

Creating an Effective Outreach Activity

1. *Know your audience*

- Consider the grade level / difficulty of subject matter.
- Don't assume that all students have the same level of background knowledge.
 - o What is the minimum knowledge required to effectively participate in the lesson?
 - o How will you assess prior knowledge?
 - o If students do not have accurate information when they begin, what is your plan to provide the background knowledge needed for the activity?
- How is the content of your activity aligned with content that is taught in the school?
 - o See the list of [Next Generation Science Standards \(NGSS\)](#) that are aligned with your topics.
- What strategies will you use to ensure that your activity is engaging for the specific age/grade level of the audience? How will you keep your audience involved throughout the activity?
 - o Consider the use of a variety of questioning strategies in the classroom to keep students involved; i.e. don't just lecture as people can easily tune out.
 - o Ask students to share their thoughts on a topic before moving on to a new one; be sure that people have understood what has been presented.
 - o When asking questions, give students enough time to think about and develop an answer before you ask them to respond.
 - o Encourage students to ask questions during the presentation or when they are confused while working on a project so that concerns are addressed as soon as possible. Use respect when responding to the questions.

2. *Goals, Objectives and Learning Outcomes*

- What are the learning objectives of your activity? What will the students learn or be able to do as a result of participating in the activity?
- Why is this important to you?
- Why should this be important to your audience?

3. *Format*

- What type of activity are you designing? A variety of formats exist including, but not limited to:
 - o Demonstration: students watch and may participate in conversation but are not necessarily involved in doing or making something.
 - o Hands-on activity: students use materials or supplies provided to experience a phenomenon in action or to create something.
 - o Challenge: students are asked to use their knowledge to respond to a request; for example, draw something that --, build a prototype of a --.

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- Interactive display: information is presented online or perhaps on a poster and students can interact with it to uncover more information; for example, if there is a question, students must click or lift a flap to see the correct answer.
- Debate: encourage students to think about opinions related to a new technology or other intervention that may have ethical concerns.

4. Timing

- For classroom activities: how long will your activity take?
 - Plan the amount of time that the activity will take and then have a contingency plan for students who are struggling or for students who are more advanced than you anticipated and finish quickly.
- It's easy to rush through a lesson and have time to spare, one way to prepare for this is to practice your activity ahead of time.
 - Practice with peers! You will gain confidence and you'll discover where to make improvements.
 - Pay attention to the amount of filler words you use while practicing. It's better to pause than say "umm" or "like" several times.
- What's the plan if your activity runs over the allotted time?

5. Materials

- What materials are needed for this activity?
- How many students will participate?
 - Plan your materials list based on the number of intended participants, and always plan for a few extra materials/kits in case there are mishaps or extra students in the room.
- What is your budget? Are you able to make cost effective substitutions?
- How far in advance do you need to order/prepare your materials?
- Will students be able to take any items with them?

6. Technology

- Does your activity require technology?
- What is your plan if the technology fails?

7. Evaluation and Feedback

- How will you know that the program was a success? You know what you have presented and your intended message, but did the students hear and understand that message? Examples of assessment activities to gauge the impact of your lesson include:
 - Using a minute paper to find out what students are thinking at the end of the event.

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- Using pre- and post-program surveys with open ended questions [many different responses are possible] or selected response questions [students choose the correct answer from a list] that help you to know if key facts were retained.
- Conducting a conversation during which students reflect on the experience.
- Remember that the products of a hands-on lesson or challenge can provide a lot of information about the students' understanding of the activity.
- Make sure that you use the feedback that you obtain to improve the lesson for future use.