

APPENDIX TABLE 7-11 

Correct answers to scientific process questions, by respondent characteristic: 2016

(Percent)

Characteristic	Scientific inquiry ^a	Probability ^b	Experiment ^c	Scientific study ^d
All adults (<i>n</i> = 1,390)	43	64	51	23
Sex				
Male (<i>n</i> = 571)	46	68	52	25
Female (<i>n</i> = 819)	41	62	50	21
Formal education				
Less than high school diploma (<i>n</i> = 169)	13	41	26	2
High school diploma (<i>n</i> = 415)	29	57	37	9
Some college (<i>n</i> = 388)	48	69	55	26
Bachelor's degree (<i>n</i> = 263)	61	76	68	42
Graduate or professional degree (<i>n</i> = 151)	73	80	80	42
Science and mathematics education ^e				
Low (<i>n</i> = 776)	32	57	41	10
Middle (<i>n</i> = 262)	52	71	61	35
High (<i>n</i> = 275)	74	84	77	50
Family income (quartile) ^f				
Bottom (<i>n</i> = 336)	25	50	34	14
Third (<i>n</i> = 281)	35	58	50	16
Second (<i>n</i> = 324)	44	68	52	24
Top (<i>n</i> = 318)	67	81	71	38
Age (years) ^f				
18–24 (<i>n</i> = 115)	42	57	51	24
25–34 (<i>n</i> = 269)	53	70	59	30
35–44 (<i>n</i> = 206)	45	62	56	24
45–54 (<i>n</i> = 223)	47	70	54	28
55–64 (<i>n</i> = 264)	40	65	49	18



Characteristic	Scientific inquiry ^a	Probability ^b	Experiment ^c	Scientific study ^d
65 or older (n = 310)	31	59	37	13
Verbal ability ^e				
0-4 (n = 276)	16	42	22	4
5 (n = 256)	36	63	45	12
6 (n = 317)	43	63	55	22
7 (n = 256)	53	73	61	29
8-10 (n = 285)	67	82	70	45
Trend factual knowledge of science scale (quartile) ^h				
Bottom (n = 250)	12	41	21	5
Third (n = 387)	27	52	41	9
Second (n = 437)	51	71	56	28
Top (n = 316)	75	86	77	46

^a To be classified as understanding scientific inquiry, the survey respondent had to (1) answer correctly the two probability questions stated in footnote b and (2) either provide a theory-testing response to the open-ended question about what it means to study something scientifically (see footnote d) or a correct response to the open-ended question about experiment (i.e., explain why it is better to test a drug using a control group [see footnote c]).

^b To be classified as understanding probability, the survey respondent had to answer two questions correctly: *A doctor tells a couple that their genetic makeup means that they've got one in four chances of having a child with an inherited illness. (1) Does this mean that if their first child has the illness, the next three will not have the illness?(No) and (2) Does this mean that each of the couple's children will have the same risk of suffering from the illness?(Yes).*

^c To be classified as understanding experiment, the survey respondent had to answer correctly (1) *Two scientists want to know if a certain drug is effective against high blood pressure. The first scientist wants to give the drug to 1,000 people with high blood pressure and see how many of them experience lower blood pressure levels. The second scientist wants to give the drug to 500 people with high blood pressure and not give the drug to another 500 people with high blood pressure, and see how many in both groups experience lower blood pressure levels. Which is the better way to test this drug?* and (2) *Why is it better to test the drug this way?* (The second way because a control group is used for comparison.)

^d To be classified as understanding scientific study, the survey respondent had to answer (1) *When you read news stories, you see certain sets of words and terms. We are interested in how many people recognize certain kinds of terms. First, some articles refer to the results of a scientific study. When you read or hear the term scientific study, do you have a clear understanding of what it means, a general sense of what it means, or little understanding of what it means?* and (2) (If "clear understanding" or "general sense" response) *In your own words, could you tell me what it means to study something scientifically?* (Formulation of theories/test hypothesis, experiments/control group, or rigorous/systematic comparison.)



^e For science and mathematics education, "low" equates to five or fewer high school and college science or mathematics courses, "middle" is six through eight courses, and "high" means nine or more courses. Categories do not add to total n because "don't know" responses and refusals to respond are not shown.

^f Categories do not add to total n because "don't know" responses and refusals to respond are not shown.

^g Measure is based on correct responses to a 10-item, multiple-choice test of vocabulary knowledge completed by 1,390 survey respondents. Categories represent the number of correct responses.

^h See notes to Appendix Table 7-2 for an explanation of the trend factual knowledge of science scale.

Source(s)

NORC at the University of Chicago, General Social Survey (2016).

Science and Engineering Indicators 2018