



Sustainable Futures Virtual Field Trip

OBJECTIVES

Students will:

- Understand how human behavior connects to food insecurity.
- Explain Earth's changing condition over time.
- Make connections between sustainability and the environment, food, and water.

OVERVIEW

Climate change. Global warming. Greenhouse gasses. Sustainability. Students hear words like this all the time, but what do they actually mean? Young people understand that these things are important, but what can they **do** about it? What can they learn from the people and companies who are making a difference all over the world, pairing big goals with bold actions? Can **they** become agents of change? Students will explore these concepts and more in the **Sustainable Futures Virtual Field Trip**.

MATERIALS

- Device with the ability to project, one per volunteer
- Device with access to the internet, one per student or group
- Pencil, one per student
- **Food Insecurity** student handout, one per student, or displayed electronically
- **Draw Conclusions—Food loss and Food Insecurity** student handout, one per student*
- **Understanding Earth's Condition** student handout, one per student*
- **WebQuest** student handout, one per student*

***Note:** See the facilitation options throughout for tips on remote learning.

USING THIS GUIDE

This guide provides you with three optional activities to enhance the use of the Virtual Field Trip. The video can be used as a stand-alone resource; however, facilitating one or more of these

flexible activities can enhance the use of the Virtual Field Trip in the classroom. The “Before the Field Trip” activity should be completed before watching, and it will provide an opportunity to engage students in the topic(s) they will learn during the video. The “During the Field Trip” activity consists of a graphic organizer that students can use to keep track of their learning while they are watching the Virtual Field Trip. Finally, the “After the Field Trip” activity will provide students with a way to apply their learning or will challenge them to think about a topic in a new way after they watch the video.

The three supplemental activities are intended to be completed during three separate sessions to allow enough time to complete. This will require coordinating with your host educator. You may choose to complete facilitation of one or more activities virtually, have your host educator facilitate the “During the Field Trip Activity,” etc. Suggested durations have been provided, but each situation will be unique.

VOLUNTEER PREP

1. Read through each activity to familiarize yourself with the content. Note that lessons are designed to last as scheduled , but each situation will be unique.
2. Prepare all materials before your session. Communicate list of materials needed by students to your host educator in advance so he or she can prepare them and make sure each student has the required handouts.
3. If facilitating the “Before the Field Trip” activity, work with your host educator to determine if students will receive printed copies of the **Food Insecurity Infographic** or if he or she will have it ready for you to display digitally. Also determine what the educator would like you to do with the **Draw Conclusions—Food loss and Food Insecurity** handouts at the end of the session.
4. If facilitating the “After the Field Trip” activity, familiarize yourself with the United Nations’ [Sustainable Development Goals](#). Be well practiced at navigating the elements of the website so you are prepared to help students in their own navigation or with troubleshooting.
5. If students are learning or you are facilitating remotely, coordinate with your host educator prior to your session regarding preferred e-meeting platform (i.e., Zoom, Skype, Ring Central, Google Hangout, etc.). Determine who will be responsible for setting up the meeting credentials. Also, determine whether students will be on camera, using the chat feature, muted, etc. so you are better able to plan.
 - If possible, consider planning a practice session with your host educator to work out any issues prior to your session.
6. If you are facilitating the activities in person and would like students to work in groups, coordinate with your host educator prior to your session how to best distribute and organize students into small groups.

SUGGESTIONS FOR IMPLEMENTING VIRTUAL MEETINGS

Lighting: Backlighting prevents your audience from seeing you clearly. Make sure that you have lighting in front of you to ensure that you are seen.

Camera Placement: Try to make sure that your camera is placed at eye level. This helps to create eye contact and engagement with your audience. You can use books or other items to lift your computer (if using a laptop).

Sound: Make sure that you do a quick sound check before beginning your session. Ensure that you can be heard and participants will not hear an echo effect. Consider the usage of headphones equipped with a speaker.

Make Connections: Remember to try to connect with your audience, which can be challenging, virtually. Connect with them using quick stories or humor. Some suggestions have been included.

Troubleshooting: It is okay to make mistakes or have technology issues. If you have a technology hiccup or things which do not go as planned, do your best to reconnect and move forward with your lesson. The best thing you can do is be prepared by testing your internet connection and sound and video settings prior to your session!

BEFORE THE FIELD TRIP (45-60 MINUTES)

1. Take 1-2 minutes to introduce yourself to the class. Explain that you are here on behalf of Trane Technologies, and you are excited to help teach them sustainability and goal setting.
2. Engage students in the upcoming activities by asking one or more of the following open-ended questions. Do not worry about getting correct answers from students now; these “think aloud” questions are just to get their brains on topic before they start learning.
 - What do you think the word “sustainable” means?
 - When thinking about the environment, what comes to your mind when you hear the word “sustainable?”
 - Does the word “sustainable” have anything to do with food?
3. Explain to students that the word **sustainable** means **having the ability to be maintained**.
4. Tell students that during the upcoming Virtual Field Trip, they will be introduced to various ways that professionals, industries, and kids, just like them, are trying to increase sustainability with regards to the environment, food, and water.

Facilitation Options:

1. If students are on video and/or able to use microphones, allow them to share their answers out loud.
2. If students are not using video or microphones, encourage students to write their answers down to reference later.

5. Inform students that in today’s activity, they are going to focus on something called “food loss.” They will first learn a little about food insecurity and then draw conclusions about the relationship between food loss and food insecurity.
 - Note: Students may need help with the terms “food loss” and “food insecurity.” If that is the case, explain to them that **food insecurity** is **not having reliable access to a source or sufficient quantity of affordable or nutritious food**. **Food loss** refers to **once usable food that gets spilled, thrown away, spoiled, or is otherwise not eaten when it could have been**.

Facilitation Options:

If your students are learning in a remote environment, consider the following:

1. Display the Food Insecurity Infographic handout via screen share.
2. Collect responses virtually via a learning management platform, live video, shared online document, photos, etc.

6. Distribute or display the **Food Insecurity Infographic** to each student. Ask 1-2 volunteers to read the statistics to the class. If students are hesitant to volunteer, read them out loud yourself. Give students the opportunity to share any initial reactions to what they see.
7. Invite students to think about the definition of food loss. Ask students to brainstorm what or who might be the biggest causes of food loss and write a list on the board as they answer out loud. If no one offers an answer like, “me, my family, my dad, our house, our cafeteria, etc.,” ask student to specifically think about what is done with their own families’ waste food and record those answers on the board.
8. Distribute a **Draw Conclusions—Food Loss and Food Insecurity** handout to each student. Read the prompts out loud.
9. Direct them to answer the prompts in paragraph form.
10. If time allows, ask volunteers to share their conclusions. Otherwise, instruct students to save their handouts to either hand in to the educator or to discuss after viewing the Virtual Field Trip.

Facilitation Options:

If your students are learning in a remote environment, consider the following:

1. Use screen share to play the virtual field trip.
2. Have students watch asynchronously and share their thoughts using the tool of your choice (learning management platform, shared online document, photo, etc.).
3. Use live video conferencing or chat rooms to conduct a whole group discussion.
4. Provide the graphic organizer for students to print at home and fill in as they watch independently.

DURING THE FIELD TRIP (45-60 MINUTES, INCLUDING THE VIDEO)

1. If this is your first time leading a session with this class, take 1-2minutes to introduce yourself. Explain that you are here on behalf of Trane Technologies, and you are excited to help teach them sustainability and goal setting. If you have been with this class before, remind them of your name and briefly remind them of your prior experience together.
2. Remind students that sustainability affects multiple aspects of the environment as well as food and water.
3. Distribute an **Understanding Earth’s Condition** handout to each student. Read through the instructions out loud.

4. Read through each question, and explain that during the virtual field trip, students should record instances and examples that they learn from the video on the graphic organizer.
5. Play the **Sustainable Futures Virtual Field Trip** (add running time), reminding students to record their thoughts on their charts throughout. It is okay to pause the video if needed.
6. After the Virtual Field Trip, have students share a few of their ideas and reflect on their key takeaways.

AFTER THE FIELD TRIP (45-50 MINUTES)

1. If this is your first time leading a session with this class, take 1-2 minutes to introduce yourself. Explain that you are here on behalf of Trane Technologies, and you are excited to help continue teaching them about sustainability and goal setting. If you have been with this class before, remind them of your name and briefly remind them of your prior experience(s) together.
2. Take 1-2 minutes to reinforce what students learned in the video—that to be a change agent, one must set goals and work through the process of achieving them. Try to give a personal example from your career or from Trane Technologies.
3. Introduce students to the United Nations’ Sustainable Development Goals, or SDGs.¹ These goals evolved from the original Millennium Development Goals and seek to achieve what was not completed then.² Explain to the students that that means a great group of change agents got together to set lofty goals and determine plans for completion that included many stakeholders but still did not achieve their goals completely. Instead of giving up, the UN got back together, analyzed what went right and what still needed to be accomplished, and created new goals. These seventeen goals focus on the three dimensions of sustainable development: economic, social, and environmental.
4. Let students know that while they explore all the seventeen goals in their WebQuest activity, today, they should focus on the goals that specifically have to do with the environmental topics touched upon in the Virtual Field Trip.
5. Distribute one **WebQuest** handout to each student. Read through the instructions and each of the questions.

Facilitation Options:

If your students are learning in a remote environment, consider the following:

1. Introduce the WebQuest handout via screen share.
2. Collect responses virtually via a learning management platform, live video, shared online document, photos, etc.

References:

¹ <https://sdgs.un.org/goals>

² <https://sdgs.un.org/2030agenda>

6. Introduce the SDGs website listed on the handout and show students how to navigate it by displaying your screen on the projector. Navigate around the room to make sure students can access.
7. Give students time to explore and answer questions, either independently or in groups.
8. Approximately five minutes before the end of the session, invite students to share their conclusions with the class.

POSSIBLE LEARNING EXTENSIONS

- Conduct a discussion on how many of the elements that students recorded about food loss are already common practice. Think of simple or attainable ways to decrease food waste among their classroom and their families. Encourage students to implement the strategies for a determined time and keep a journal of successes and failures. Come back together and reevaluate what they could change to be more successful.
- Explain to students that the UN believes that their goals are “integrated and indivisible,” which means they all work together for the greater good, and the whole cannot be successful without the success of each part.³ Ask students if they agree and facilitate a discussion about whether the goals they chose during the research activity can be achieved in isolation of the others.

NATIONAL CONTENT STANDARDS ALIGNMENT FOR SUPPLEMENTAL ACTIVITIES

CCSS in English Language Arts

CCSS.ELA-LITERACY.SL.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others’ ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.1.C: Pose and respond to specific questions to clarify or follow up on information and make comments that contribute to the discussion and link to the remarks of others.

CCSS.ELA-LITERACY.SL.1.D: Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

CCSS.ELA-LITERACY.W.2.D: Use precise language and domain-specific vocabulary to inform about or explain the topic.

References:

³ [footnote missing](#)

CCSS.ELA-LITERACY.W.7: Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

Next Generation Science Standards

MS-ESS3

- Understand how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
- Understand the need for monitoring and minimizing a human impact on the environment.
- Understand that increases in human population and per-capita consumption of natural resources impact Earth's systems.
- Understand the factors that have caused the rise in global temperatures over the past century.



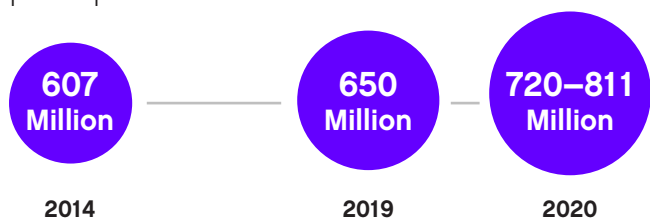
End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

The global pandemic is exacerbating world hunger



Worldwide, an additional **70-161 Million People** are likely to have experienced hunger as a result of the pandemic in 2020

Number of undernourished people in the world



Pandemic will worsen child malnutrition

22% (149.2 Million)

of children under 5 **are stunted**

6.7% (45.4 Million)

of children under 5 **suffer from wasting**

5.7% (38.9 Million)

of children under 5 **are overweight** (2020*)

*These 2020 estimates do not reflect impact of pandemic.

Almost **one-third of women** of reproductive age globally suffer from anemia, in part due to **nutrition deficiencies**.

2.37 Billion People

are without food or unable to eat a healthy balanced diet on a regular basis. (2020)



1. Does food loss affect the problem of food insecurity? Explain.

2. Would decreasing food loss help solve the problem of food insecurity? Explain.

Directions: As you watch the Virtual Field Trip, use the chart below, and on the following page, to record what you learn about each topic.

<p>What are some reasons that CO2 emissions have skyrocketed in recent history?</p>
<p>What are some current results of those increased CO2 emissions?</p>

What can you do to help the food loss problem?

Blank space for student response to the question: "What can you do to help the food loss problem?"

Take notes on the important elements of setting and reaching a goal:

Blank space for student notes on the important elements of setting and reaching a goal.

4. List each goal you highlighted and explore it more deeply on the website. Then, explain how it relates to what you experienced in the Virtual Field Trip:

Goal	How it relates to the Virtual Field Trip

5. Draw conclusions. Based on your investigation, which SDG do you feel is most crucial to address first? Use information from the website and the Virtual Field Trip to support your answer.