

科技之眼

The Eye of
Science -



臺灣文物時空遊記

Time Travel through Taiwanese Cultural Artifacts

_____ Grade _____ Class _____ Number

Student _____

Science Knowledge Reflection Record

Hi Explorer, did you successfully complete today's mission?
Please write or draw your reflections to record your wonderful
memories.

Flip the page and start the mission!

Explorer, we've been waiting for you! The Artifact Restoration Team is assigning you a special task. As they need to clarify the historical background, materials, manufacturing processes of the artifacts, as well as the reasons for their "illness" before starting the restoration work, please try and search for the answers in the exhibition to help them complete the restoration of the national treasures.



Craftsmanship of Earth and Fire

- 1 Please write down the meanings represented by the following "bi ō ang-á (廟尪仔)"



Three Immortals of Prosperity, Status, and Longevity

Answer:

Symbolizes wealth, longevity, and offspring, representing the ideal state of life.



Tribute from the Exotic Foreigner

Answer:

Answer: Holding a banana leaf symbolizes blessings from afar.

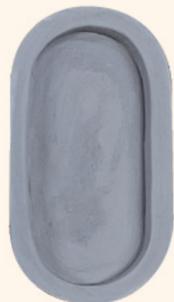
- 2 Koji Pottery (交趾陶) undergoes two kiln firing processes, reaching temperatures of several hundred to even thousands of degrees Celsius. Which two steps require kiln firing? Please circle the correct answer.



Molding & Shaping (捏塑)



Drying (陰乾)



Hollowing (掏空)



Bisque Firing (素燒)



Glazing (上釉)



Glaze Firing (釉燒)

Recreating Past Splendor

- 3 Artifact "sickness" can mainly be attributed to three factors. Please fill in the factors causing the following symptoms:



Square-shaped adhesive stains

Answer:

Human-made factors



Partial glaze weathering, exposing the body

Answer:

Environmental factors



"Moss" covering the surface of the "Eight Immortals" 八仙 artwork

Answer:

Biological factors

Urgent mission!

The Science Analysis Team needs support! Explorer, please try and find the answers from the various exhibits and help the Science Analysis Team with artifact analysis.



Microscopic World of Artifacts

With an optical microscope, we can observe substances as small as micrometers, while with an electron microscope, we can even observe substances at the nanometer level. How big are micrometers and nanometers?

- 1 1 meter = **1,000,000** micrometers, 1 meter = **1,000,000,000** nanometers
1 micrometer = **1,000** nanometers

Mysteries of Visible and Invisible Light

- 2 Different electromagnetic waves also have varying strengths. Please arrange the energy of the following three waves from largest to smallest:

(A) Microwave (B) Visible light (C) X-rays

Answer: **C** > **B** > **A**

X-ray Superpowers

- 3 What material do we typically use to make X-ray protective clothing? **Lead** Because of its **high** density, it can reduce the harm caused by X-rays.



Elemental Fingerprinting

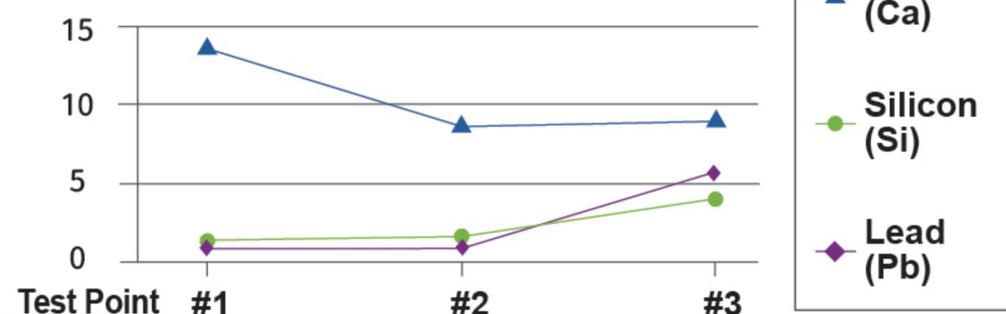
- 4 Please help analyze the "Eight Immortals" (八仙) artwork. What element was found at all three testing

Calcium (Ca)



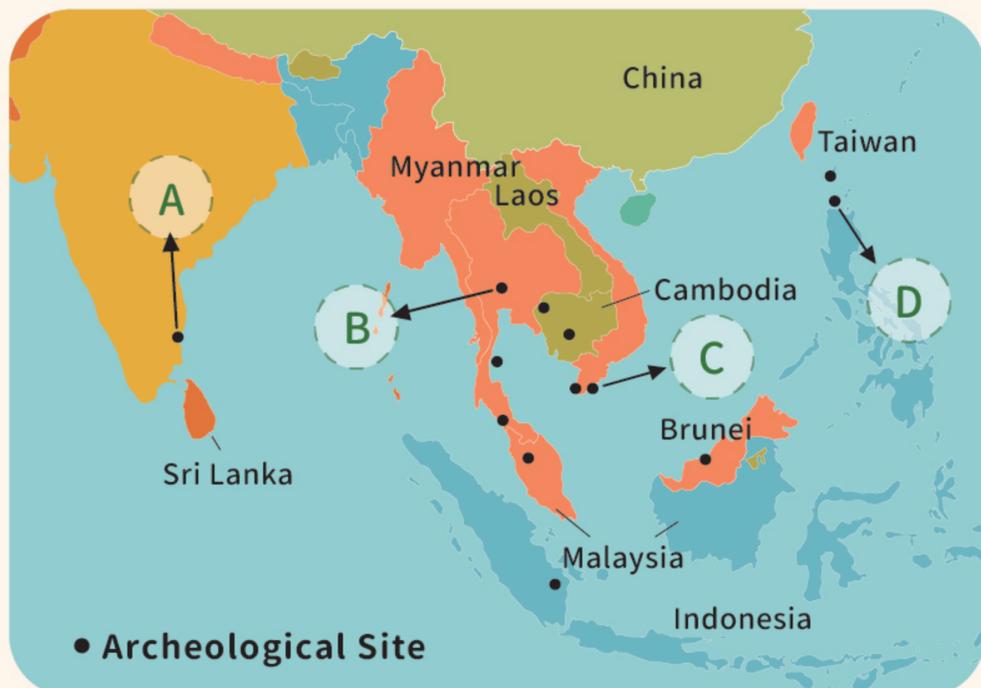
Test Value:

Elemental Composition Value of Various XRF Test Points



The Archeology Team excavated prehistoric glass beads dating back over 2000 years. Since there were no written records at the time, please help decipher the secrets hidden in these pre-historic artifacts!

Marvelous Journey of Archeology



1 Archeologists have discovered many archeological sites in "the region around the South China Sea." Please help them find the countries where these archeological sites are located.

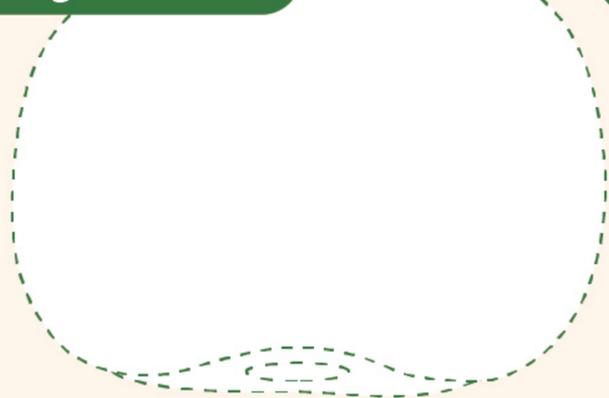
(A) India (B) Thailand

(C) Vietnam (D) Philippines

From Glass "Columns" to Glass "Beads"

2 Feel the difference! What is the difference in the patterns between glass beads made by winding method and those made by drawing method? Please draw it!

Winding Method



Drawing Method



Fashionable Artifacts Across Millennia

3 Unleash your imagination and create your own unique glass bead accessories!

