| **OrientationCompass with solid fill** | **QR audio** |
| --- | --- |

Through the preceding activities, some questions arose regarding the Stern Knee Timber...

1. What information can we gather about the wood and the origin of the shipwreck? What processes can we use to obtain this information?

2. Are there any alterations to the wood?

3. What types of conservation processes were applied and why?

*Discuss the above questions in the classroom as a whole*

**How can we answer these questions?**

**Record the results of the discussion**

|  |
| --- |

| *Record the views heard  with a short video or audio recording.  Name it “1.a Problem and Solutions”* | | *QR audio* |
| --- | --- | --- |
| **ConceptualizationQuestions outline** | **QR audio** | | |

*Discuss as a whole class.*

**How can we observe item details?**

*Note or draw tools we can use   
to see details of an object*

| Instruments / Devices |
| --- |
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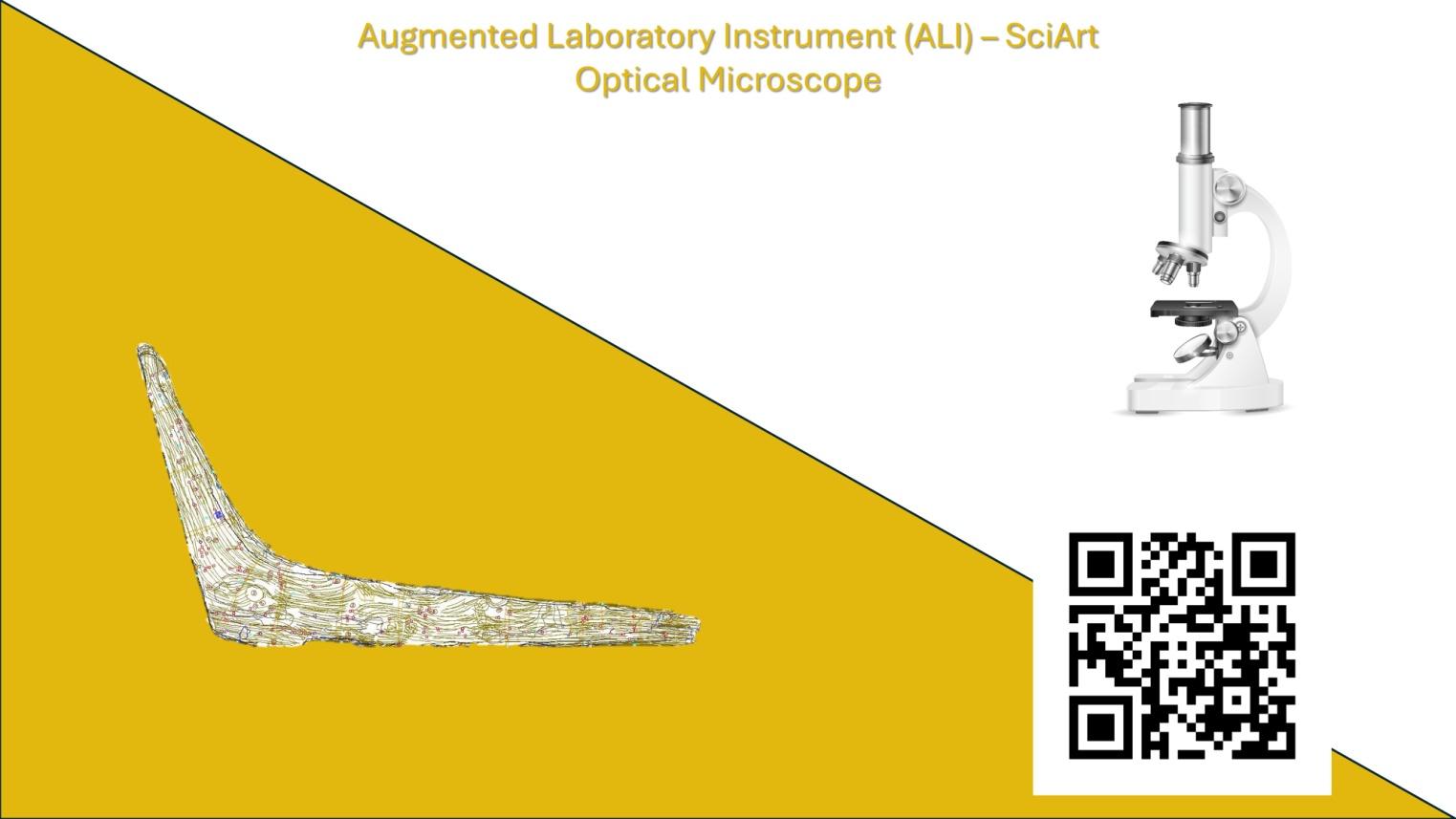
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| --- |

*Discuss as a whole class about the instrument that can give us the best results and choose it from the table above.*

| *Record the views heard  with a short video or audio recording.*  *Name it “1.b Conceptualization”* | | *QR audio* |
| --- | --- | --- |
| **Investigation Research with solid fill** | **QR audio** | |

Use your mobile devices (tablets, mobiles, etc.) and scan the QR below.

Watch the video and download the results given by your chosen device for the wooden stern knee by clicking the **"Results"** button.



***Discuss with the whole class the results of this particular device***

* In the first point of interest, how does the wood appear in the Optical Microscope?
* In the second point of interest, a snagged piece of textile was identified at the edge of the wood. How does the textile appear when magnified?

| *Discuss and record the device functions with a short video or audio recording.*  *Why do we use it and what results can we get?   Name it “1.c Research”* | *QR audio* |
| --- | --- |

| **ConclusionThought outline** | **QR audio** |
| --- | --- |

* **Why do we see three different images for the same point of interest? Can you sort them from lowest to highest magnification?**

* **Do you observe anything different in the images of the different points of the object we focused on?**

*Write down your observations or draw the pictures below with arrows for the points of special interest.*

|  |
| --- |

| *Record your answers  in three different short videos or recordings.*  *Name them "1.d Conclusion A", "1.d Conclusion B"* | | *QR audio* |
| --- | --- | --- |
| **ConceptualizationQuestions outline** | **QR audio** | | |

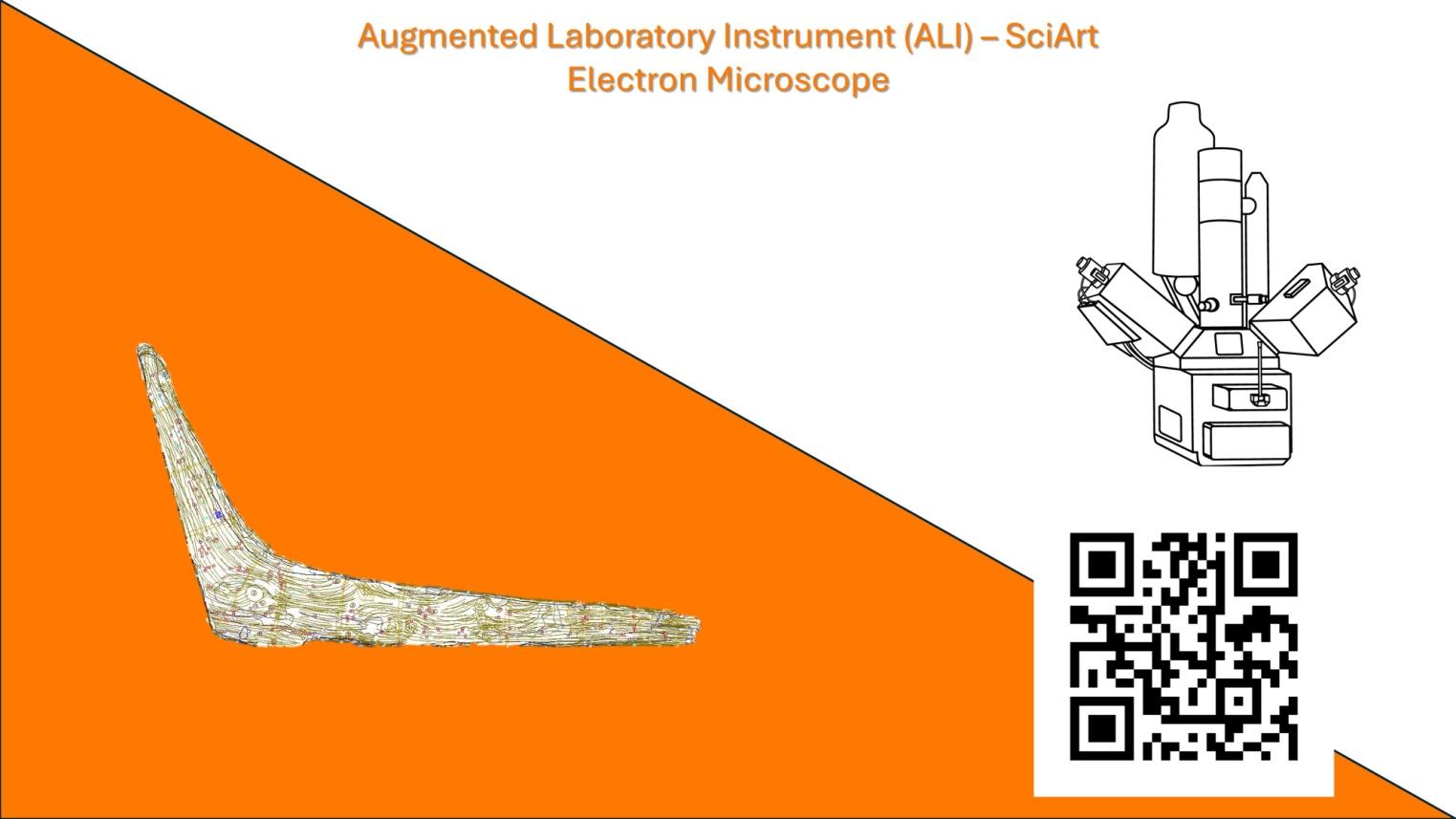
*Discuss as a whole class.*

**What do we need to do to get more information   
about points of interest?**

| *Record the views heard  with a short video or audio recording.*  *Name it “2.b Conceptualization”* | | *QR audio* |
| --- | --- | --- |
| **Investigation Research with solid fill** | **QR audio** | | |

Use your mobile devices (tablets, mobiles, etc.) and scan the QR below.

Watch the video and download the results given by the device for the wooden stern knee by clicking the **"Results"** button.



***Discuss the results of this device in the classroom***

| *Describe how the device works and what we use it for with a short video or audio recording.*  *Name it “1.c Research”* | *QR audio* |
| --- | --- |

* In the first point of interest, from the sample of wood taken from the stern beam, what do you observe in the SEM image? Are there any morphological features that help us recognize the type of wood?

* In the second point of interest from the sample taken from the fibers of the textile that was found stuck to the wood, what do you observe in the SEM image? What do textile fibers look like in SEM and what material are they made of?

| **ConclusionThought outline** | **QR audio** |
| --- | --- |

* **Which one of the two different points of interest, scanned with the SEM method, has the highest magnification? How can we find it?**

* **Why do we get black and white images?**

* **Comparing the SEM image of the textile with the data from the table, what do you conclude about the material of the textile?**

* **What do we observe in the images? What might they mean for our subject? Can we draw conclusions about the components at the points of interest (wood and textile fibers)? What information could we gather from other methods regarding the points of interest?**

| *Record your answers  in three different short videos or recordings.*  *Name them "2.d Conclusion A", "2.d Conclusion B",* | | *QR audio* |
| --- | --- | --- |
| **ConceptualizationQuestions outline** | **QR audio** | |

*Discuss as a whole class.*

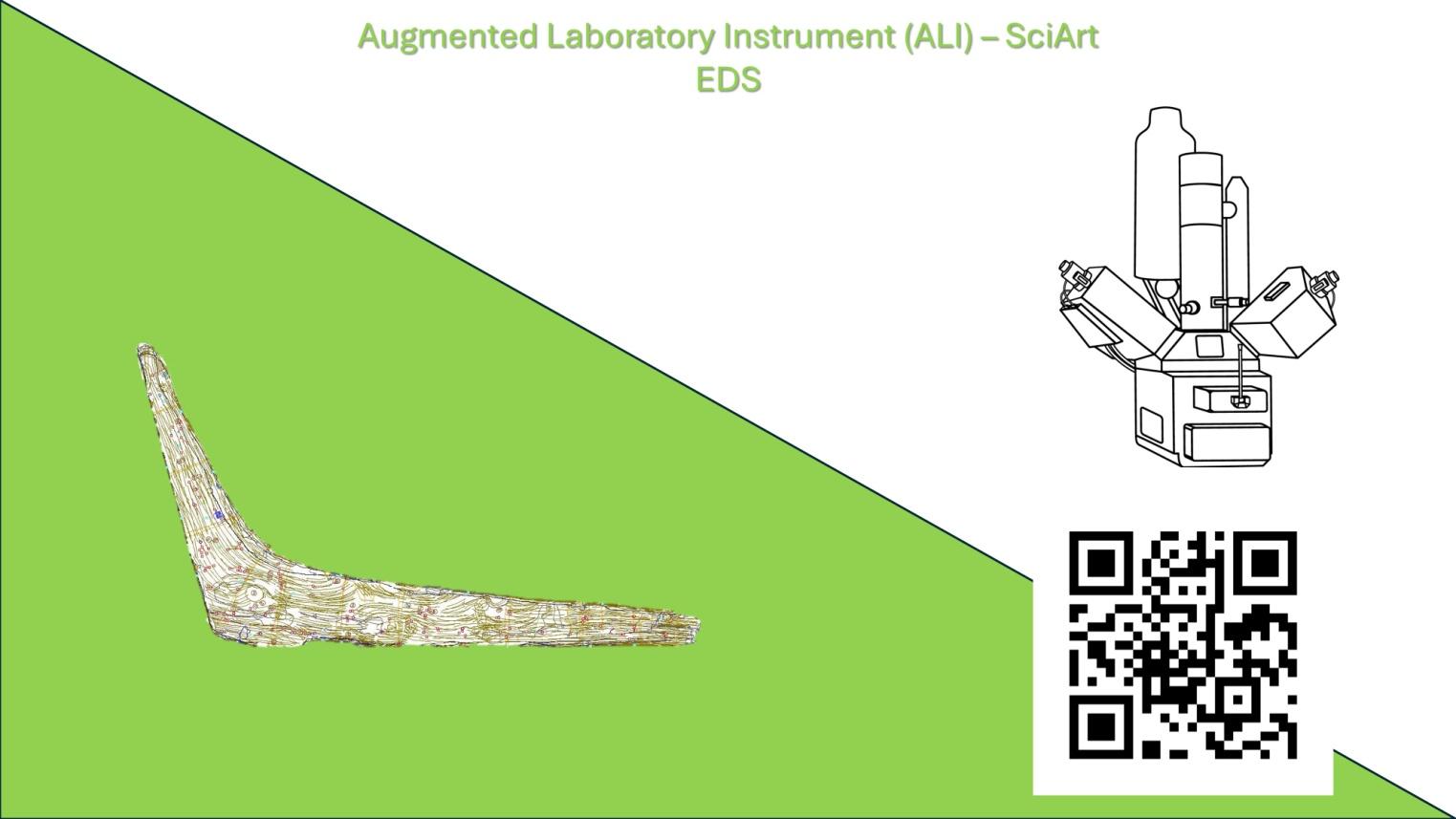
**What do we need to do to find the components   
of the points of interest of the artifact we are studying?**

**What should we recognize?**

| *Record the views heard  with a short video or audio recording.*  *Name it “1.b Conceptualization”* | | *QR audio* |
| --- | --- | --- |
| **Investigation Research with solid fill** | **QR audio** | | |

Use your mobile devices (tablets, mobiles, etc.) and scan the QR below.

Watch the video and download the results of the method for the wooden stern knee by clicking the **"Results"** button.



***Study in your group and then discuss with the whole class   
the results of this particular method***

* In the first point of interest, from the sample taken from the wood, what do you observe in the EDS spectrum? What elements does the wood, as an organic material, consist of?
* In the second point of interest, from the sample taken from the textile fibers found in the wood, what do you observe in the EDS spectrum? What elements does silk, as an organic material, consist of?

| *Discuss and record how the method works with a short video or audio recording.*  *What results did it give us? What else did we have to do?*  *Name it “3.c Research”* | | *QR audio* |
| --- | --- | --- |
| **ConclusionThought outline** | **QR audio** | | |

List the materials in which the elements are found in our sample in the table below.

| **Points of interest** | **Chemical Compounds** |
| --- | --- |
| Type of wood from the stern beam |  |
| Textile fibers found on the wooden stern beam |  |

| *Record your answers  in a short video or audio recording.*  *Explain how you got there.*  *Name them "3.d Conclusion"* | | *QR audio* |
| --- | --- | --- |
| **ConceptualizationQuestions outline** | **QR audio** | | |

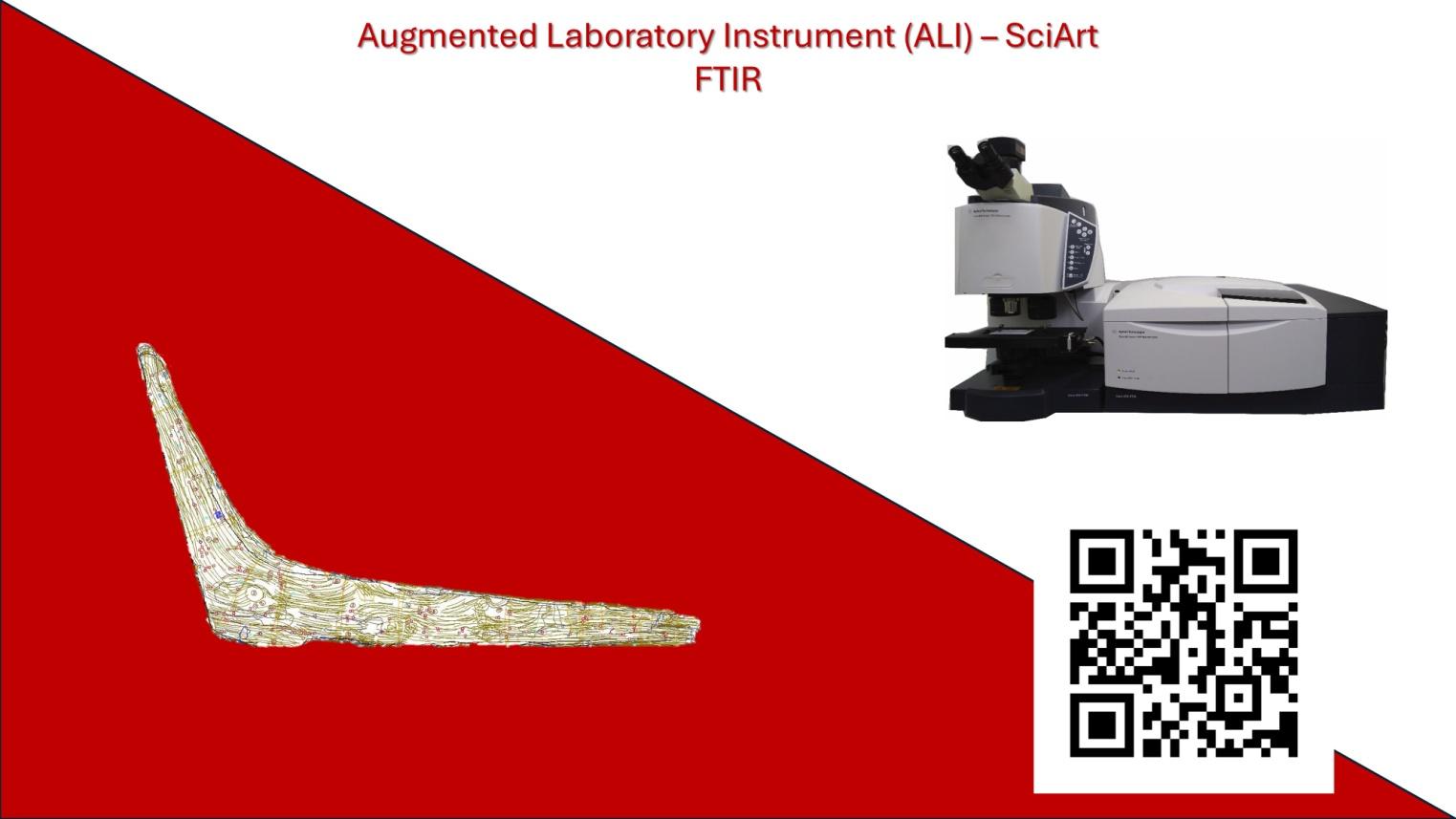
*Discuss as a whole class.*

**What do we need to do to obtain more information about the points of interest? Can we use the FTIR method to see what additional information it can provide us?**

| *Record the views heard  with a short video or audio recording.*  *Name it “4.b Conceptualization”* | | *QR audio* |
| --- | --- | --- |
| **Investigation Research with solid fill** | **QR audio** | | |

Use your mobile devices (tablets, mobiles, etc.) and scan the QR below.

Watch the video and download the results of the method for the wooden stern knee by clicking the **"Results"** button.

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***Discuss the results of this method with the whole class***

* In the first point of interest, from the sample we took from the wood of the stern beam, what do you observe in the FTIR spectrum? What is the composition of the wood?
* In the second point of interest, from the sample taken from the fibers of the textile found on the wood, what do you observe in the FTIR spectrum? Does the FTIR method confirm the type of textile found, as identified by the previous method?

| *Discuss and record how the method works  with a short video or audio recording. What results did it give us?*  *Name it “4.c Research”* | | *QR audio* |
| --- | --- | --- |
| **ConclusionThought outline** | **QR audio** | | |

* **Which compound was identified in the wood?**

|  |
| --- |

* **Which compound was identified in the textile by FTIR?**

|  |
| --- |

| *Record your answers  in a short video or audio recording.*  *Explain how you got there.*  *Name them "4.d Conclusion"* | | *QR audio* |
| --- | --- | --- |
| **ConceptualizationQuestions outline** | **QR audio** | | |

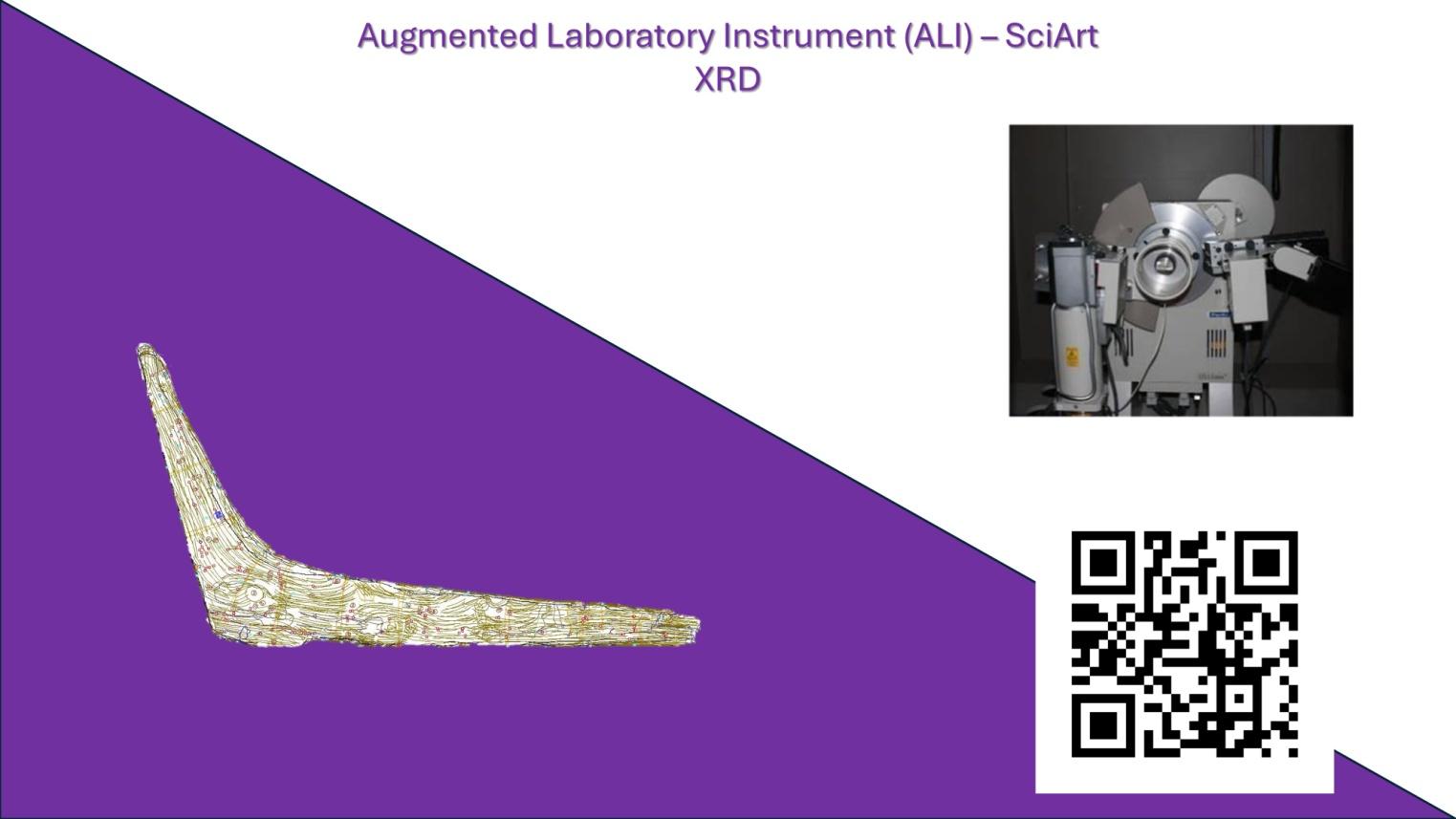
*Discuss as a whole class.*

**What difference does the XRD method give for the points of interest?**

| *Record the views heard  with a short video or audio recording.*  *Name it “5.b Conceptualization”* | | *QR audio* |
| --- | --- | --- |
| **Investigation Research with solid fill** | **QR audio** | | |

Use your mobile devices (tablets, mobiles, etc.) and scan the QR below.

Watch the video and download the results of the method for the wooden stern knee by clicking the **"Results"** button.

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***Discuss in the whole class the results of this particular method***

* In the first point of interest, from the sample we took of the wood, which compound is confirmed based on the XRD diffraction pattern?
* In the second point of interest, from the sample we took of the textile found on the wood, which compound is confirmed based on the XRD diffraction pattern?

| *Discuss and record how the method works  with a short video or audio recording.*  *What results did it give us?*  *Name it “4.c Research”* | | *QR audio* |
| --- | --- | --- |
| **ConclusionThought outline** | **QR audio** | | |

* **In the table below, summarize the information you have obtained about the main material from which all woods are made and what type of material silk is.**

| **Points of interest** | **Chemical Compounds** |
| --- | --- |
| Stern beam wood |  |
| Textile found on the wood |  |

| *Record your answers  in a short video or audio recording.*  *Explain how you got there.*  *Name them "4.d Conclusion"* | *QR audio* |
| --- | --- |

**Back to the initial questions…**

1. What information can we gather about the wood and the origin of the shipwreck? What processes can we use to obtain this information?

2. Are there any alterations to the wood?

3. What types of conservation processes were applied and why?

| **ConceptualizationQuestions outline** | **QR audio** |
| --- | --- |

*Discuss as a whole class.*

**How can we use the conclusions drawn from archaeometric methods to answer the initial questions?**

*Please provide questions that you can ask an AI machine. The answers it gives you, combined with the results you already have, will help address the initial questions.*

|  |
| --- |

| *Record the questions you will ask on ChatGPT with a short video or audio recording.*  *Name it “6.b Conceptualization”* | *QR audio* |
| --- | --- |
| **Investigation Research with solid fill** | **QR audio** |

Use ChatGPT to get information on the above questions. Write down the information you need to answer the questions.

| **Question** | **Main ChatGPT Answer Points** |
| --- | --- |
| What is the stern knee on a ship? |  |
| What are the parts of a ship, besides the stern? |  |
| Since when has silk been produced? |  |
| How is silk made? |  |
|  |  |
|  |  |

*Discuss in class the answers  
to the specific questions you posed on ChatGPT*

| *Note the main points of the answers for each question.  Did it help you find the answer?  How?*  *Name it “4.c Research”* | | *QR audio* |
| --- | --- | --- |
| **ConclusionThought outline** | **QR audio** | | |

*Record the answers to the initial research questions.*

| **1. What information can we gather about the wood and the origin of the shipwreck? What processes can we use to obtain this information?** |
| --- |
|  |
| **2. Are there any alterations to the wood?** |
|  |
| **3. What types of conservation processes were applied and why?** |
|  |

|  | *QR audio* |
| --- | --- |

**Create a video of your answer to each   
interview question.**

**One of you will ask the question**

**and the other person will answer!!!!**

*Name the videos "Final Answer 1", "Final Answer 2", etc.*