Assignment Discovery Online Curriculum

Lesson Title: Making Mummies

Grade level: 6-8

Subject Area: Science, World History

Duration: Two class periods

Objectives:
Students will do the following:
1. Learn about different kinds of mummies around the world
2. Examine a well-known mummy or mummy group and present images and facts to the class

Materials:
- Newsprint and markers
- Internet access (Web sites suggested below)
- World map

Procedures:

1. On a piece of newsprint, write the word *Mummies*, and ask students to brainstorm what they know about mummies. You may ask these questions: What is a mummy? Where have mummies been found? What are examples of different types of mummies? Why were people mummified? Are all mummies preserved on purpose? How are mummies preserved? Write students' responses on the newsprint.

2. Explain that a mummy is a preserved body. Unlike fossils or skeletons, mummies still have some of their soft tissue, such as organs or muscles. Such tissue usually decays, or breaks down, as bacteria and fungi grow. When a body is mummified, it is preserved so that the bacteria and fungi cannot grow. Explain that while some mummies are intentionally preserved by humans, others are accidentally preserved by the natural qualities of the environment, such as ice or a bog. Different forms of mummification include the following:
   - Embalming is the process of deliberately preserving a body. It involves drying a body with sunlight, fire, smoke, or chemicals, which removes the moisture that bacteria and fungi need to grow.
   - Ice also preserves a body because bacteria and fungi cannot live in freezing temperatures.
   - Peat bogs, which are cold, deep, stagnant bodies of water with high acid levels, preserve bodies because bacteria and fungi cannot live in the oxygen-free environment.
   - Some soil and mud environments preserve bodies because they contain chemicals that kill bacteria.
   - Dry desert environments may preserve bodies because there is very little moisture in the air.

3. Tell students that various types of mummies have been found on every continent. Explain that in this lesson students will examine a well-known mummy and make a presentation to the class. Divide the class into small groups to conduct research using the Web sites suggested below. (Depending on students' abilities, you may wish to reveal the category or description of each mummy.)

BOG MUMMIES

Tollund Man: This 2,100-year-old mummy was found in a peat bog in Denmark. He had a rope around his neck, indicating that he was probably sacrificed.
http://dsc.discovery.com/stories/history/desertmummies/tollundman.html
http://library.thinkquest.org/J003409/bog.htm
http://www.archaeology.org/cgi-bin/site.pl?page=online/features/bog/violence1

Lindow Man: This mummy was found in an English peat bog. When scientists examined the body, they discovered he had been murdered.
http://www.mummytombs.com/mummylocator/featured/lindowman.htm
http://www.archaeology.org/cgi-bin/site.pl?page=online/features/bog/reconstructions

Yde Girl: Discovered in a bog in the Netherlands, this mummy had been stabbed and strangled when she was 16 years old.
http://www.mummytombs.com/museums/nl.assen.drents.yde.htm
http://www.archaeology.org/cgi-bin/site.pl?page=online/features/bog/reconstructions
http://library.thinkquest.org/J003409/bog.htm?tqskip=1

DESERT AND CAVE MUMMIES

Cherchen, Tarim Basin, or Takla Makan mummies: These mummies were found in the barren, remote Taklamakan Desert of northwestern China. The bodies had been (naturally) dehydrated and almost perfectly preserved for 3,000 years in this salty, dry, and extremely hot region. Though found in Asia, they had distinctly European features.
http://www.mummytombs.com/mummylocator/group/urumchi.htm
http://dsc.discovery.com/stories/history/desertmummies/cherchen.html
http://library.thinkquest.org/J003409/china.htm
http://www.kirby.on.ca/tbm/intro.htm
http://www.pbs.org/wgbh/nova/chinamum/taklamakan.html

Lemon Grove mummies: A woman and a baby were found in a cold, dry cave near Chihuahua, Mexico.
http://www.mummytombs.com/mummylocator/featured/lemongrove.htm
http://dsc.discovery.com/stories/history/desertmummies/lemongrove.html

Chiribaya mummies: Many mummies preserved for more than a thousand years have been found in the cold desert of southern Peru.
http://dsc.discovery.com/stories/history/desertmummies/desertmummies.html

EMBALMED MUMMIES

Chinchorro mummies: The Chinchorro in Peru and Chile may have been the first people in the world to practice mummification.
http://www.mummytombs.com/mummylocator/group/chinchorro.htm
http://www.archaeology.org/online/features/chinchorro/index.html

Chachapoya mummies: Hundreds of mummies about 500 years old have been found in northern Peru.
http://www.discovery.com/stories/history/mummies/mummies.html
http://www.mummytombs.com/mummylocator/group/chachapoya.htm

Guanche mummies: These embalmed mummies were found in caves on the Canary Islands.
http://www.mummytombs.com/mummylocator/group/guanche.htm

Tutankhamen (King Tut): Buried in a tomb filled with treasures, this Egyptian pharaoh had been embalmed. His organs were removed and his body was dried with salt and then wrapped in hundreds of yards of linen.
http://www.si.umich.edu/CHICO/mummy
http://www.civilization.ca/civil/egypt/egtut01e.html
http://www.pbs.org/wnet/pharaohs/digging.html
http://www.secker.fsbusiness.co.uk/tutankhamen.htm

Rameses II (Rameses the Great): This Egyptian pharaoh was about 90 years old when he died and was mummified.
http://www.secker.fsbusiness.co.uk/rameses2.htm
http://www.si.umich.edu/CHICO/mummy/who.html
http://www.mummytombs.com/egypt/pharaohmummies.htm

EGYPTIAN MUMMIFICATION

Mummy-Making Methods
http://www.mummytombs.com/egypt/methods.htm

Mummification Process
http://www.pbs.org/wgbh/nova/peru/mummies

Mummies Unmasked
http://www.nationalgeographic.com/world/9906/mummies/index.html

Mummification
http://www.ancientegypt.co.uk/mummies/home.html

4. Have students use the Web sites above to answer the following questions:

- What is this mummy or group of mummies called?
- Where was it found?
- Describe what scientists found. (Draw a picture or print out an image.)
- How was it preserved?
- How well preserved was it?
- Was the mummy preserved intentionally or accidentally, or is it impossible to tell?
- Explain what is known about this person, including name, position or title, and cause of death. How do scientists know this information?
- Were other objects found with the mummy? If so, what do they reveal about the mummy?
- What have scientists and historians learned about the mummy's society?

5. Have students present their findings to the class, along with a picture of the mummy. Place a marker on a classroom map showing where each mummy was found.

6. Summarize the lesson by returning to the piece of newsprint used for brainstorming at the beginning of the lesson. Ask students how their impressions of mummies have changed during this lesson and what the most surprising thing they learned about mummies was.

Discussion Questions:

1. Describe the different ways mummies are preserved.
2. What can we learn from studying mummies?
3. What are some of the challenges faced by scientists who study mummies? *(They often have to study the remains of mummies in their natural environment, which can be extremely hot or cold. They must also be respectful of the religious beliefs and practices of the society that created a mummy they are studying.)*

Evaluation:

Use the following three-point rubric to evaluate how well students participate in class discussion, research and write about a famous mummy, and present their findings to the class:

Three points: participated actively in class discussion; demonstrated strong research and writing skills; thoroughly answered all the questions in their presentation.

Two points: participated to an average degree in class discussion; demonstrated on-grade research and writing skills; answered some of the questions in their presentation.

One point: participated little in class discussion; demonstrated weak research and writing skills; answered only one or two of the questions in their presentation.

Extension:

Solving Mummy Mysteries
Thanks to technology, history, and deductive reasoning, experts are able to access important scientific and cultural information about mummies. In turn, this information usually reveals much about the culture, religion, and daily lives of the members of a civilization. But how do scientists find out a mummy's sex, age, diet, social standing, cause of death, or original appearance? Challenge students to explore the Web sites below to learn the procedures, tools, and background knowledge necessary to understand mummies.

CyberMummy
http://archive.ncsa.uiuc.edu/Cyberia/VideoTestbed/Projects/Mummy/science.html

Nova: Reading the Remains
http://www.pbs.org/wgbh/nova/icemummies/remains.html

Face to Face with Mummies
http://www.discovery.com/news/features/mummyfaces/mummyfaces.html

Extracting Mummy DNA
http://www.pbs.org/wnet/pharaohs/secrets3.html

Suggested Reading:

Mummies, Bones, and Body Parts
Charlotte Wilcox. Carolrhoda Books, 2000.
After death the human body has been preserved in many forms, from mummification to freezing and drying, and these remains allow scientists to learn much about life in past centuries. This interesting book, using illustrations and photographs of preserved bodies and body parts, explains how research has helped answer questions about how ancient people lived, providing information about clothing, food, religion, health, and more. Examples are from around the world and make for absorbing reading.

Mummy Mysteries: Tales from North America.
Brenda Z. Guiberson. Henry Holt, 1998.
After a short description of the different kinds of mummies found around the world, each chapter introduces the mystery of a particular mummy or group of mummies found in the United States and Canada. From frozen sailors found in the Arctic Circle, to a mummy discovered in a fun house in California, scientists can determine much about the mummies' lives, their environment, and how they died. A final chapter lets the reader become the detective by answering a series of questions based on the book’s information.

Vocabulary:

bog

Definition: A marsh of cold, deep, stagnant water covered with a wet, spongy layer of vegetation that keeps out oxygen.
Context: Tollund Man is a 2,100-year-old mummy found in a **bog** in Denmark.

embalm
Definition: To treat a dead body with preservatives in order to prevent decay.
Context: The ancient Egyptian pharaoh Tutankhamen was **embalmed** to prepare his body for the afterlife.

mummy
Definition: A body that has been preserved by natural or artificial means.
Context: Unlike a fossil or skeleton, a **mummy** still has some of its soft tissue, such as organs or muscles.

Academic Standards:
This lesson adheres to standards issued by the National Council for the Social Studies for students in grades 5-8:

1. Provide for the study of culture and cultural diversity.
2. Provide for the study of people, places, and environments.

It also adheres to the National Science Education Standards for grades 5-8:

1. Life Science
2. Science as Inquiry

Credit:
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This lesson was created in consultation with Mark Herzog, science coordinator, Harford County, Maryland.