eMINTS Fall 2022 Student Survey

Student Assent

This survey will ask about your experiences in your math, science, English/reading, and history/social studies classes last school year. The survey is being conducted by researchers at the American Institutes for Research (AIR).

You do not have to participate in the survey if you don't want to. You can also stop taking the survey at any time after you start. Your survey responses help us understand more about your teachers, projects, and your classroom environment. Your answers will be private and will not be shared with your teacher. Only the research staff at AIR who are trained in conducting research will be able to see your survey responses. We are not collecting student names on this survey. We will not publish information that may reveal that you participated in this survey.

If your parent/guardian signed your research consent form and sent it back to your teacher, you cannot take this survey. If your parent/guardian signed and returned a consent form, please let your teacher know that you accidentally received a link to this survey.

* If you understand this information and agree to take this survey and let the researchers include your responses in the study, please select the "agree" box below. If not, please select the "do not agree" box.

- ◯ I agree to participate in this survey.
- ◯ I do not agree to participate in this survey.

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Instructions:

When answering the questions on this survey, please think about all the different ways you engaged with classes last school year – by computer or phone, in your normal classroom, or in other spaces. We may use the term "school" in some questions, but we know that "school" could happen in different places and in different ways.

Our study is focusing on your "core" classes: math, science, English/reading, and history/social studies. Try to think about your experiences in these classes when answering the questions.

*** What grade are you in this year?**

- ◯ 7th grade
- ◯ 8th grade
- ◯ I'm not a 7th or 8th grader

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Section One: Use of Technology

This set of questions focuses on your typical experiences in core classes in your school (English/reading, math, science, and social studies/history) during the Spring 2022 semester.

1. How often did you use the following technologies for school last semester?

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
Computers, laptops, Chromebooks, or tablets	◯	◯	◯	◯	◯
Smart/cell phone	◯	◯	◯	◯	◯
Digital cameras	◯	◯	◯	◯	◯
Video production tools (for example, video recorders, microphones, set lights)	◯	◯	◯	◯	◯
Interactive whiteboards (for example, Smartboard, Promethean board)	◯	◯	◯	◯	◯
3-D printers	◯	◯	◯	◯	◯
Robotics	◯	◯	◯	◯	◯
Sensors or sensing technologies (for example, motion sensors, pressure sensors or other probes/sensors for collecting data)	◯	◯	◯	◯	◯

2. How often did you use a laptop, Chromebook, computer, or tablet to do the following last semester for school?

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
Work on class assignments	◯	◯	◯	◯	◯
Search for information or conduct research	◯	◯	◯	◯	◯
Take notes in class	◯	◯	◯	◯	◯
Take a quiz or test	◯	◯	◯	◯	◯
Communicate with other students (messages, posts, e-mail)	◯	◯	◯	◯	◯
Communicate with a teacher (messages, posts, e-mail)	◯	◯	◯	◯	◯
Review or edit work from other students	◯	◯	◯	◯	◯
Work on a project that involves other students	◯	◯	◯	◯	◯
Create science, laboratory, or engineering reports	◯	◯	◯	◯	◯

3. How often did you do the following tasks for school last semester?

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
Create presentations (such as PowerPoint, Google Slides, Zoom)	◯	◯	◯	◯	◯
Create or edit videos (such as, iMovie, WeVideo, Photoshop, Flipgrid)	◯	◯	◯	◯	◯
Post or share classwork with students or your teachers	◯	◯	◯	◯	◯
Create or publish a blog or website	◯	◯	◯	◯	◯
Create computer-based graphs, data displays, or infographics	◯	◯	◯	◯	◯
Creating or editing a model for 3D printing	◯	◯	◯	◯	◯
Use computer programming or coding tools (such as Sketch, Python, HTML, JavaScript)	◯	◯	◯	◯	◯
Collaborated with other students using tools like Google Docs, Jamboard, Padlet, etc.	◯	◯	◯	◯	◯

Section Two: Classroom Environment

This set of questions focuses on your typical experiences in core classes in your school (English/reading, math, science, and social studies/history) during the Spring 2022 semester.

1. How much do you agree with the following statements about your classes?

	Strongly disagree	Disagree	Agree	Strongly agree
Our teachers encourage us to actively seek out answers on our own before asking for the answer.	◯	◯	◯	◯
Our teachers encourage us to fix previous work so we can learn from our mistakes or misunderstandings.	◯	◯	◯	◯
Our teachers ask us to form our own questions in order to explore a topic or solve a problem.	◯	◯	◯	◯
Our teachers ask us to reflect on or evaluate the quality of our own work or the work of other classmates.	◯	◯	◯	◯
Our teachers encourage us to develop our own methods or approaches to class activities or solving problems.	◯	◯	◯	◯
Our teachers encourage us to consider different solutions or points of view about a problem or task.	◯	◯	◯	◯

2. How much do you agree with the following statements about your classes?

	Strongly disagree	Disagree	Agree	Strongly agree
I am interested in my classes.	◯	◯	◯	◯
I ask questions when I don’t understand the assignment or lesson.	◯	◯	◯	◯
I try hard to do well in my classes.	◯	◯	◯	◯
I participate in class discussions.	◯	◯	◯	◯
I pay attention and resist distractions.	◯	◯	◯	◯
I try to pay attention even when I am not interested.	◯	◯	◯	◯
I stay on task without reminders from my teachers.	◯	◯	◯	◯

3. How often do the following things occur in your classes?

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
I work with other students on projects.	◯	◯	◯	◯	◯
I discuss how to solve problems or complete tasks with other students.	◯	◯	◯	◯	◯
I work with other students on assignments, projects, or other classwork.	◯	◯	◯	◯	◯
I learn from other students’ ideas and solutions.	◯	◯	◯	◯	◯
I evaluate my classmates' work.	◯	◯	◯	◯	◯
I explain my reasoning and process on projects and assignments to other students.	◯	◯	◯	◯	◯
I discuss and defend my ideas or views in class.	◯	◯	◯	◯	◯

Section Three: Design-Based Learning

This set of questions focuses on your typical experiences in core classes in your school (English/reading, math, science, and social studies/history) during the Spring 2022 semester.

1. How much do you agree with the following statements about your classes?

	Strongly disagree	Disagree	Agree	Strongly agree
Our teachers assign us to work on real-world problems.	◯	◯	◯	◯
Our teachers often assign projects that address issues in our school and/or community.	◯	◯	◯	◯
Our teachers want us to find ways to solve a problem where there are realistic constraints (for example, limited money, materials, or other resources).	◯	◯	◯	◯
Our teachers often connect what we are learning to life outside of the classroom.	◯	◯	◯	◯
Our teachers encourage us to discuss our personal experiences that are related to the class.	◯	◯	◯	◯

2. During last school year, how often did you do the following in any of your core classes (English/ELA, Math, Science, and Social Studies/History)?

In this survey, a "problem" could be from a task, assignment, or project you worked on in any of your core classes. Here are some examples of problems:

- *o Estimating the height of a tall structure*
- *o Examining how a historical event still impacts people today*
- *o Designing an oil-spill cleanup kit*
- *o Determining the pros and cons of a proposition that your town will be voting on*

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
Plan the steps you will take to solve a problem	◯	◯	◯	◯	◯
Research about the problem (for example, by gathering information from the internet)	◯	◯	◯	◯	◯
Use information from more than one source to figure out a solution to a problem	◯	◯	◯	◯	◯
Identify what information is given and missing when examining a problem	◯	◯	◯	◯	◯
Select from multiple tools (for example, Google Spreadsheets/Excel, Smithsonian website, YouTube tutorials, beakers) to help solve a problem	◯	◯	◯	◯	◯
Present your solution to the rest of the class	◯	◯	◯	◯	◯
Use evidence to defend or explain solutions to a problem	◯	◯	◯	◯	◯

3. During last school year, how often did you do the following in any of your core classes (English/ELA, Math, Science, and Social Studies/History)?

	Never	Less than once a month	Once a month	Once a week	Daily or almost every day
Discuss the types of problems that can be addressed through design, engineering, or technologies	◯	◯	◯	◯	◯
Propose design or engineering solutions to address a problem or need	◯	◯	◯	◯	◯
Create design plans (e.g., diagrams, charts, blueprints, flowchart)	◯	◯	◯	◯	◯
Create prototypes, models, or simulations	◯	◯	◯	◯	◯
Test how well prototypes, models, or simulations work	◯	◯	◯	◯	◯
Determine strengths and weaknesses of prototypes, models, or simulations	◯	◯	◯	◯	◯
Refine the design or solution after testing	◯	◯	◯	◯	◯

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Section Four: Experience with Design, Engineering, and Technology

1. To what extent have your experiences with school last year helped you feel prepared to do the following?

	Not at all prepared	Slightly prepared	Moderately prepared	Very prepared
Apply design and engineering processes	◯	◯	◯	◯
Come up with new ways to approach or solve problems	◯	◯	◯	◯
Develop design plans, prototypes, or models	◯	◯	◯	◯
Design or build a useful product or tool	◯	◯	◯	◯
Build something new out of existing materials such as electronics, mechanical parts, or art materials	◯	◯	◯	◯
Explain how things work, even if it involves complicated information	◯	◯	◯	◯
Use technology (such as computer programs, coding tools, 3-D printers) to design or create something new.	◯	◯	◯	◯

2. For this question, think about the next few years and the kinds of courses and activities you would like to participate in. How likely are you to participate in any of the following if they were offered or available to you?

	Very Unlikely	Somewhat unlikely	Somewhat likely	Very likely
Classes that help me use or program technology like computers, software or apps, or equipment	◯	◯	◯	◯
Classes focused on engineering, robotics, or design	◯	◯	◯	◯
Elective or advanced science or mathematics classes	◯	◯	◯	◯
Activities or clubs where students can design and make tools or products	◯	◯	◯	◯
Activities or clubs focused on science or mathematics	◯	◯	◯	◯
Activities or clubs focused on engineering or robotics	◯	◯	◯	◯
Activities or clubs focused on computers or programming	◯	◯	◯	◯

Section Five: Design-Based Learning Processes

For the next set of items, please read the question and select the answer choice that seems right to you. Remember, we will not share your answers with your teacher or school. If you feel unfamiliar with what the question is asking, feel free to guess.

1. Imagine that a teacher gives a class a task in which small groups of students will build a tower out of popsicle sticks to support a weight. Which approach best follows a design process to build the tower?

- ◯ Each group member builds their own tower and the students compare their towers against one another.
- ◯ The group develops the tower design specification, selects a design that best matches their materials and available time, and then builds their tower.
- ◯ The group designs a tower that requires specialized materials to better join together the popsicle sticks.
- ◯ The group starts building towers and trying different designs right away to maximize construction time in class.
- ◯ The group researches similar projects online, finds a design for a popsicle stick bridge, and uses this design to start building their tower.

2. If a design flaw is discovered, what is the next logical step for a design team?

- ◯ Fix the flaw
- ◯ Start over with a new design
- ◯ Modify the design to test again
- ◯ Build a model of the design

3. Samir designed and built two different toy cars. One car moved faster but the other car traveled farther. What should he do to determine which design will work best for him?

- Redesign one of the cars
- Test the toy cars again
- Set design goals
- Brainstorm design ideas

4. Isabel has noticed that when she opens her bedroom door, the doorknob hits the wall. She wants to design something to absorb the force of the opening door. What is the best next step in her design process?

- Identify why the doorknob hits the wall.
- Fix the problem to stop damaging the wall.
- Sketch a possible solution.
- Test a new doorknob.

5. A company wants to design and produce a new type of ice skate. Which of the following should the company do first in the design process?

- Determine design goals for a new ice skate.
- Test design ideas with different ice skaters.
- Compare different types of skates.
- Identify a need for a new type of ice skate.

6. An engineer has designed and built a prototype part to improve the brake system of a car. What is the next step that the engineer should take in the process?

- Run tests on the prototype.
- Evaluate design flaws in the prototype.
- Use the prototype to improve brake systems.
- Keep modifying the prototype to make it better.

7. Mia designed a new scratching post for her cat. Mia realized that the cat could not scratch its claws well against a wooden post, so she decided to attach carpeting to the post. Which of the following best describes what she did in the design process?

- Developed a model using materials from home.
- Tested and modified a prototype.
- Conducted an experiment.
- Brainstormed solutions.

8a. You are working for a company that makes ovens for restaurants and bakeries. Your manager has asked you to design a new oven. Using the engineering design process, what is your first step in taking on this challenge.

- Copy an oven design from another company.
- Begin sketching new oven designs.
- Buy several ovens and test them to see how well they work.
- Background research to understand potential customers' needs.

8b. Through market research you find that restaurants do not like the way the ovens look. After updating your requirements, what should you do for your next version of the design?

- Lower the price of your current oven design to make it more competitive.
- Work with a team to improve the look of the next version of the oven.
- Evaluate the performance of your current oven design.
- Increase the range of temperatures for cooking different types of food.

8c. You are planning to pitch your final oven design to the manager of the oven company. Your presentation would most likely include:

- The type of heating system and highest safe temperatures for the oven.
- A detailed model of the oven and instructions for building it.
- The list of oven designs you first brainstormed.
- The market size, the customer needs, and expected profit from oven sales.

9. A school cafeteria needs a new recycling bin. An engineer uses the engineering design process to design the bin.

Which of the following activities is part of the evaluate phase of the engineering design process for the recycling bin project?

- Conducting research to determine the differences between metal and plastic recycling bins.
- Identifying the requirements for the size and color of the recycling bin.
- Comparing basic drawings of several designs to see which ones would most likely meet the requirements.
- Communicate your recycle bin design to the principal of the school.

10. Which stage of the engineering design process includes creating detailed technical drawings for a new design?

- ◯ Ideate.
- ◯ Evaluate.
- ◯ Prototype and test.
- ◯ Share your solution.

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Section Six: Online Access and Class Time

1. How did you attend your classes/school last school year?

- ◯ Completely online attendance (not in person)
- ◯ Mostly online attendance, with some in-person attendance at school
- ◯ Mostly in-person attendance at school, with some online attendance
- ◯ Completely in-person attendance at school

2. About how many hours did you spend with your teachers each school day (whether the school day was in class or online)?

[Please enter numbers only]

3. When you were doing homework or learning from home, did you have a computer/laptop that you can use for school?

- ◯ Yes, my family and I own a computer/laptop at home that I use for school
- ◯ Yes, my school provided me with a computer/laptop for use at home
- ◯ No, I do not own a computer/laptop nor did my school provided a computer/laptop for me to use at home

4. Did you have access to reliable internet at home (meaning that you were able to get online most of the time when you needed to)?

- ◯ Yes
- ◯ No

Section Seven - Demographics

1. Are you . . .?

[Check all that apply.]

- [ ] American Indian or Alaska Native
- [ ] Asian
- [ ] Black or African American
- [ ] Hispanic or Latino/a/x
- [ ] Native Hawaiian or Other Pacific Islander
- [ ] White
- [ ] Other
- [ ] Prefer not to answer

2. How would you describe your gender identity?

- ◯ Female
- ◯ Male
- ◯ Another way
- ◯ Prefer not to say