

Biology 1

Thinking about science: A survey on the nature and process of science

For each item, select the answer that best reflects your views.

Name:

Date:

Hour:

1) Scientific knowledge is built through a complex process that relies, in part, on observations of nature.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

2) If an observation is made in the correct way, its meaning is straightforward and is not subject to interpretation.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

3) Scientific theories may be changed because scientists reinterpret existing observations.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

4) The process of science allows scientists to definitively prove or disprove hypotheses and theories.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

5) Even brand new hypotheses are usually based on evidence.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

6) Because they are inherently tentative, accepted scientific theories and hypotheses are unreliable.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

7) Well-supported hypotheses become theories, and well-supported theories become laws.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

8) Accepted scientific theories are well-supported explanations for a broad set of natural phenomena.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

9) All cultures conduct scientific research the same way because science is universal and independent of society and culture.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

10) Scientific research is not influenced by society and culture because scientists are trained to conduct “pure,” unbiased studies.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

11) The process of science involves a system of checks and balances to ensure that work is of high quality and that evidence is interpreted in an objective way.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

12) Unlike many other professions, science is almost always a solitary endeavor.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

13) Science has had a tremendous impact on modern societies.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

14) Science is pure; scientists strive to do their work without considering its potential applications.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

15) Scientists do not use their imagination and creativity because these conflict with their logical reasoning.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

16) Scientists do not use their imagination and creativity because these can interfere with objectivity.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

17) Scientists always follow the same step-by-step scientific method.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

18) Scientific studies frequently involve surprises; many factors influence the direction an investigation takes.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

19) Science is an ongoing process of building reliable knowledge about the natural world.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

20) Scientific investigations usually come to a definitive end, allowing the science to move on to a brand new question.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

21) Laboratory experiments are the main method used to develop scientific knowledge.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

22) The same hypothesis or theory is often tested in many different ways.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

23) Scientific testing involves figuring out what we would expect to observe if a particular explanation were true and seeing if we actually make that observation.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

24) The aim of scientific testing is to prove a hypothesis correct.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

25) Science can help inform decisions related to morality but cannot directly make moral judgments about what is good and bad.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

26) Science could disprove the existence of supernatural beings like God.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

27) I personally think that science is boring.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

28) I personally think that science is extremely valuable for society.

1	2	3	4	5
Strongly disagree	Disagree	Unsure	Agree	Strongly agree

What are these questions getting at?

Your answers reflect your attitude and ideas about the nature of science and the scientific process.