

Views About Sciences Survey

Form B 12

This survey is designed by the Modeling Instruction research team at Arizona State University. It is intended to identify factors that affect people's understanding of biology, and to assist in the design of instructional material.

*Your participation is **voluntary**. The results will not affect your grade, even if you choose not to participate. All data are **confidential**. Your identity will not be disclosed to any party. Return of the survey materials will be considered your consent to participate.*

If you have any question about this survey, please call Dr. I. Halloun at (602) 965-8528.

Please:

*Do **not** write anything on this questionnaire.*

Mark your answers on the computer sheet.

*Use a **No. 2 pencil** only, and follow marking instructions on the computer sheet.*

*Make **only one** mark per item.*

*Do **not** skip any question.*

*Avoid guessing. Your answers should reflect what **you** actually and honestly think.*

Plan to finish the survey in 30 minutes.

*The example below illustrates the eight choices that you have for answering the following 31 questions. Please mark your answers to these questions in section **III** of the VASS Answer Sheet.*

Example

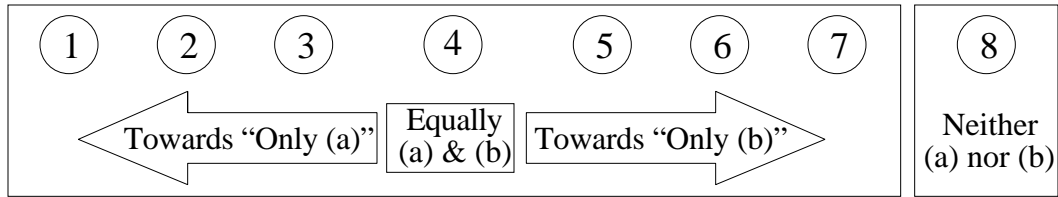
Learning biology requires:

(a) a serious effort.

(b) a special talent.

What would each one of the eight choices mean?

- ① Only (a), Never (b): Learning biology requires **only** a serious effort and **no** special talent *at all*.
- ② Mostly (a), Rarely (b): Learning biology requires **far more** a serious effort than a special talent.
- ③ More (a) Than (b): Learning biology requires **somewhat more** a serious effort than a special talent.
- ④ Equally (a) & (b): Learning biology **equally** requires **both** a serious effort and a special talent.
- ⑤ More (b) Than (a): Learning biology requires **somewhat more** a special talent than a serious effort.
- ⑥ Mostly (b), Rarely (a): Learning biology requires **far more** a special talent than a serious effort.
- ⑦ Only (b), Never (a): Learning biology requires **only** a special talent and **no** serious effort *at all*.
- ⑧ Neither (a) Nor (b): Learning biology requires **neither** a special talent **nor** a serious effort.



1. Learning biology requires:
 - (a) a serious effort.
 - (b) a special talent.

2. If I had a choice:
 - (a) I would never take any biology course.
 - (b) I would still take biology for my own benefit.

3. Reasoning skills that are taught in biology courses can be helpful to me:
 - (a) in my everyday life.
 - (b) if I were to become a scientist.

4. I study biology:
 - (a) to satisfy course requirements.
 - (b) to learn useful knowledge.

5. My score on biology exams is a measure of how well:
 - (a) I understand the covered material.
 - (b) I can do things the way they are done by the teacher or in some course materials.

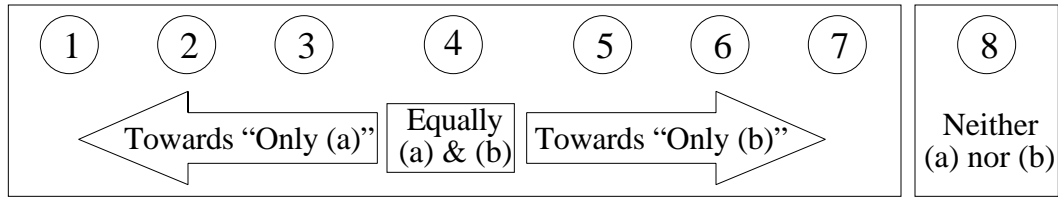
6. For me, doing well in biology courses depends on:
 - (a) how much effort I put into studying.
 - (b) how well the teacher explains things in class.

7. When I experience a difficulty while studying biology:
 - (a) I immediately seek help, or give up trying.
 - (b) I try hard to figure it out on my own.

8. When studying biology in a textbook or in course materials:
 - (a) I find the important information and memorize it the way it is presented.
 - (b) I organize the material in my own way so that I can understand it.

9. For me, the relationship of biology courses to everyday life is usually:
 - (a) easy to recognize.
 - (b) hard to recognize.

10. In biology, it is important for me to:
 - (a) memorize technical terms.
 - (b) learn ways to organize concepts and use them.



11. In biology, mathematical formulas:
 - (a) express meaningful relationships among concepts.
 - (b) provide ways to get numerical answers to problems.

12. After I go through a biology text or course materials and feel that I understand them:
 - (a) I can answer related questions on my own.
 - (b) I have difficulty answering related questions.

13. The first thing I do when solving a biology problem that involves mathematics is:
 - (a) represent the situation with sketches and drawings.
 - (b) search for formulas that relate givens to unknowns.

14. In order to answer a biology question, I need to:
 - (a) have seen the answer to a similar question before.
 - (b) know how to apply general reasoning skills.

15. For me, answering a biology question in more than one way:
 - (a) is a waste of time.
 - (b) helps develop my reasoning skills.

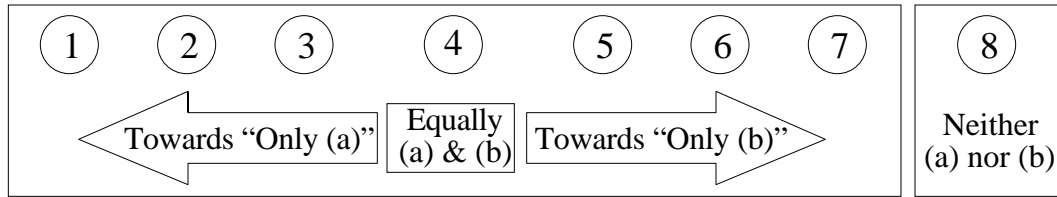
16. After I have answered all questions in a biology assignment:
 - (a) I stop working on the assignment.
 - (b) I check whether my answers are consistent with related theory.

17. After the teacher answers a biology question for which I got a wrong answer:
 - (a) I discard my answer and learn the one presented by the teacher.
 - (b) I try to figure out how the teacher's thinking differs from mine.

18. How well I do on biology exams depends on how well I can:
 - (a) recall material in the way it was presented in class.
 - (b) answer questions that are somewhat different from ones I have seen before.

19. To me, biology is important as a source of:
 - (a) factual information about the natural world.
 - (b) ways of thinking about the natural world.

20. Biological processes:
 - (a) are the same throughout the universe.
 - (b) change depending on where you are in the universe.



21. Theories of biology are:
 - (a) inherent in the nature of things and independent of how humans think.
 - (b) invented by biologists to understand the natural world.
22. Theories of biology portray the natural world:
 - (a) exactly the way it is.
 - (b) by approximation.
23. Biologists say that living cells contain carbon and nitrogen atoms because:
 - (a) they have seen these atoms in their actual form through microscopes.
 - (b) they have made observations that can be explained by such atoms.
24. Biologists' current ideas about microevolution processes, like mutation:
 - (a) will always be maintained as they are by biologists.
 - (b) may eventually be replaced by other ideas.
25. Biologists' current ideas about substances making up living cells:
 - (a) will always be maintained as they are by biologists.
 - (b) may eventually be replaced by other ideas.
26. If we want to apply an idea used for answering one biology question to another question, the situations involved in the two questions must be:
 - (a) identical in all respects.
 - (b) similar in some respects.
27. Different branches of biology, like genetics and ecology:
 - (a) are interrelated by common principles.
 - (b) are separate and independent of each other.
28. Biologists use mathematics as:
 - (a) a tool for analyzing and communicating their ideas.
 - (b) a source of factual knowledge about the natural world.
29. Scientific findings about the natural world are:
 - (a) dependent on current scientific knowledge.
 - (b) accidental, depending on scientists' luck.
30. Knowledge in biology is:
 - (a) related to knowledge in physics.
 - (b) independent of knowledge in physics.
31. I answered all the questions in this survey:
 - (a) to the best of my ability.
 - (b) without thinking seriously about them.