

## MIXTURES AND SOLUTIONS MODULE

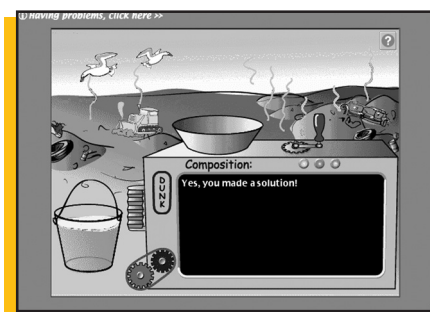
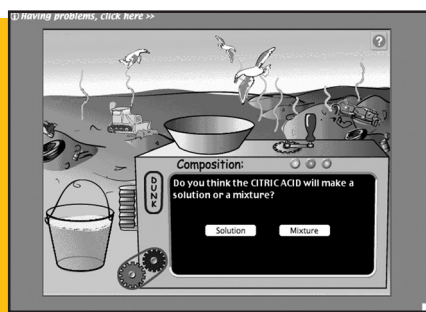
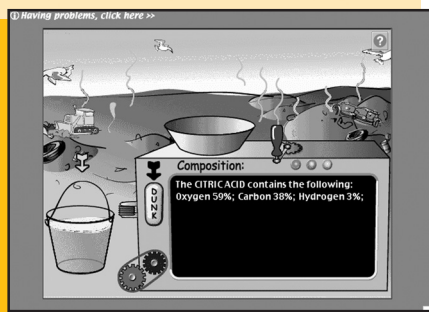
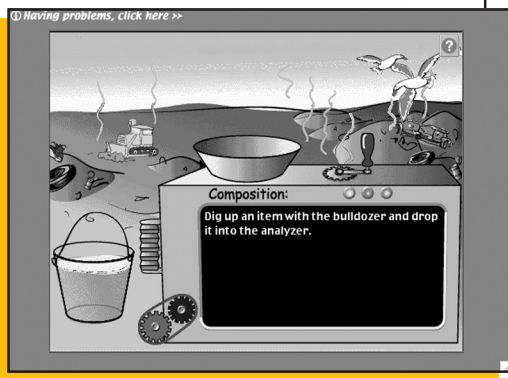
On the Welcome page, click Preview under the grades 3–6 flag to see a brief overview of the 3–6 site.

Click the grades 3–6 icon to get a menu that links to each of the 3–6 modules. There you can choose Mixtures and Solutions and travel to a wealth of information and activities specific to that module for students, parents, and teachers. The section for students has an interactive activity, project posters, pictures, movies, websites, a vocabulary list, a list of books and software, and an “Ask a Scientist” section. Parents and teachers can go to a module summary, a link to home/school connections, resources, and tips and tricks for using FOSS in the classroom.

If possible, introduce FOSSweb to students using a computer connected to a large monitor or digital projector. After a group introduction, move students to the computer lab or to computer stations in your classroom. Students in grades 3–6 need to have a focus when they begin exploring FOSSweb on their own or in small groups. Consider using some of the following questions and ideas to get them started. You can allow more free exploration once students have learned how to use FOSSweb and have completed some introductory assignments.

In Mixtures and Solutions, you’ll find an activity called Junkyard Analysis. Introduce this activity after students have completed Investigation 1, *Separating Mixtures*. Students dig up items in a junkyard and decide whether the item will create a mixture or solution when added to water. You might ask,

- *What is a mixture?*
- *What is a solution?*
- *What are some of the mixtures and solutions we have investigated?*



Review the introductory screen with the class. Click anywhere on the screen to move to the activity. Click the bulldozer. An item will appear in the bulldozer's shovel. Click and drag the item to the junkyard analyzer. If you get stuck while dragging the item, release the item and try again. Once the item is analyzed, click the Dunk button to see if the object dissolves in water. As a class, decide whether the object will dissolve and choose either Solution or Mixture. Before students try the activity on their own, you might suggest they do one or more of the following:

- Make a list of the most common elements in all the objects.
- Make different categories of the objects using different reasons: objects that contain carbon, objects that contain iron, objects that are or were part of living things (fishbone, spinach, rice).
- Record the composition of each object.

Then use their records for class discussion. Ask,

- *What do you notice when you compare the compositions?*

In Posters, students can view summaries of investigations or posters created by students as part of the end-of-module project. Students can also submit their own project posters to share with other FOSS learners.

Pictures include images of different aspects of chemistry. Students may want to do further research starting with these pictures as part of their end-of-module project.

Movies include a chemist explaining the difference between physical and chemical changes.

Websites include links to sites that can extend student experience with the **Mixtures and Solutions Module**. The links may inspire some new projects and investigations involving mixtures and solutions.

In Vocabulary, students will find a glossary of words used in the **Mixtures and Solutions Module** investigations and in *FOSS Science Stories: Mixtures and Solutions*. Downloadable pdf files of the vocabulary list and glossary are available here.

Books/Software includes an annotated list of books, videos, and software recommended for the **Mixtures and Solutions Module**.

In Ask a Scientist, students can review questions about chemistry that have been submitted by other students and ask appropriate questions of their own. Adult guidance in submitting questions is highly recommended.

