, 2023, and includes an [oversample](#) of Hispanic, non-Hispanic Asian, non-Hispanic Black, and 18- to 29-year-old adults in order to provide more precise estimates of the opinions and experiences of these smaller demographic subgroups. These oversampled groups are weighted back to reflect their correct proportions in the population.

A total of 10,329 panelists responded out of 12,178 who were sampled, for a response rate of 85%. The cumulative response rate accounting for nonresponse to the recruitment surveys and attrition is 3%. The break-off rate among panelists who logged on to the survey and completed at least one item is 2%. The margin of sampling error for the full sample of 10,329 respondents is plus or minus 1.5 percentage points.

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#### American Trends Panel recruitment surveys

Recruitment dates	Mode	Invited	Joined	Active panelists remaining
Jan. 23 to March 16, 2014	Landline/ cell RDD	9,809	5,338	1,498
Aug. 27 to Oct. 4, 2015	Landline/ cell RDD	6,004	2,976	879
April 25 to June 4, 2017	Landline/ cell RDD	3,905	1,628	432
Aug. 8 to Oct. 31, 2018	ABS	9,396	8,778	4,113
Aug. 19 to Nov. 30, 2019	ABS	5,900	4,720	1,465
June 1 to July 19, 2020; Feb. 10 to March 31, 2021	ABS	3,197	2,812	1,541
May 29 to July 7, 2021; Sept. 16 to Nov. 1, 2021	ABS	1,329	1,162	785
May 24 to Sept. 29, 2022	ABS	3,354	2,869	1,691
	<b>Total</b>	<b>42,894</b>	<b>30,283</b>	12,404

Note: RDD is random-digit dial; ABS is address-based sampling. Approximately once per year, panelists who have not participated in multiple consecutive waves or who did not complete an annual profiling survey are removed from the panel. Panelists also become inactive if they ask to be removed from the panel.

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## Panel recruitment

The ATP was created in 2014, with the first cohort of panelists invited to join the panel at the end of a large, national, landline and cellphone random-digit-dial survey that was conducted in both English and Spanish. Two additional recruitments were conducted using the same method in 2015 and 2017, respectively. Across these three surveys, a total of 19,718 adults were invited to join the ATP, of whom 9,942 (50%) agreed to participate.

In August 2018, the ATP switched from telephone to address-based recruitment. Invitations were sent to a stratified, random sample of households selected from the U.S. Postal Service's Delivery Sequence File. Sampled households receive mailings asking a randomly selected adult to complete a survey online. A question at the end of the survey asks if the respondent is willing to join the ATP. In 2020 and 2021 another stage was added to the recruitment. Households that did not respond to the online survey were sent a paper version of the questionnaire, \$5 and a postage-paid return envelope. A subset of the adults who returned the paper version of the survey were invited to join the ATP. This subset of adults received a follow-up mailing with a \$10 pre-incentive and invitation to join the ATP.

Across the five address-based recruitments, a total of 23,176 adults were invited to join the ATP, of whom 20,341 agreed to join the panel and completed an initial profile survey. In each household, one adult was selected and asked to go online to complete a survey, at the end of which they were invited to join the panel. Of the 30,283 individuals who have ever joined the ATP, 12,404 remained active panelists and continued to receive survey invitations at the time this survey was conducted.

The U.S. Postal Service's Delivery Sequence File has been estimated to cover as much as 98% of the population, although some studies suggest that the coverage could be in the low 90% range.<sup>1</sup> The American Trends Panel never uses breakout routers or chains that direct respondents to additional surveys.

## Sample design

The overall target population for this survey was noninstitutionalized persons ages 18 and older living in the U.S., including Alaska and Hawaii. It featured a stratified random sample from the ATP in which Hispanic, non-Hispanic Asian, non-Hispanic Black and 18- to 29-year-old adults were selected with certainty. The remaining panelists were sampled at rates designed to ensure that the share of respondents in each stratum is proportional to its share of the U.S. adult

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<sup>1</sup> AAPOR Task Force on Address-based Sampling. 2016. "[AAPOR Report: Address-based Sampling](#)."

population to the greatest extent possible. Respondent weights are adjusted to account for differential probabilities of selection as described in the Weighting section below.

### Questionnaire development and testing

The questionnaire was developed by Pew Research Center in consultation with Ipsos. The web program was rigorously tested on both PC and mobile devices by the Ipsos project management team and Pew Research Center researchers. The Ipsos project management team also populated test data that was analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey.

### Incentives

All respondents were offered a post-paid incentive for their participation. Respondents could choose to receive the post-paid incentive in the form of a check or a gift code to Amazon.com or could choose to decline the incentive. Incentive amounts ranged from \$5 to \$20 depending on whether the respondent belongs to a part of the population that is harder or easier to reach. Differential incentive amounts were designed to increase panel survey participation among groups that traditionally have low survey response propensities.

### Data collection protocol

The data collection field period for this survey was May 30 to June 4, 2023. Postcard notifications were mailed to all ATP panelists with a known residential address on May 30.

Invitations were sent out in two separate launches: soft launch and full launch. Sixty panelists were included in the soft launch, which began with an initial invitation sent on May 30. The ATP panelists chosen for the initial soft launch were known responders who had completed previous ATP surveys within one day of receiving their invitation. All remaining English- and Spanish-speaking sampled panelists were included in the full launch and were sent an invitation on May 31.

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#### Invitation and reminder dates, ATP Wave 128

	Soft launch	Full launch
Initial invitation	May 30, 2023	May 31, 2023
First reminder	June 2, 2023	June 2, 2023
Final reminder	June 4, 2023	June 4, 2023

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All panelists with an email address received an email invitation and up to two email reminders if they did not respond to the survey. All ATP panelists who consented to SMS messages received an SMS invitation and up to two SMS reminders.

## Data quality checks

To ensure high-quality data, the Center’s researchers performed data quality checks to identify any respondents showing clear patterns of satisficing. This includes checking for very high rates of leaving questions blank, as well as always selecting the first or last answer presented. As a result of this checking, 19 respondents were removed from the survey dataset. An additional 70 respondents were removed from the survey due to a sample loading error which occurred during survey launch. All 89 ATP respondents were excluded from the data prior to weighting and analysis.

## Weighting

The ATP data is weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at

different points in the survey process. First, each panelist begins with a base weight that reflects their probability of selection for their initial recruitment survey. These weights are then rescaled and adjusted to account for changes in the design of ATP recruitment surveys from year to year.

Finally, the weights are calibrated to align with the population benchmarks in the accompanying table to correct for nonresponse to recruitment surveys and panel attrition. If only a subsample of panelists was invited to participate in the wave, this weight is adjusted to account for any differential probabilities of selection.

Among the panelists who completed the survey, this weight is then calibrated again to align with the population benchmarks identified in the accompanying table and trimmed at the 1st and 99th

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## American Trends Panel weighting dimensions

Variable	Benchmark source
Age (detailed)	2021 American Community Survey (ACS)
Age x Gender	
Education x Gender	
Education x Age	
Race/Ethnicity x Education	
Born inside vs. outside the U.S. among Hispanics and Asian Americans	
Years lived in the U.S.	
Census region x Metro/Non-metro	2021 CPS March Supplement
Volunteerism	2021 CPS Volunteering & Civic Life Supplement
Voter registration	2018 CPS Voting and Registration Supplement
Party affiliation	2022 National Public Opinion Reference Survey (NPORS)
Frequency of internet use	
Religious affiliation	
<i>Additional weighting dimensions applied within Black adults</i>	
Age	2021 American Community Survey (ACS)
Gender	
Education	
Hispanic ethnicity	
Voter registration	2018 CPS Voting and Registration Supplement
Party affiliation	2022 National Public Opinion Reference Survey (NPORS)
Religious affiliation	

Note: Estimates from the ACS are based on noninstitutionalized adults. Voter registration is calculated using procedures from Hur, Achen (2013) and rescaled to include the total U.S. adult population.

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percentiles to reduce the loss in precision stemming from variance in the weights. Sampling errors and tests of statistical significance take into account the effect of weighting.

The following table shows the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups in the survey.

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### Sample sizes and margins of error, ATP Wave 128

Group	Unweighted sample size	Plus or minus ...
U.S. adults	10,329	1.5 percentage points
Men	4,562	2.3 percentage points
Women	5,653	1.9 percentage points
Ages 18-29	861	4.5 percentage points
30-49	3,282	2.5 percentage points
50-64	3,006	2.6 percentage points
65+	3,143	2.5 percentage points
Postgraduate	2,335	2.7 percentage points
College grad	2,751	2.5 percentage points
Some college	3,296	2.5 percentage points
HS or less	1,914	3.1 percentage points
Rep/lean Rep	4,716	2.1 percentage points
Dem/lean Dem	5,336	2.1 percentage points

Note: This survey includes oversamples of Hispanic, non-Hispanic Asian, non-Hispanic Black, and 18- to 29-year-old adults. Unweighted sample sizes do not account for the sample design or weighting and do not describe a group's contribution to weighted estimates. Refer to the Sample design and Weighting sections above for details.

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Sample sizes and sampling errors for other subgroups are available upon request. In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.



## Dispositions and response rates

### Final dispositions, ATP Wave 128

	AAPOR code	Total
Completed interview	1.1	10,329
Logged on to survey; broke off	2.12	186
Logged on to survey; did not complete any items	2.1121	100
Never logged on (implicit refusal)	2.11	1,467
Survey completed after close of the field period	2.27	7
Completed interview but was removed for data quality		89
Screened out		0
<b>Total panelists sampled for the survey</b>		<b>12,178</b>
Completed interviews	I	10,330
Partial interviews	P	0
Refusals	R	1,753
Non-contact	NC	7
Other	O	89
Unknown household	UH	0
Unknown other	UO	0
Not eligible	NE	0
<b>Total</b>		<b>12,178</b>
AAPOR RR1 = $I / (I+P+R+NC+O+UH+UO)$		85%
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### Cumulative response rate as of ATP Wave 128

	Total
Weighted response rate to recruitment surveys	12%
% of recruitment survey respondents who agreed to join the panel, among those invited	71%
% of those agreeing to join who were active panelists at start of Wave 128	48%
Response rate to Wave 128 survey	85%
<b>Cumulative response rate</b>	<b>3%</b>
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### **Adjusting income and defining income tiers**

To create upper-, middle- and lower-income tiers, respondents' 2021 family incomes were adjusted for differences in purchasing power by geographic region and household size. "Middle-income" adults live in families with annual incomes that are two-thirds to double the median family income in the panel (after incomes have been adjusted for the local cost of living and household size). The middle-income range for the American Trends Panel is about \$43,800 to \$131,500 annually for an average family of three. Lower-income families have incomes less than roughly \$43,800, and upper-income families have incomes greater than roughly \$131,500 (all figures are expressed in 2021 dollars).

Based on these adjustments, 29% of respondents in Wave 128 are lower income, 47% are middle income and 18% fall into the upper-income tier. An additional 6% either didn't offer a response to the income question or the household size question.

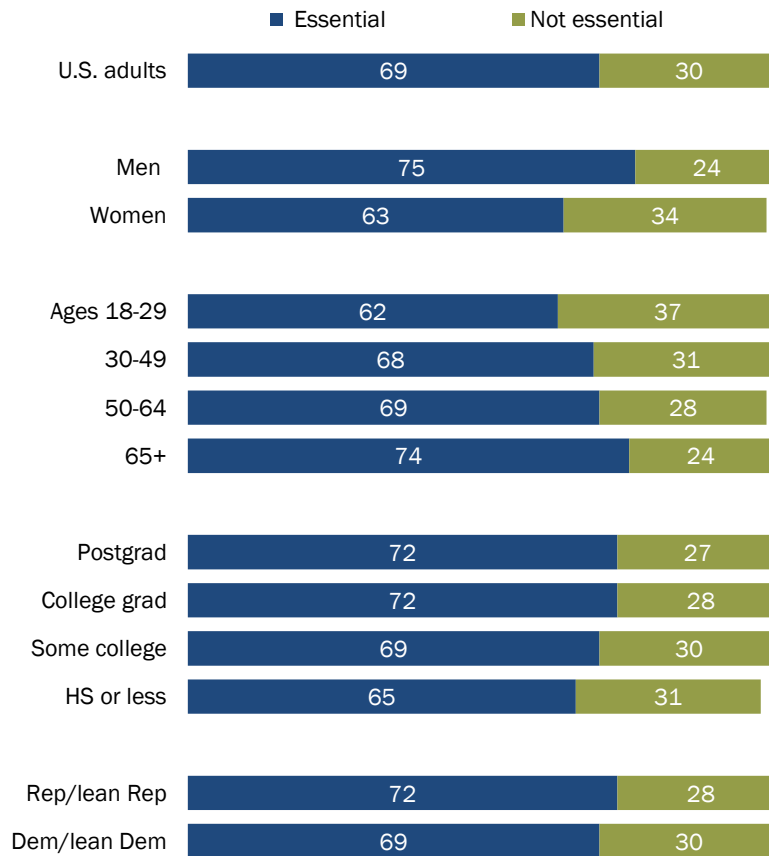
Here is more information about [how the income tiers were determined](#).

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## Appendix: Detailed charts and tables

### Men and older adults are especially likely to see it as essential that the U.S. is a world leader in space

*% of U.S. adults who say it is \_\_\_ that the U.S. continue to be a world leader in space exploration*



Note: Respondents who did not give an answer are not shown.

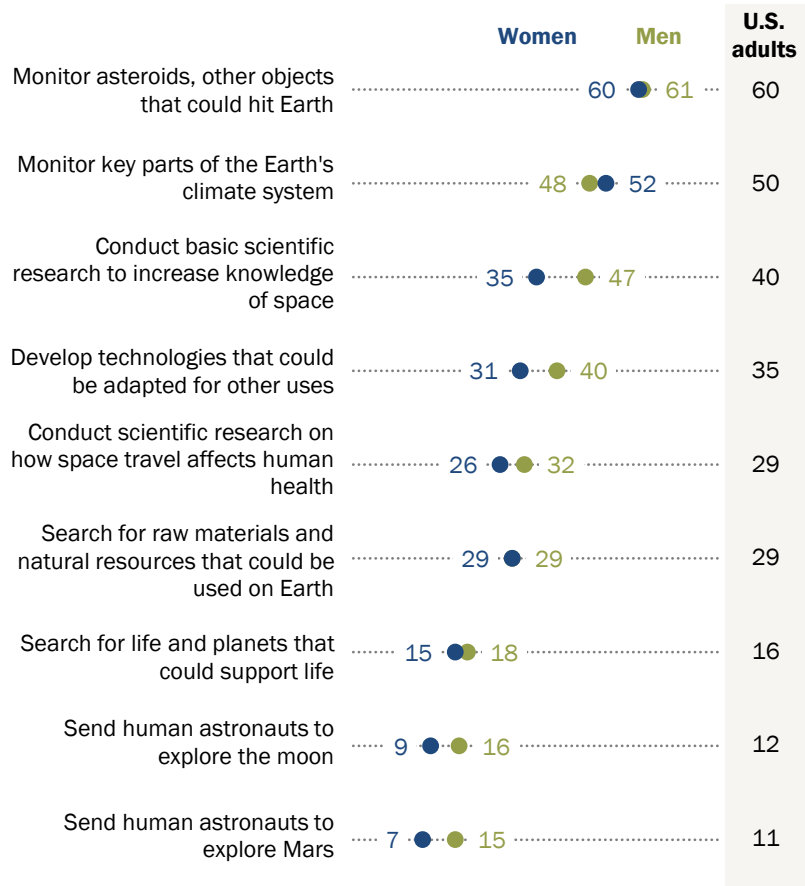
Source: Survey of U.S. adults conducted May 30–June 4, 2023.

“Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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### Views of NASA priorities among men and women

% of U.S. adults who say each of the following should be a **top priority** for NASA

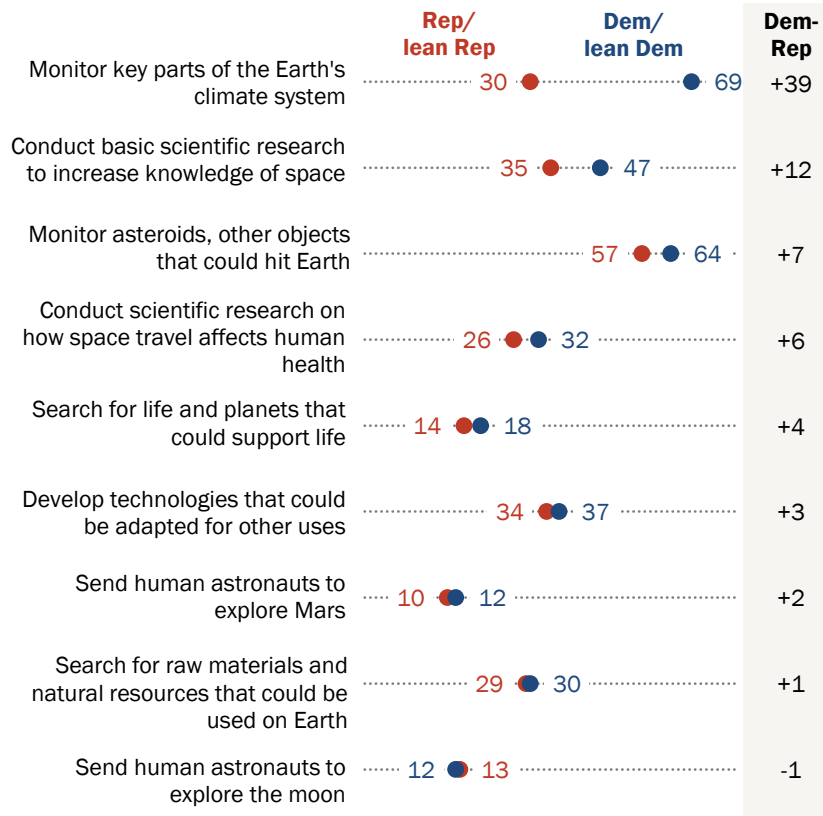


Note: Respondents who gave other responses or did not give an answer are not shown.  
 Source: Survey of U.S. adults conducted May 30–June 4, 2023.  
 “Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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### Partisans rank many NASA priorities similarly, but Democrats give higher priority to climate monitoring

% of U.S. adults who say each of the following should be a **top priority** for NASA



Note: Respondents who gave other responses or did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

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## NASA priorities by educational attainment

*% of U.S. adults who say each of the following should be a **top priority** for NASA*

	<b>Postgrad</b>	<b>College grad</b>	<b>Some college</b>	<b>HS or less</b>
Monitor asteroids, other objects that could hit earth	62	64	63	55
Monitor key parts of Earth's climate system	61	54	51	42
Conduct basic scientific research to increase knowledge of space	54	46	38	33
Develop technologies that could be adapted for other uses	41	40	35	29
Conduct scientific research on how space travel affects human health	28	26	30	30
Search for raw materials and natural resources that could be used on Earth	29	29	31	27
Search for life and planets that could support life	14	15	17	17
Send human astronauts to explore the moon	11	11	14	12
Send human astronauts to explore Mars	14	13	9	9

Note: Respondents who gave other responses or did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

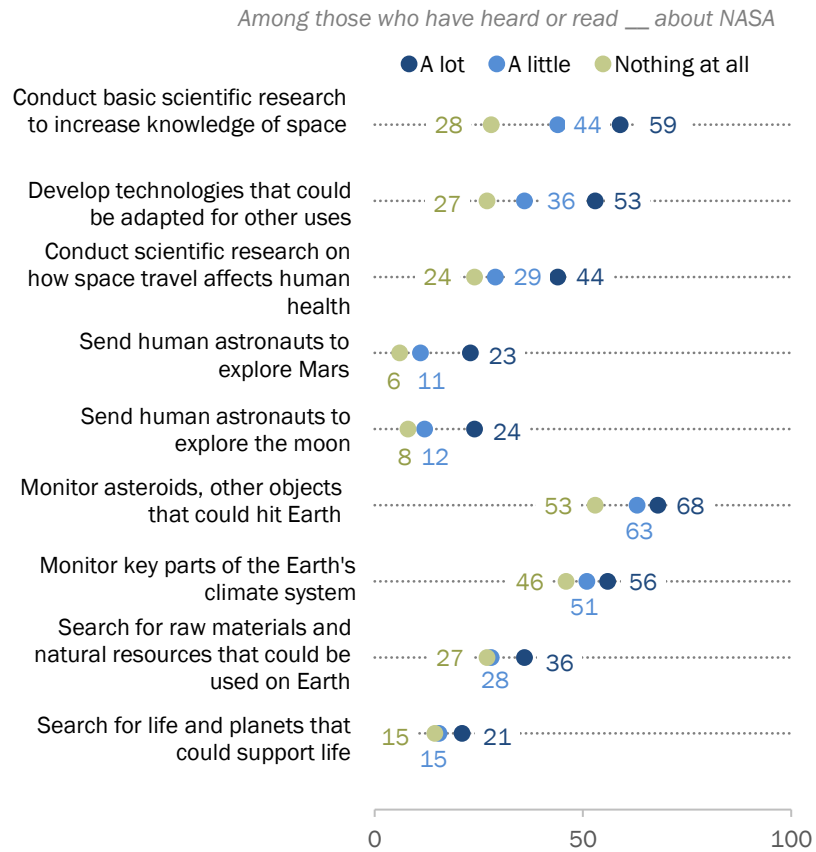
"Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies"

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## Those most familiar with NASA are more likely to see scientific research as a top priority for space agency

% of U.S. adults who say each of the following should be a **top priority** for NASA



Note: Respondents who gave other responses or did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

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## Ratings of private space companies' performance by political party

*% of U.S. adults who say private space companies are doing a \_\_\_ at each of the following*

	<b>Rep/lean Rep</b>			<b>Dem/lean Dem</b>		
	<i>Mostly good job</i>	<i>Mostly bad job</i>	<i>Not sure</i>	<i>Mostly good job</i>	<i>Mostly bad job</i>	<i>Not sure</i>
Building rockets and spacecraft that are safe and reliable	57	8	34	42	16	41
Making important contributions to space exploration	57	8	35	40	17	42
Opening up space travel to more people	48	11	40	37	21	42
Limiting the debris from rockets, satellites and other human-made objects in space	27	18	54	16	34	49

Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

"Americans' Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies"

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## Those most familiar with private space companies are especially positive in their ratings of their performance

*% of U.S. adults who say private space companies are doing a \_\_\_ job at each of the following*

	Heard or read ___ about private companies developing space exploration capabilities								
	<u>Has heard or read a lot</u>			<u>Has heard or read a little</u>			<u>Has heard or read nothing at all</u>		
	<i>Mostly good</i>	<i>Mostly bad</i>	<i>Not sure</i>	<i>Mostly good</i>	<i>Mostly bad</i>	<i>Not sure</i>	<i>Mostly good</i>	<i>Mostly bad</i>	<i>Not sure</i>
Building rockets and spacecraft that are safe and reliable	74	12	14	50	13	37	22	9	68
Making important contributions to space exploration	72	12	16	48	14	38	24	9	66
Opening up space travel to more people	63	19	18	43	17	40	17	10	72
Limiting the debris from rockets, satellites and other human-made objects in space	32	34	33	20	27	52	12	15	72

Note: Respondents who did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 30–June 4, 2023.

“Americans’ Views of Space: U.S. Role, NASA Priorities and Impact of Private Companies”

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## Survey question wording and topline

**2023 PEW RESEARCH CENTER'S AMERICAN TRENDS PANEL  
WAVE 128 – SCIENCE TOPLINE  
May 30-June 4, 2023  
N=10,329**

### OTHER QUESTIONS PREVIOUSLY RELEASED

On a different topic...

**ASK ALL:**

FUTSPACE

Do you think each of the following things will or will not happen in the next 50 years, that is, before the year 2073? **[RANDOMIZE ITEMS]**

	<u>Will definitely happen</u>	<u>Will probably happen</u>	<u>Will probably not happen</u>	<u>Will definitely not happen</u>	<u>No answer</u>
a. People will routinely travel in space as tourists May 30-Jun 4, 2023	10	45	36	8	1
b. People will build colonies that can be lived in for long periods of time on other planets May 30-Jun 4, 2023	6	28	47	17	1
c. Debris in space from rockets, satellites and other human-made objects will be a major problem May 30-Jun 4, 2023	19	50	26	4	1
d. The U.S. military will fight against other nations in space May 30-Jun 4, 2023	8	36	43	11	2
e. Intelligent life will be discovered on another planet May 30-Jun 4, 2023	9	32	43	15	1

**TREND FOR COMPARISON:****ASK ALL:****FUTURE**

Do you think each of the following things will or will not happen in the next 50 years, that is, before the year 2068? **[RANDOMIZE ITEMS]**

	<i>Will definitely happen</i>	<i>Will probably happen</i>	<i>Will probably not happen</i>	<i>Will definitely not happen</i>	<i>No answer</i>
a. <i>People will routinely travel in space as tourists</i> Mar 27-Apr 9, 2018	9	42	41	9	<1
b. <i>People will build colonies that can be lived in for long periods of time on other planets<sup>2</sup></i> Mar 27-Apr 9, 2018	5	28	50	18	1

**ASK ALL:****SPACE1**

In the past 12 months, how much, if anything, have you heard or read about NASA, the National Aeronautics and Space Administration?

	<u>A lot</u>	<u>A little</u>	<u>Nothing at all</u>	<u>No answer</u>
May 30-Jun 4, 2023	11	56	33	<1
Mar 27-Apr 9, 2018	10	55	35	<1

<sup>2</sup> A [2014 Pew Research Center telephone survey](#) asked "How likely to do you think it is that humans will build colonies on another planet that can be lived in for long periods" in the next 50 years? 5% said this will definitely happen, 28% said this will probably happen, 39% said this will probably not happen, 25% said this will definitely not happen, and 3% did not know.

**ASK ALL:**

SPACE3

How would you rate each of the following priorities for NASA's space efforts?

**[RANDOMIZE ITEMS]**

	Should be a top <u>priority</u>	Should be an important but lower <u>priority</u>	Should not be too <u>important</u>	Should not be <u>done</u>	<u>No answer</u>
a. Searching for life and planets that could support life					
May 30-Jun 4, 2023	16	44	31	8	1
Mar 27-Apr 9, 2018	31	42	20	7	1
b. Searching for raw materials and natural resources that could be used on Earth					
May 30-Jun 4, 2023	29	46	18	6	2
Mar 27-Apr 9, 2018	34	43	16	5	<1
c. Conducting basic scientific research to increase knowledge and understanding of space					
May 30-Jun 4, 2023	40	45	10	2	2
Mar 27-Apr 9, 2018	47	40	10	2	1
d. Developing technologies that could be adapted for uses other than space exploration					
May 30-Jun 4, 2023	35	48	13	3	2
Mar 27-Apr 9, 2018	41	44	11	3	1
e. Monitoring asteroids and other objects that could potentially hit the Earth					
May 30-Jun 4, 2023	60	30	7	2	2
Mar 27-Apr 9, 2018	62	29	7	2	1
f. Monitoring key parts of the Earth's climate system					
May 30-Jun 4, 2023	50	34	11	4	1
Mar 27-Apr 9, 2018	63	25	7	3	1
<b>ASK FORM 1 ONLY</b>					
<b>[N=5,148]:</b>					
g. Sending human astronauts to explore the moon					
May 30-Jun 4, 2023	12	45	34	7	1
Mar 27-Apr 9, 2018	13	42	38	6	<1

**SPACE3 CONTINUED ...**

		Should be a top <u>priority</u>	Should be an important but lower <u>priority</u>	Should not be too <u>important</u>	Should not be <u>done</u>	<u>No answer</u>
<b>ASK FORM 2 ONLY</b>						
<b>[N=5,181]:</b>						
h.	Sending human astronauts to explore Mars					
	May 30-Jun 4, 2023	11	45	36	8	1
	Mar 27-Apr 9, 2018	18	45	30	7	<1
i.	Conducting scientific research on how space travel affects human health					
	May 30-Jun 4, 2023	29	45	20	4	1
	Mar 27-Apr 9, 2018	38	41	17	3	1

**ASK ALL:**

SPACE6 In your view, do you think it is...

		ESSENTIAL that the United States continue to be a world leader in <u>space exploration</u>	NOT ESSENTIAL that the United States continue to be a world leader in space <u>exploration</u>	<u>No answer</u>
May 30-Jun 4, 2023		69	30	2
Mar 27-Apr 9, 2018		72	27	1

**TREND FOR COMPARISON:**

*Pew Research Center survey conducted by telephone: In your view, is it essential or not essential that the United States continue to be a world leader in space exploration?*

Jun 15-19

2011

58	<i>Essential</i>
38	<i>Not essential</i>
4	<i>Don't know/Refused (VOL.)</i>

**ASK ALL:**

SPACE9 How much, if anything, have you heard or read about private companies, such as SpaceX, Blue Origin and Virgin Galactic, developing space exploration capabilities?

	<u>A lot</u>	<u>A little</u>	<u>Nothing at all</u>	<u>No answer</u>
May 30-Jun 4, 2023	21	54	24	1
Mar 27-Apr 9, 2018	18	45	37	<1

**ASK ALL:**

SPACE10

Which statement comes closer to your views, even if neither is exactly right?

**[RANDOMIZE OPTIONS]**

	It is essential that NASA continue to be involved <u>in space exploration</u>	Private companies will ensure that enough progress is made in space exploration, even without NASA's <u>involvement</u>	<u>No answer</u>
May 30-Jun 4, 2023	65	32	3
Mar 27-Apr 9, 2018	65	33	1

**ASK ALL:**

SPACE11

In the future, private companies expect to allow people to orbit the Earth in a spacecraft. How much, if at all, would you, personally, be interested in doing this?

	<u>Definitely interested</u>	<u>Probably interested</u>	<u>Probably NOT interested</u>	<u>Definitely NOT interested</u>	<u>No answer</u>
May 30-Jun 4, 2023	12	23	27	38	1
Mar 27-Apr 9, 2018	19	23	26	32	<1

**ASK ALL:**

SPACEPRIV

How good of a job do you think private space companies are doing at each of the following? **[RANDOMIZE ITEMS]**

	Doing a mostly good <u>job</u>	Doing a mostly bad <u>job</u>	<u>Not sure</u>	<u>No answer</u>
a. Building rockets and spacecraft that are safe and reliable May 30-Jun 4, 2023	48	12	39	1
b. Making important contributions to space exploration May 30-Jun 4, 2023	47	12	40	1
c. Limiting the debris from rockets, satellites and other human-made objects in space May 30-Jun 4, 2023	21	26	53	1
d. Opening up space travel to more people May 30-Jun 4, 2023	41	15	43	1

**ASK ALL:**

SPACEBEHAV Have you ever done any of the following activities outside of work? [**RANDOMIZE ITEMS**]

		Yes, have done this in the past 12 <u>months</u>	Yes, have done this but not in the past 12 <u>months</u>	No, have never done <u>this</u>	<u>No answer</u>
WATCH	Watched a space launch May 30-Jun 4, 2023	19	38	42	1
IMAGE	Looked at an image from a space telescope, such as the James Webb space telescope May 30-Jun 4, 2023	26	24	50	<1
MUS	Visited a planetarium or space museum May 30-Jun 4, 2023	11	60	28	1
EVENT	Seen an astronomical event such as an eclipse or meteor shower May 30-Jun 4, 2023	23	53	23	1

**OTHER QUESTIONS PREVIOUSLY RELEASED**