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## Cool Chemistry Show

### Scenario

The fourth- and fifth-grade students at a local elementary school have been studying chemistry in their classes. Because of the students' overwhelming interest, their teachers have asked your class to present a chemistry science show to their students. The elementary teachers have requested that the show be both interesting and informative.

For the chemistry science show, the fourth-grade teachers are asking your class to include demonstrations and explanations about chemical and physical properties and changes. The fifth-grade teacher wants the students to learn more about acids and bases, and about chemical reactions that involve color changes.

### Chapter Challenge

You and your classmates are being challenged to present an entertaining and informative chemistry science show to fourth- and fifth-grade students.

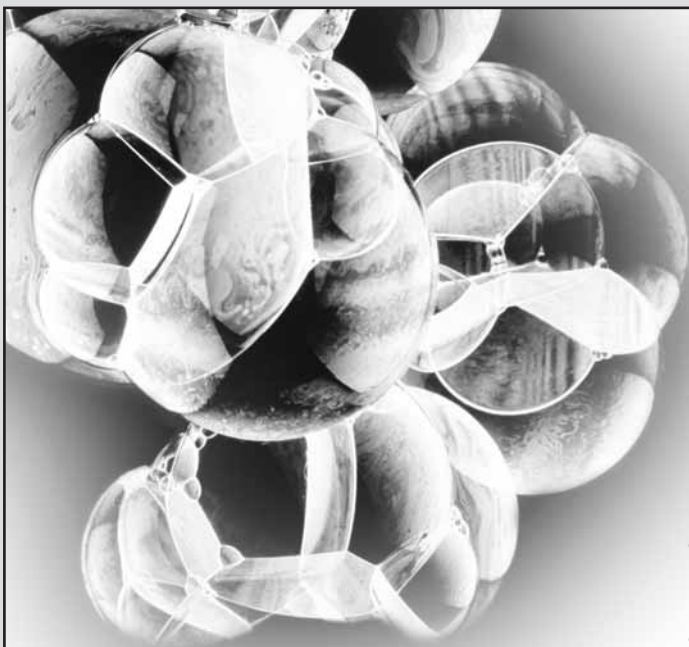
- The content of the show should meet the needs and interest of your audience. Remember that the fourth-grade teacher has specifically requested that the show address chemical and physical properties and changes. The fifth-grade teacher wants the students to learn more about acids and bases, and about chemical reactions that involve color changes. Your class may choose to add other presentations to enhance the show.
- All presentations must include a demonstration and an audience-appropriate explanation of the chemistry concepts involved.
- You must provide the teachers with a written summary including directions for your chemistry show with explanations of the chemistry.
- As always, safety is a top priority. You and your classmates will wear safety gear, including safety goggles, appropriate to the presentation being conducted. Presentations including flammable or explosive reactions are not appropriate for the elementary audience and may not be included in the show.

## Scenario

Read, or have a student read aloud, the **Scenario**. You may wish to expand on the **Scenario** by using videos, or by inviting persons from the field to present the **Scenario**.

## Chapter Challenge

You may wish to lead a class discussion about the challenge and the expectations. Review the titles of the activities in the **Table of Contents**. To remind students that the content of the activities corresponds to the content expected for the **Chapter Challenge**, ask them to explain how the title of each activity relates to the expectations. Familiarize the students with the structure of each activity. When you come to the section **Reflecting on the Activity and the Challenge**, point out that each activity contributes to the challenge in some way. As you discuss the challenge, reassure students that while they may feel incompetent now to complete the assignment, by the end of the chapter they will have the necessary skills and vocabulary to respond adequately.



The class, as a whole, is responsible for putting on this Cool Chemistry Show. You will need to coordinate your selection of presentations to provide a show that addresses a variety of chemistry concepts in an entertaining and informative manner.

### Criteria

How will your involvement in the Cool Chemistry Show be graded? What qualities should a good presentation have? Discuss these issues in small groups and with your class. You may decide that some or all of the following qualities of your presentation should be graded:

- Chemistry content
  - accuracy
  - meets teacher needs (fourth or fifth grade)
  - number of concepts addressed
- Demonstration
  - carefully planned
  - safety
  - explanation (age-appropriate)

- adherence to assigned time limits
- showmanship
- creativity
- clarity
- organization
- appeal
- written summary
- directions for experiment
- explanation of chemistry
- appropriateness for an elementary school teacher with limited chemistry background
- statements concerning safety needs

Once your class has determined the list of criteria for judging the presentations, you should also decide how many points should be given for each criterion. Determining grading criteria in advance will help you focus your time and effort on the various aspects of the presentation. How many points should be assigned to the content and how many should be assigned to the actual presentation? Will each high school student be involved in only one presentation, or more? For each criterion, you should decide on how excellence is defined and how it compares to a satisfactory effort.

Since you will be working with other students in small groups, you will need to determine grading criteria that reward each individual in the group for his or her contribution and also reward the group for the final presentation. You should discuss different strategies and choose the one that is best suited to your situation. Your teacher may provide you with a sample rubric to help you get started.

## Assessment Criteria

Sample rubrics for assessing the **Chapter Challenge** are provided on the following pages. You can copy and distribute the rubrics as is, or use them as a baseline for developing scoring guidelines and expectations that suit your needs. For example, you might wish to ensure that core concepts and abilities derived from your local or state science frameworks also appear on the rubric. You might also wish to modify the format of the rubric to make it more consistent with your evaluation system. However you decide to evaluate the **Chapter Challenge**, keep in mind that all expectations should be communicated to students at the start of their work. Be sure that the students actively participate in deciding the criteria for evaluation.