

Preservation Methods at the Smithsonian

Museums are safe spaces for artifacts of all kinds. Special display cases and storage methods protect these items from damage. But over time, all artifacts age. Many factors can cause physical and chemical changes to artifacts. Anything from temperature to how a person handles an object can cause damage. This is why the Smithsonian Institution's museums have special methods to **preserve** items on display.

Artifacts such as papers, photographs, and other documents are put in special storage areas. Staff members wear gloves when handling these items. This way, they can avoid getting oil from their fingers on them. These paper artifacts are stored in folders and boxes to keep the edges from bending. Any staples in the paper are taken out before storage. And staff members keep the temperature and **humidity** levels low in storage areas. If the levels are too high, paper will begin to absorb moisture. Too much moisture can create mold spores. As the spores grow, they destroy the paper. Careful positioning and proper handling keep these artifacts safe.

Sometimes, staff members preserve artifacts by making copies. When a copy is made, the original image or text is duplicated onto stronger paper. That way, an exact copy of the artifact can be handled and no damage is done to the original. Digital copies of certain artifacts can be made, too. These copies allow museum staff to view artifacts without handling them at all.

However, some artifacts are impossible to copy and may be difficult to preserve. This is true for woven baskets or other **textiles**. Museum staff members often keep these artifacts in **climate-controlled** environments. Even with these protections, artifacts may become damaged over time. This is what happened to the famous ruby slippers from the 1939 movie *The Wizard of*

Oz. They were kept in a climate-controlled case for decades. But they still faded and cracked over time.

To solve this problem, Smithsonian scientists studied the materials of the shoes. They examined the leather and fabric. They looked at the sequins, beads, and rhinestones on the shoes. Then, they thought about what may have caused damage. They discussed how temperature and humidity affected the shoes. Exposure to light was considered, too. Research was done to find out if the materials in the shoes produced gases that caused damage. Carefully studying these materials helped scientists create a better preservation plan for the shoes and other artifacts.

Scientists created an improved environment for the ruby slippers. They placed the shoes in a highly specialized case. The temperature, light, and humidity in the case can be controlled and adjusted. The case protects the shoes from dust. **Ultraviolet light**, which can cause fading, is no longer an issue. Thanks to this case, the shoes have a lower risk of further damage.

Every museum artifact needs to be preserved differently. The ages and materials of artifacts require their own specific conditions. This is why Smithsonian workers have special ways of preserving items. They study the factors that can damage artifacts. And they develop ideas and solutions to keep these items looking their best.



—Heather E. Schwartz

DEFINE

- **climate-controlled**—having or providing artificial control of air temperature and humidity
- **humidity**—the amount of moisture in the air
- **preserve**—to keep safe from harm or damage
- **textiles**—types of cloth or woven fabric
- **ultraviolet light**—wavelengths of light invisible to human eyes that can cause damage in extended exposure



astronaut suit at the Smithsonian National Air and Space Museum

DISCUSS

1. Why is it important for original artifacts to be preserved?
2. How can high temperature and humidity cause damage to artifacts?
3. Why are some objects more difficult to preserve than others?
4. What factors do scientists study to determine how to better preserve objects?

WRITE

Think of an item from your life that you would like to preserve. Examples include a favorite piece of clothing, a favorite book, or a piece of artwork. Write a plan for how you could preserve the item in a museum. Consider factors including the display case, temperature, humidity, and amount of light.

CREATE

Artifacts reflect the time in which they were created. With a partner, brainstorm examples of artifacts that reflect current life and society. What technology, art, clothing, or other items would you choose? Then, create a digital or illustrated collage that has at least 10 artifacts on it.