



Classroom Teacher Preparation

Scientific Practices 2: The Observation Challenge

Please use the following to prepare for the next SfS lesson.

Description:

This lesson challenges students' observational skills—one of the most important basic scientific process skills. Students will learn how to distinguish between subjective vs. objective observations and between quantitative vs. qualitative observations. They will test these skills with a mystery object challenge: students will need to observe objects, describe them, and see if their observations allow their peers to correctly guess their object.

Lesson Objectives – SWBAT (“Students Will Be Able To...”):

3rd-8th

- Make observations and measurements to identify objects based on their properties
- Identify the difference between opinions, observations, and inferences
- Differentiate between quantitative vs. qualitative observations
- Understand the importance of observations for the scientific method and how to successfully communicate them

Disciplinary Core Idea (DCI):

- No DCI applies

Science & Engineering Practice (SEP):

Obtaining, Evaluating, and Communicating Information

Preparation:

This lesson is an introduction to the topic; no preparation is necessary.

Room Set Up for Activities:

Students will be working in pairs at their desks. They should have enough space to place a box and to write on their worksheets.

Safety:

There are no safety precautions for this lesson.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Scientific Skills**. Other modules in this sequence include:

Scientific Practices 1: Procedural Thinking – Students learn the importance of creating and following clear and ordered plans. They will try to replicate the creation of a classmate from written directions.

Scientific Practices 4: The Classification Challenge - Students classify objects based on their observations, and learn how different classification schemes influence their view of the objects/world.



Scientific Practices 5: Measurement & Estimation - Students will learn the difference between estimating and measuring, as well as the difference between precision and accuracy.

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state:
<http://www.sciencefromscientists.org/standards/>

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson by following the process of a scientific inquiry (complete with observations, questions, and hypotheses).

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

WGBH Videos and Activities: The PBS educational site is a great, free resource for educators but you must create an account to use the materials. The first time you log in to the PBS Learning Media website you will be asked to create an account and provide an email and password. Once you have logged in, select “keep me logged in” to avoid having to repeat the process.

- The Scientific Process Activity:
http://mass.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_scientificmethod/the-scientific-process/
- Scientific Tools and Methods: Interactive video that introduces different applications for the scientific method:
<http://mass.pbslearningmedia.org/resource/knh.methods/toolsandmethods/>