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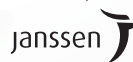
皇帝的禁軍

# TERRACOTTA WARRIORS

OF THE FIRST EMPEROR



Associate Sponsor:



Additional support provided by Alaska Airlines, The Boeing Company, the E. Rhodes and Leona B. Carpenter Foundation, and Victor M. Bearg

IN THE  
NICHOLAS AND ATHENA  
KARABOTS PAVILION

AND THE  
MANDELL  
CENTER

This exhibition was organized by Pacific Science Center, Seattle and The Franklin Institute, Philadelphia, The United States of America and the Shaanxi Provincial Cultural Relics Bureau and Shaanxi Cultural Heritage Promotion Center, People's Republic of China.

## K-12 EDUCATOR'S GUIDE

By visiting this extraordinary collection of artifacts on loan from the People's Republic of China combined with an unprecedented focus on the science and technology surrounding the burial of the Terracotta Army and other artifacts, your students will have the opportunity to learn the story of how a young prince conquered all known enemies, formed the empire of China, used science and technology to advance its civilization, and prepared an unrivaled burial site for his eternal reign.

### **DURING YOUR VISIT, STUDENTS WILL:**

- Discover the legacy of the First Emperor of China.
- Learn about the world's most expansive burial site.
- See statues and other objects that were made over two thousand years ago.

### **AFTER YOUR VISIT, STUDENTS WILL:**

- Think about how science and technology help us understand the past.
- Understand that spiritual beliefs influence history.

### **QUICK TIPS**

- ◆ The exhibition's entrance is located on the upper level of the Nicholas and Athena Karabots Pavilion. Enter the exhibit via the main Bartol Atrium. Your students will walk up a ramp to the entrance of the exhibit.
- ◆ On average, most groups will spend about 60 minutes in the exhibit, if carefully examining all of the displays. Restrooms are located in the Bartol Atrium. There are no restrooms inside the exhibit.
- ◆ An optional audio tour is available for \$6.00 per person. If you would like to add this option, please contact our Group Sales team at 215.448.1200 (Option 3).
- ◆ No food or beverages are allowed in any of the exhibit galleries.
- ◆ Non-flash photography is permitted in the exhibit.
- ◆ 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.

## HOW TO PREPARE

Students should know that the objects on display are priceless artifacts never before seen in Philadelphia. The objects are NOT TO BE TOUCHED!

While touching the artifacts is not allowed, there are several hands-on things for students to do throughout the galleries. Students should be encouraged to try all of these activities in order to enrich their learning experience.

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.

Note that there is a gift shop at the end of the exhibit which features items related to the exhibition at many price levels—from small souvenirs to collectible items. You have to pass through it to exit. Be prepared to direct your students accordingly to allow them time to shop or to instruct them to proceed directly through the shop to your next destination.



## ABOUT THE EXHIBIT

### TERRACOTTA WARRIORS OF THE FIRST EMPEROR

Direct from China, your students will discover the story and science behind the authentic terracotta warriors with a fascinating journey back to the days of China's First Emperor—before, during, and after his epic rule. They will marvel at ten life-size warriors up close and in person, alongside an exclusive collection of over 170 other artifacts from ancient China.

Terracotta Warriors of The First Emperor will feature an extraordinary collection of artifacts on loan from the People's Republic of China for this special, one-year exhibition. While pieces from Qin Shihuangdi's Mausoleum Site Museum are special highlights of the collection, museums from throughout the Shaanxi province are also contributing artifacts.

While other exhibits of soldiers from the terracotta army have been staged in institutions around the world, Terracotta Warriors of The First Emperor is unprecedented in its particular focus on the science and technology surrounding the burial and the artifacts. Never before have visitors had the opportunity to marvel at these amazing artifacts while also engaging in hands-on science learning through a series of interactive and immersive experiences. As visitors on both coasts—in Philadelphia and Seattle—learn about the burial complex of the First Emperor, their appreciation for Chinese culture will grow as they discover one of the most monumental achievements in human history.

Ten terracotta figures from the burial complex will appear in the exhibition: a general, an armored officer, a kneeling archer, a standing archer, an armored soldier, a cavalryman, a saddled horse, a charioteer, a civil official, and a kneeling musician. Over 170 other artifacts from the pre-Qin, Qin, and Han dynasties will accompany the figures. These include weapons, jade pieces, bronze bells, ceremonial vessels, gold ornaments, coins, architectural pieces, and ornate bronze chariot replicas. Multimedia and interactive elements throughout the exhibit complement the artifacts to help tell the overarching story of how a young prince conquered all known enemies, formed the empire of China, advanced its civilization, and prepared an unrivaled burial site for his eternal reign.

# ABOUT THE EXHIBIT

THE EXHIBITION OFFERS THE FOLLOWING THEMATIC AREAS:



## 1. Uncovering the Mystery:

An introductory theater tells the story of the discovery of the burial site by farmers in 1974.



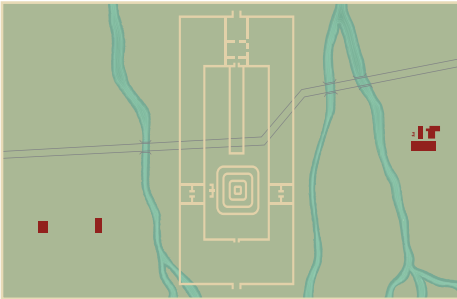
## 2. The Emperor:

Learn about the prince of the Qin state who would grow up to become the First Emperor



## 3. The Protectors:

The story of the First Emperor's military success is told through his terracotta army which details tactics and advances in weaponry.



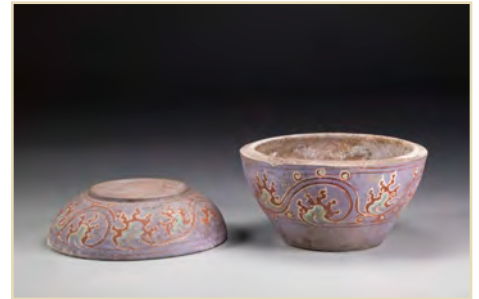
## 4. The People:

The First Emperor's burial complex was a monumental feat of engineering and administration involving as estimated 700,000 workers throughout its construction.



## 5. Immersive Experience:

Enter into burial chamber number one as it was in Xi'an circa 210 BCE to encounter the first painted warriors as they were when new and witness their change as they fade and crumble over two millennia.



## 6. Archaeology & Conservation:

Explore the archaeological site, the work going on there today, and the importance science, technology, engineering, and math play in its conservation.



## 7. The Mystery of the Tomb:

The emperor's burial tomb remains untouched and mysterious, although science and technology have provided information about what might lie within.

# TRY THIS!

## THE PRODUCTION PROCESS

The workers who built the Terracotta Army used an assembly line production process. This model shows how one warrior was made from his feet up to his head.



One worker beats wet clay with a paddle to form a slab, which will be molded into legs, arms, and, in some cases, torsos. The two figures behind him help move the prepared clay to the next step.

Workers press prepared clay into pottery molds. The figure to the right, crouching down, is smoothing a formed leg.

Laborers finish production of another leg by scraping excess clay and beginning to test stability for carrying the torso.

Others build up the torso using rope-like segments of clay which are carefully coiled atop the legs, using paddles and an anvil to connect and flatten the coils.

Next, arms are attached using wet clay as an adhesive. While two workers support an arm, one inserts his hand into the hollow torso to press the two parts together and flatten any seams.

Heads and hands are prepared separately using molds and then attached with wet clay. Using different combinations of molded sections and hand-finishing, craftsmen could create the illusion of individuality.

Skilled artisans put the finishing touches on the head, as well as his armor and feet, using wet clay.

The fully-formed figure is moved to a kiln for firing at roughly 1,000 degrees Celsius. When cooled, each figure would be coated with raw lacquer and then painted.

# QUESTIONS

1. Can you think of other things that are made using an assembly line production process?

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2. An assembly line usually helps workers build things more quickly. Why do you think that might be true?

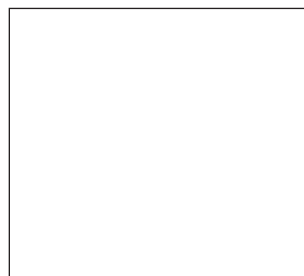
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3. Draw each stage of the production process for these objects.



# TRY THIS!

## WHERE IN THE WORLD?

Prepare for your visit to Terracotta Warriors of The First Emperor by orienting students to the geography of East Asia. Use Google Maps to look at the region.

### INSTRUCTIONS

1. Go to [maps.google.com](https://maps.google.com).
2. Enter "China" in the search box.
3. Use the map's view controllers to switch between satellite and map views, comparing features of each.
4. Also, zoom in and zoom out to examine the country's borders.
5. Notice the topographical features of the map and how elevation levels are presented.
6. Call attention to Beijing, the capital city of China today.

### DISCUSSION PROMPTS

Call attention to China's latitude by crossing the Pacific Ocean to the United States. Some parts of China are farther north than the United States, while other parts are further south.

Today, China is an enormous country. Depending on grade level, challenge students to think about what that means, based on the maps they see. Older students might discuss the geopolitical implications of being so much larger than neighboring countries.



# CURRICULAR STANDARDS

An exploration of the Terracotta Warriors of The First Emperor exhibit can help students achieve learning objectives as called for by national standards.

## NEXT GENERATION SCIENCE STANDARDS

K-12: Engineering Design

## BENCHMARKS FOR SCIENCE LITERACY

3. The Nature of Technology

3a. Technology & Science

7. Human Society

7a. Cultural Effects on Behavior

7b. Group Behavior

7c. Social Change

7d. Social Trade-Offs

7e. Political & Economic Systems

7f. Social Conflict

## COMMON CORE ENGLISH LANGUAGE ARTS

K-5: Reading Informational Text

6-12: Literacy in Science & Technical Subjects

## NATIONAL STANDARDS FOR HISTORY

K-4: Topic 4: Standard 7A

5-12: World Era 3: Standards 3C & 5A

## NATIONAL CURRICULUM STANDARDS FOR SOCIAL STUDIES

K-12: Theme 1: Culture

K-12: Theme 2: Time, Continuity, & Change

K-12: Theme 3: People, Places, & Environments

K-12: Theme 6: Power, Authority, & Governance

K-12: Theme 7: Production, Distribution, & Consumption

K-12: Theme 8: Science, Technology, & Society

## NATIONAL CORE ARTS STANDARDS – VISUAL ARTS

AS7: Perceive & analyze artistic work

AS8: Interpret intent & meaning in artistic work

AS9: Apply criteria to evaluate artistic work

AS11: Relate artistic ideas & works with societal, cultural, & historical context to deepen understanding





# TERRACOTTA WARRIORS OF THE FIRST EMPEROR

**Suggested Resources for K-12  
Classrooms and Libraries**

## ELEMENTARY SCHOOL

**Hidden Army:  
Clay Soldiers of Ancient China**  
by Jane O'Connor  
ISBN 0448455803

**So, You Want to Work with the Ancient and  
Recent Dead?: Unearthing Careers from  
Paleontology to Forensic Science**  
by J.M. Bedell  
ISBN 1582705453

**All About China: Stories, Songs, Crafts  
and More for Kids**  
by Allison Branscombe  
ISBN 0804841217

## MIDDLE SCHOOL

**DK Eyewitness Books: Ancient China**  
by Arthur Cotterell  
ISBN 0756613825

**The Terracotta Army of the  
First Emperor of China**  
by William Lindesay  
ISBN 9622176003

**The Culture of the Qin and  
Han Dynasties of China**  
by Vic Kovacs  
ISBN 1508150087

**Ancient China**  
by Natalie M. Rosinsky  
ISBN 0756545781

## HIGH SCHOOL

**The Eternal Army:  
The Terracotta Soldiers of the First Emperor**  
by Roberto Ciarla  
ISBN 8854406279

**The First Emperor of China**  
by Jonathan Clements  
ISBN 1909771112

**The First Emperor:  
Selections from the Historical Records**  
by Sima Qian  
ISBN 0199574391

**Ancient China**  
by Marcie Flinchum Atkins  
ISBN 1624035361

## RECOMMENDED WEBSITE

**Mausoleum of the First Qin Emperor**  
[whc.unesco.org/en/list/441](http://whc.unesco.org/en/list/441)

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