

## Mixtures and Mixed Media

**Overview:** Students learn that mixtures may be found everywhere, even in the art museum.

**Goals:** This lesson will

Support concepts and skills: an expanded concept of mixtures, observation, reasoning

Fulfill Learning Standards: ELA 23; Science and Technology/Engineering 8

Practice: writing questions, developing hypotheses

Familiarize students with: works of art in mixed media



*Hand Blown Glass*  
Roman

**Objectives for Students:** Students will

Be able to write questions and develop a hypothesis from one.

Understand that mixtures are everywhere; not just in their science classroom; that artwork can be a mixture of media.

**Key Questions** (to be answered by students):

1. What other kinds of mixtures exist outside of the science classroom?
2. How can a work of art be a mixture?
3. How does one distinguish between a mixture and a solution?

**Materials Needed:** Inquiry Activity worksheet, copies for each student

**Museum Objects:** A gallery with a wide variety of art media represented in it. Object shown is *Glass*, Roman, hand-blown glass, 200-300 A. D., Gift of Evelyn and Harlow Russell (2002.23)

**Pre-Museum Visit** – Review vocabulary words related to the topic of mixtures and solutions: mixture, solution, property, element, and hypothesis.

**At the Museum** – Begin by asking students to make a connection from the science classroom to the art gallery. Possible questions you could ask are: “How does this work of art relate to what we’re doing with Mixtures and Solutions? Where do you see mixtures? How do you know they are mixtures? Can these be solutions? Why? What is your evidence? What properties do the elements of these works of art have?”

Next, introduce the Inquiry Activity worksheet. Ask students to first choose a partner and a work of art to examine. Next, ask them to write down questions they have about the artwork. Equate this process to designing a scientific experiment. Next, direct students to narrow down their question to the one they are most interested in. Finally, they should devise a hypothesis for their question, based on evidence in the work of art.

As a wrap-up, have pairs share their process and their discoveries. Allow other students to ask questions.

**Post-Museum Visit** – Working with the art teacher or in your own classroom, provide a variety of collage and painting materials for students to work with to create their own collage. Discuss which materials are mixtures and which are solutions (if any).

**Supportive Materials:** Inquiry Activity worksheet

**Documentation and Assessment Options:** Review and keep their Inquiry Activity worksheets, and compare them against hypotheses they later develop in science class on other topics.

**Links to Other Curriculum:** This lesson connects directly to the FOSS Mixtures and Solutions Investigation 1

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## Inquiry Activity

Work with a partner. Pick an object that interests both of you.

### Asking questions about the work of art.

Your challenge is to see how many questions you and your partner can think of to ask about this work of art. Write each question on a separate line below. There are many kinds of questions. You can make questions beginning with what, how, who, why, when, or where. Make each question as specific as possible. For example, instead of asking “Why is it like that?” ask a more specific question about something you see.

When you have written as many questions as you can think of (or if the time is up) turn to the next page.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.



**Choosing the most interesting question.**

**Which of the questions you have written is the most interesting to the two of you? Pick one question that you really would like to know the answer to.**

**Write it here:**

**Making a hypothesis.**

**A hypothesis is a guess that is based on the evidence you have. Looking back at the object, discuss with your partner what you guess the answer might be to the question you wrote above. What do you see or know about the object that supports this hypothesis? What is your evidence? Write your hypothesis and evidence below.**