The SciArt Activities

For Educators

Exploring cultural heritage through inquiry-based STEAM approaches in schools

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GENERAL THEME: ROUTES

Sub-themes: Travel/ Traveling; Museum Studies; Archaeology

Subject(s): History, Visual Arts, Geography, Science, Mathematics, Chemistry

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A2. Rationale

Main purpose of the project

In the unit **"Travel/Travelling,"** students will delve into the theme of travel by exploring various artworks and artefacts from Cyprus, Greece, and Portugal. They will examine how these works reflect shared cultural values across the three countries. Using a variety of texts, stories, and scientific or archaeometric analyses, students will explore different types of travel routes and the ways materiality is expressed through art. Additionally, they will investigate issues of memory, history, and the provenance of artefacts through inquiry-based STEAM approaches, deepening their understanding of the connections between travel, culture, and art.

Implementation of the Sci-Art approach in the Lesson Plans – How arts and sciences come together in the activities

The "Routes" (Travel/Travelling) unit consists of three art lessons and two science lessons, which are interconnected to provide a multidisciplinary approach. The concept of "materiality" is explored through various lenses, including the arts, sciences, and social studies. The lesson plans emphasize problem-based learning, encouraging students to understand that different disciplines offer diverse perspectives on a given topic. This approach is paired with Inquiry-Based Learning (IBL), a student-centered method where learners actively construct knowledge by formulating their own research questions or testable hypotheses (Chu et al., 2021). Through IBL, students engage with real-world problems, enhancing their critical thinking and problem-solving skills. The lessons also promote collaborative learning, as students work in teams, are assigned roles, and pursue a shared goal established at the start of each lesson. This form of collaboration fosters a democratic environment where students communicate their ideas openly, listen to one another, and exchange opinions respectfully and peacefully.

The Four C's to 21st century skills (Communication, Collaboration, Critical Thinking, Creative Thinking)

The assessment for this project is grounded in the Four C's of 21st-century skills: Communication, Collaboration, Critical Thinking, and Creativity. These skills are closely aligned with the stages of Inquiry-Based Learning—Orientation, Conceptualization, Investigation, and Conclusion. (See Self – Assessment worksheet, Group Assessment worksheet, Teacher's Assessment Tool).

Connecting the STEAM approach to cultural heritage through the project's activities

To unravel the stories behind each artefact, students will process, interpret, and connect various narratives that emerge from the analysis of the artefacts' meanings relating to the historical context and background stories as well as to their material properties (e.g., dating, provenance, manufacturing techniques, preservation, and use). This will be achieved by using integrated activities from the fields of the visual arts and the sciences.

Connections between the information provided by the arts (historical and cultural context and narratives) and sciences (archaeometry; Optical and Electron Microscopies (OM & SEM); Energy Dispersive X-ray Spectroscopy (EDS); Fourier Transform Infrared Spectroscopy (FTIR); X-Rays Diffraction (XRD); geometric optics.)

The connections between the different modes of study will emerge organically as the Unit unfolds through a series of five (5) individual, yet related, lessons. Dialogical approaches and discursive methods will be used as mediators to introduce students to heritage, the arts, and sciences in the process of studying real museum artefacts. Moreover, scenarios and overarching questions will be given at the beginning of the Unit, while the theme of 'routes' and 'travel/traveling' will be unpacked.

Promoting the development of cultural identities (local, European, intercultural etc.) through the project

During this project, students will gain an informed understanding of craftsmanship traditions from the Byzantine and post-Byzantine eras up to the present day, while exploring possible connections between the three partner countries—Cyprus, Greece, and Portugal—spanning centuries. They will also investigate the exchange of goods between countries and how historical and cultural artefacts serve as evidence of trade routes and the exchange of products, materials, and ideas. By examining the provenance of these artefacts, students will discuss the careful preservation and restoration of artefacts as part of a shared European or global cultural heritage. Lastly, students will explore cultural and societal changes that have led people to travel and migrate from antiquity to the present, and the impact this has had on cultural exchange and notions of identity.

A3. Unit Structure

Number of lessons	5 lessons – 10 school periods (2 x 40')
Duration of each lesson	Max. 2 x 80 minutes each (1 school period equals with 40 minutes)
Total time	800 minutes
Lesson Plans	You can find the lesson plans HERE (ANNEX I)

A4. Aim and Learning Objectives

Key thematic categories	Identity, European/ Global Cultural Heritage

Aims of the project:

The main aim of this project is for students to generate and express original ideas while interpreting artefacts from different countries, making connections between the current and past socio-cultural contexts of their own country. By familiarizing themselves with inquiry-based methods, they will be able to transfer and adapt their interpretive skills when exploring artefacts from other European countries. Students will utilize science and technology to investigate artefacts—for example, using tablets to access information about the artefacts (e.g., museum websites, short videos) and collaborating in multimodal ways to construct meanings for each artefact (e.g., via VoiceThread). Additionally, they will develop creative skills (writing, drawing, sketching, etc.) to craft stories and narratives based on the information provided about an artefact, expressing themselves through various materials and practices. Lastly, students will participate in decision-making processes regarding how they wish to present their final outputs (artworks, sketchbooks, stories, multimodal books etc.) to the broader school and/or community.

Objectives and 21st century skill, based on the chosen artefacts

How STEAM approach relates to cultural heritage:

Take into consideration that the following learning pedagogies and methodologies should be part of the design of the activities:

- ***Inquiry-Based Learning in STEAM Approach*** involves students in investigating a problem, exploring possible solutions, developing explanations for the phenomena under investigation, elaborating on concepts and processes, and evaluating or assessing their understandings in the light of available evidence
- ***Collaborative learning*** engages students in teamwork for investigating a problem or solving a dilemma or investigating a topic, and it can be used successfully to promote student engagement, socialization, and problem-based learning.

By the end of this unit the students will be able to:

- Observe artefacts from different museums in Cyprus, Greece, and Portugal, and make interpretations regarding their meanings
- Develop hypotheses and ask relevant questions based on the visual elements and data gathered about each artefact

- Discuss the meaning of historic cultural symbols and be able to discover them in present cultural contexts
- Use their sketchbooks to document different experimentations, associations, and processes followed to explore an artefact
- Understand the importance of materiality in the artistic process as well in the development of the meaning of an artefact or artwork
- Respond to and be able to form questions for the in-depth investigation of the qualities of a museum artefact, using scientific (i.e. dating, provenance, authentication, manufacturing technique, preservation, value, use) and art-based methods, for the purpose of making associations regarding the artefact's cultural meanings
- Familiarise themselves with Inquiry-based methods
- Summarise findings and relate them to the original questions and hypotheses
- Identify life events and put them in chronological order
- Think critically what life events have made an impact on their own life and how their own lives are part of a greater historical and cultural narrative.
- Cultivated the ability to work as a team and to develop their communication skills when working with others
- Participate in active processes of decision making regarding the ways they will present their final artworks to the wider school and/or community

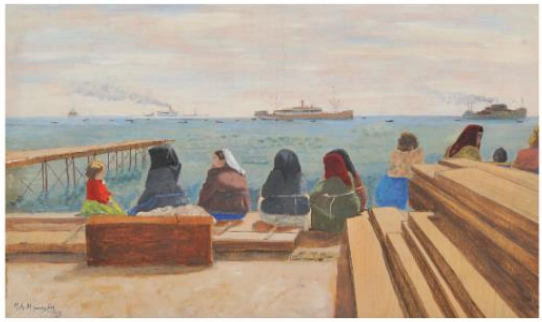
A5. Students/Participants

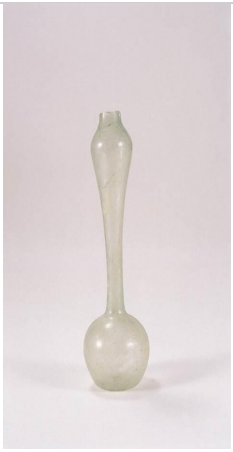
Age Group /Class	11 to 14 years old (6th Grade of Primary School| 1st and 2nd Grade of Middle School *The lesson plans and activities are flexible and were designed having in mind the possibility of adjusting them for lower and higher grade levels depending on students' prior knowledge and experiences.
Previous Knowledge	Each school and classroom have their own unique character, follow different curriculums depending on the country and aim towards different learning objectives and competences. Although the following are not required, they are considered beneficial in the implementation of the unit: • Prior experiences discussing about and/or approaching museum artefacts

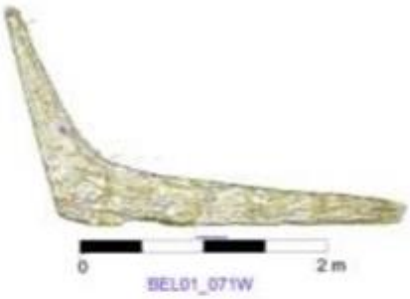
	from different perspectives through on-site museum visits or in the classroom • Experiences in virtual museum visits • Familiarity with inquiry-based methods • Prior experience with collaborative work
Group organisation	The students are organised into groups of four or five students each (5) **The maximum limit of students in a Cypriot public classroom is 25

A6. Teaching Resources (Materials, documents, and online tools)

A6.1 Cultural Resources: *Add below the link to the information regarding the cultural artefacts you will use during the implementation of the project. The link must directly connect to the SciArt Resources Repository in the project's website [i.e., Cultural Artefacts' List].*

Museum	Artefacts
Leventis Picture Gallery, Nicosia, Cyprus 	**Painting entitled '*Those left behind*'** **Artist:** Michael Michaelides, 1950 **Materials:** • Varnish • Oil paint • Wood (plywood) **Description:** 'Those Left Behind' touches upon the issue of the mass migration of the male population from Cyprus due to the great economic crisis the island experienced after World War II. It depicts a few women farmers with their children, gazing at the ships that are taking their sons, husbands or fathers to a foreign land as they disappear into the horizon. Some of these emigrants will never return.
Byzantine Museum, Thessaloniki, Greece	**Half-finished glass vessel (Late 3rd - 4th c.)** **Origin**: Thessaloniki, Eastern Necropolis inside a tomb **Dimensions:** H. 22cm, rim. Diam. 2,3cm, base diam. 3,8cm, W.62.3cm, cap. 212ml **Description:** Free blown of colourless greenish glass, without impurities but with a few pinprick

	bubbles. An unfinished vessel, most likely from a local workshop.
Esposende Museum, Portugal  [artifact untreated]  [artifact treated]	**St. Christopher Alm Dish** **Materials:** brass **Dated:** 16th/17th century **Origins**: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal) **Description:** The iconographical subject of this dish depicts the myth of St Christopher. He is almost always artistically represented in the same scene: dressed in a tunic and cape looking ahead, carrying the baby Jesus on his right shoulder, crossing a river, aided by a staff in his left hand. At his left and further back, the hermit appears holding a torch with both hands. Around the central motif are two bands of inscription: "DER.I.N FRID.GEHWART" (inner ring, repeats four times) and "HILF.IHS. XPS.UND.MARIA" (outer ring, repeat five times); the lobed side and the rim has two stamped bands with leaves and fleur-de-lys. Observation: this artifact is part of a shipwreck cargo, washed ashore at Belinho beach, during the exceptionally strong storm (called "Hercules"), in the winter of 2014.

 Stern knee discovery (2014.01.30)  Stern knee draw	**Stern Knee Timber** **Materials:** wood **Dated:** 16th/17th century **Origins:** Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal) **Description:** Stern knee – a curved piece that connected the keel and the sternpost on some Iberian ships – with four iron bolts indicate that it was fastened to the keel although the spacing of these bolt holes does not correspond with those found on the surviving fragment of the keel. In contrast, three bolt holes on the upper part of the stern knee match those on the sternpost. Observation: This stern knee is part of the structure of a 16th/17th century ship, washed ashore at Belinho beach, during the exceptionally strong storm (called "Hercules"), in the winter of 2014.

*More information on the selected artefacts for this unit can be found **HERE (ANNEX III).**

A6.2 Science Resources: *Add below the link of the science videos you will use in your class. The link must directly connect to the SciArt Resources Repository in the project's website.*

You can find and download the videos describing the five archaeometric methods used for the investigation of the artefacts HERE

A6.3 Additional/ Multimodal Resources: *Did you make any adaptation on the resources, or did you use any other (alternative/additional resources) to support your thinking structure and implementation? Add below the link of other learning resources you implemented in your class during your lessons?*

Worksheets_Art (ANNEX IV)

Worksheets_Science (You can access the worksheets opening the package provided as Extra Resources)

A6.4. Other resources

(one of each for each student in the classroom)
A4 colour prints of the unfinished glass vessel
A4 colour prints of the alms dish with Saint Christopher
A4 colour prints of the stern knee
A4 colour prints of the painting 'Those Left Behind'
Tablets for each child

A7. Evaluation/ Assessment Methods

Students' evaluation will be done throughout the various lessons of the Unit, and it is based on the Four C's of the 21st century skills (communication, collaboration, critical thinking and creative thinking). The assessment will be done both individually and as a group. Each student will have to present, in their sketchbook, the process followed to create their artwork, and their critical comments regarding their process. Students will also need to discuss with the teacher or their peers to coordinate a pitching event or a presentation to the rest of the school community to present their findings.

A8. Possible Challenges

Describe briefly anticipated challenges and limitations that teachers might face before the implementation of the activities in schools, and/or short teachers' reflections.

- The arts and humanities teachers must collaborate and coordinate with the science teachers for the lessons to run smoothly and without time breaks between the various activities
- Schools must have a computer lab or tablets for each child to perform some of these activities

A9. References/Bibliography

SciArt Book

CHAPTER 1 The SciArt Approach by Sofianides A., Tsaliki C. & Spyrtou A.

CHAPTER 2 Archaeometry, Science Education and Cultural Heritage by Molochidis, A., Malletzidou, L. & Petridou, E.

CHAPTER 3 Cultural Heritage and Identity: Exploring National and European identity through artefacts by Stylianou, E. & Charalambous, C.

LESSON PLAN 1

School:	Name:	Date:

Subject/ Course:	Art, Language studies		
Topic:	Travelling people, things, and ideas		
Lesson Title:	Working as an Archaeologist – Investigating the history of artefacts		
Level:	3 (12–14-year-old students)	Lesson Duration:	1 or 2 x 80 minutes

Lesson's Summary:
In this lesson, students will explore the themes of "Routes" and "Travelling" through inquiry-based methods. They will begin by investigating the materiality of selected objects as archaeologists, familiarizing themselves with the process of asking questions, forming hypotheses, and creating narratives about the artefacts. By closely observing the materiality of these objects and drawing connections to knowledge gained from other disciplines, students will collaboratively work in groups to support and justify their hypotheses, ultimately presenting their findings to others.

Key concepts:
Archaeology, materiality, cultural artefact

Learning Objectives:
Upon completion of the lesson, students will be able to: • Discuss how artefacts' material properties offer insights to these objects' stories • Explore artefacts and make assumptions based on provided evidence, data, and information • Investigate different artefacts through observations of the objects' material properties (shape, material, size, colour, origin, function) • Present their insights and findings using different modes of communication, having in mind different audiences • Investigate elements of local and global cultural history in relation to the initial questions • Begin to think about the cultural connection between the artefacts

Summary of Tasks/ Actions:
• Observe the materials given and make assumptions based on evidence from their research • Form questions that are meaningful and engaging • Take notes and collect data in their sketchbook • Collaborate with others respectful of each person's abilities • Work as a team to present and perform results in the classroom • Make associations between the material gathered and their own culture and identity

Classroom Organisation:
Students will sit in groups of five (5) and will alternate between working individually and collaboratively, depending on the activity. During group tasks, they will discuss ideas with their peers and present a collective outcome to the class. To ensure smooth collaboration, the teacher should pre-assign specific roles and responsibilities within each group (e.g., who will gather materials, present the group's findings, and record final answers on the worksheets). This structure helps facilitate effective teamwork and clear communication.

Materials/ Equipment:
For each student: Sketchbook for each student **For the class:** A box of sand and small piece of glass (with soft edges), plastic, clay, dish, wood hidden inside. Four photos, one of each of artefact: half-finished glass lamp, alm dish, clay and stern knee. *Worksheets_Art* (printed two times each) (Worksheet alm dish, Worksheet glass, Worksheet clay lamb, Worksheet stern knee) Computer, Overhead projector, Different Museum Labels A box with different papers/ magazines/ newspapers for the group that will choose to make collage (Activity 2)

References:
1. Cyprus, Nicosia – The Leventis Gallery, Nicosia; https://www.leventisgallery.org/home 2. Greece, Thessaloniki – Museum of Byzantine Culture, Thessaloniki; https://www.mbp.gr/wp-content/uploads/2022/08/190-Museum-of-Byzantine-Culture.pdf 3. The Portugal, Esposende – Esposende Municipality; https://www.municipio.esposende.pt/

Assessment/ Reflection:
Individual: Each student must keep a short record in their sketchbooks about the process followed in their team while investigating the selected item.

Each student must demonstrate engagement in the classroom by following the role given in their team.

Group:

Each group must present and communicate their findings to their peers and teacher in a creative way (see **Choice Board in Worksheets**)

Each group must discuss the inquiry process, challenges and learning outcomes (**See-Think-Wonder sheet in Worksheets**)

Teaching Process

Opening Activity (15 minutes)

The students sit in mixed ability groups of five. The teacher begins the lesson by presenting a box with sand and asks for one representative of each group to come and search in the box. The teacher asks the students to "excavate" and find one object (glass, clay, dish, wood), which each group will need to observe, draw, and take notes. The students use their sketchbooks to record their answers, which they will then present to the whole class.

More specifically, the students are asked to make hypotheses of what these objects are, and discuss their possible place of origin, time, provenance, function etc. They can answer questions such as:

- *What do you see? What do you think it is?*
- *What do you see that makes you say that?*
- *What more can you find?*
- *Where do you think this fragment comes from? What makes you say that? Are there any details that led you to such an assumption?*
- *What is the function of this object? Could you use it? What makes you say that?*
- *How old do you think it is? Are these fragments of old/historic or contemporary objects? What makes you say that?*
- *What if it came from a place that is far away from you? / What if it came from a place that is near you? Where would this place be?*

The teacher explains that the process the students just followed mirrors the work of archaeologists when they discover an ancient artefact during excavation. In the following activity, the teacher informs the students that they will now become archaeologists

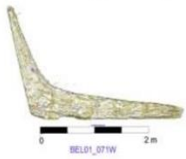
Activity 1 (15 minutes)

⇨ *Do you know what archaeologists do? They study human history and prehistory through excavations of sites. There, they might find artefacts or other physical remains that they examine, analyse and interpret in multiple ways. Archaeologists will help you find out details about the artefacts, they will tell you if these artefacts are valuable and why, and if there are any similar artefacts in museums today.*

The teacher presents photos of four artefacts: a small glass vase that looks half-finished, an alm dish, a piece of wood from a shipwreck and a clay lamp. Each group takes the image of the object for which it had a fragment.

[artifact untreated]

Stern knee discovery (2014.01.30)



Stern knee draw

The students are now asked to look at the objects closely and record their observations in their group (see Worksheets for Artefacts 1-5 (Glass, Alm Dish, Stern Knee and Clay Lamb).

Activity 2: Choice Board (20 minutes) (Differentiation based on age, previous knowledge, skills and learning styles)

Upon completion of their observations and assumptions each group can choose a different activity from the Choice Board as a way of creatively presenting their results/work. The students can record their process in their sketchbooks, as a form of individual assessment.

The Choice Board includes the following activities (see more in Worksheet)

a. present your results by writing a poem for the artefact (Language/Literature)
b. develop the object into a character/ by animating the object (Performance/Drama)
c. transform the artefact into a functional contemporary object (Drawing/ Design/Technology)
d. create a short interview with the artefact (Language/English)
e. create a short storyboard (or a comic strip) to present the story of the artefact (Language/Arts/ Design)
f. make a collage of the environment/context in which the object was used in the past (Art)

g. present the artefact by composing a musical piece using your voices/ different sounds (Music)

h. record a short podcast episode (three to five minutes long) (Language)

i. gather at least 10 vocabulary words related to the artefact and create a set of these words on paper or a digital set (Language/Arts)

***The teacher uses any of the above creative writing/arts assignments and/or other multimodal/interactive techniques based on students' previous knowledge and abilities*. These activities may be performed or delivered in other school subjects and in collaboration with other specialist teachers (Language/ Music etc.)

Activity 3 (10 minutes)

When the students finish Activity 1, the teacher continues by providing some information about the artefacts.

⇨ *So, these artefacts look like they are very valuable and very old. What do you think? What if we placed them in a museum or a cultural foundation/ institution? In which one of these places would you display them and why?*

The teacher presents the photos of the three museums, along with a short description about the museums' collections based on information found online:

- Cyprus, Nicosia – The Leventis Gallery, Nicosia; https://www.leventisgallery.org/home
- Greece, Thessaloniki – Museum of Byzantine Culture, Thessaloniki; https://www.mbp.gr/wp-content/uploads/2022/08/190-Museum-of-Byzantine-Culture.pdf
- Portugal, Esposende – Esposende Municipality; https://www.municipio.esposende.pt/

The students present their responses based on the information they gathered about their artefacts (such as date, origin, and context), explaining which museum they would choose to display them in and their reasoning behind it. The teacher then prompts them to consider whether these artefacts could be placed in a museum in their own country, asking if they share similarities with their country's cultural artefacts and why that might be the case. Afterward, each group is given two boxes and tasked with writing a label for the artefacts.

⇨ *What information should this label include if these objects were displayed in the museum?*

When the students complete writing the labels, the teacher provides samples of the labels used by the actual museums and asks students to make comparisons.

Example 1:

Half-finished glass vessel

Materials: glass

Dated: 3rd – 4th century AD Origin: Thessaloniki, Archaelogical Site: Eastern Necropolis inside a tomb

Code ΜΒΠ ΒΥ 91Α

Example 2:

St. Christopher Alm Dish

Materials: brass
Dated: 16th/17th century Origins: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal)

- *Compare the labels you wrote with the original labels. Are they the same? Did you value similar information?*
- *Did you write something different? Why is that?*

Activity 4: Creative Activity – Differentiation (10 minutes)

There are several different ways in which museums choose to write labels for the artefacts they present, depending on their audience: labels for children, labels for adults and different labels for experts. The teacher shows a few different examples and students assess their own labels.

The teacher asks the students to find a creative way to re-write the labels:

- *How would you rewrite or design the label?*
- *How would you present this artefact to the public?*
- *Who would your audience be and why?*

After selecting one of the artefacts, each group can experiment with writing different labels in their sketchbook, adopting different creative formats (i.e. using speech bubbles, first person narration as if the object speaks, short poem, a song etc.).

Lesson's Summary/ Assessment (10 minutes)

Each group presents their findings from Activity 2 to their peers, in the form of a creative activity of their choice. If there is time, some students present the label too.

The teacher makes three columns on the board and asks them to think (**See-Think-Wonder** strategy):

- *What more information do we need to know about these artefacts?*
- *Can we say for sure which one is the oldest?*
- *Are there any methods that might help us find specific information regarding the date, provenance, materiality, and the use(s) of the artefacts?*

The teacher explains that the process the students followed in this class mirrors the work of archaeologists when they discover an ancient artefact during excavation. However, to reach more accurate conclusions about the artefacts, archaeologists rely on other experts, such as archaeometrists. At this point, the teacher explains that during the next lessons they will try to answer some further questions like the above, by gathering scientific data using different archaeometrical methods and tools.

LESSON PLAN 2 – The Glass Vase

School:	Name:	Date:

Subject/ Course:	Sciences/ Chemistry		
Topic:	Travelling people, things, and Ideas		
Lesson Title:			
Level:	3 (12–14-year-old students)	Lesson Duration:	1 or 2 x 80 minutes

Lesson's summary
In this inquiry-based science lesson, students will explore the half-finished glass artefact using five different archaeometric techniques and augmented reality instruments. They will find relevant information regarding the specific artefact's materiality, cultural significance and history - See relevant Worksheet for all below science activities ("Worksheet-Teacher-Glass vase-Science").

Key concepts:
Optical microscope, Scanning Electron Microscope (SEM), Energy Dispersive X-Ray Spectroscopy (EDS), Infrared Spectroscopy (FTIR), X-ray diffraction (XRD)

Learning Objectives:
Upon completion of the lesson, students will be able to: • Respond to and form questions for the in-depth investigation of a museum artefact, using scientific (i.e. dating, provenance, authentication, manufacturing technique, preservation, value, use) and art-based methods • Familiarise themselves with Inquiry-based methods • Summarise findings and relate them to the original questions and hypotheses

Classroom Organisation:
Students will sit in groups of five (5), and they will work individually and collaboratively, depending on the activity.

Materials/ Equipment:
For each student: For each group:

References:
1. Museum of Byzantine Culture, Thessaloniki - https://www.mbp.gr/en/collections/gyalina/ 2. The ***Calendar 2024: Commerce and economy in Byzantine Thessaloniki -*** https://www.mbp.gr/publications/imerologio-2003-yalos 3. https://www.mbp.gr/en/publications/i-techni-tou-gyaliou/ 4. Cross-reference with Cyprus' s glass production MET museum, New York https://www.metmuseum.org/met-publications/the-cesnola-collection-of-cypriot-art-ancient-glass

Assessment:

Teaching Process

Lesson's Opening: Orientation

The science lesson starts with the phase of **Orientation**, in which, students are asked to explore the following questions:

- *Can we investigate the ingredients/ components of the half-finished glass used during the late 3rd – 4th century AD?*
- *Can we compare the half-finished glass with a glass product that is made today? Are there any commonalities/ differences?*
- *Can we make assumptions regarding the use of the glass products? What tests can we perform?*

Through the discussion, students conclude that to answer these questions, they need to closely examine the object, focusing on its fine details. This will allow them to identify not only the materials it is made from but also any remaining substances found on or within it.

Activity 1: The Optical Microscope

In the second phase of the inquiry-based science lesson, **Conceptualization**, students are encouraged to reflect on the instruments and techniques a teacher might use to examine artefacts in greater detail. During the discussion, the teacher guides students in identifying the optical microscope as the key instrument for this close examination. A relevant video demonstrating the method is shared with the students.

In the third phase, **Investigation,** students explore the parts and functions of the of the Optical Microscope through an Augmented Learning Interface (ALI), with a relevant QR code provided in the worksheet. Using the microscope, they collect data by observing magnified sections of the artefact, noting:

- The condition/state of preservation of the glass, such as micro-cracks and defects, which may indicate the need for restoration or confirm its authenticity.
- Other defects (e.g., bubbles) or heterogeneities (e.g., varying color hues) related to the artefact's manufacturing process and composition.
- Foreign substances on or inside the vessel that might suggest its past use (e.g., contents) or burial location.

RESULTS OF THE OPTICAL MICROSCOPE FOR THE HALF-FINISHED GLASS

After interpreting the results in the **Conclusion** phase, students discuss their findings and select three key areas of interest for further investigation: the unidentified brown substance inside the vessel, the bubbles, and the glass matrix, all of which were revealed through the optical microscope.

Activity 2: The Scanning Electron Microscope (SEM)

In the phase of **Conceptualization**, students are encouraged to discuss ways for further magnifying the artefacts' three areas of interest. The teacher introduces the Scanning Electron Microscope (SEM). In the phase of **Investigation**, students explore the parts and function of SEM through ALI and collect data from magnified parts of the artefact in which they observe:

- The unknown substance in the image, as a black homogeneous area.
- Air bubbles, as black circles in the glass matrix.
- Some areas of different grey hues in comparison with the glass matrix, with a variety of shapes.

RESULTS OF THE SEM FOR THE HALF-FINISHED GLASS

After interpreting the results in the **Conclusion** phase, students discuss how SEM offers a bigger magnification of the areas of interest, but the materials that are present in the vessel cannot be fully identified. The bubbles and the inclusions are connected to the manufacturing process.

Activity 3: The Energy Dispersive X-Ray Spectroscopy (EDS)

In the phase of **Conceptualization**, students are encouraged to discuss the techniques that can be used for identifying the components of the artefact under study. The **Energy Dispersive X-Ray Spectroscopy (EDS)** is introduced as an analytical technique to identify the elements and their quantity in a sample. In the phase of **Investigation**, students explore the parts and function of the EDS through ALI and observe the EDS spectrum from the selected area of interest of the artefact:

- The unknown substance presents high carbon and oxygen concentrations, confirming its organic origin. However, manganese, aluminium, silicon, sodium and calcium were also detected, in smaller quantities.
- Apart from the usual glass constituents, the glass matrix presents low sodium concentrations, below 4%, it contains antimony and manganese. Iron and phosphorus are also detected.
- Some inclusions rich in calcium and lead were observed.

RESULTS OF THE EDS FOR THE HALF-FINISHED GLASS

After the interpretation of the EDS data, students record the elements found in the sample and with further investigation in a database they realize that these elements could exist in more than one material. So, in the phase of **Conclusions**, students identify and record the possible materials that could exist in the area of interest of the artefact.

- Apart from the usual glass constituents, the glass matrix presents low sodium concentrations, below 4%, it contains antimony and manganese, which act as decolorizers. The greenish tint of the glass is attributed to iron impurities. Phosphorus was also detected, indicating the use of plant ash which acts as an opacifier for glass. These findings show that recycled glass was used, and the recipes are usual for the chronological period.
- Some inclusions rich in calcium and lead were observed, which highlights the fact that maybe recycled glass was used.

Activity 4: The Infrared Spectroscopy (FTIR)

In the phase of **Conceptualization**, students are encouraged to discuss the techniques that can be used to identify the exact material in the area of interest of the artefact. **Infrared Spectroscopy (FTIR)** is introduced as a technique to further identify the materials of the vessel. In the phase of **Investigation**, students explore the parts and function of the FTIR through ALI and observe the FTIR spectrum from the selected area of interest of the artefact:

- Spectra will be provided.

RESULTS OF THE FTIR FOR THE HALF-FINISHED GLASS

After comparing the collected spectra with FTIR spectral libraries, the following results arise:

- The unknown substance is identified as myrrh. The method has successfully recognized the material and no further investigation is needed.
- All the other measurements show no results apart from the amorphous silica spectrum, which is typical of glass.

Activity 5: X-ray diffraction (XRD)

In the phase of **Conceptualization**, students are encouraged to discuss the techniques that can be used to identify the exact material in the area of interest of the artefact. **X-ray diffraction (XRD)** is introduced as a technique to further identify the materials of the vessel. In the phase of **Investigation**, students explore the parts and function of the XRD through ALI and observe the XRD diagram from the selected area of interest of the artefact:

-XRD diagrams will be provided.

RESULTS OF THE XRD FOR THE HALF-FINISHED GLASS

After the interpretation of the XRD data, students will use XRD diagrams libraries to draw conclusions about the materials found in the sample.

- The calcium and lead inclusions are identified as calcium lead oxide ($CaPbO_3$) which originally acts as an opacifier. As these inclusions were spotted in transparent glass, they also lead to the conclusion that this is a product of glass recycling.

LESSON PLAN 3 – The Alm Dish

School:	Name:	Date:

Subject/ Course:	Sciences		
Topic:	Travelling people, things, and Ideas		
Lesson Title:			
Level:	3 (12–14-year-old students)	Lesson Duration:	1 or 2 x 80 minutes

Lesson's Summary:
During this lesson students will use inquiry-based methods to explore the Alm Dish artefact. They will use five different archaeometric techniques adopting similar processes as in the previous lesson. They will be able to draw comparisons and reach conclusions both regarding the artefact's materiality and about its cultural significance, using data collected during the investigation phases. See relevant Worksheet ("Worksheet-Teacher-Alm Dish-Science").

Key concepts:
Optical microscope, Scanning Electron Microscope (SEM), Energy Dispersive X-Ray Spectroscopy (EDS), Infrared Spectroscopy (FTIR), X-ray diffraction (XRD)

Learning Objectives:
Upon completion of the lesson, students will be able to: • Respond to and form questions for the in-depth investigation of the qualities of a museum artefact, using scientific (i.e. dating, provenance, authentication, manufacturing technique, preservation, value, use) and art-based methods • Familiarise themselves with Inquiry-based methods • Summarise findings and relate them to the original questions and hypotheses • Make connections and associations to draw conclusions about the artefact's cultural significance.

Classroom Organisation:
Students will sit in groups of five (5), and they will work individually and collaboratively, depending on the activity.

Materials/ Equipment:
For each student: For each group:

References to explore questions:	
1. Were there any other treasures inside the shipwreck? How can we identify the value of the brass alms dish? What was its use? Was it part of a treasure or an everyday item? 2. What kind of restoration processes were followed and why?	Casimiro, T.M., Dostal, C., Castro, F.,Almeida, A., Magalhães, I., Teixeira, E., Frias-Bulhosa, E., (2024) Metal Objects Were Much Desired: A Sixteenth-Century Shipwreck Cargo off the Coast of Esposende (Portugal) and the Importance of Studying Ship Cargos, *Journal of Maritime Archaeology* https://doi.org/10.1007/s11457-024-09388-5

Assessment:

Teaching Process

Lesson plan and strategies for the '*Alm Dish*'

The science lesson starts with the phase of **Orientation**, in which, students are asked to explore the following questions:

- *What is the composition of the metallic dish?*
- *Which is its state of preservation?*
- *How can we identify the value of the Alm Dish?*

Through the discussion, students conclude that to answer these questions, they need to closely examine the object, focusing on its fine details. This will allow them to identify not only the materials it is made from but also any remaining substances found on or within it.

In the discussion, the teacher guides the students to recognize the Optical Microscope as the instrument to be used for a closer examination of the artefact.

In the third phase of the Inquiry-based science lesson, **Investigation**, students explore the parts and function of the **Optical Microscope** through ALI and collect data from magnified parts of the artefact which they observe.

RESULTS AND ACTIVITIES OF ALL THE APPLIED METHODS

The methods activities and results for the Alm Dish, will be structured like the ones in the "Half-finished glass".

Additional Activities / Differentiation

Students search and compare information from the museums' webpages and the data collected after the use and application of the archaeometric methods for the study of the artefacts. They can then explore the following questions and create their own narratives/ interpretations for each artefact:

1. *What was the status of craftsmen/guilds in Early Byzantine Period? Who was working in those guilds (men, women, or both?)*
2. *Where these products exported and where? Can we find similar products in Portugal, Cyprus or elsewhere in Europe?*
3. *Can we compare the glass vessel with a glass product made today? Are there any commonalities/ differences?*

4. *Can we make assumptions regarding the use of these glass products, based on our recent data and information?*
5. *Which scientific methods helped us on this?*
6. *Which interpretative methods helped us on this? Henceforth, can we make assumptions regarding the use of these glass products and by whom they were used? (domestic, religious, medical use etc.)*

LESSON PLAN 4 – TIMELINES

School:	Name:	Date:

Subject/ Course:	History, Visual Arts		
Topic:	Travelling people, things, and Ideas		
Lesson Title:	Personal timelines – Historical Timelines		
Level:	3 (12–14-year-old students)	Lesson Duration:	1 or 2 x 80 minutes

Lesson's Summary:
Students will explore the concept of a 'Timeline' in both personal and historical contexts. They will delve into the ideas of linearity and the sequence of events, fostering critical thinking about significant life events and their impact. Through this, students will gain insight into how their individual experiences are interconnected with broader historical and cultural narratives.

Key concepts:
Timeline, historical timeline, cultural connections, linearity, sequence

Learning Objectives:
Upon completion of the lesson, students will be able to: • Identify life events and order them chronologically • Critically assess which life events have made an impact on their own lives and how they are part of a greater historical and cultural narrative. • Create their own creative timelines, using information based on previous data

Materials/ Equipment:
For each student: Worksheet – *What is a Timeline?* paper, pencils, crayons, markers, or coloured pencils For each group: Large piece of rectangular paper, paper, pencils, crayons, markers, or coloured pencils, magazines and old newspapers

Classroom Organisation:
Students will sit in groups of five (5), and they will work individually and collaboratively, depending on the activity.

References:
1. Cyprus, Nicosia – The Leventis Gallery, Nicosia; https://www.leventisgallery.org/home 2. Greece, Thessaloniki – Museum of Byzantine Culture, Thessaloniki; https://www.mbp.gr/wp-content/uploads/2022/08/190-Museum-of-Byzantine-Culture.pdf 3. Portugal, Esposende – Esposende Municipality; https://www.municipio.esposende.pt/ 4. https://paideia-news.com/mesi-geniki/2023/07/31/i-istoriogrammi-ki-i-didaskalia-tis-istorias/ 5. https://www.alfavita.gr/epistimi/341831_istoriogrammi-mia-paidagogiki-proseggisi-poy-metamorfonei-ti-didaskalia 6. Historical Timeline 1 https://www.slideshare.net/slideshow/ss-238445461/238445461#2 7. https://www.slideshare.net/slideshow/i-30549571/30549571

Assessment:
Individual Assessment: Students will be assessed based on the timelines they create, as well as their ability to accurately explain the sequence of events in the correct order. Review and Closing (10 minutes): Ask students to reflect on what aspects of creating their timelines were the easiest and most challenging. Encourage them to share and present their timelines to the class, explaining the events and their significance. **Group Assessment:** The final artwork of each group can be used as evidence of group assessment in relation to this lesson's aims and objectives.

Teaching Process

Lesson's Opening (5 minutes)

The teacher begins by asking students if they are familiar with the term 'timeline,' or the concept of organizing events in chronological order. A discussion follows on what a timeline is and its various uses. The teacher then prompts students to consider how a timeline might be useful in investigating and comparing different artifacts.

Activity 1: Explicit Instruction/Teacher modelling (5 minutes)

The teacher distributes the first page of the "What is a Timeline?" worksheet and explains that it illustrates a daily timeline. The teacher emphasizes that timelines can represent various time periods, such as days, weeks, months, or years. Together, the teacher and students review the worksheet, addressing any questions that arise during the discussion.

Activity 2: Guided Practice (10 minutes)

As an example, the teacher collaborates with the students to create a timeline of daily events that occur in the classroom. This can be done on a whiteboard or by having students write down events on paper, then working together to arrange them in the correct order as a class.

Activity 3: Independent activity (10 minutes)

Students are encouraged to recall significant life events from the past year, such as birthdays, the first day of school, vacations, and holidays, to create their own timeline. They should make a quick sketch in their sketchbook, listing and arranging these events in chronological order with

labels. For additional support, the teacher provides a relevant **worksheet** to assist students in creating their timeline. The teacher reminds students that their timeline should cover events from the past year, so the labels will correspond to the months of the year.

Support: Students have the option to create a daily or monthly timeline instead of a yearly one if needed.

Activity 4: Bridge (10 minutes)

The students work on the relevant **worksheets** to arrange the artefacts of the Unit in a chronological order on a timeline. The teacher asks the students to think:

- *How can these five artefacts be part of one historical timeline? How can they come together (using reality and fiction)?*
- *Are there any historical periods in the history of these artefacts' countries of origin (Greece, Cyprus and Portugal) that share similar characteristics?*

Note: This activity can be done or completed during the History lesson.

Activity 5: Artwork making (30 minutes)

In a follow-up lesson, groups can combine their individual works/timelines to create a collective visual artwork, such as a collage (using images, words, story elements, layering, etc.), drawing, or painting. This artwork will represent an alternative timeline for the object they investigated in Lesson 1.

Tasks:

- ***Imagining the Timeline**: Consider what events might have occurred before and after the artifact was found. Write down five key events in this timeline and discuss them with your group.*
- ***Determining the Timeline's Form:** Decide what kind of timeline you will create. Will it be a date-based timeline, a narrative timeline (telling the story of the object's journey), a timeline of places (showing its historical route), a timeline of people (highlighting those who owned or interacted with the artifact), or something entirely different?*

Students should integrate the information and methods learned throughout the unit to connect the artefacts in a creative and cohesive manner.

Closing/ Reflection: 10 minutes

At the end of the lesson, the teacher asks students to discuss what they found easiest and most challenging about creating their timelines. Students are then invited to share and explain their timelines with the class.

LESSON PLAN 5

School:	Name:	Date:

Subject/ Course:	Language Studies, Art, History		
Topic:	Travelling people, things, and Ideas		
Lesson Title:	'Those left behind': An alternative view of travelling		
Level:	3 (12–14-year-old students)	Lesson Duration:	1 x 80 minutes

Lesson's Summary:
Students explore the theme of migration through Michael Michaelides' painting *Those Left Behind* (1950), exhibited at The Leventis Gallery in Nicosia, Cyprus. The painting captures the impact of mass migration from Cyprus due to the severe economic crisis following World War II. It portrays women and children watching as ships carry away their male relatives—husbands, fathers, and sons—into the unknown, with some never expected to return. Using Visual Thinking Strategies (VTS) and Inquiry-Based tools, such as the *See, Think, Wonder* Chart and role play, students will work both individually and collaboratively. They will analyze the painting to deepen their understanding of migration as a form of travel that transcends cultures and time periods. This engagement aims to enhance their social skills, fostering empathy and a greater appreciation for different perspectives through the lens of art.

Key concepts:
Migration, travelling, loss, composition

Lesson Objectives:
Upon completion of the lesson, students will be able to: • Observe the painting by Michael Michaelides and make interpretations regarding its meaning, using Visual Teaching Strategies. • Discuss the meaning of cultural symbols and identify them in present cultural contexts • Use their sketchbooks to document various experiments, associations, and processes undertaken to explore an artifact • Work as part of a team and to develop their communication skills when working with others • Engage in inter-artistic activities, developing empathy and understanding towards others

Classroom Organisation:
Students will sit in groups of five (5), and they will work individually and collaboratively, depending on the activity.

Materials/ Equipment:
For the class: Computer Overhead Projector 1 A2 or A3 Reproduction of the painting 'Those Left Behind' (1950) by Michael Michaelides 25 A5 Reproduction of the painting 'Those Left Behind' (1950) by Michael Michaelides **For each student:** Worksheets for the painting of Michael Michaelides (1950) Those Left Behind (**Worksheets** Art) sketchbook, colour pencils, crayons, colour markers Worksheet Lesson 5: See, **Think, Wonder Chart**

Additional Resources:
The Cypriot Collection of the A. G. Leventis Gallery, The Leventis Gallery.

Assessment:
For the students: • Individual assessment based on the student's participation and work on his sketchbook • **Self-Reflective Questionnaire** **For the teacher**: • **Recordable Assessment Tool**

Teaching Process

Lesson's Opening

Lesson's opening:

Thinking point – The findings of this unit can be explored further in other lessons such as literature, language studies, geography, history etc.

The teacher can give these thinking points prior to this lesson:

- *Why do people leave their countries?*
- *Do we see this happening today?*
- *Did this happen in the past?*
- *Under what circumstances?* (Brief discussion that will lead us to the next series of lessons)
- *What kind of routes did we discover when exploring the three artefacts? Which one of those would you like to explore further and why?*

Activity 1: Transferring to theme

The teacher presents a reproduction of the painting of Michael Michaelides, 'Those Left Behind' (1950) to the class (this can be done either through an actual museum visit, a virtual visit to the Museum, or simply presenting a digital reproduction of the painting).

The students start talking about what they observe in the painting (**See, Think, Wonder Chart**).

- *What do you see?*
- *What are we looking at right now?*
- *What is happening here? What do you think is happening in this image?*

- *What are some thoughts that come to mind when looking at this painting?*
- *What do you feel when looking at this painting? What makes you say that?*

Students are encouraged to look closely (the people, the piles of wood at the right-hand corner, they might imagine the faces of these people that are sitting on their back etc.) and imagine what do they see.

- *Who are these people? (i.e. women, children, there aren't any men in the picture...)*
- *Why do you think there are only women and children?*
- *Can you see their faces? If you could see their faces, what would they look like?*
- *Do you see anything else?*

Students use small paper frames to select and sketch a section of the painting in their sketchbooks, focusing on a detail they find significant. The teacher then asks four students to present their sketches to the class, highlighting the diverse perspectives that can arise from interpreting the same image.

Activity 2: Role play

The teacher gives to each student a small colour copy (A5 size) of the painting 'Those Left Behind'. The students place the copy in their sketchbooks.

- *Where does this painting come from? What do you think?*
- *Can you elaborate on that? What do you see that makes you say that?*

Students state their opinion and justify their answers, by referring to what they see in the painting.

- *Can we make close observations regarding the theme represented in the painting? (women's' clothes, facial expression, bodily postures, details etc.).*
- *How do these people feel and why? Can you elaborate or find evidence that can support your answer?*
- *Can you make any assumptions regarding the date of this painting? When was it created?*

Role Play: Students first respond to questions about the painting. Then, a group of eight students is asked to work together to recreate the painting through role play. They have ten minutes to decide how they will perform the recreation and to develop a story behind the painting, assigning roles to each member of the group. During their presentation, the group will engage their peers by asking 'yes' or 'no' questions to piece together the imagined story behind their depiction of the painting.

Parallel activity: Until the group is ready, the teacher asks the rest of the students:

- *What do the people in the picture say to one another?*
- *Maybe they don't say anything, but they are thinking of something…?*

The students are asked to write their thoughts on the A5 copy of the painting in their sketchbooks.

When the group of eight students is ready, they present their story through performance in front of the whole class. The rest of the class asks questions, and they engage in dialogue.

Activity 3

The teacher asks the students to give a title to this painting.
Afterwards the teacher gives some information about the content of the painting.

- *I can tell you that this painting might be from Cyprus in the 1950s. But how do I know? Is there a way to be sure about the date that this painting was created? What processes can we follow to find out?*
- *Why do you think the artist chose to represent this theme during that time in Cyprus? Why is it important for us, now?*

Students are expected to recall information and knowledge gained in previous classes about the different archaemetric methods and techniques that can be used for collecting accurate information about a historic object/artefact. They also begin reflecting on the cultural value and significance of artworks and artifacts within a culture. They begin to explore how paintings convey aspects of a country's history and heritage in meaningful ways.

HOMEWORK: Find an artist or an artwork which presents the theme of Migration. Prepare a PowerPoint presentation (3-5 slides), to present this work to your peers.

Conclusion – Thinking point – The findings of this unit can be explored further in other lessons such as literature, language studies, geography, history, science etc.

Closing/ Reflection: 10 minutes

At the end of this unit, all the students are asked to fill in the self-reflective questionnaire about what they have learned in this project (see **Self-Reflective Questionnaire**).

LESSON PLAN 6

School:	Name:	Date:

Subject/ Course:	STEAM, Multimodality, Augmented Reality		
Topic:	Expressing the SciArt Journey through Multimodality		
Lesson Title:	Reflecting on Our SciArt Journey		
Level:	11-15-year-old students	Lesson Duration:	4 x 45-minute sessions

Lesson's Summary:
In this lesson, students will collect recordings, artifacts, and reflections created throughout their SciArt journey. They will work in groups to narrate their inquiry process and use the Storyjumper and ARTutor platforms to create a multimodal and/or AR book incorporating multimedia elements (e.g., text, audio, images) or augmented reality.

Key concepts:
Multimodality, Augmented Reality, multimodal books

Learning Objectives:
Upon completion of the lesson, students will be able to: • Reflect on the inquiry process and discuss the multiple dimensions of a cultural heritage artifact. • Create a narrative that describes their SciArt journey, including challenges and insights. • Express findings using multimodal and/or augmented reality technologies (Storyjumper and ARTutor platforms).

- Collaborate to create a multimodal or AR-enhanced digital book.

Materials/ Equipment:

For each group:

- A personal computer with internet access.
- Access to Storyjumper and ARTutor platforms.
- Access to previously created recordings and artifacts (photos, videos, audio).

For the class:

- A projector and teacher's computer for demonstrations.

Classroom Organisation:

Students will sit in groups of five (5). They will alternate between working individually (to reflect on their own process) and collaboratively (to create the final digital product).

The teacher's role is to facilitate discussions, provide guidance on the use of Storyjumper and ARTutor, and help students integrate recordings and artifacts effectively.

Assessment/ Reflection:

For the students:
• Each group will present their completed multimodal or AR-enhanced book to the class, discussing how they used their recordings, artifacts, and reflections to represent their SciArt journey.
• **Reflection Questions:**
  ○ What was the most challenging part of the process?
  ○ How did working with multimodal tools change the way you thought about your SciArt journey?
  ○ What would you do differently if you had more time?
For the teacher:
The teacher will assess:
  ○ The depth of reflection in the narrative.
  ○ The effective use of multimodal/AR elements to communicate the journey.
  ○ Collaboration and creativity in presenting the SciArt inquiry process.

Teaching Process

Opening Activity (20 minutes)

The teacher explains the purpose of the lesson and introduces the students to Storyjumper and ARTutor. A brief demonstration is given, showing how these platforms can be used to integrate different media types (audio, video, images, text, and AR).

Activity 1: Collecting Materials (25 minutes)

The teacher asks the students to gather and organize all the materials (recordings, images, videos, and notes) they have created throughout their SciArt journey. The students work independently in their groups to discuss which materials to include in the final project and begin outlining their narrative.

Activity 2 Writing the Narrative (30 minutes)

Each group is asked to write a narration that describes their inquiry process into the cultural heritage artifacts. Emphasis is placed not just on the results but on the challenges, discoveries, and reflections during the journey.

The teacher works as a facilitator and guides the students to reflect on their observations and insights throughout the project, ensuring the process is included in their narrative.

Activity 3: Introducing the Platforms (30 minutes):

The teacher walks the students through the Storyjumper and ARTutor platforms, highlighting the functionalities of each tool and how they can be used to integrate text, images, video, and augmented reality features.

Activity 4: Creating the Digital Book (45 minutes + work at home):

Students work collaboratively on the platforms to develop a multimodal and/or AR-enhanced digital book that narrates their journey. They are expected to incorporate all their materials—audio recordings, images, text, and videos.

The teacher moves between groups to provide assistance and answer questions about integrating the technology and content.

Activity 5: Peer Review (30 minutes):

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The student groups present their multimodal and/or AR-enhanced books to another group for feedback.

Students will evaluate each other's work based on creativity, completeness, and how well the narrative communicates the process and findings.

ADDITIONAL LESSON PLAN - MAPPING

School:	Name:	Date:

Subject/ Course:	Art, Geography		
Topic:	Travelling people, things, and Ideas		
Lesson Title:	Mapping		
Level:	3 (12–14-year-old students)	Lesson Duration:	1 x 80 minutes

Lesson's Summary:
Students have previously gathered information about the materiality of each artifact using scientific and inter-artistic methods in Lessons 1-5. In this additional unit, they will apply their accumulated knowledge to explore the concepts of time and narrative through the creation of maps. They will engage with contemporary and conceptual artists to discover various mapping techniques. Finally, students will map their own experiences by walking through different areas of their school, capturing their observations and reflections.

Key concepts:
Mapping, connections, routes, inventory, travelling, explorers of the 16th -17th century

Classroom Organisation:
Students will sit in groups of five (5), and they will work individually and collaboratively, depending on the activity.

Materials/ Equipment:
For the class: Overhead Projector Speakers Computer PowerPoint presentation 'Map/ Mapping' **For each student:** A5 picture of stern knee timber 'Creating an Inventory' Worksheet a floor plan of the school, tracing paper, plain paper/ sketchbook, pencils, colour pencils, portable cameras **For the group:** Large (in length) pieces of paper (1 or 2 meters long for each group)

References:
i.e. Cyprus, Nicosia – The Leventis Gallery, Nicosia; https://www.leventisgallery.org/home i.e. Greece, Thessaloniki – Museum of Byzantine Culture, Thessaloniki; https://www.mbp.gr/wp-content/uploads/2022/08/190-Museum-of-Byzantine-Culture.pdf; i.e. Portugal, Esposende – Esposende Municipality; https://www.municipio.esposende.pt/

Assessment:
Once the groups have completed their maps, they can present them to the class, showcase them at a school-wide event, or display them in various locations around the school. This will allow other students to engage with and interact with their work.

Teaching Process

Before the lesson

The students have already gathered information regarding the materiality of each artefact, especially by applying the scientific methods during lessons 2-3. If necessary, they can write them down in one table, to be able to draw some conclusions and interpretations.

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Activity 1: Creating an inventory (15-20 minutes)

The teacher shows students the picture of the *Stern Knee Timber* (wood, 16th -17th century) and tells them that it is part of the structure of a 16th/17th century ship, washed ashore at Belinho beach, during the exceptionally strong storm (called "Hercules") in the winter of 2014.

Then, the teacher entertains a narrative:

- *One of the items you explored previously, was found - along with many other items - in a 16th century shipwreck that was washed ashore in Portugal during a strong storm called Hercules in 2014. What other items/ artefacts do you think were found inside? What were the sailors carrying with them?*

The students make some hypotheses and the teacher writes them on the board.

- *Ok, can you explore this idea further and make a fictional inventory in your sketchbooks? How would you present this inventory?*

The students can create their own inventory in their sketchbooks, or they can be given a **worksheet** to work in groups, in order to design a fictional inventory with the items and/or artefacts they think people carried with them in the 16th century ship.

Optional activity: When they finish, students are asked to write a short story (6-10 lines) about what they think might have happened to the journey of that ship and how it ended up at the bottom of the sea.

Activity 2 – Mapping in Art (15-20 minutes)

The students explore the concept of maps/ mapping.

- *Unfortunately, there was no evidence found about the journey of this ship nor a map to show its journey. Imagine, if there was a map, how would it be? Why do people make maps? What things are represented on a map? Are all maps the same or are there different kinds of maps/mapping?*

The teacher presents a **PowerPoint** (you can find the presentation in the Extra Resources provided) showcasing contemporary artists who incorporate maps and mapping in their work to explore themes such as identity, emotions, space, land, borders, and politics. To start the discussion, the teacher introduces Rirkrit Tiravanija's *Untitled 2008-2011* (The Map of the Land of Feeling) along with an audio clip from the Print/Out playlist *(link:* ***https://www.moma.org/collection/works/147128?sov_referrer=art_term&art_term_slug=maps-borders-and-networks*** **).**

Rirkrit Tiravanja, *Untitled 2008-2011 (The map of the land of feeling), scroll with digital printing, lithography, chine colle and screenprint*

A list of possible artists that can be used for the preparation of the Power Point presentation are:

1. Fransis Alys: https://www.artforum.com/features/walking-the-line-the-art-of-francis-alys-173996/
2. Alighiero Boetti: Game Plan, 1989 and 2011-2012 Link: https://www.sothebys.com/en/articles/alighiero-boettis-mappa
3. Mona Hatoum, Present Tense, 1996
4. Hong Hao, The World Map A, 2000
5. Barrett Lyon, Map of the Internet, Barrett Lyon, 2003 from The Opte Project (https://www.opte.org/the-internet)
6. Sarah Wigglesworth, The Dining Room Table Drawing 2001, https://www.architectural-review.com/essays/folio/folio-sarah-wigglesworths-dining-tables

Activity 2: 20 or 30 minutes

Depending on their age level, students can discuss the symbolic and political significance of borders, including how they have shifted over time and the impact of their representation.

- A map is traditionally seen as a crucial tool that provides information perceived as true and accurate. However, artists often challenge this notion through their work, encouraging viewers to think critically about concepts such as space, land, identity, and politics. We have also explored alternative ways of mapping time and emotions. Now, it's time for us to create our own maps.

To explore this idea further, the teacher asks the students to develop their own fictional maps regarding the journey of the ship; from where it started its journey and what might have happened to cause its disaster. The students can explore this by taking the identity of an

artefact from their inventory list, or the Alm Dish, that was found during the discovery of the shipwreck many centuries ago.

Additional Activities / Differentiation *(The following activities can also be done during a Geography Lesson)*
Activity 4

Students can explore mapping by walking through the classroom or school in various ways.

During the geography lesson, the teacher takes students outside to the schoolyard. Each group is provided with a floor plan of the school, tracing paper, plain paper or sketchbooks, pencils, colored pencils, and a portable camera. Students are tasked with walking around, making sketches, taking photographs of different areas, and mapping their feelings or associations with the places they visit during a typical school day.

Additional Activities / Differentiation *(The following activities can also be done during a Geography Lesson)*
Activity 5

After their outdoor exploration, students will either continue working outside or return to the classroom to use the materials they gathered to create their own school maps. This activity can be done individually or collaboratively. Students are encouraged to use lines, shapes, and symbols to represent various routes, such as from one location to another, start and end points, or places associated with feelings of safety, happiness, sadness, or restriction. They can also expand these routes based on their objectives, such as going to class, heading to the gym, finding friends, or spending time alone.

Lesson's Summary/ Assessment (10 minutes)

Once the groups have completed their maps, they can present them to the class, showcase them at a school-wide event, or display them in various locations around the school. This allows other students to engage with and interact with their work.

ANNEX II: Assessment Tools

Teacher Resource:

Recordable Assessment Tool

Unit: Class:

Overall expectations:

Specific expectations:

Success Criteria	Level 1 (Limited)	Level 2 (Some)	Level 3 (Considerable)	Level 4 (High Degree)
Questioning - Students answer the questions, adequately - Students form their own questions				

Research and Investigation - Students explore the data given - Show engagement in the activities - Gather information from various resources including experiments, fieldwork, literature and art - Use multiple methods to explore and understand the topic				
Analysis and Interpretation - Students analyze the collected data and identify patterns of insight - Interpret their findings in the context of the initial questions				
Conclusion and Reporting - Students draw their own conclusions based on their analyses. - Worked as a team to write and present their conclusions - Communicate their findings in a creative way				
Reflection - Self-reflection - Group reflection				

Student Resource: Recordable Assessment Tool

Self- reflective questionnaire

Unit: Class:

Overall expectations:

Score from 1-5 (1 being the lowest and 5 the highest) the following questions regarding the Unit Routes: Travel/Travelling

a. Level of Engagement:

1. How interesting did you find the activities?	1	2	3	4	5
2. Did you have hands on experience on the activities?	1	2	3	4	5
3. Did you get sufficient knowledge about what materiality is?	1	2	3	4	5
4. How interesting were the artefacts that you investigated for you?	1	2	3	4	5
5. How interesting were the science activities for you?	1	2	3	4	5
6. How interesting were the social studies and arts activities for you?	1	2	3	4	5

7. Can you connect the learning gained from this unit to real-life contexts?	1	2	3	4	5
8. After completing this unit, how confident do you feel in asking questions?	1	2	3	4	5

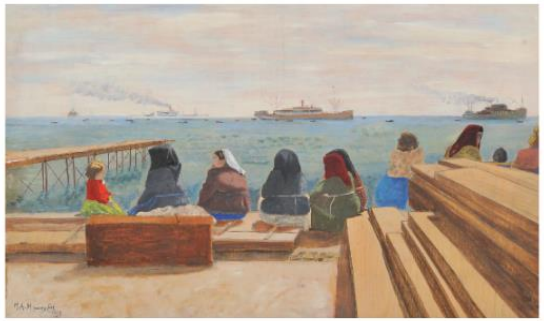
b. Teamwork and communication

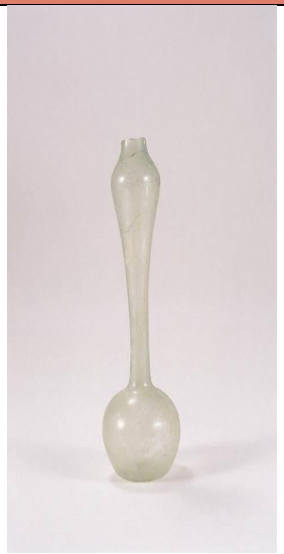
1. Did you have time to autonomously work on this subject?	1	2	3	4	5
2. Did you enjoy working in a group?	1	2	3	4	5
3. How fulfilling was your role in the group?	1	2	3	4	5
4. Do you feel that working in a group enhanced your social skills?	1	2	3	4	5
5. Do you feel more confident to work in diverse perspectives?	1	2	3	4	5
6. After completing this unit, do you feel more confidence sharing your finding with an audience other than your classmates?	1	2	3	4	5

c. Reflection: Write down two things what worked well and two things that could be improved in future inquiries.

ANNEX III: Artefacts List

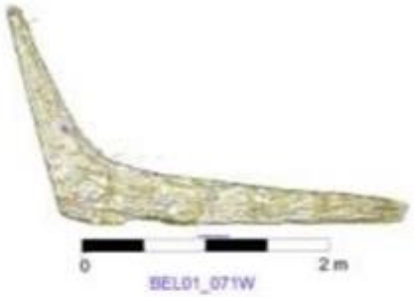
IMAGE	DETAILS	DESCRIPTION
A.G LEVENTIS GALLERY / CYPRUS		
	Title: *The bird of Mesarka* - Artist: Christoforos Savva Year: 1962 Materials: ● Varnish ● Acrylic paint ● sand ● potato sac ● Glue (type ατλακόλ) ● wood	As can be seen in The Bird of Mesarka, a typical work of this particular series and which is part of the A. G. Leventis Gallery Collection, we commune with Sawa's subject matter not through representation, but through the evocative, communicative power of his colours, shapes and especially his materials, the role of which is elevated to such a degree that they end up playing a leading part in the completion of the theme. The processing of the texture of the painting's surface takes on particular weight through the enrichment of the oil paint with non-conventional materials, such as sand, earth, stones and patches of sacking fabric, which, along with the thick application of the colours, transform the texture into an autonomous pictorial value. The palette of the painting is earthy; strong colour contrasts are avoided, and Sawa limited himself to the use of related colours. The sacking absorbs the medium in such a way that it loses in radiance and gains in internality. Light is not reflected but retained and transformed into an intrinsic quality

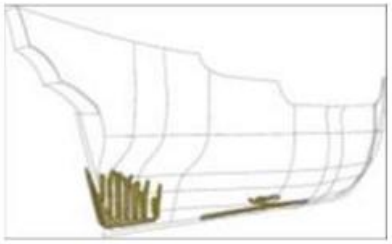
		of the work. The warm earthy tones chosen by the artist recall the nature and atmosphere of the plain of Mesaoria, the breadbasket of Cyprus, and the emotions that the artist felt.
	Title: *Those Left Behind* Artist: Michael Michaelides Year: 1950 Materials: ● Varnish ● Oil paint ● Wood (plywood)	Those Left Behind touches upon the issue of the mass migration of the male population from Cyprus due to the great economic crisis the island experienced after World War II. It depicts a few women farmers with their children, gazing at the ships that are taking their sons, husbands or fathers to a foreign land as they disappear into the horizon. Some of these emigrants will never return.
	Title: *Women's Bazaar* Artist: Telemachos Kanthos Year: 1971 Materials: ● Varnish ● Oil ● Preparation ● Canvas ● Wood structural frame	This piece was inspired by the artist's plein air drawings, completed between 1942 and 1950. It depicts a scene from a traditional outdoor market, known as a 'gynaikopazaro' or a women's bazaar, that took place in Nicosia on Fridays. Greek and Turkish Cypriot women from both rural villages and cities came to sell goods that they had made or produced themselves. In this piece, Kanthos wished to capture the atmosphere and peaceful character of the scene, focusing on the most important and basic features and avoiding descriptive allusions.

BYZANTINE MUSEUM / GREECE		
	Short Description: Half-finished glass vessel Materials: ● glass Dated: Late 3rd – 4th c. Thessaloniki, Origin: Thessaloniki, Eastern Necropolis inside a tomb Dimensions: H. 22cm, rim. Diam. 2,3cm, base diam. 3,8cm, W.62.3cm, cap. 212ml Code ΜΒΠ ΒΥ 91Α	Free blown of colorless greenish glass, without impurities but with a few pinprick bubbles. An unfinished vessel, most likely from a local workshop. It was found in an excavation in Thessaloniki, it was used in a burial ritual and testifies to the operation of a glass workshop in the city in the 4th century AD. Similar vessels were made in workshops of Byzantine cities around the Mediterranean basin.
	Short Description: Clay lamp Materials: ● clay Dated: Second half of the 4th century. Origin: Thessaloniki Code ΜΒΠ ΒΚ 4501/1	On the upper surface, it is decorated with a rose in the center and a herringbone around the perimeter. It was found in an excavation in Thessaloniki. It was used in a burial ritual. Similar lamps were manufactured in various cities of the Byzantine Empire and traded in the nearby and remote markets of the Mediterranean.

	Description: Portable wooden icon of the Virgin Mary Materials: ● wood ● paint Origins: Thessaloniki Dated: appx 1400 AD Code. MBP BEI 505	Portable wooden icon of the Virgin Mary holding baby Jesus on her lap, in the standard iconographical type of Odigitria. From a church in Thessaloniki. Dated at approximately 1400 AD. It's an object of honoring one of the holiest figures of Christianity, the Virgin Mary, to which every believer seeks protection and redemption from all evil.
Esposende Municipality / PORTUGAL		
 Coin obverse Coin reverse 	Short Description: Julius Caesar Denarius Materials: ● silver Dated: 46-45 BC Origina: Archaeological Site Castro de S. Lourenço, Esposende (Portugal) Classification: Crawford 468/1; CRI 58; Sydenham 1014; RSC 13.	Obverse: Diademed head of Venus right, wearing necklace and earring; behind, Cupid (not very perceptible); border of dots (No legend) Reverse: Trophy of Gallic arms, with oval shield and carnyx in each hand; on left, seated female captive resting head in right hand; on right, bearded captive seated with hands tied behind back and looking up at trophy; border of dots. In exergue inscription | CAESAR Military MINT Traveling with Caesar in Spain Observation: this coin is part of a monetary treasure of 19 republican denarii, discovered during the archaeological excavations of Castro de S. Lourenço, in 1988.

 [artifact untreated]  [artifact treated]	Short Description: St. Christopher Alm Dish Materials: ● brass Dated: 16th/17th century Origins: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal)	The iconographical subject of this dish depicts the myth of St Christopher. He is almost always artistically represented in the same scene: dressed in a tunic and cape looking ahead, carrying the baby Jesus on his right shoulder, crossing a river, aided by a staff in his left hand. At his left and further back, the hermit appears holding a torch with both hands. Around the central motif are two bands of inscription: “DER.I.N FRID.GEHWART” (inner ring, repeats four times) and “HILF.IHS. XPS.UND.MARIA” (outer ring, repeat five times); the lobed side and the rim has two stamped bands with leaves and fleur-de-lys. Observation: this artifact is part of a shipwreck cargo, washed ashore at Belinho beach, during the exceptionally strong storm (called “Hercules”), in the winter of 2014

 Stern knee discovery (2014.01.30)  Stern knee draw	Short Description: Stern Knee Timber Materials: • wood Dated: 16th/17th century Origins: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal)	Stern knee – a curved piece that connected the keel and the sternpost on some Iberian ships – with four iron bolts indicate that it was fastened to the keel although the spacing of these bolt holes does not correspond with those found on the surviving fragment of the keel. In contrast, three bolt holes on the upper part of the stern knee match those on the sternpost. Two or three 11 mm square nail holes, and two 25 mm treenail remains indicated the fastening pattern of the hull planking to the stern heel side faces. It has 281 cm long and 20 cm high. Its molded dimension varied between 12.3 cm and 8.7 cm and its sided dimension was 20 cm Observation: this stern knee is part of the structure of a 16th/17th century ship, washed ashore at Belinho beach, during the exceptionally strong storm (called “Hercules”), in the winter of 2014.

 Stern knee  Tentative reconstruction of the ship's structure		

ANNEX IV: Worksheets_Art

C. ANNEXES / RESOURCES

Museums Official Webpages (Lesson 4):

1. Cyprus, Nicosia – The Leventis Gallery, Nicosia; https://www.leventisgallery.org/home

2. Greece, Thessaloniki – Museum of Byzantine Culture, Thessaloniki; https://www.mbp.gr/wp-content/uploads/2022/08/190-Museum-of-Byzantine-Culture.pdf ; The

3. Portugal, Esposende – Esposende Municipality; https://www.municipio.esposende.pt/

Cross-references for the Glass Collection:

1. Museum of Byzantine Culture, Thessaloniki (https://www.mbp.gr/en/collections/gyalina/)

2. https://www.mbp.gr/publications/imerologio-2003-yalos

3. *Calendar 2024: Commerce and economy in Byzantine Thessaloniki* and https://www.mbp.gr/en/publications/i-techni-tou-gyaliou/

4. Metropolitan Museum of Art, New York – The Censola Collection: Cyprus' s glass production https://www.google.com/search?q=glass+guilds+in+4th+century+cyprus&oq=glass+guilds+&gs_lcrp=EgZjaHJvbWUqBggAEEUYOzIGCAAQRRg7MgYIARBFGEAyCAgCEEUYJxg7MggIAxBFGCcYOzIKCAQQRRgWGB4YOTIICAUQABgWGB4yCAgGEAAYFhgeMggIBxAAGBYYHtIBCTExOTQxajBqN6gCALACAA&sourceid=chrome&ie=UTF-8)

Cross-references and Academic Publications for the Alm Dish and the Shipwreck:

1. https://www.youtube.com/watch?v=jlPSsx-J25c ;

2. https://link.springer.com/chapter/10.1007/978-3-030-86464-4_5#citeas)

3. Casimiro[1] ·, T.M., Dostal[2] ·, C., Castro, F., [3] · Almeida, A., [4] · Magalhães, I., [4] · Teixeira, E., [4] · Frias-Bulhosa, E.,[5] (2024) Metal Objects Were Much Desired: A Sixteenth-Century Shipwreck Cargo off the Coast of Esposende (Portugal) and the Importance of Studying Ship Cargos, *Journal of Maritime Archaeology* https://doi.org/10.1007/s11457-024-09388-5

Cross-references regarding Cypriot Artists' paintings

1. https://www.e-flux.com/announcements/225845/untimely-again-christoforos-savva-1924-1968/
2. https://www.cut.ac.cy/digitalAssets/112/112377_1002SavvaEn.pdf
3. Eleni Nikita' () "Christoforos Savva: The Beginning of a New Era in Cyprus Art
4. Cyprus Collection of the A. G. Leventis Gallery for Michaelides.

Cross-references for Mapping and Contemporary Art

1. http://www.archilab.org/public/2004/en/textes/chora.htm
2. https://www.um.es/artlab/index.php/cartographies-of-affect-in-the-work-of-mona-hatoum/
3. https://www.opte.org/
4. https://www.moma.org/collection/terms/maps-borders-and-networks

D. ANNEXES / WORKSHEETS

Brainstorming Worksheets – Forming Hypotheses

This thinking strategy is used to help students generate questions, ideas, and examples, and to explore a central idea or topic. When introducing a new topic, teachers can use brainstorming sessions to determine what students already know or wish to learn, and to provide direction for learning and reflection.

1. **Artefact 1 - Worksheets**
2. **Artefact 2 – Worksheets**
3. **Artefact 3 – Worksheets**
4. **Artefact 4 – Worksheets**
5. **Artefact 5 - Worksheets**

Choice Boards

A choice board provides students with a choice of tasks to complete based on interest or learning style. The tasks offered help students learn a concept, skill, or strategy and an opportunity to demonstrate their learning in a variety of ways.

1. **Lesson 1: Choice Board worksheet (Group work)**

See, Think, Wonder Chart

This strategy consists of a box with a central image or concept and three columns labelled See, Think, and Wonder. Students first observe the image or the details that are immediately apparent to them about the concept. They then capture their thinking and wonderings about the image or concept by recording ideas in the columns.

1. **Lesson 1: See, Think, Wonder Chart**
2. **Lesson 5: See, Think, Wonder Chart**

Flipped Classroom

This strategy and learner-centre approach engages students in investigating multimodal resources (videos, reading information, or engaging in research discussions with others), in preparation for participation in student-centred activities during classroom instructional time. Students explore topics in greater depth through meaningful discussions and activities and focus on developing critical and creative thinking skills as they tackle problems and collaborate to determine solutions. This strategy is used in all science lessons and activities.

Additional worksheets

1. **Lesson 4: What is a timeline? Worksheet**
2. **Lesson 4: Timeline for Artefacts worksheet**
3. **Additional Lesson: Inventory worksheet**

Artefact 1

Short Description:
Half-finished glass vessel
Materials:

- Glass

Dated: **Late 3rd - 4th c**. AD

Origin: Thessaloniki, Eastern Cemetery (inside a tomb)
Dimensions: H. 22cm, rim. Diam. 2,3cm, base diam. 3,8cm, W.62.3cm, cap. 212ml

Free blown of colourless greenish glass, without impurities but with a few pinprick bubbles. An unfinished vessel, most likely from a local workshop. It was found in an excavation in Thessaloniki, it was used in a burial ritual and testifies to the operation of a glass workshop in the city in the 4th century AD. Similar vessels were made in workshops of Byzantine cities around the Mediterranean basin.

Code ΜΒΠ ΒΥ 91Α

1. **Please write your first impressions regarding the artefact shown in the picture**

Name of the Artefact

Materiality: From which materials is it made from? Where did these materials come from?

Provide a short description of the artefact. How does it look like? What is its size, shape etc.

Use: what is the use/ uses of this artefact? If you do not know, can you assume?

2. Write your hypotheses about this artefact.

If you were going to store this artefact, what other items would you place it with and why? What would you write on its label?

What would you like to learn about this artefact? Who would you ask for this information? Write down two questions that you want to ask regarding this artefact.

Do you believe that this artefact is important? Could it have a place in a museum? Why? Why should people care about this artefact? What is this artefact's unique story?

Do we have similar items/ artefacts today?
If your answer is yes, what similarities or differences do they have in comparison to this one?
If your answer is no, why do these artefacts no longer exist?

Artefact 2

Short Description: St. Christopher Alm Dish

Materials:

- brass

Dated: 16th/17th century

Origins: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal)

The iconographical subject of this dish depicts the myth of St Christopher. He is almost always artistically represented in the same scene: dressed in a tunic and cape looking ahead, carrying the baby Jesus on his right shoulder, crossing a river, aided by a staff in his left hand. At his left and further back, the hermit appears holding a torch with both hands.

Observation: this artifact is part of a shipwreck cargo, washed ashore at Belinho beach, during the exceptionally strong storm (called "Hercules"), in the winter of 2014.

[artifact untreated]

[artifact treated]

3. Please write your first impressions regarding the artefact shown in the picture

Name of the Artefact

Materiality: From which materials is it made from? Where did these materials come from?

[artifact untreated]

Provide a short description of the artefact. How doe it look like? What is its size, shape etc.

Use: what is the use/ uses of this artefact? If you do not know, can you make an assumption?

4. W**rite your hypotheses about this artefact.**

If you were going to store this artefact, with what other items would you place it and why? What would you write on its label?

What would you like to learn about this artefact? Who would you ask for this information? Write down two questions that you want to ask regarding this artefact.

Do you believe that this artefact is important? Could it have a place in a museum? Why? Why should people care about this artefact? What is this artefact's unique story?

Do we have similar items/ artefacts today? If your answer is yes, what similarities or differences do they have in comparison to this one? If your answer is no, why do these artefacts no longer exist?

Artefact 3

Short Description:
Clay lamp
Materials:

- clay

Dated: Second half of the 4th century.
Origin: Thessaloniki
Code ΜΒΠ ΒΚ 4501/1

On the upper surface, it is decorated with a rose in the center and a herringbone around the perimeter. It was found in an excavation in Thessaloniki. It was used in a burial ritual. Similar lamps were manufactured in various cities of the Byzantine Empire and traded in the nearby and remote markets of the Mediterranean.

5. Please write your first impressions regarding the artefact shown in the picture

Name of the Artefact

Materiality: From which materials is it made from? Where did these materials come from?

Provide a short description of the artefact. How does it look like? What is its size, shape etc.

Use: what is the use/ uses of this artefact? If you do not know, can you assume?

6. W**rite your hypotheses about this artefact.**

If you were going to store this artefact, with what other items would you place it and why? What would you write on its label?

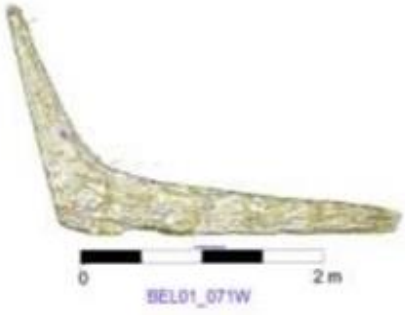
What would you like to learn about this artefact? Who would you ask for this information? Write down two questions that you want to ask regarding this artefact.

Do you believe that this artefact is important? Could it have a place in a museum? Why? Why should people care about this artefact? What is this artefact's unique story?

Do we have similar items/ artefacts today?
If your answer is yes, what similarities or differences do they have in comparison to this one?
If your answer is no, why do these artefacts no longer exist?

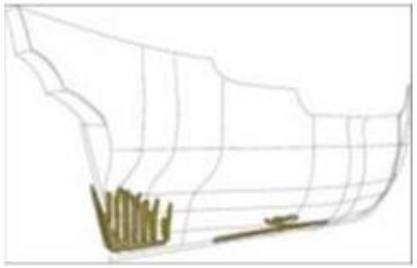
Artefact 4

Stern knee discovery (2014.01.30)



Stern knee draw

Stern knee



Tentative reconstruction of the ship's structure

Short Description: Stern Knee Timber
Materials:

- wood

Dated: 16th/17th century
Origins: Archaeological Site: Belinho 1 Shipwreck, Esposende (Portugal)

Stern knee – a curved piece that connected the keel and the sternpost on some Iberian ships – with four iron bolts indicate that it was fastened to the keel although the spacing of these bolt holes does not correspond with those found on the surviving fragment of the keel. In contrast, three bolt holes on the upper part of the stern knee match those on the sternpost.

Two or three 11 mm square nail holes, and two 25 mm treenail remains indicated the fastening pattern of the hull planking to the stern heel side faces. It has 281 cm long and 20 cm high. Its molded dimension varied between 12.3 cm and 8.7 cm and its sided dimension was 20 cm

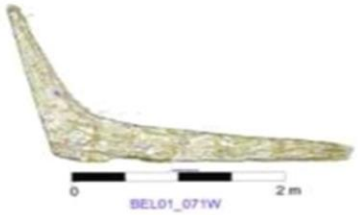
Observation: this stern knee is part of the structure of a 16th/17th century ship, washed ashore at Belinho beach, during the exceptionally strong storm (called "Hercules"), in the winter of 2014.

7. Please write your first impressions regarding the artefact shown in the picture

Name of the Artefact

Materiality: From which materials is it made from? Where did these materials come from?

Stern knee discovery (2014.01.30)



Stern knee draw

Provide a short description of the artefact. How does it look like? What is its size, shape etc.

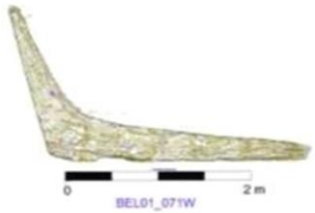
Use: what is the use/ uses of this artefact? If you do not know, can you assume?

8. Write your hypotheses about this artefact.

If you were going to store this artefact, with what other items would you place it and why? What would you write on its label?

What would you like to learn about this artefact? Who would you ask for this information? Write down two questions that you want to ask regarding this artefact.

Stern knee discovery (2014.01.30)



Stern knee draw

Do you believe that this artefact is important? Could it have a place in a museum? Why? Why should people care about this artefact? What is this artefact's unique s

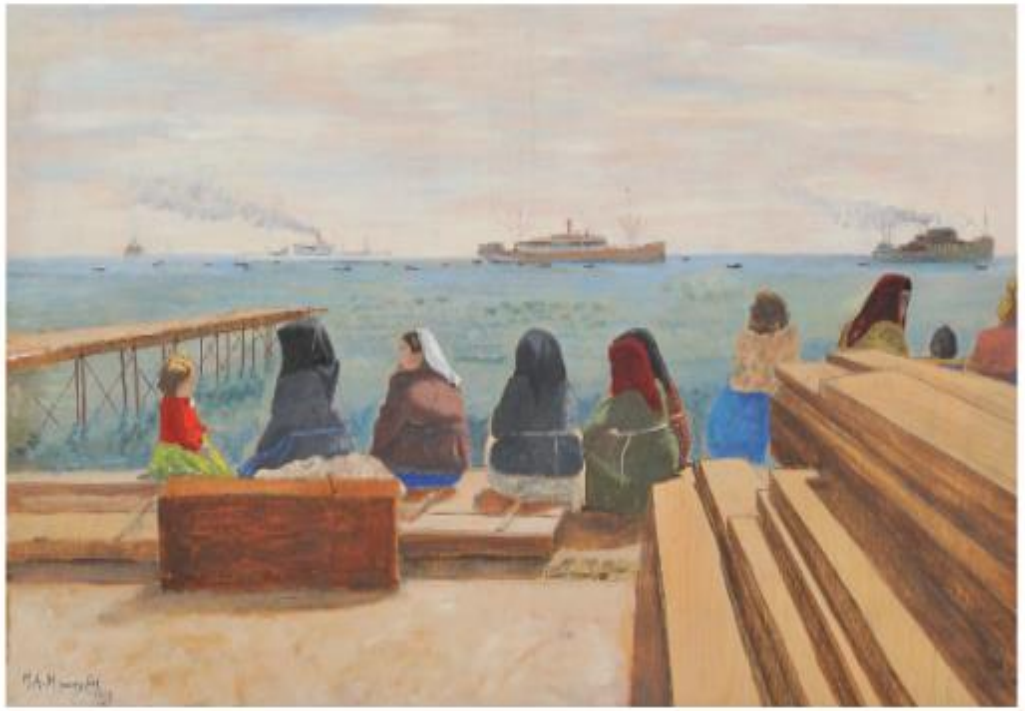
Do we have similar items/ artefacts today?
If your answer is yes, what similarities or differences do they have in comparison to this one?
If your answer is no, why do these artefacts no longer exist?

Artefact 5

Title: *Those Left Behind*
Artist: Michael Michaelides
Year: 1950
Materials:

- Varnish
- Oil paint
- Wood (plywood)

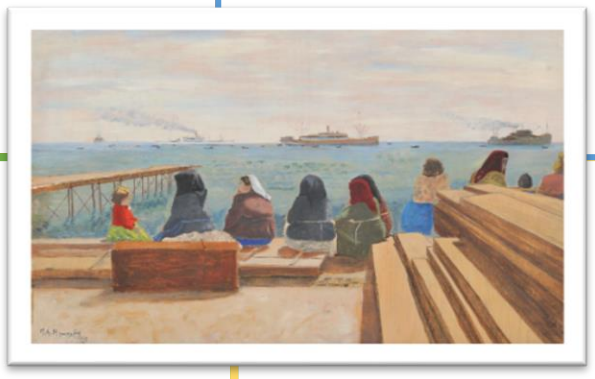
'Those Left Behind' touches upon the issue of the mass migration of the male population from Cyprus due to the great economic crisis the island experienced after World War II. It depicts a few women farmers with their children, gazing at the ships that are taking their sons, husbands or fathers to a foreign land as they disappear into the horizon. Some of these emigrants will never return.



9. Please write your first impressions regarding the artefact shown in the picture

Name of the Painting

Materiality: From which materials is it made from? Where did these materials come from?



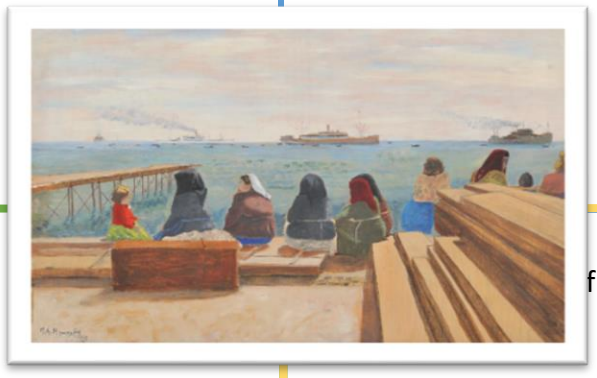
Provide a short description of the painting.
How does it look like? What is its size, shape etc.?

Use: what is the use/ uses of this painting?
If you do not know, can you assume?

10. W**rite your hypotheses about this artefact.**

If you were going to store this painting, with what other items would you place it and why? What would you write on its label?

What would you like to learn about this painting? Who would you ask for this information? Write down two questions that you want to ask regarding this artefact.



Do you believe that this painting is important?
Could it have a place in a museum? Why?
Why should people care about this painting?
What is this painting's unique story?

Do we have similar paintings today?
f your answer is yes, what similarities or differences do they have in comparison to this one?

If your answer is no, why do such paintings no longer exist?

Choice Board

Choose one of the following ways to present the information gathered about your artefact:

☐ **Poem**	☐ **Movement**	☐ **Design**
Write a poem of the artefact. It must have at least two educational details and be a minimum of ten lines.	Develop the object into a character by animating the object. Make a short performance in front of the class.	Transform the artefact into a functional contemporary object. Present your design and your justification to the class.
☐ **Interview**	☐ **Storyboard or Comic Strip**	☐ **Collage**
Create a short interview with the artefact (at least four questions).	Create a short storyboard (or a six-box comic strip) to present the story of the artefact.	Make a collage of images to describe the environment/context in which the object was used in the past. Your collage can be physical (where you cut out or print photos) or the collage can be digital (put together in a document or a presentation slide).
☐ **Music/ Composition**	☐ **Vocabulary Flash Cards**	☐ **Podcast**
Use your voice and/or two instruments to present the artefact by composing a musical piece using your voices/ different sounds.	Gather at least 10 vocabulary words related to the artefact. Create a set of these words on paper or a digital set.	Record a podcast episode. Your episode only needs to be three to five minutes long

Lesson 1: See, Think, Wonder Chart

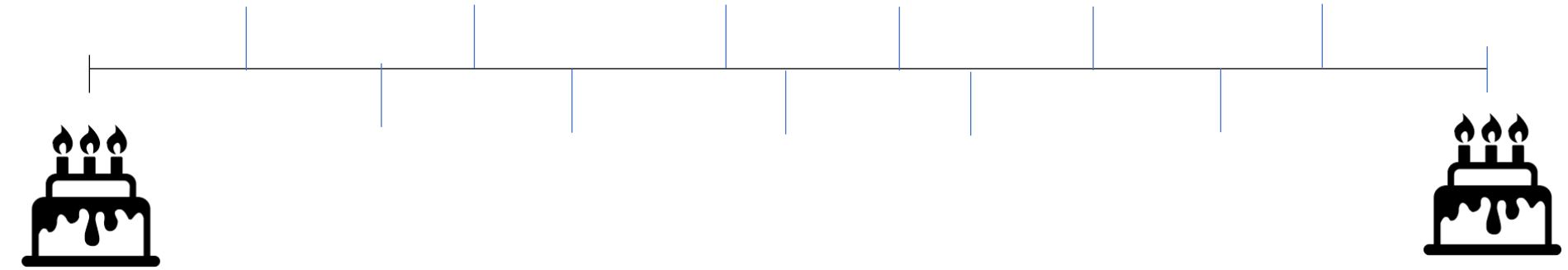
	I notice ….	I think that….	I wonder why….
The half-finished Glass vase 			
The alm dish 			
The clay lamp 			
The stern knee 			

Lesson 5: See, Think, Wonder Chart

	I notice ….	I think that….	I wonder why….
 **Title: *Those Left Behind*** **Artist: Michael Michaelides** **Year: 1950** **Materials:** • **Varnish** • **Oil paint** • **Wood (plywood)**			

Lesson 4: What is a timeline?

A timeline is a way to show how time passes.
Can you show in this timeline what happened in one year, by using both words and images?



My birthday
in 2023

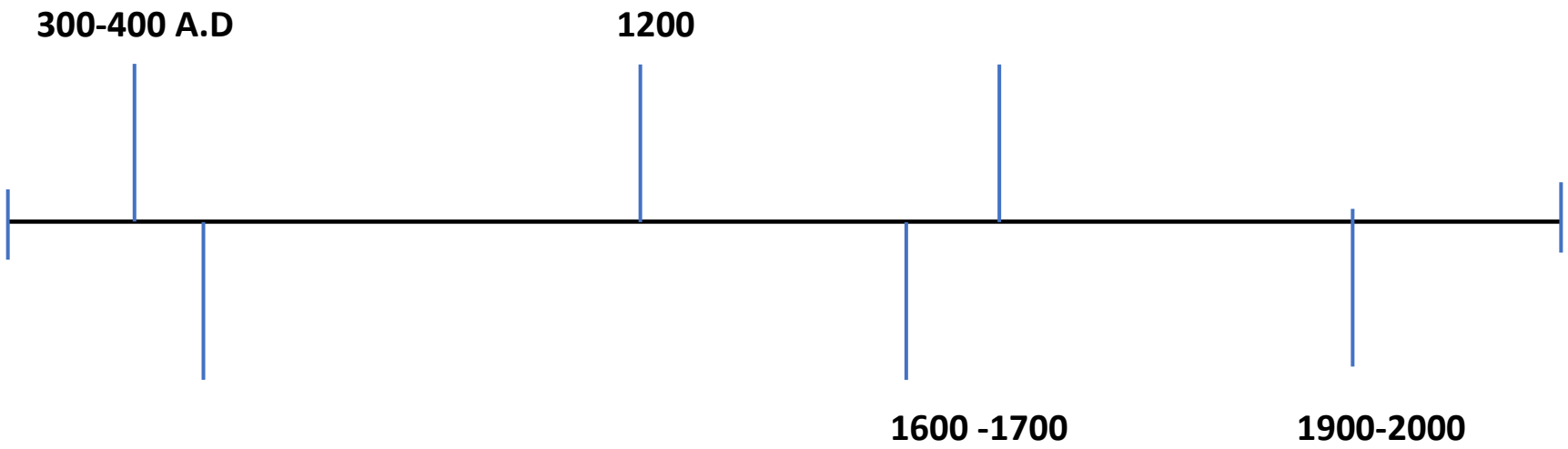
My birthday
in 2024

Lesson 4: The artefacts on a timeline

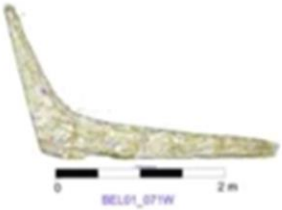
Look at the artefacts of this unit, presented on the next page. Cut them out and put them in order on the timeline

When you are done this timeline will show changes that happened over many years

Find and write down three historical events that happened during period that each of these artefacts was created

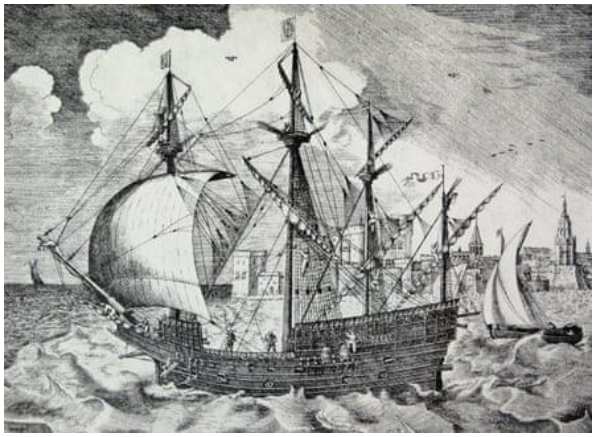


Stern knee discovery (2014.01.30)



Stern knee draw

[artifact untreated]



Additional Worksheet

Create an inventory of the artefacts you think carried the 16th – 17th century ship that was washed ashore at Belinho beach, Portugal
