

*Discovering the Story:  
A City and Its Culture*

*NATURE MADE OR  
MAN-MADE - WHICH  
MATERIAL IS BETTER?*

A Science Lesson  
for Grades K-3



Mary Louise McLaughlin (1847-1939), The Cincinnati Pottery Club (1879-1890), Frederick Dallas Hamilton Road Pottery (1865-1882), United States (Cincinnati)  
*Ali Baba Vase*, 1880  
Gift of the Women's Art Museum Association, 1881.239



Maria Longworth Nichols Storer (The Rookwood Pottery Company)  
*Aladdin Vase*, 1882  
Gift of Mr. and Mrs. James J. Gardner, 2002.94

*The lesson Nature Made or Man-Made - Which Material is Better?* is based on

*Aladdin Vase*  
by Maria Longworth Nichols Storer

and

*Ali Baba Vase*  
by Mary Louise McLaughlin

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Based on *Aladdin Vase* by Maria Longworth Nichols Storer  
and *Ali Baba Vase* by Mary Louise McLaughlin

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## CONCEPT

Teacher will guide students in the exploration and identification of several examples of natural and man-made materials, and in doing so students will learn to distinguish the difference between the two. Through class discussions and observations, students will determine why some materials are better suited than others for making certain things. Students will also understand that both natural and man-made materials are used in creating new things and that each have desirable qualities for construction.

The teacher will facilitate students in hands-on applications and study through pre-videoconferencing classroom activities, a videoconference visit with Cincinnati Art Museum Staff and post-videoconferencing lesson activities.

## OBJECTIVES

- Students will explore and identify several examples of natural and man-made materials.
- Students will understand that different types of materials are better suited than others when creating something.
- Students will understand that both natural and man-made materials are used in creating new things and that each has desirable qualities for construction.

*"Every child is an artist. The problem is how to remain an artist once he grows up."*

Pablo Picasso

## Teacher Preparation

### CLASS PERIODS REQUIRED

- 1 (30-50 min.) period for Pre-Lesson Activities
- 1 50-min. class period for Videoconference
- 1 to 3 (30-50 min.) periods for Post-Lesson Activities
- 1 to 2 (30-50 min.) periods for Art Enrichment Activity (optional)

### BACKGROUND INFORMATION

Refer to [Background Information](#) for more on the *Ali Baba Vase* and the *Aladdin Vase* and the artists who created them. Background Information has been written for teachers to review before the lesson and then share with students.

### VIDEO

Share the [ceramics video](#) with your students prior to the videoconference. The video depicts archival film from Rookwood Pottery and an interview with a Museum curator on the two vases. This video is an excellent resource that will help to prepare students for the videoconference.

Video Duration – approx. six and a half minutes.

*"He who works with his hands is a laborer. He who works with his hands and his head is a craftsman. He who works with his hands and his head and his heart is an artist."*

St. Francis of Assisi

## PRE- VIDEOCONFERENCE

### VOCABULARY

Definitions can be found in the [Glossary](#) on the [Discovering the Story](#) Website.

Clay  
Durable  
Man-made  
Material  
Natural  
Observe  
Silk  
Silver  
Trial and Error  
Wood

### GUIDING QUESTIONS

- What is the difference between natural and man-made materials?
- What are some examples of natural and man-made materials?
- Why do people choose the materials they do when they create something?

### MATERIALS

- Actual items and/or pictures of items made of various materials both natural and man-made:

#### **Natural**

Silk cloth  
Clay pot and natural, moist clay  
Silverware  
Branches, twigs  
Wooden bowl, cutting board or wood furniture  
Paper (wood pulp/cotton rag)  
Copper (pipes, pennies)  
Leather

#### **Man-made**

Plastic items: toys, Tupperware, utensils, etc.  
Rubber bands  
Tires  
Erasers  
Acrylic: cups, dishes, containers, etc.  
Vinyl: raincoat, tablecloth, tote bags, etc.  
Fleece (made from plastic bottles)  
Rayon, polyester

- Print Reproductions of the Museum's [Ali Baba Vase](#) and [Aladdin Vase](#) (downloaded from [www.discoverthestory.com](http://www.discoverthestory.com))

## PROCEDURE

Teacher will:

- Share with students the print reproductions of the Museum's *Ali Baba Vase* and *Aladdin Vase*. Ask students to describe what they see in the pictures. Students should be encouraged to use descriptive language in describing the vases. Record responses on the board.
- Ask students what material they think the vases were made of. Record all answers on the board.
- After much brainstorming, share with students that these vases were made of clay. Ask students if they know where clay comes from. Many students will not know that clay comes from the ground. Teachers may wish to show students rough clay (straight from the ground) to demonstrate this fact.
- Now tell students that because clay comes from the ground it is a natural material, meaning that the material from which these vases were made existed in or was formed by nature.
- Share with students several examples (see material list) of natural materials and products made from them. Students may be surprised to learn that many of the objects that they use every day originated in nature. Tell students that some items are still natural materials, even though they have been reshaped by humans (e.g., clay/brick, silver/spoon).
- Share with students several examples (see material list) of man-made materials and products made of them. Explain to students that several of the things they wear or use every day can also be considered man-made, meaning that they were produced, formed or made by humans, not resulting from natural processes or natural materials. Tell them that advancement in science now allows people to make things from materials other than those found in nature.
- Ensure that, before moving on to the videoconference and post-lesson, students have a firm understanding of the difference between natural and man-made materials and should be able to identify each when asked.
- Tell students that they are going to participate in a videoconference with the Cincinnati Art Museum. They will learn more about these vases and their construction. Students will also look at other Museum objects that were made from natural materials.

*"No amount of skillful invention can replace the essential element of imagination"*

Edward Hopper

## VIDEOCONFERENCE

### OBJECTIVES

- Students will interact with the Cincinnati Art Museum staff through a sixty-minute [videoconference](#).
- Students will learn about Cincinnati history from 1850 to 1900.
- Students will use Museum objects to reinforce activities completed in preparation for this [videoconference](#).

### CONCEPT

A [videoconference](#) conducted by the Cincinnati Art Museum staff extends student learning through emphasis on the viewing and discussion of art objects. During this [videoconference](#) with the Museum, students will explore Cincinnati art history and the methods and practices of many of the artists working in the city.

### SCHEDULE

- **5 minutes** Introduction to CAM staff (*This is also buffer time in case of connection complications*)
- **10 minutes** Brief discussion of student pre-videoconferencing activities.
- **10 minutes** Museum staff will lead an interactive discussion with students on the history of Cincinnati from 1850-1900
- **20 minutes** Museum staff will lead students in an in-depth investigation of selected Museum objects.  
**Objects Include**
  - [Bedstead](#) by Benn Pitman, Adelaide Nourse Pitman, and Elizabeth Nourse
  - [Reception Dress](#) by Selina Cadwallader
  - [Aladdin Vase](#) by Maria Longworth Nichols Storer
  - [Ali Baba Vase](#) by M. Louise McLaughlin
  - [Vase and Dedication Medallion](#) by Tiffany & Co.
- **10 minutes** Questions and student sharing of art projects.
- **5 minutes** Closing (*This is also buffer time in case of connection complications*)

## POST- VIDEOCONFERENCE

### MATERIALS

- Traditional version of *The Three Pigs*
- Building Materials (enough of each to “build” a house)
- Wooden blocks
- Cotton balls
- Marshmallows (big)
- Plastic containers (e.g. film containers, butter containers)
- Print Reproductions of the Museum’s [Ali Baba Vase](#) and [Aladdin Vase](#) (downloaded from [www.discoveringthistory.com](http://www.discoveringthistory.com))

### PROCEDURE

Teacher will:

- Review with students information obtained during the videoconference with the Museum. Share with students the print reproductions of the Museum’s [Ali Baba Vase](#) and [Aladdin Vase](#), [Bedstead](#), [Reception Dress](#) and [Vase and Dedication Medallion](#). During the videoconference, students learned that each of these Museum objects was made of materials from nature. Show each image and ask students to share what they remember about each object. Ask students why they think these objects came from natural materials.
- Tell students that now that they understand the difference between natural and man-made objects and are able to identify and describe each, they are going to use their critical thinking skills to decide which materials are better in the construction of a house. Teachers are encouraged to read a traditional version of *The Three Little Pigs* to demonstrate this concept.
- Tell students that they are now each going to build a house and that each of them is going to use a different material. Tell them that upon completion of their houses, the Big Bad Wolf (teacher) is going to try to blow their houses down. Teacher may wish to model the building of a house out of an object not used by the students—perhaps soup or soda cans.
- Break students into four teams; two teams will create their houses out of natural materials (wooden blocks and cotton balls) and two teams will build their houses out of man-made materials (marshmallows and plastic containers). Students should be given at least 15 minutes to construct their houses.
- Once all houses are built, the Wolf/teacher will try to blow each house down. Wolf/teacher should be able to blow down the cotton ball and marshmallow houses. Discuss with students why the Wolf/teacher was able to blow down these houses.
- Discuss with students why the wooden and plastic houses stood up to the Wolf/teacher. Students should come to the conclusion that the reason the wooden and plastic houses didn’t blow down is because they were more durable.
- Ensure that, upon completion of this activity, students understand that both natural and man-made materials have desirable qualities for construction and that you have to use your critical thinking skills to determine which product is the better material for the needs of your project.



## ASSESSMENT OBJECTIVES

- Students are able to identify and distinguish between examples of natural and man-made materials.
- Students understand and can apply the knowledge that different types of materials are better suited than others when creating something.
- Students understand that both natural and man-made materials are used in creating new things and that each have desirable qualities for construction.

## ACADEMIC CONTENT STANDARDS

### NATIONAL STANDARDS: SCIENCE

#### Physical Science:

**Standard 8:** Understands the structure and properties of matter.

#### Grades K-2

**Benchmark 1:** Knows that different objects are made up of many different types of materials (e.g., cloth, paper, wood, metal) and have many different observable properties (e.g., color, size, shape, weight).

### NATIONAL STANDARDS: VISUAL ARTS

**Standard 4:** Understands the visual arts in relation to history and cultures.

#### Grades K-4

**Benchmark 1:** Knows that the visual arts have both a history and a specific relationship to various cultures.

**Benchmark 3:** Knows how history, culture and the visual arts can influence each other.

## OHIO STANDARDS: SCIENCE

**Science and Technology:** Students should recognize that science and technology are interconnected and that using technology involves assessment of the benefits, risks and costs. Students should build scientific and technological knowledge, as well as the skills required to design and construct devices. In addition, they should develop the processes to solve problems and understand that problems may be solved in several ways.

### Grades K-2

**Benchmark A:** Explains why people, when building or making something, need to determine what it will be made of and how it will affect other people and the environment.

## OHIO STANDARDS: VISUAL ARTS

**Historical, Cultural and Social Contexts:** Students understand the impact of visual art on the history, culture and society from which it emanates. They understand the cultural, social and political forces that, in turn, shape visual art communication and expression. Students identify the significant contributions of visual artists to cultural heritage. They analyze the historical, cultural, social and political contexts that influence the function and role of visual art in the lives of people.

### Grades K-4

**Benchmark A:** Recognizes and describes visual art forms and artworks from various times and places.

**Benchmark B:** Identifies art forms, visual ideas and images and describes how they are influenced by time and culture.

**Benchmark C:** Identifies and describes the different purposes people have for creating works of art.