Conservation of the Terracotta Army

Listening Test

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Contents

Teacher's Notes

Aim	To develop the students' ability to listen to a 10 min+ lecture, to take notes and then use those notes to answer a range of test questions.
Timing	Approximately 1:30-2:00 hours
Suggested procedure	**Lead in** • Ask Students to read the 'title' & predict the content of the lecture. • Ask students to write down key terms & language from the discussion. • Feed in / check key vocabulary.
Differentiation	**Challenging** 1. Students listen once & take notes. 2. Give 5 minutes to tidy notes. 3. Listen again & add to notes (use a different colour pen). 4. Distribute questions. Set 30 minutes to answer using their notes. **Medium** 1. Students listen once & take notes. 2. Distribute questions. Set 20 minutes to answer using their notes. 3. Listen again. Students answer the missed questions as they listen. 4. Give an extra 10 minutes to consolidate answers. **Easier** 1. Distribute questions. Students have 15 minutes to read the questions. 2. Students listen & answer the questions. 3. Give 10 minutes to tidy answers. 4. Students listen again. Check answers & answer missed questions. 5. Give 10-15 minutes to tidy answers.
Feedback	Distribute or project ANSWERS.
URL Links:	Video: https://youtu.be/pfa9hojwImM MP3: https://academic-englishuk.com/wp-content/uploads/2025/12/Terracotta.mp3 PPT: https://academic-englishuk.com/wp-content/uploads/2025/12/Conservation-of-the-Terracotta-Army-2.pptx

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Pre-listening Vocabulary

Task

Match the following words with the definitions and then compare with a partner when you

	Word		Definition
1.	Excavation	a.	Structure built as a tomb for an emperor or ruler
2.	Preservation	b.	International body that protects cultural and natural heritage
3.	Mausoleum	c.	Colours applied to decorate a surface
4.	Fragile	d.	Group of people born and living around the same time
5.	Collapse	e.	Action of keeping something in its original state
6.	Reassemble	f.	The act of carefully uncovering buried objects
7.	Pigments	g.	Easily broken or damaged
8.	Humidity	h.	To put something broken back together again
9.	Temperature	i.	Disagreement or debate about an issue
10.	Deteriorate	j.	Level of moisture in the air
11.	Conservation	k.	Action of protecting and preserving something
12.	Laboratory	l.	To fall down or break apart suddenly
13.	Polyethylene glycol (PEG)	m.	Room equipped for scientific research
14.	3D scanning	n.	To become worse in condition
15.	Imaging	o.	Chemical used to strengthen fragile materials
16.	UNESCO	p.	Measurement of heat or cold in the air
17.	Authenticity	q.	Digital recording of shape and form of an object
18.	Exhibition	r.	Being genuine and not a copy
19.	Controversy	s.	Public display of artworks or artefacts
20.	Generation	t.	Use of technology to create internal or external pictures

1.		2.		3.		4.		5.		6.		7.		8.		9.		10.	
11.		12.		13		14.		15.		16.		17.		18.		19.		20.	

Note-taking sheet (blank) page 1

Note-taking sheet (blank) page 2

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1. Background: How were the Terracotta Warriors discovered and what happened to them? Complete each gap with **ONE** word or number.

The Terracotta Warriors were discovered in _____ near Xi'an, China. Over _____ figures have been identified, each life-sized and unique. Many originally showed bright _____, but these colours began to disappear within _____ of exposure to air.

___ /4

2. Definition: In one short phrase (no more than 8 words), define *terracotta* as described in the lecture.

Terracotta is

___/2

3. Artistic process: Are these statements true (T) or false (F)?

		T/F
i.	Some warriors had to be reassembled from hundreds of pieces.	
ii.	Early excavation in the 1970s was carried out very slowly.	
iii.	The warriors were unaffected by Xi'an's hot summers and cold winters.	
iv.	Some figures collapsed immediately when the soil was removed.	

___ /4

4. Conservation techniques. Answer the following questions using words from the lecture.

i.	Why do archaeologists sometimes deliberately re-cover statues with earth?
ii.	What chemical compound was developed to stabilise paint?
iii.	Which technology records the exact form of each warrior in detail?
iv.	What do infrared imaging and X-ray fluorescence help identify?
v.	Why are the warriors kept in carefully controlled environments?

___ /5

That is the end of page 1

5. Debates and cooperation. Multiple choice: select **ONE** answer per question only.

i.	Why do some argue for full restoration of the warriors?	a.	To give the public a sense of their original painted splendour.
		b.	To increase the number of tourists visiting Xi'an.
		c.	To replace damaged statues with replicas.
ii.	Why do others resist full restoration?	a.	They believe restoration takes too long.
		b.	They fear loss of authenticity.
		c.	They want to move the warriors abroad.
iii.	Which country has worked most closely with Chinese experts since the 1980s?	a.	America
		b.	Germany
		c.	Britain
iv.	When was the mausoleum declared a UNESCO World Heritage Site?	a.	1980
		b.	1997
		c.	1987
v.	Why have international exhibitions of the Warriors been controversial?	a.	They cost too much money to organise.
		b.	They damage fragile statues.
		c.	They reduce tourism to Xi'an.

i.		ii.		iii.		iv.		v.	

___ /5

6. Ongoing risks: Complete each gap with **ONE** word only.

Tourism brings millions of visitors, raising _____, dust, and vibration. Pollution from Xi'an, including _____ rain, threatens the burial site. Conservation is also extremely _____, requiring laboratories, staff, and monitoring equipment. Unlike other projects that can be completed, conservation here demands resources generation after _____.

___/4

7. Summary. What is the overall stance of the lecturer? Select ONE option.

a.	Conservation is mainly about making the warriors more attractive to tourists.	
b.	Conservation is a complex project requiring science, ethics and cooperation.	
c.	Conservation is simple if technology is applied correctly.	

___ / 1

Total Score ___ / 25

That is the end of the listening test.

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ANSWERS

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19.	Controversy	s.	Public display of artworks or artefacts
20.	Generation	t.	Use of technology to create internal or external pictures

1.	*f*	2.	*e*	3.	*a*	4.	*g*	5.	*l*	6.	*h*	7.	*c*	8.	*j*	9.	*p*	10.	*n*
11.	*k*	12.	*m*	13	*o*	14.	*q*	15.	*t*	16.	*b*	17.	*r*	18.	*s*	19.	*i*	20.	*d*

Conservation of the Terracotta Army Listening Test

ANSWERS

1. Background: How were the Terracotta Warriors discovered and what happened to them? Complete each gap with **ONE** word or number.

The Terracotta Warriors were discovered in *1974* near Xi'an, China. Over *8,000* figures have been identified, each life-sized and unique. Many originally showed bright *pigments*, but these colours began to disappear within *minutes* of exposure to air.

___ /4

2. Definition: In one short phrase (no more than 8 words), define *terracotta* as described in the lecture.

Terracotta is [*fired clay*][1], [*less durable than stone or bronze*][1].

___/2

3. Artistic process: Are these statements true (T) or false (F)?

		T/F
i.	Some warriors had to be reassembled from hundreds of pieces. (*…some statues had to be reassembled from hundreds of pieces*)	*T*
ii.	Early excavation in the 1970s was carried out very slowly. *(In the early years, thousands of warriors were uncovered quickly, leading to severe damage)*	*F*
iii.	The warriors were unaffected by Xi'an's hot summers and cold winters. *(the warriors were vulnerable to Xi'an's humid summers and cold winters)*	*F*
iv.	Some figures collapsed immediately when the soil was removed. *(Some figures collapsed as soon as they were excavated)*	*T*

___ /4

4. Conservation techniques. Answer the following questions using words from the lecture.

i.	Why do archaeologists sometimes deliberately re-cover statues with earth?
	To protect them until conservation is possible.
ii.	What chemical compound was developed to stabilise paint?
	PEG (polyethylene glycol)
iii.	Which technology records the exact form of each warrior in detail?
	3D scanning
iv.	What do infrared imaging and X-ray fluorescence help identify?
	Pigments / internal structure
v.	Why are the warriors kept in carefully controlled environments?
	To minimise deterioration / damage

___ /5

That is the end of page 1

5. Debates and cooperation. Multiple choice: select **ONE** answer per question only.

i.	Why do some argue for full restoration of the warriors?	a.	To give the public a sense of their original painted splendour.
		b.	To increase the number of tourists visiting Xi'an.
		c.	To replace damaged statues with replicas.
ii.	Why do others resist full restoration?	a.	They believe restoration takes too long.
		b.	They fear loss of authenticity.
		c.	They want to move the warriors abroad.
iii.	Which country has worked most closely with Chinese experts since the 1980s?	a.	America
		b.	Germany
		c.	Britain
iv.	When was the mausoleum declared a UNESCO World Heritage Site?	a.	1980
		b.	1997
		c.	1987
v.	Why have international exhibitions of the Warriors been controversial?	a.	They cost too much money to organise.
		b.	They damage fragile statues.
		c.	They reduce tourism to Xi'an.

i.	*a*	ii.	*b*	iii.	*b*	iv.	*c*	v.	*b*

___ /5

6. Ongoing risks: Complete each gap with **ONE** word only.

Tourism brings millions of visitors, raising *humidity*, dust, and vibration. Pollution from Xi'an, including *acid* rain, threatens the burial site. Conservation is also extremely *expensive*, requiring laboratories, staff, and monitoring equipment. Unlike other projects that can be completed, conservation here demands resources generation after *generation*.

___/4

7. Summary. What is the overall stance of the lecturer? Select ONE option.

a.	Conservation is mainly about making the warriors more attractive to tourists.	
b.	Conservation is a complex project requiring science, ethics and cooperation.	√
c.	Conservation is simple if technology is applied correctly.	

___ / 1

Total Score ___ / 25

That is the end of the listening test.

Conservation of the Terracotta Army Transcript

By A. Murphy (2025)

Good morning, everyone. Today we're going to explore one of the most extraordinary archaeological challenges of the modern age: the conservation of the Terracotta Warriors. These remarkable figures, buried for over two thousand years near Xi'an in China, were discovered in 1974 by farmers digging a well. Since then, they've fascinated both scholars and the general public, becoming one of the most iconic archaeological finds of the twentieth century. But preserving them has proven to be far more difficult than anyone anticipated. In this lecture, I'll guide you through the circumstances of their discovery, the problems that conservators face, the scientific techniques they use, the debates surrounding restoration, the role of international cooperation, the ongoing risks that threaten their survival and the significance of preserving these artefacts.

Let's begin with the discovery itself. Imagine the scene: farmers digging in dry soil suddenly uncover fragments of terracotta, then the head of a warrior, and finally rows of buried soldiers stretching far into the earth. Archaeologists soon realised they'd found part of the mausoleum of the First Emperor of China, Qin Shi Huang, who unified China in the third century BCE. Over 8,000 soldiers, together with horses and chariots, were eventually identified, arranged in battle formation. Each figure was life-sized, carefully detailed, and no two faces were exactly the same. Most striking of all, many of the figures still showed traces of brilliant pigments — reds, blues, greens, and purples — revealing that the army'd once been brightly painted. This transformed our understanding of ancient Chinese art. However, there was an immediate problem: as soon as the warriors were exposed to air, the paint began to flake and disappear. Within minutes, colour that had survived underground for over two thousand years was gone forever.

This brings us to the first great conservation challenge: the fragility of the warriors. Terracotta is essentially fired clay, which is far less durable than stone or bronze. Many of the warriors were already broken when discovered, crushed by the weight of the collapsed roof beams of the underground chambers. Others cracked as the soil was removed, or collapsed entirely into fragments. Some statues had to be reassembled from hundreds of pieces, like vast three-dimensional puzzles. To make matters worse, terracotta is highly sensitive to changes in moisture and temperature. Once excavated, the warriors were vulnerable to Xi'an's humid summers and cold winters, and to exposure to light, air, bacteria, and mould. Unlike bronze, which corrodes slowly, terracotta can deteriorate rapidly when its environment shifts.

So how have conservators responded? One strategy has been to slow down excavation. In the early years, thousands of warriors were uncovered quickly, leading to severe damage. Today, archaeologists work much more cautiously, sometimes deliberately reburying partially exposed figures until proper conservation measures are available. This ensures that fragile statues are not destroyed before they can be stabilised.

Another strategy involves chemical stabilisation. Scientists in the 1980s and 1990s experimented with a variety of consolidants to fix the fragile paint to the clay surface. Unfortunately, early chemicals sometimes discoloured the figures or created new problems. More recently, German and Chinese teams developed a compound called PEG — polyethylene glycol — which penetrates the paint layers and prevents them from flaking off when exposed to air. While not perfect, this innovation has allowed some statues to retain traces of their original colour, providing new insights into ancient Chinese art.

Alongside these chemical methods, technology has revolutionised conservation. High-resolution 3D scanning records the exact form of each warrior, capturing details of armour, hairstyles, and even fingerprints left by the craftsmen. Digital modelling allows researchers to reconstruct missing parts virtually, before any physical restoration is attempted. Replicas created by 3D printing have been used in exhibitions and educational displays, reducing the need to transport fragile originals abroad.

Infrared imaging and X-ray fluorescence help identify pigments and map the internal structure of the figures, giving conservators more information without invasive procedures.

Now let us consider the debates. Should the warriors be restored to their original painted splendour, or preserved in their current condition? On one side, restoration advocates argue that the public should be able to see the figures as they once appeared, brightly coloured and lifelike, not dull grey statues. Reconstructions could enhance appreciation and bring ancient China to life. On the other side, preservationists warn that adding modern materials or repainting risks falsifying the past. Authenticity, they argue, is more valuable than spectacle. Once an object is altered, the original evidence is lost forever. This tension between restoration and preservation is common in heritage management, but in the case of the Terracotta Army it is especially sensitive, because the warriors are such iconic national symbols.

International cooperation's been crucial in addressing these challenges. Since the 1980s, Chinese archaeologists have partnered with German scientists, particularly from the Bavarian State Conservation Office, to develop new conservation methods. British, American, and Japanese researchers have also contributed. UNESCO's designation of the Mausoleum of the First Qin Emperor as a World Heritage Site in 1987 brought global recognition and resources. This status emphasises that the Terracotta Warriors are not only part of China's heritage, but part of humanity's shared heritage. At the same time, international exhibitions of the warriors in London, New York, Sydney, and other cities have raised awareness and generated funding. However, they've also sparked controversy: is it wise to transport fragile statues across the world, risking further damage, simply to satisfy international curiosity?

Let's also look at the ongoing risks. Tourism's transformed the site into one of China's most visited attractions, with millions of people entering the pits each year. Human presence increases humidity, dust, and vibration, all of which affect the fragile clay. Pollution from the rapidly growing city of Xi'an also poses a serious threat. Acid rain, for instance, can alter the soil chemistry and weaken the terracotta. Conservation's also extremely expensive. It requires laboratories, highly trained staff, monitoring equipment, and constant research. Unlike some archaeological projects that can be "completed," conservation of the Terracotta Warriors is never finished — it's a continuous process, demanding vigilance and resources generation after generation.

Finally, let's reflect on the broader significance of this work. Conserving the warriors is not simply about saving thousands of statues. It is about preserving a story: the ambitions of China's first emperor, the skills of ancient craftsmen, and the cultural identity of a civilisation. The warriors connect past and present, showing how art, politics, and technology were intertwined in the third century BCE. They also remind us of the fragility of cultural heritage. What survives from the past can vanish in an instant if not carefully protected.

To conclude, the conservation of the Terracotta Warriors is one of the most complex projects in world archaeology. It combines science, ethics, international collaboration, and cultural diplomacy. These figures are not just relics buried with Qin Shi Huang; they are part of humanity's shared heritage. By protecting them, we safeguard a unique window into the ancient world. The Terracotta Army teaches us that conservation's not only about preserving objects, but about preserving the stories, values, and identities that objects embody. Thank you.

References

Branigan, T. (2015) *The Terracotta Army: China's First Emperor and the Birth of a Nation*. London: Thames & Hudson.

Liu, Y., Li, Z. and Xu, H. (2018) 'Conservation challenges of the Terracotta Warriors: Material deterioration and environmental risks', *Journal of Cultural Heritage*, 34, pp. 45–56. doi:10.1016/j.culher.2018.02.010.

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Smith, C. and Wang, J. (2022) 'Balancing authenticity and restoration: The case of the Terracotta Army', *International Journal of Heritage Studies*, 28(5), pp. 623–639. doi:10.1080/13527258.2021.1968732.

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Conservation of the Terracotta Army Transcript Highlighted Answers

KEY						
Question1	Question 2	Question 3	Question 4	Question 5	**Question 6**	Question 7

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