Appendix A

The Scientific Citizenship, STEM Interest and Mobile Learning Survey (SCI-ML)

In this survey, you will be asked to share your ideas about science, technology, citizen science and mobile learning. For the purpose of this survey, we use these terms in the following ways.

**Science** represents fields of study that focus on exploring the natural world. Science includes disciplines like biology, chemistry and physics as well as applied fields like engineering.

**Technology** represents any electronic or computer-based device. Examples might include computers, handheld devices, probes or the Internet.

**Citizen Science** represents the collection and analysis of data relating to the natural world by members of the general public (often collaborating with professional scientists and contributing to research).

**Mobile Learning** represents the use of mobile technologies (such as smartphones, apps, iPads, etc.) to increase learning.

For each of the items on the following pages, you will be asked to indicate the extent to which you agree or disagree with a statement.



**Section I: Ideas about learning**. Items in this section present ideas related to learning and your experiences in school. Indicate the extent to which you agree or disagree with the following statements. Please read each sentence and MARK THE CIRCLE that best describes your opinion for EACH item.

|  | Indicate how you feel about each statement. | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Strongly Agree** | **Agree** | | | **No Opinion** | | **Disagree** | **Strongly Disagree** |
| 1. I enjoy learning science. |  |  | | |  | |  |  |
| 2. School science has improved my decision-making. |  |  | | |  | |  |  |
| 3. I enjoy using technology to solve science problems. |  |  | | |  | |  |  |
| 4. I plan to take more science classes in high school. |  |  | | |  | |  |  |
| 5. Technology does NOT help me learn science. |  |  | | |  | |  |  |
| 6. More time in the school day should be devoted to science. |  |  | | |  | |  |  |
| 7. Computers make learning science more interesting. |  |  | | |  | |  |  |
| 8. Learning science is NOT interesting. |  |  | | |  | |  |  |
| 9. I enjoy using technology to learn science. |  |  | | |  | |  |  |
| 10. More time in science classes should involve the use of technology. |  |  | | |  | |  |  |
| **Section II: Ideas about careers.** Items in this section present ideas related to careers in science and technology. Indicate the extent to which you agree or disagree with the following statements. Please read each sentence and MARK THE CIRCLE that best describes your opinion for EACH item. | | | | | | | | |
|  | Indicate how you feel about each statement. | | | | | | | |
|  | **Strongly Agree** | **Agree** | | | **No Opinion** | | **Disagree** | **Strongly Disagree** |
| 11. I would be more likely to take a job if I knew it involved working with technology. |  |  | | |  | |  |  |
| 12. Working in technology would be interesting. |  |  | | |  | |  |  |
| 13. I would like to become a scientist. |  |  | | |  | |  |  |
| 14. I would like to get a job in technology. |  |  | | |  | |  |  |
| 15. I would NOT enjoy a job in technology. |  |  | | |  | |  |  |
| 16. I will probably choose a job that involves using technology. |  |  | | |  | |  |  |
| 17. I would like to work in a science laboratory |  |  | | |  | |  |  |
| 18. I would like to contribute additional data to scientific research. |  |  | | |  | |  |  |
|  |  | |  |  | |

**Section III: Ideas about Citizen Science.** Items in this section present ideas related to citizen science. Indicate the extent to which you agree or disagree with the following statements. Please read each sentence and MARK THE CIRCLE that best describes your opinion for EACH item. *An example of citizen science may include fishermen concerned about the population of a certain species of fish. In this example, they may submit data when they catch this type of fish (such as size weight, gender, condition, season, etc.) to scientists that will use the information in a global study. This information may be used to understand and protect fish populations.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Indicate how you feel about each statement. | | | | | | | | |
|  | **Strongly Agree** | **Agree** | | | **No Opinion** | **Disagree** | | | **Strongly Disagree** |
| 19. Citizen Science helps me better understand the world I live in. |  | |  |  | | |  |  | |
| 20. More people should take part in Citizen Science. |  | |  |  | | |  |  | |
| 21. Contributing data/information to Citizen Science is important for the planet. |  | |  |  | | |  |  | |
| 22. Taking part in Citizen Science does NOT help the environment. |  | |  |  | | |  |  | |
| 23. Anyone can be a Citizen Scientist. |  | |  |  | | |  |  | |
| 24. I want to be a Citizen Scientist. |  | |  |  | | |  |  | |
| 25. I want to participate in Citizen Science projects in the future. |  | |  |  | | |  |  | |
|  |  | |  |  | | |  |  | |
|  |  | |  |  | | |  |  | |
|  | Indicate how you feel about each statement. | | | | | | | | |
|  | **Strongly Agree** | | **Agree** | **No Opinion** | | | **Disagree** | **Strongly Disagree** | |
| 26. Citizen Scientists are smart. |  | |  |  | | |  |  | |
| 27. I feel like a Citizen Scientist. |  | |  |  | | |  |  | |
| 28. Citizen Science is fun. |  | |  |  | | |  |  | |
| 29. I can help my local environment by taking part in Citizen Science. |  | |  |  | | |  |  | |
| 30. Citizen Science does NOT make me more interested in science. |  | |  |  | | |  |  | |
| 31. Citizen Science makes science seem more real. |  | |  |  | | |  |  | |

**Section IV: Ideas about Mobile Learning.** Items in this section present ideas related to mobile learning. Indicate the extent to which you agree or disagree with the following statements. Please read each sentence and MARK THE CIRCLE that best describes your opinion for EACH item.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Indicate how you feel about each statement. | | | | |
|  | **Strongly Agree** | **Agree** | **No Opinion** | **Disagree** | **Strongly Disagree** |
| 32. Using mobile technologies helps me learn. |  |  |  |  |  |
| 33. Mobile technology makes it easier to communicate with classmates and teachers. |  |  |  |  |  |
| 34. I use mobile technologies for schoolwork. |  |  |  |  |  |
| 35. I use mobile technologies for schoolwork while I’m outside of the normal classroom. |  |  |  |  |  |
| 36. I do NOT feel connected because of mobile technology. |  |  |  |  |  |
|  | Indicate how you feel about each statement. | | | | |
|  | **Strongly Agree** | **Agree** | **No Opinion** | **Disagree** | **Strongly Disagree** |
| 37. Mobile technologies make learning easier. |  |  |  |  |  |
| 38. Mobile technologies make learning fun. |  |  |  |  |  |
| 39. Mobile technologies help to organize schoolwork. |  |  |  |  |  |
| 40. I can use mobile technology for important projects. |  |  |  |  |  |
| 41. Using mobile technologies does NOT help me personalize my learning. |  |  |  |  |  |

Appendix B

Open-ended Questionnaire

1. How might taking part in the citizen science project change how you feel about citizen science?
2. What did you like most about taking part in the citizen science project?
3. What did you like least about taking part in the citizen science project?
4. Did you use your mobile device to continue exploring phenology while outside of school? Why or why not?
5. In what ways have your feelings about learning with technology changed after taking part in the project?
6. How might this experience change your future career path, course of study or interest in STEM (Science, Technology Engineering and Math)?