K-12 EDUCATOR’S GUIDE
HOW AND WHY DID ANCIENT EGYPTIANS MUMMIFY PEOPLE?

WHERE IS EGYPT AND HOW DID ITS LOCATION INFLUENCE ITS CULTURE?

HOW DO ARCHAEOLOGISTS USE MODERN SCIENCE AND TECHNOLOGY TO UNDERSTAND THE PAST?

The *Lost Egypt* exhibit invites you and your students to consider these essential questions as you explore its ancient secrets and modern science.

**During your visit, students will:**
- See artifacts from ancient Egypt, including a human mummy.
- Encounter scientists working in Egypt today.

**After your visit, students will:**
- Consider careers in science and technology.
- Be curious to explore other cultures of the world.

**QUICK TIPS**
- The exhibit is located on the third level of the Science Center. To enter the exhibit, take the silver elevators in the Bartol Atrium up to the top level and then turn left. Alternatively, you can take the main elevators in the Science Center up to level three and then turn left.

- On average, most groups will spend about 45 minutes in the exhibit, if carefully examining all of the displays. There is no re-entry allowed. Restrooms are located near the exhibit entrance in the Bartol Atrium behind the elevators. There are no restrooms inside the exhibit.

- No food or beverages are allowed in any of the exhibit galleries.
Lost Egypt is an immersive quest for knowledge that reveals how archaeologists use modern science and technology to uncover and understand the ancient civilization of Egypt. Through hands-on challenges, authentic artifacts and guidance from real archaeologists, students will unearth the mysteries of Egypt, its culture, and its people. This interactive exhibit features a real human mummy and animal mummies, as well as scans, forensic facial reconstructions and—for the first time ever—three life-size rapid prototypes, displaying the mummy in various stages of “unwrapping.”

Students can explore the art and artifacts from the daily life and funerary culture of ancient Egypt and connect with real scientists working in Egypt through video interviews and photographs from the field. With theatrical set design, realistic props, and numerous hands-on activities, Lost Egypt makes an unforgettable connection between past and present customs, cultures, and sciences. A thought-provoking journey for all ages, Lost Egypt is particularly inspiring for young people, illuminating the roles they can play as future archaeologists, scientists, engineers, and technicians.
ABOUT THE EXHIBIT

Why Archaeology?
Archaeology is the scientific study of historic people and their cultures by excavation and analysis of their material remains, such as artifacts, inscriptions, monuments, artworks, and human, floral, and faunal remains.

Why Egypt?
Egypt is the framework in which we are exploring archaeology. Many of Egypt’s pyramids and large monuments are still standing. Large amounts of architecture, artifacts and human remains preserved in the desert environment, so scientists can study them. Archaeology has been occurring in Egypt for many years. Cumulative knowledge gives us a context that archaeologists are using to understand the ancient Egyptian culture.

Real Scientists
Throughout the video interviews and graphic panels, you and your students will come face to face with working archaeologists.

Dr. Jonathan Elias, Akhim Mummy Studies Consortium
Dr. Salima Ikram, Professor of Egyptology, American University in Cairo
Dr. Mark Lehner, Director of Ancient Egypt Research Associates (AERA)
Jessica Kaiers, AERA Osteologist
Camilla Mazzucato, AERA GIS Specialist
Dr. Mary Anne Murray, AERA Assistant Director of Archaeological Science/Archaeobotanist
Dr. Ana Tavares, AERA Co-Field Director
Dr. Anna Wodzinska, AERA Ceramicist
Richard Redding, AERA Chief Research Officer
Dr. Janice Kamrin, Supreme Council of Antiquities
Dr. Brad Lepper, Ohio Historical Society
Gerry D. Scott III, Director, American Research Center in Egypt
Kathleen Scott, Director of Publications/Communications, American Research Center in Egypt
Dr. Nancy Tatarek, Ohio University
Dr. Tosha Dupras, Assistant Professor of Anthropology, University of Central Florida
Dr. Jane Butler Kahle, Condit Professor of Science Education, Miami University
Dr. Sarah Parcak, Assistant Professor of Anthropology, University of Alabama at Birmingham
Students should know that many of the artifacts on display are authentic, original objects from ancient Egypt. In particular, they should know that a real human mummy is on display. Nicknamed “Annie,” (which is short for Anonymous) it should be viewed with respect.

Chaperones and students should know that the museum encourages conversation around the displays and children should ask questions and discuss what they see. Museum etiquette suggests that the conversation be kept to an appropriate indoor volume level.

Running through the exhibit is not allowed. Designate a meeting location within the exhibit when you arrive in case someone gets separated. Please do not congregate at the entrance/exit, however, so as to enable other guests to enter and exit easily.

There are no restrooms inside the exhibit and there is no re-entry allowed, so plan ahead and use the restrooms in the main Bartol Atrium before entering.

Note that the exhibit’s exit is through a gift shop which features items related to the exhibition at many price levels—from small souvenirs to collectible craft items. Be prepared to direct your students accordingly to allow them time to shop or to proceed directly through to your next destination.
EXHIBITION OVERVIEW

Orientation
The introductory area helps visitors understand where Egypt is in the world and that they will be exploring modern day Egypt and archaeology. The area includes large photo murals, an orientation video with images of Egypt and the archaeological process, and a large floor map of Africa.

Field Site
The Field Site encourages visitors to experience a hands-on version of the archaeological process, while also learning about modern and ancient technology.

Mummification and Culture
The Mummification and Culture area encourages students to explore some of the artifacts from ancient Egypt, while learning about the objects’ context in scientific understanding. Modern technologies and scientific research are introduced, helping students understand how scientists know what they know.
**King Tut never rode a camel.** The animals came to Egypt at the end of the age of pharaohs.

The first recorded restoration of the Great Sphinx at Giza took place nearly 3500 years ago, when Pharaoh Thutmose IV removed the sand that had buried it up to its neck. At the time of Thutmose’s restoration, the Sphinx was already 1000 years old.

In the film *Raiders of the Lost Ark*, Indiana Jones discovers the Ark of the Covenant in a hidden chamber in the ancient city of Tanis. Tanis was an actual city, and it served as the capital of Egypt from the Twenty-first to the Twenty-third dynasty (approximately 1078 BCE – 740 BCE).

The mummy in both the 1932 film *The Mummy* and in the 1999 remake of the same name is named Imhotep. In reality, **Imhotep was the engineer** who designed the Step Pyramid of Djoser, the first pyramid constructed in ancient Egypt.

The words **mummy, sphinx, and pyramid do not have Egyptian origins** (mummy is derived from Latin and Persian, while sphinx and pyramid are derived from Greek).

The popular myth of Napoleon’s soldiers shooting off the Great Sphinx’s nose is untrue. It is more likely that the nose was destroyed some **400 years before Napoleon ever set foot in Egypt**.

Around **99% of Egypt’s population** lives along the Nile River or in the river’s delta.

The total number of **animal mummies** found in Egypt is unknown. Animal mummies were so prevalent, sailors would use them as ballast (or weight used to stabilize a ship). It is unsure how many animal mummies left Egypt stuffed into the holds of ships.

It took over 100 years to translate the **Rosetta Stone**.

In popular culture, we often see images of mummies buried standing up. Archaeologists have **not found any mummies buried standing up**.

**Fast Facts!**
WHERE IN THE WORLD?

Prepare for your visit to Lost Egypt by orienting students to the geography of Northern Africa. Use Google Maps to look at the region.

1. Go to maps.google.com.
2. Enter “Sphinx Egypt” in the search box.
3. Use the map’s view controllers to switch between satellite and map views, comparing features of each.
4. While in satellite mode, drag the little yellow figure onto the map near the Sphinx for a street-level view. Walk around the complex.
5. Also, zoom out to locate the Nile River to the east of the Sphinx.
Objectives: Students will experiment with and observe the process of mummification by using everyday substances.

Key Words: Mummification, culture

Concepts: Culture is the full range of learned behavior patterns that are acquired by people as members of a society. A culture is a complex, largely interconnected whole that consists of the knowledge, belief, art, law, morals, customs, skills, and habits learned from parents and others in a society. You can discover what is valued in a culture by looking at the items people leave behind.

Materials:
Per student or small group
Small apple
Plastic knife
Baking soda
Table salt
Two disposable plastic cups (about 10 ounce size)
Measuring cup

Pre-Activity Discussion:
Introduce your students to ancient Egyptian culture. Ancient Egyptians believed strongly in an afterlife. They believed the deceased person would need their body in the afterlife and so they carefully mummified their dead in order to preserve their body.

What can we learn from mummies? We can learn about the ancient Egyptian belief system, diseases, dietary habits, working conditions, and the economy through studying the mummies of ancient Egypt.

Activity:
1. Cut the apple in half and place each half into a disposable plastic cup.
2. Pour the mixture into one of the disposable cups. Make sure the entire apple half is completely covered. The 2nd cup should only contain an apple, this will serve as a control to what happens if the apple is left untreated.
3. Put the cups, uncovered, on a shelf somewhere out of direct sunlight for one week.

Possible Interactive Questions:
Before adding the substances together, what are your predictions?
What will happen to the apple? Why? How long will it take?

After several days, what happened to the apple? Why? What about after a week?

What Happened? The ancient Egyptians preserved human bodies after death by making them into mummies. A body is mummified by removing most of the moisture from it so that it is difficult for bacteria to thrive inside it and cause decay. The Egyptians did this by covering the body with natron, a naturally occurring desiccant. A desiccant removes water from the material in contact with it.

Further Exploration: Try a variety of fruit, vegetables, and meat. Do certain substances dry faster than others? Compare mummifying to dehydration. How are they alike and different?
Find the answers to these questions during your visit to *Lost Egypt*.

1. Why is a camel ideally suited for travel in Egypt?

2. What careers have been involved in the discovery of ancient Egypt?
   What new careers did you learn about today?

3. What items have been recovered that help us better understand the life of the ancient Egyptians?

4. If an archeologist finds a femur bone of a goat near an excavated home site, what might she interpret from this finding?

5. If you had to move a 20 ton stone today, how would you do it? How is this the same or different from the ancient Egyptians?

6. What would you take with you for your journey to the underworld?
SUGGESTED RESOURCES
FOR K-12 CLASSROOMS AND LIBRARIES

ELEMENTARY SCHOOL

Ancient Egypt: Tales of Gods and Pharaohs
by Marcia Williams ISBN 0763663158

Everything Ancient Egypt: Dig Into a Treasure Trove of Facts, Photos, and Fun
by Crispin Boyer ISBN 142630840X

Tales of Ancient Egypt
by Roger Green ISBN 014133259X

MIDDLE SCHOOL

Ancient Egypt
by George Hart ISBN 1465420487

Science in Ancient Egypt
by Geraldine Woods ISBN 0531159159

HIGH SCHOOL

Death and Burial in Ancient Egypt
by Salima Ikram ISBN 9774166876

Hidden Treasures of Ancient Egypt: Unearthing the Masterpieces of Egyptian History
by Zahi Hawass ISBN 0792263197

Silent Images: Women in Pharaonic Egypt
by Zahi Hawass ISBN 0810927322

RECOMMENDED WEBSITE

Lost Egypt
www.cosi.org/lost-egypt

CURRICULAR STANDARDS

An exploration of the Lost Egypt exhibit can help students achieve learning objectives as called for by national standards.

National Science Education Standards
K-12: Science & Technology
K-12: Science in Personal & Social Perspective
K-12: History & Nature of Science

Next Generation Science Standards
K-5: Engineering Design
MS & HS: Engineering, Technology, & Application of Science

Benchmarks for Science Literacy
7. Human Society
7a. Cultural Effects on Behavior
7b. Group Behavior

Common Core English Language Arts
K-5: Reading Informational Text
6-12: Literacy in Science & Technical Subjects

National Standards for History
K-4: Topic 1: Standard 1
K-4: Topic 4: Standard 7A
5-12: World Era 2: Standard 1&3
5-12: World Era 3: Standard 1

National Curriculum Standards for Social Studies
K-12: Theme 3: People, Places, & Environments