

## Introduction

**Thank you for taking the Teaching to Learn Science Attitudes Survey.**

**The survey contains three sections with a total of 51 questions.**

**Part I: Background Information (2 to 6 questions)**

**Part II: Attitudes Towards Teaching Science (5 items, each with 5 questions)**

**Beliefs about the Nature of Science (5 items, each with 4-5 questions)**

**There are no right or wrong answers. Pick the answers that best describe you or your beliefs.**

## Part I: Background Information

\* 1. Please enter your UNIQUE PROJECT ID from your consent form.

2. Did you participate in Teaching to Learn in the Fall Semester?

Yes

No

\* 3. How many years have you been teaching science (including this school year)?

- 3 years or less
- 4 to 10 years
- More than 10 years

4. How many science courses did you take as an undergraduate?

- 0
- 1-2
- 3-5
- 6 or more

5. How many college science courses have you taken as part of your graduate work or for your own professional development within the past 10 years?

- 0
- 1-2
- 3-5
- 6 or more

\* 6. Have you participated in any non-credit bearing science professional development experiences within the last 5 years PRIOR to your participation in the Teaching to Learn project?

- No
- Yes

Background: Continued

\* 7. How interested are you in.....

|   | Very Interested       | Somewhat Interested   | Neutral               | Mostly Not Interested | Not at all Interested |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hearing about new scientific discoveries in the news? | <input type="radio"/> |
| Hearing about new inventions and technologies?        | <input type="radio"/> |

## Part II: Attitudes Towards Teaching Science

\* 8. Please indicate the degree to which you agree or disagree with each statement below.

|  | Strongly agree        | Agree                 | Uncertain             | Disagree              | Strongly disagree     |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| When a student does better than usual in science, it is often because the teacher exerted a little extra effort.               | <input type="radio"/> |
| I am continually finding better ways to teach science.   | <input type="radio"/> |
| Even when I try very hard, I do not teach science as well as I do most other subjects.   | <input type="radio"/> |
| When the science grades of students improve, it is often due to their teacher having found a more effective teaching approach. | <input type="radio"/> |
| I know the steps necessary to teach science concepts effectively.  | <input type="radio"/> |

## Part II Attitudes Towards Teaching Science

\* 9. Please indicate the degree to which you agree or disagree with each statement below.

|   | Strongly agree        | Agree                 | Uncertain             | Disagree              | Strongly disagree     |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I am not very effective in monitoring science experiments.  | <input type="radio"/> |
| If students are underachieving in science, it is most likely due to ineffective science teaching. | <input type="radio"/> |
| I generally teach science ineffectively.  | <input type="radio"/> |
| The inadequacy of a student's science background can be overcome by good teaching.                | <input type="radio"/> |
| The low science achievement of some students cannot generally be blamed on their teachers.        | <input type="radio"/> |

## Part II: Attitudes Towards Teaching Science

\* 10. Please indicate the degree to which you agree or disagree with each statement below.

|  | Strongly agree        | Agree                 | Uncertain             | Disagree              | Strongly disagree     |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| When a low-achieving child progresses in science, it is usually due to extra attention given by the teacher. | <input type="radio"/> |
| I understand science concepts well enough to be effective in teaching elementary students.                   | <input type="radio"/> |
| Increased effort in science teaching produces little change in some students' science achievement.           | <input type="radio"/> |
| The teacher is generally responsible for the achievement of students in science.                             | <input type="radio"/> |
| Students' achievement in science is directly related to their teacher's effectiveness in science teaching.   | <input type="radio"/> |

## Part II: Attitudes Towards Teaching Science

\* 11. Please indicate the degree to which you agree or disagree with each statement below.

|  | Strongly agree        | Agree                 | Uncertain             | Disagree              | Strongly disagree     |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| If parents comment that their child is showing more interest in science at school, it is probably due to the performance of their child's teacher. | <input type="radio"/> |
| I find it difficult to explain to students why science experiments work.   | <input type="radio"/> |
| I am typically able to answer students' science questions.   | <input type="radio"/> |
| I wonder if I have the necessary skills to teach science.  | <input type="radio"/> |
| Effectiveness in science teaching has little influence on the achievement of students with low motivation.   | <input type="radio"/> |

## Part II: Attitudes Towards Teaching Science

\* 12. Please indicate the degree to which you agree or disagree with each statement below.

Strongly agree      Agree      Uncertain      Disagree      Strongly disagree

Given a choice, I would not invite the principal to evaluate my science teaching.

When a student has difficulty understanding a science concept, I will usually be at a loss as to how to help the student understand it better.

When teaching science, I usually welcome student questions.

I do not know what to do to turn students on to science.

Even teachers with good science teaching abilities cannot help some kids to learn science.

### Part III: Beliefs About Science

\* 13. Read each statement below and select your level of agreement with the statement.

Strongly Disagree    Sort of Disagree    Not Sure    Sort of Agree    Strongly Agree

The primary reason for learning mathematics is to learn skills for doing science.

Getting the correct answer to a problem in the science classroom is more important than investigating the problem in a scientific manner.

In Grades K–9, truly understanding science in the science classroom requires special abilities that only some people possess.

Science is a constantly expanding field.

Theories in science are rarely replaced by other theories.

\* 14. Read the following statements and indicate your level of agreement.

Strongly Disagree      Sort of Disagree      Note Sure      Sort of Agree      Strongly Agree

To understand science, students must solve many problems following examples provided.

The use of technologies (e.g., calculators, computers) in science is an aid primarily for slow learners.

Science consists of unrelated topics such as biology, chemistry, geology, and physics.

The primary reason for learning science is to provide real-life examples for learning mathematics.

### Part III: Beliefs About Science

\* 15. Please indicate your level of agreement with each statement.

Strongly Disagree    Sort of Disagree    Not Sure    Sort of Agree    Strongly Agree

Some scientific statements about phenomena are not based on direct observations of the natural world, but instead are based on inferences and indirect evidence.

                      

Observations of nature are not neutral but are motivated and guided by questions or problems that are derived from certain theoretical perspectives.

                      

There is no single sequence of activities (such as the "Scientific Method") that scientists use to generate valid solutions or answers to scientific questions.

                      

Scientists may interpret the same data differently because of the way they learn and think and because of their prior knowledge.

### Part III: Beliefs About Science

\* 16. For each of the following statements, choose your level of agreement with the statement.

Strongly Disagree    Sort of Disagree    Not Sure    Sort of Agree    Strongly Agree

Scientific knowledge involves making observations of nature.

Scientists use their creativity and imagination while they are collecting and interpreting data gained from scientific investigations.

Scientists and scientific research are affected by the religious or ethical views of the culture where the work is done.

Many scientific models used in research laboratories (such as the model of heat, the neuron, DNA, or the atom) are copies of reality.

\* 17. Please indicate your level of agreement with the following statements

Strongly Disagree    Sort of Disagree    Not Sure    Sort of Agree    Strongly Agree

There is a recipe-like set of steps that scientists follow, often called "The Scientific Method."

              

Scientific laws start as theories and eventually become laws after repeated and proven demonstration.

              

Science does not rely solely on empirical evidence.

              

Scientific knowledge is universal, and does not change from one place to another.

## FINISH

**Thank you for participating in this survey. You may now close your browser.**