

<p style="text-align: center;">The Science Behind Art Conservation Pre-Visit Activities</p>	
Activity Goal	Understand the technical and creative discipline of art preservation.
Grade Level	4-12 (STEAM)
Learning Standards	S1P1, S2P1, SPS6, S3P1, S4P1, S5P1, S8P1, S8P4, SC2, SC6, SPS6, SPS9, VA4.RE.1, VA4.CN.1, VA4.CN.2, VA4.CN.3, VA5.RE.1, VA5.CN.1, VA5.CN.3, VAHSJW.RE.1, VAHSJW.CN.1, VAHSJW.CN.3, VAHSAH.CN.1, VAHSAH.CN.3, VAHSVA.CN.3, VA6.RE.2, VA6.CN.1, VA6.CN.2, VA6.CN.3, VA7.RE.1, VA7.RE.2, VA7.CN.1, VA7.CN.2, VA7.CN.3, VA8.RE.1, VA8.RE.2, VA8.CN.1, VA8.CN.2, VA8.CN.3, VAHSAH.CN.3, VAHSVA.CN.3
Materials	3 long iron nails, salt, 3 plastic cups, dark permanent marker
Vocabulary	cultural property, corrosion, oxidation, green patina
Extensions	Michael C. Carlos Conservation

<p>Pre Visit Activities (Grades 4th-12th - Visual Arts)</p>
<p>Welcome to the exciting world of Art Conservation! Students and teachers can review the Intro to Art Conservation video created by the museum. This video introduces general concepts, vocabulary, techniques, and treatments used in the field of art conservation.</p> <p>Ask students if they know what art conservation is.</p> <p>Art conservation of art is the practice of preserving art and objects of cultural significance by treating, documenting, and preventing further damage. This involves an extensive knowledge of science including chemistry to determine how chemicals or materials react to light, heat, and with one another. Take a look at this painting (Avatar of Vishnu: Krishna in His Cosmic Form). What do you notice?</p>



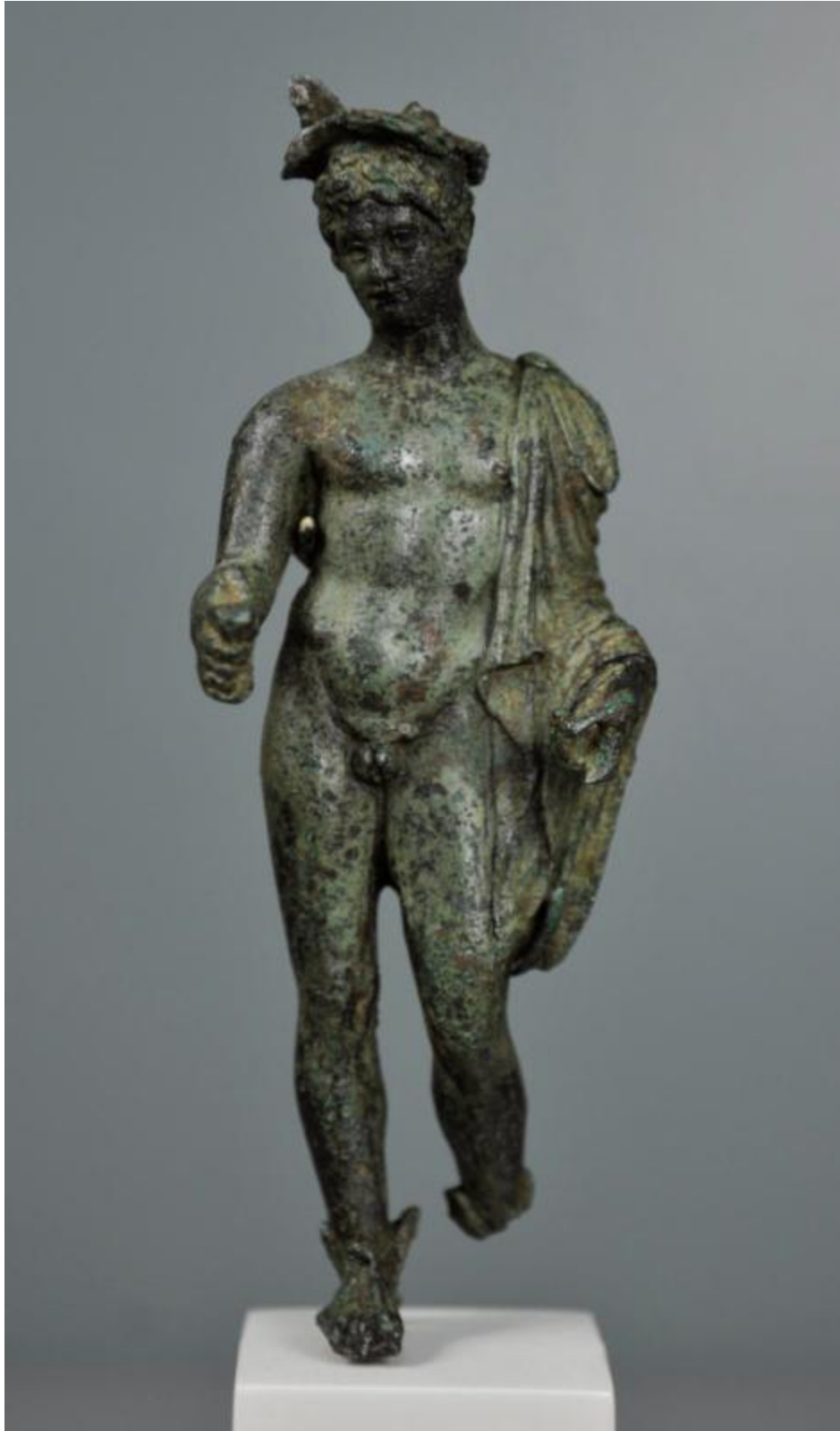
The painting is approximately several hundred years old and has accrued several cracks over the centuries. Do you know how art conservators would repair or clean it? Some artists embrace the technique of adding rust, peeling paint, and even cracks into their own pieces. Do you consider this art? Why or why not?

How about graffiti? Do you consider it art? Why or why not?

If graffiti is considered art by some, do you think we should have specialized conservators to preserve and repair them? Why or why not?

The materials artists use, or medium such as bronze, oil paint, charcoal, wood, marble, tempera, cotton, acrylic, wool, stone, water colors, etc. all have varying lifespans and vitality. Many times a piece will be a combination of these mediums which can make the conservation process even more complex. The environment the object was kept in prior to entering the museum can also affect its longevity.

If cared for and placed in an appropriate environment, oil paintings can last for several hundred years. Pieces made from metal are subject to rust. In the Greek and Roman Art collection you will find this sculpture of the [Greek god Mercury \(Hermes\)](#) from the first century BC is made from bronze. You can see the corrosion clearly and oxidation, or a chemical reaction as a result of continuous exposure to oxygen, caused the color to change from a brown hue to green. The tarnish is called **green patina**.



Next, take a look at this [nail](#) from a Roman fortress dating back to 83 AD. Over time rust has

covered it completely. But how does this happen? And how quickly? Let's find out!



Instructions:

The objective of this science experiment is to allow students to observe the oxidation process on iron in real-time. Explain that the salt water will represent the atmosphere where microscopic droplets of salt exist. The salt that would be especially present if an object were in an environment near the sea.

- 1- Label all three clear plastic cups with the permanent marker. One label for each cup: either air only, water + air, and saltwater + air.
- 2- Leave the air only cup empty, and fill up the cup labeled “water+air” with water only (half-way). Add water and 2 tablespoons of salt to the cup labeled “water+salt”.
- 3- Add one nail to each cup.
- 4- Set the three cups to the side and have students check on them periodically over the next few days. Have students record the changes.
- 5- The nails in all three cups should begin to reveal some tarnish - especially the salt water and water only cups should begin to rust. Imagine if these nails were left in these cups for centuries? They would undoubtedly resemble the Roman nail!

Discussion Questions

- How do you think conservators remove rust from iron?
- Why do you think conservators chose to leave the iron on the nail?
- What is art conservation?
- What does a conservator do to prevent damage to works of art? How do they conduct research?
- How does a conservator determine appropriate treatment strategies?
- How do chemistry, physics, and biology inform conservation?
- Why is conservation important in the care of museum objects?