

Communication Curriculum

Lesson 3

Communicating Science to the Public

Lesson Overview:

Students will continue the Communication Curriculum by completing the following steps: 1) screening two videos that introduce why and how science is communicated to the public 2) identifying the purposes of science communication with which they are familiar 3) considering the audiences for various types of science communication. The lesson offers an extension in which students practice science communication given a scenario that calls for a specific purpose and audience.

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Communication

Lesson 3 – Communicating Science to the Public

Lesson Overview

During the first part of this lesson, you will guide students to consider the purposes for communicating science to the public. In the second part of the lesson, students will practice identifying and assessing the audiences for various examples of science communication. In an optional extension, students are invited to put their learning into action by choosing a scientific article to convert into a piece of scientific communication for a specific public audience. In the follow-up Gallery Walk students review their classmates' communication projects about the same topic for different audiences. The extension culminates in a class discussion that allows for reflection on the project, as well as the lesson concepts.

Time Frame:

1½-2 hours, including time for students to complete independent work
2 hours optional project and discussion (1 hour independent work)

Core Concepts:

- There are three main purposes for communicating science to the public: information, persuasion, and entertainment.
- It is important to identify your purpose as well as your audience when communicating science to the public.
- Good science communication should be clear and avoid generalization or reliance on unsubstantiated information.

Lesson Objectives:

In this lesson students will:

- Identify science communication trends.
- Explore the various purposes for science communication.
- Learn how to identify and focus on a target audience.
- Learn and apply principles of effective science communication.

Materials Needed:

- [Lesson 3 Video – Part 1: Why Communicate Science to the Public](#)
- [Lesson 3 Video – Part 2: How to Communicate Science to the Public](#)
- Science Communication worksheet
- Identifying Your Audience worksheet
- Science Communication Scenarios (from worksheet packet) (*optional*)

- Computer/tablet (*optional*)

Introduce the Lesson

Explain to students that in this lesson they will explore the purposes and importance of communicating science to the public. They will also consider several tips to keep in mind for successful science communication.

Part 1: Why is science communicated to the public?

Step 1: Activate Prior Knowledge

(5-10 minutes)

Ask students to consider what they already know about science. Ask them *How did you learn this information? Why is this information important to you?* Invite several volunteers to share their ideas. List student responses on the board. Revisit the lists after viewing Lesson 3 Video – Part 1. Continue to add, delete, and revise the list throughout the lesson.

Step 2: Present the *Why Communicate Science to the Public* video

(15 minutes)

Facilitate a discussion after viewing the video. You may wish to solicit questions and comments from the students first. You can use these suggested discussion points to deepen the conversation and student thinking:

- Alan Alda, the man quoted at the beginning of the video, suggests that communication is the *essence* of science. What do you think he means by this? Do you agree? Why or why not?
- Alan Alda is not a scientist. He is an actor. Why do you suppose he cares about science communication?
- The video listed *information, persuasion, and entertainment* as the three main purposes for communicating science to the public. Can you think of any other reasons for science communication?
- Can you think of any examples when science communication might have more than one purpose?

Step 3: Students complete the Science Communication worksheet

(30-45 minutes)

Distribute the Science Communication worksheet. Ask students to fill in the chart with examples of science communication from their own experience. Encourage them to consider when they have been on the giving end as well as the receiving end of the communication.

When students have completed their worksheets, ask them to share out in small groups of three or four. As they share, encourage them to continue to add to their own worksheet if a peer has identified an example of science communication from their own life.

Set aside a few minutes to discuss as a full class. Use these points to help guide your discussion:

- Are there examples from your worksheets that should be added to our list [on the board] from the beginning of the lesson?
- Did you have any difficulties in classifying the different examples? Did some science communication have more than one purpose? Did any of your examples have a purpose *other than* information, persuasion, or entertainment? Which ones?
- Consider Alan Alda's quote again. "Communication is not something you add on to science; it is the *essence* of science." Do you agree now? Why or why not?
- How much variety do you notice in the examples of science communication that we have come up with as a class? What are some of the differences between the different examples? Do they all have the same tone? Same audience? What other differences can you identify?

Part 2: How to Communicate Science to the Public

Step 1: Present the *How to Communicate Science to the Public* video

(15 minutes)

Facilitate a discussion after viewing the video. You may wish to solicit questions and comments from the students first. You can use these suggested discussion points to deepen the conversation and student thinking:

- Anne Row said that, "Nothing in science has any value to society if it is not communicated." Do you agree? Why or why not?
- Why is it important to know your audience when communicating about science?

- How is science communication different from other kinds of communication? How is it the same?

Step 2: Complete the Identifying Your Audience Worksheet

(30 minutes)

Invite students to complete the Identifying Your Audience worksheet. Encourage them to choose examples of science communication from their previous worksheet as well as from the class list.

When students have completed their worksheets, ask them to share out in small groups of three or four. Invite them to respectfully discuss whether or not they agree with the way others in their groups have completed the various columns. Encourage them to use accountable talk*, if that is a skill you have developed in your class.

After students have discussed in groups, ask them to turn in their worksheets, so that you can also provide feedback. Check for understanding of audience and purpose. Provide feedback in writing or in brief one-on-one conferences.

Step 3: Review Tips for Good Science Communication

(10-15 minutes)

Remind students of the different tips for communicating science to the public from the video:

- Identify your objectives and organize your presentation so it makes sense.
- Use plain language and levels that are appropriate to the audience.
- Avoid generalizing or relying on unsubstantiated evidence.
- Use action verbs rather than passive ones.
- Review and revise.

Invite the class to ask any questions or share any thoughts about the list as you go through it.

Optional Extension: Put Learning into Practice**Step 1: Communicate Science Yourself!**

(60 Minutes)

Assign each student a scientific article of your choice. You may wish to use one of provided articles below. You will only need to choose 1 or 2 articles for the entire group, as more than one student should work from the same article:

- Press release for the 2012 Nobel Prize in Physiology or Medicine 2012 – http://www.nobelprize.org/nobel_prizes/medicine/laureates/2012/press.html
- Race to mimic embryonic stem cells – <http://www.nature.com/news/2007/071120/full/450462a.html>

Invite each of the students to choose a scenario from the Science Communication Scenarios (in the worksheet packet), and ask them to let you know their choice in advance. Make sure that there is a relatively even spread of students for each scenario.

Ask students to write or record (video or audio) an example of communication to the public about the information in their assigned article. They may choose one of the following options (if available):

- Write your response as an article, blog post, or pamphlet (max 500 words)
- Record your communication as a podcast/audio file (~30-60 seconds)
- Create a video (5 minutes max) to communicate the information

Remind students to keep their chosen scenario in mind. This step may be completed in class or as homework.

Provide written or one-on-one feedback to students in response to their work.

Step 2: Gallery Walk

(45-60 minutes)

Prep for the gallery walk by asking students to set out their science communication from Step 4. Written responses can be set out on desks or posted around the room on the wall. For recorded responses, students can set out their laptop/tablet with the file opened for easy access.

Encourage students to walk around the room reading, listening to, and watching other students' responses. It may be helpful for students to carry headphones/earbuds with them for listening to the audio and video files. Depending upon the time available, suggest a minimum number of responses to visit.

Wrap up the gallery walk with a Think-Pair-Share. Ask partners to discuss the following question:

How did different purposes and audiences affect how students communicated the same scientific information?

Convene the whole class and invite several pairs to share their responses. Encourage a class discussion, if time allows.

* To learn more about incorporating Accountable Talk into your classroom, you may wish to explore these online resources:

- http://kb.edu.hku.hk/accountable_talk.html