

# UNIT 8

## Outreach and Community Building

### UNIT OVERVIEW

**UNIT NUMBER: 8**

**DURATION: Approximately 8 in-class hours or iterative if presentations will be completed at multiple post-season events**

### SUMMARY

In this unit, students will create an effective demonstration or interactive experience to implement in the wider community. Students will identify a target audience or event in the local area (e.g., a meeting with a local sponsor or student group, STEM Festival, STEM clubs or community events, group of public schools, maker's markets, other extracurricular clubs such as 4H or Scouts) and plan for a demonstration about their robot and their team.

### INSTRUCTIONS

1. As a class, introduce the topic of outreach to the class and talk about some of the motivating factors that drive these kinds of initiatives.
2. Identify a local group or audience to target with the presentation. Talk about why this audience is important as a focus for outreach and what the class hopes to achieve by reaching out to them.
3. Divide the class into pairs or small groups of 3-4 students to conduct research or interviews. This information can be used to identify traits about the members of the audience that will help students tailor their presentation to the audience's needs or interests.
4. Plan for the presentation. Students will need to consider several different factors to shape and focus their presentation and create the resources necessary to deliver it. Planning may take place as a class, with smaller groups or pairs assigned to complete different tasks or deliver multiple presentations as needed. Planning may also be completed by dividing the class into smaller groups to develop and propose presentation ideas which can be synthesized into a single presentation by the class as a whole.
5. Create the presentation materials and have students work as a group (or in small groups if several presentations will take place) to practice.

### LEARNING RESOURCES

#### **FIRSTTech Challenge Outreach Resources**

- [Fundraising Toolkit](#)
- [Fundraising Resources](#)

#### **General Marketing and Outreach Resources**

- [Creating a Stellar Elevator Pitch for your Non-Profit Organization](#)
- [The 6 New Non-profit Elevator Pitches \(Video\)](#)
- [How to Write an Elevator Speech](#)

#### **Online Presentation and Meeting Tools**

- [Google Slides](#)

6. Deliver the presentation to the target audience at one or several planned events. Make sure to document it (photos, video) and plan to gather some feedback from the audience after the presentation.
7. Provide some time, after the presentation, for students to evaluate and reflect on the experience. Encourage them to work in small groups or pairs to consider what worked well, what didn't, and what they have learned for future presentations.

- [Google Hangouts](#)
- [Prezi for Education](#)
- [Join Me Online Meeting](#)



## ASSESSMENTS:

1. Presentation Planner resource
2. Presentation Reflection resource
3. Rubrics

## TOOLS & MATERIALS

1. Tetrix Kit of Parts or Rev Kit of Parts
2. Completed robot
3. Classroom materials or field kit
4. Art supplies (as needed)
5. Presentation software (as needed)
6. AV equipment, power cords, (as needed)

## STANDARDS ADDRESSED:

Full course standards alignments can be found [here](#).

# THE WHY?

## UNDERSTANDING OUTREACH

The goal of outreach is generally to introduce or encourage some kind of participation in or support of an organization, program, or initiative. Often, the target population for outreach is a group of people who might not otherwise know about, be involved with, or have access to that organization, program, or initiative.

As noted on the *FIRST* Inspires website, the vision that drives *FIRST* is a goal to "transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders." (Dean Kamen, Founder).

Outreach activities and presentations help to build enthusiasm and support for the program, as well as for the fields of Science and Technology.

## DEFINING THE GOAL(S) OF AN OUTREACH INITIATIVE:

Talk briefly about the concept of outreach and ask students to work in small groups to identify a few different outreach programs they have experienced in their day-to-day lives.

For each example, ask students to identify 2-3 goals that the initiative might have been trying to achieve.


Review the goals that students have identified for the outreach programs they have discussed. Create a master list of these goals on the board or poster paper.

Work together to identify and circle any outreach goals that inspire ideas for an outreach initiative around the *FIRST* experience or core values. Add additional, student-generated goals to the list as they come up.

Divide the class into pairs or small groups and provide them with the Presentation Planner resource.

Have them use the template provided or create their own to start the questioning process around the Driving Question.

### DRIVING QUESTION:

	How can we, as a group of experienced <i>FIRST</i> participants, build a stronger relationship with the larger community in a way that is beneficial for everyone involved?
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After considering ways in which they could try to build a stronger relationship with the larger community, encourage students to consider **why** they would.

What specific goals could this kind of outreach help them achieve?

#### *Guiding Questions:*

- What kinds of outreach and community building are other teams involved with? Why do you think they are motivated to do this? What goals are they trying to achieve?
- Why should **we** reach out to the larger community?
- How might we, as a class or team, benefit from this?
- How might the participants or attendees benefit from this?
- Which of the goals, listed here, are most important to our class or team? Why are these goals so important?
- How could we prioritize or rank these goals? What criteria would we use to do so?
- What is our primary goal in completing this outreach initiative? What are some secondary goals?

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### The Why? Facilitator's Tips:

**Q:** What are some examples of outreach initiatives that students may have encountered in their everyday lives?

**A:** Examples may include health initiatives, public education campaigns, or local non-profit organizations seeking financial or volunteer support.

#### *Examples of outreach goals:*

- An anti-smoking campaign
  - Inform smokers about the benefits of quitting
  - Help reduce the number of smokers in the local community by 30% in the next five years
- An employment and education initiative
  - Contact newcomers who are looking for work
  - Help newcomers enroll in online second language classes
  - Provide information about support services for job finding in the area
- An online webinar and live chat with young adults studying aeronautics
  - Develop interest in and deeper understanding of the program and field of study
  - Familiarize students with scholarships, grants, and funding opportunities

- Increase applications to programs in the field of aeronautics among students in certain demographics

**Q:** What might some of *our* goals be for an outreach initiative?

**A:** Some outreach goals that might apply to *FIRST* team outreach initiatives include:

- Building awareness (general education about *FIRST*, robotics, or STEM fields of study)
- Developing interest (recruiting for the future of the team or program)
- Encouraging participation (recruiting for current teams or programs)
- Gathering support (recruiting coaches, mentors, and other volunteers, or finding sponsors or other funding opportunities)
- Instilling pride in community and local students (showcasing what students have achieved or what they are working towards)
- Providing support (developing supportive networks or resources for new, struggling, or isolated teams)

**Q:** How can outreach activities benefit *FIRST* teams and the *FIRST* Community?

**A:** The *FIRST* Tech Challenge Mentor Manual includes a section called Outreach Activities for Teams (pg. 92-93), which outlines the advantages of outreach and provides examples of the kinds of activities many *FIRST* teams participate in. It also outlines a few suggestions on finding and creating outreach opportunities that are well-suited to the *FIRST* mission and objectives.

**Q:** Can outreach efforts help us move towards *FIRST* Tech Challenge Awards?

**A:** The Connect Award is given to the team that most connects with their local STEM community. Details about this award and its criteria can be found on the *FIRST* Inspires website.

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## THE WHO?

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Once students have identified their goal(s) for an outreach initiative, it's time to consider the population that will benefit from the initiative and how to communicate with them effectively.



**HINT:**

Students will need to consider, not just general facts about the population they are interested in, but how familiar the individuals in that group might be with robotics, and what will pique their interest. It's important that the presentation is a positive, engaging experience, regardless of age or background.

The audience for the presentation may respond well to a standard presentation, or they may be more engaged by an interactive game, demonstration, or hands-on instructional workshop. The audience may be made up of local community members, but may also be a team half-way around the world.

The Driving Question for this unit focuses on building a relationship with the larger community in a way that is beneficial for everyone involved. Students should be encouraged to consider, not just who they would benefit from contacting or engaging, but also who would benefit from learning more about *FIRST* and/or the class' achievements and experience.

As a class, select a target population, based on the goal(s) outlines in the "Why?" section of this Unit.

Provide students with time in small groups to brainstorm a list of questions they need to investigate or to ask others to get more familiar with the population they are seeking to contact.

Use the "Knows and Need-to-Knows" table provided on the *Presentation Planning* resource to document questions that will need to be asked about the target population and details about them as they are discovered.

Information documented here can be used to create a sample profile of a “person” that students will be communicating with. Students should think about this fictional “person” to help them as they shape the kind of presentation they will propose in the next section of this unit, just as a teacher would consider the type of learner they would be working with.



**HINT:**

This may be a challenging task for some students. It may be a good idea to create a sample profile together as a class before encouraging students to look at the information they have gathered to try and create their own. Profiles don't need to be long or detailed. Try to select 3-5 important points about a person's age, experience, and interests to include in bullet form.

**Guiding Questions to ask about the Audience:**

- What do we know about the population we wish to reach?
    - Age
    - Grade
    - Gender
    - Cultural background
    - Profession
    - Languages spoken or understood
    - Hobbies or interests
  - Where can these people be reached?
    - Online
    - Local schools
    - Community groups
    - Local businesses
    - Extracurricular groups (e.g., Scouts, 4H, team tournaments)
    - Public places (e.g., shopping centers, community centers)
  - What kind of experience do they have with *FIRST*?
    - None
    - *FIRST* LEGO League Jr.
    - *FIRST* LEGO League
    - *FIRST* Tech Challenge
    - *FIRST* Robotics Competition
    - *FIRST* Mentors/Sponsors/Alumni/Family Members
  - What kind of experience do they have with robotics?
    - None
    - General awareness from TV, movies, etc.
    - Playing with toy robots
    - Using robots in daily life (e.g., household robots that vacuum)
    - Working with robots (e.g., work in manufacturing)
    - Programming experience
    - Building experience
    - Engineering or professional experience in robot design or use
  - Will there be any barriers to their understanding of what we are talking about or showing them?
    - Previous experience with robots or similar technology
    - Language spoken or understood
    - Learning style (e.g., younger and need short explanation and opportunities to play, older and able to sit through a longer explanation and demonstration)
    - Ability to understand and follow instructions
    - Safety considerations
    - Enthusiasm or lack of interest
  - Can they benefit from our experience? If so, how?
  - If they cannot benefit from our experience, is this an appropriate individual or target population for our presentation?
    - Should we revisit the Driving Question or focus on a different profile or individual who might benefit more from participation?
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## The Who? Facilitator's Tips:

**Q:** What is a target population?

**A:** A target population is a group of people that you want to contact, engage with, and get involved in the kinds of things you do. Who you want to engage with your outreach presentation will be connected to the goals you want to achieve.

Sample Goals for Outreach:	Possible Target Population:
Recruit new members for an upcoming season.	Local junior high school students Students who are already involved in extracurricular clubs or activities
Build awareness of <i>FIRST</i> programs available for students within the local community.	Local elementary school students Local extracurricular groups Families passing through shopping centers Families at community centers
Find new team sponsors.	Local business organizations Friends and family members of team participants
Support students who are interested in robotics but live in remote regions.	Classes in other communities (online) Other <i>FIRST</i> teams Home school or remote schooling organizations

**Q:** Why is it important to create a profile of an individual from the target population?

**A:** It can be very overwhelming to try and meet the needs and interests of everybody, at all times. To help focus the presentation and make sure that it is meaningful to participants, it's useful to learn a little bit about them. A profile of a sample individual is a useful reference point to revisit as ideas are developed. It is not intended as a complete description of any individual who might be present at the presentation, but rather a way to put a face on the kind of person students will be interacting with. For example, students can ask themselves if this individual would understand the robotics jargon or terminology they are using, or if the individual would be able to operate the joystick independently for an activity they are creating.

However, it's also important to note that people can be surprising. There are always exceptions to every assumption or general understanding about people. Students should be prepared for situations where their expectations are not accurate, and practice a few ways to adapt their presentation accordingly.

**Q:** What if every group creates a different profile with different needs or experience?

**A:** This will likely happen and is not a bad thing. Select or post a 3-4 of the profiles and use them as a random sample of the kinds of people that might participate in the presentation. Encourage students to consider ways in which each one of these individuals would benefit from participating in their outreach initiative.

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## THE WHAT?

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Now that students have determined goals for their outreach initiative and learned a little bit about the population they will be engaging, it's time for them to think about what their presentation will look like and how they will put it together.

Post the goal(s) of the presentation where they are clearly visible in the room.

Divide the class into small groups to brainstorm ideas for a presentation, demonstration, or interactive activity they could develop to accomplish their goal, that would also connect with the audience they are trying to reach.

Three important questions to ask are:

1. What are we going to do?
2. What do we want to "walk away" with? (What will **we** gain from participating in this presentation?)

3. What do we want the people who participate in our presentation, to “walk away” with? (What will **they** gain from participating?)



**HINT:**

Make sure students understand that their presentation can take many forms, depending on their goals. Encourage them to think beyond a basic Power Point or display board presentation, especially if they will be engaging with young students or community members who are not familiar or comfortable with robotics.

As students are brainstorming and refining their ideas on the Presentation Planning resource, encourage them to consider and discuss the questions below.

**Guiding Questions about the Presentation:**

- Will there be one presentation, given one time, or several presentations delivered to different groups?
  - All at same location by same people or at different locations by different people?
- How will we get people interested in our presentation?
  - “Cold calls” or stopping passers-by
  - Networking
  - Creating an elevator pitch to quickly explain goal(s) and benefits
  - Visuals, music, or other presentation aids
  - Incentive or team SWAG for participation
- How can we be inclusive in our presentation?
  - Attract people from different backgrounds, age groups, grades, gender, clubs, or organizations
  - Include audience members who may have visual, hearing, or physical impairments
- Where will the presentation take place and how will this affect what we can do for our presentation?
  - Online, recorded, or in-person
  - Size and shape of space (front of classroom vs. open gym in a community center)
  - How many people can be included in the presentation?
    - As presenters
    - As viewers
    - As participants
  - Noise level
    - How much noise can we make?
    - How can we ensure we are heard and understood?
  - Seating arrangement or ability to move around during presentation
    - Will we, as presenters, be able to move around?
    - Will participants be able to move around?
  - Electrical outlets, lighting, sound systems, and Wi-Fi access
  - Material that will be available there to use (e.g., tables, extension cords, sound system, duct tape, markers and paper, etc.)
- Is there anything that participants should physically actually “take away” with them?
  - Posters
  - Flyers
  - Team business cards
  - Email or website information for future contact or to learn more
  - Team SWAG or participation incentives

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**The What? Facilitator’s Tips:**

**Q:** What kinds of presentations or demonstrations can students do?

**A:** Presentations make take many forms, with various levels of interaction. Students may wish to incorporate materials or components of presentations that they’ve created throughout the game season, or they may wish to start from scratch. Possibilities are limited only by resources, and time to prepare.

Examples of potential presentations:



- Live demonstration of a simplified *FIRST*Tech game challenge to show sponsors what the team has achieved with their support
- Video demonstrations for community groups or individuals involved with fundraising efforts (e.g., Thank you for your support! Here is what your support allows us to do.)
- Live demonstrations or simplified game challenges at schools or clubs for recruitment purposes
- "How to" or "Help" video tutorial collection to support and mentor new teams or *FIRST*LEGO League/*FIRST*LEGO League Jr. teams (e.g., This is the problem we faced and this is how we approached it. Here is the type of experience you can gain in the *FIRST*Tech Challenge.)
- Peer-to-peer mentorship via webinar or live chat with another team (in a neighboring community or in another region) sharing challenges faced and accomplishments or solutions.
- Interactive robot center activities on parent's night, with students acting as mentors at each one
- Video pitch presentation for potential sponsors to explain the benefits of involvement with *FIRST* robotics or students studying STEM topics

**Q:** How can students prepare to interact with people who are not familiar with robotics?

**A:** It may be a good idea to have students develop and practice a basic "elevator pitch" about their team, what they are doing, and why they are doing it. Preparing and practicing an elevator pitch can help engage audience members or passers by, and help students communicate key points about their presentation confidently and concisely.

It's important for students to understand that an elevator pitch should be easily understood, regardless of experience or background. It should be 30 seconds to 1 minute long (maximum) and include key points about their team, their goals, and their presentation in plain, clear language that makes sense to their target population.

This is a challenging task, both to write and to delivery naturally once the pitch has been developed, however, it is a skill that will benefit students as they complete interviews and presentations within *FIRST*, or seek employment in the future.

A few different websites with more information about these kinds of summaries have been provided below.

- [Creating a Stellar Elevator Pitch for your Non-Profit Organization](#)
- [The 6 New Non-profit Elevator Pitches \(Video\)](#)
- [How to Write an Elevator Speech](#)
- [TED Ed: How to Perfect the Elevator Pitch](#)

It is also a good idea to conduct a few practice runs of the presentation with others within the school community or with friends and family members. This will help to develop confidence, to work the bugs out of the presentation flow or materials, and to gain an idea of the kinds of questions people might ask. If completing the presentation or demonstration online, this will also provide an opportunity to work through any technical problems that may arise on presentation day.

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## THE HOW?

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Work together as a class to make a list of all tasks and subtasks that will need to be completed to prepare for the presentation. If several different presentations will be taking place, ask students to do this with their groups.

Students should then create a timeline or plan to complete the presentation, keeping in mind when and where the presentation will take place, how many individuals will be participating, and if relevant, what the presentation space (real or virtual) should look like.



**HINT:**

Make sure to encourage students to take on new or unfamiliar jobs or tasks. This unit provides an opportunity to revisit or build upon some of the skill development goals that were targeted in Unit 7.

**Guiding Questions for Planning the Presentation:**

- Make a list of the jobs that will need to be done.



- Who has experience with those jobs?
- Who would like experience with those jobs?
- In what order will they need to be completed?
- Can any of the tasks be completed in parallel, at the same time, by different people?
- Estimated completion time
- Make a list of the resources you have available.
- Make a list of materials that will be needed:
  - What needs to be made?
  - What needs to be gathered?
- How will the different parts of the presentation flow together?
  - Flow chart of presentation with:
    - An introduction or “hook” to get the audience excited about the presentation
    - Brief descriptions of the different steps or activities in the presentation or event
    - Notes about how long each step or activity might take
    - Notes about materials needed for each step
- What will the presentation look like?
  - On screen (if presenting online)
  - Vendor-style booth set up
  - “Bird’s eye” view (map) of centers and presentation components (e.g., Where will presenters stand? Where will the robot course be? Where will the robots be stored? How will participants move around the space?)
- How can we best communicate what participants need to do?
- Will we need to prepare written, visual, or verbal instructions for participants?
- How can we gather feedback or exchange contact information (if necessary or desired) from participants during or after the presentation?

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### The How? Facilitator’s Tips:

**Q:** How can students work together to plan their presentations?

**A:** As with any process, the development of a flowchart or timeline can be helpful in visualizing the components of and progress through a presentation. Students can create a very detailed version of this and then remove details as they practice and become more familiar with their presentation.

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## PRESENT AND REFLECT

After the presentation, provide students with some time to discuss how the presentation went.

Were the goals they outlined at the beginning of the unit accomplished?

Divide students into small groups or have them sit with their presentation group. One-by-one, ask students to share a few points or general impressions about the presentation with one student acting as a note taker.

After this, students may be encouraged to synthesize individual experiences into a group-based evaluation, or they may complete individual reflections and note areas where their impressions of the event aligned with or differed from other group members.



**HINT:**

It’s important to note that two individuals make walk away from the same presentation and feel very differently about the experience. Respectful differences of opinion should be welcomed and discussed, but it is important that discussion continues to reflect the Core Values of Gracious Professionalism® and Coopertition®.

Provide students with the **Presentation Reflection** resource and have them complete a self-evaluation of the presentation or event and their role in it.

### **Guiding Questions for Present and Reflect:**

- What went well?
- What didn't go well?
- How did the audience react? What did they have to say about it? Did you gather feedback formally or informally?
- What kinds of questions did they ask or comments did they make?
- What would you do the same next time?
- What would you do differently next time?
- What have you personally gained from this experience? (e.g., new communication skills, learned to use a new presentation tool or technique, gained confidence in ability to present to an audience)
- What are the next steps for your class or team? (e.g., incorporate elements of the presentation or materials into the Engineering Notebook or *FIRST* Tech challenge presentations in the future, continue to develop the relationship with the target population through future events or mentoring)

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### **Present and Reflect Facilitator's Tips:**

**Q:** How can this experience be integrated into or represented in the Engineering notebook?

**A:** Gather photos of the event, planning material, screen shots of material created or online presentation snapshots. If possible, document testimonials or feedback from participants about the event. Use word processing, Power Point, or layout software to create a 1-page visual summary of the event and include it as a PDF in the Engineering Notebook or as a download about the team's outreach efforts on a team website.



## Presentation Reflection

### Unit 8: Skill Development

Name:

Date:

In your own words, describe the goal of the presentation or event that you completed and how the presentation or event achieved that goal.

**HINT:** If you created an elevator pitch for your presentation, it can help you answer this question.

How successful do you think the presentation or event was at achieving this goal?

We did not achieve any of our goals.	We achieved one or some of our secondary goals.	We achieved our primary goal.	We achieved all of our goals and more.
Comments:			

How appropriate was the presentation or event for the target population?

It was not appropriate.	It was appropriate in some ways but many of the participants weren't interested.	It was appropriate and most of the participants were interested.	It was appropriate and engaging for all participants.
Comments:			

How effective were the materials used for the presentation or event?

They did not work well.	They worked ok. There were some problems with them.	They worked well.	They worked better than we expected.
Comments:			

How would you describe your participation in the presentation?

I contributed very little to the presentation.	I contributed to the preparation for the event but did not participate in the presentation.	I contributed to the preparation for the event and participated in the presentation.	I took a leadership role in the preparation, planning, and/or delivery of the presentation.
Comments:			

What will you do again in future presentations?

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What won't you do again in future presentations?

Describe one important lesson you have learned from this experience.



The Why?

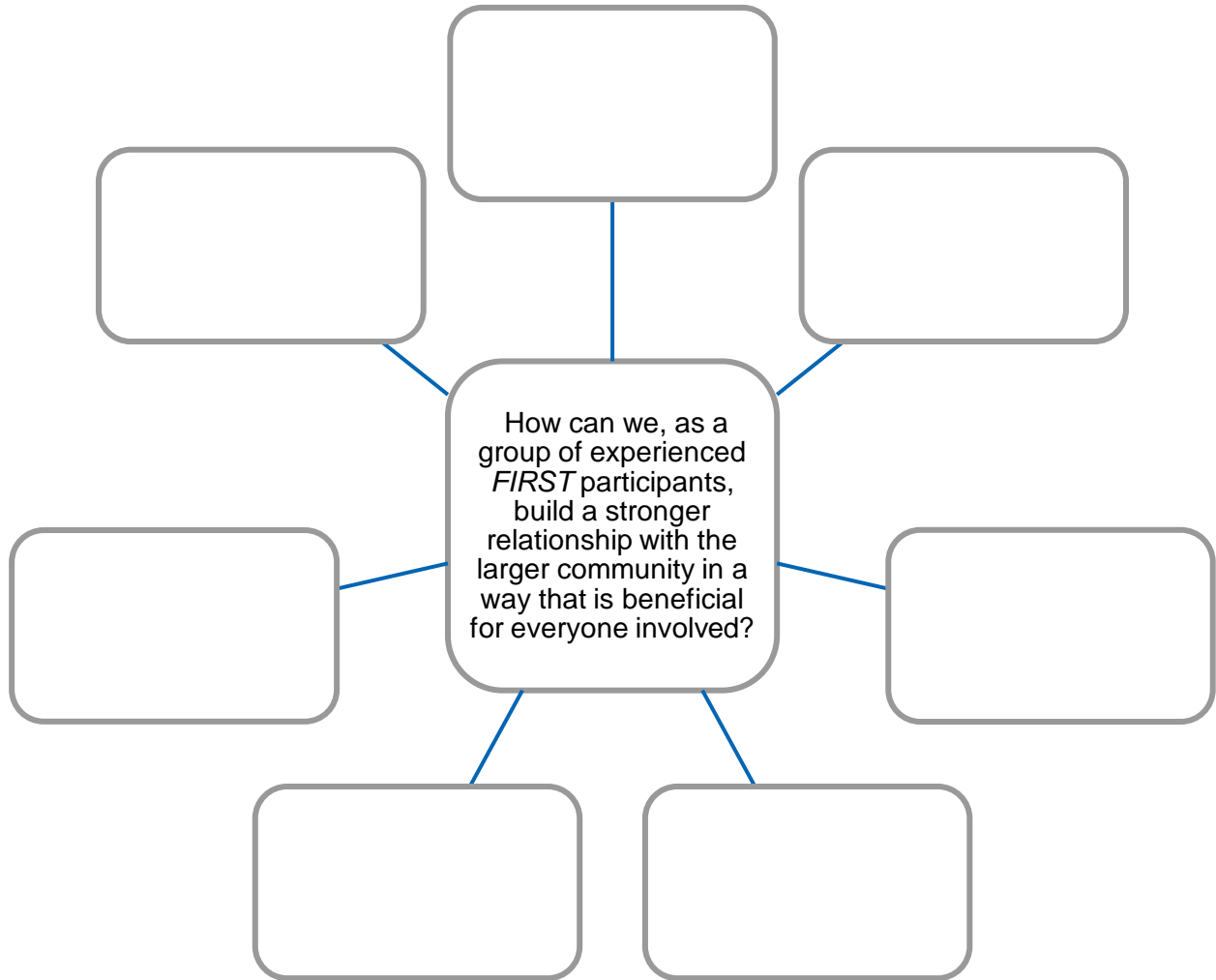
Unit 8: Outreach and Community Building

Use the template below or create your own to consider and ask questions about the Driving Question below.

If these are the ways in which you **could** help to build a stronger relationship with a larger community, **why** would you?

Make a list of some of the goals this kind of outreach could help accomplish?

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The Who?  
Unit 8: Outreach and Community Building

KNOWs	NEED-TO-KNOWs
What do we <b>know</b> about the population we wish to reach?	What do we <b>need</b> to know about the population we wish to reach?

Look at some of the points you've written about the population you will be working with.

Select the most important points and write a short profile of a person who you'd like to reach.





## The What?

### Unit 8: Outreach and Community Building

#### BRAINSTORM PRESENTATION IDEAS:

Brainstorm ideas for a presentation, demonstration, activity, or event that might help you achieve the goal(s) you have selected for your outreach activity.

Try to think about:

- What would be interesting or helpful for the person in the profile you created.
- Different kinds of presentations or activities
- Where the presentation might take place (virtual or live)
- What kinds of resources or materials you have to use

Try to write one idea in each box.


REFINE PRESENTATION IDEAS:

- **Circle** the ideas that you think might be most enjoyable or interesting for your target population.
- Draw a ~~line~~ through ideas that you think may not be very interesting for participants or that might be too complicated or difficult to achieve.

Think about:

- The resources you have available
- How much time you and your class have to work on the presentation
- Where or how you could do the presentation and what would be possible in that space (virtual or live)
- What kinds of things you would need to develop a successful presentation
- Draw a ☆ in the boxes with the best ideas.

**HINT:** There might be more than one idea that would work well or there may be a few ideas that could be combined.

Think about the ideas you've selected with a ☆ and describe the outreach presentation you would like to plan here:

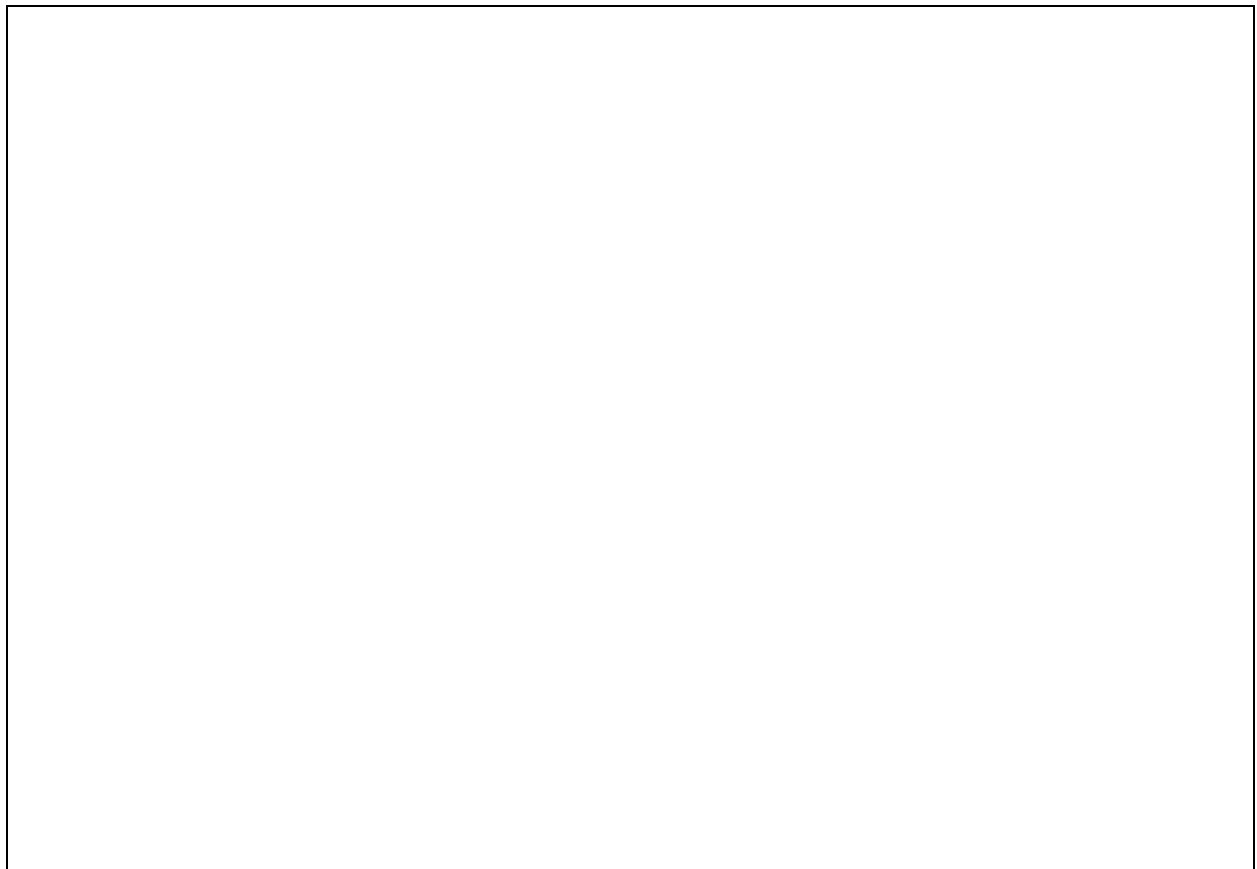


What will the presentation or event include and how will all its parts flow together?

Use the space below or to create a flowchart, timeline, or mind map of your presentation or event.

Make sure to include:

- An introduction or “hook” to get the audience excited about the presentation
- Details about each step and how long each step or activity might take
- Details about materials needed for each step
- A conclusion to wrap up the presentation and let the participants know what they have accomplished.

A large, empty rectangular box with a thin black border, intended for students to draw or write their presentation details.

What will your presentation space look like?

Use the space below to draw a floor plan for a live presentation or event, or a sketch of what the screen would look like for viewers at a virtual event.

