

Which sources are most reliable for learning about the dodecahedron?



### **Museum Articles (Source 1)**

**Headnote:** *This excerpt is from an article on the dodecahedron published by The Mathematical Intelligencer, a journal which publishes articles on the history and culture of mathematics. The author, Michael Guggenberger, had also written an article on the dodecahedron in 2000 for the Tyrolean State Museum. Tyrol is in the Austrian Alps, where many dodecahedra have been found. Michael Guggenberger studied classical archaeology at the University of Vienna and the University of Innsbruck and works at Austrian Alpine Club museum and historical archive.*

Dodecahedra are found in the graves of wealthy people and in hoards with other expensive objects. The length of time they were used shows that they were not a short-term fashion trend, but rather an artifact that was produced and used over many generations. The dodecahedra were used by men and women. Multiple finds show that the users were wealthy civilians and military persons.

**Attribution:** *Modified from the article by Michael Guggenberger – “The Gallo-Roman Dodecahedron” (2013), published in The Mathematical Intelligencer.*  
<https://link.springer.com/article/10.1007%2Fs00283-013-9403-7>

### **AFTER YOU READ...**



**(1) How reliable is this source for learning about the dodecahedron?**

**Reliable –**

**Unreliable –**

**(2) What does this article from Guggenberger help you understand about the dodecahedron?**

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**(3) Box the parts of the source that help you think about the central question.**



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### *YouTube User's Theory (Source 2)*

*Headnote:* Martin Hallett is a YouTube user who had a theory about the dodecahedra and used his 3-D printer to test it. The text below is from the YouTube video.

There are lots of ideas about what they were for but none were completely convincing. Why are they only found in the cold North of Europe for example?

There is a hint in the hole sizes. The holes go small, medium, large, medium, large on one side and L, M, L, M, S on the other side. And that's what fingers do.

And the studs in the corners look designed to catch wool. So that's what I tried... and look what happened next.

*(The video shows Hallett using a 3-D model of a dodecahedron to knit a glove out of yarn. He uses the notches next to each hole to catch the yarn. His son tries it on his hand at the end.)*

**Attribution:** Published on YouTube on May 26, 2014 by Martin Hallett. Retrieved from <https://youtu.be/poGapxsanaI?t=204>.

**AFTER YOU READ...** 

**(1) How reliable is this source for learning about the dodecahedron?**

**Reliable –**

**Unreliable –**

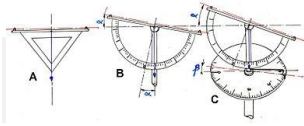
**(2) What does this video from YouTube help you understand about the dodecahedron?**

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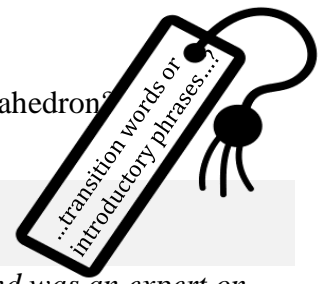
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**(3) Box the parts of the source that help you think about the central question.**

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### ***Uncertain Devices*** **(source 3)**



**Headnote:** *M.J.T. Lewis studied classics at the University of Cambridge and was an expert on industrial archaeology (artifacts used in industry). He wrote a book on Surveying Instruments of Greece and Rome. Surveying is measuring the land in order to make a map or plan. The only mention of the dodecahedra in the book is in a section at the end of the book called “Uncertain Devices”.*

One suggestion is that they were for surveying... One historian proposed that ‘The Roman surveyor would look through a pair of holes, holding the instrument far enough from his eye for the circles to coincide; he would then instruct his assistant, holding a rod of given length, to move far enough in the required direction for the rod to fill the opening precisely. The distance between surveyor and assistant would then be the length of the rod multiplied by the figure appropriate to the pairs of holes being used.’

But there are many objections to this suggestion. Most dodecahedrons do not have such neat proportions; no dodecahedra has a dimension or scale inscribed against a hole; and it would be far simpler and more accurate to measure the distance directly by rope or rod.

**Attribution:** *Modified from Surveying Instruments of Greece and Rome, 2004, written by M.J.T. Lewis, published by Cambridge University Press.*

### **AFTER YOU READ...**

**(1) How reliable is this source for learning about the dodecahedron?**

**Reliable –**

**Unreliable –**

**(2) What does this section on Uncertain Devices help you understand about the dodecahedron?**

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**(3) Box the parts of the source that help you think about the central question.**

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## Bookmark Reading Guide

### HEADNOTE AND ATTRIBUTION

**Headnote and attribution:** What did this part of the bookmark help me think about?

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### SOURCE

**Source:** What did this part of the bookmark help me think about?

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### AFTER YOU READ

**After you read:** What did this part of the bookmark help me think about?

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### Argument Sort

Directions: *This example uses the example of critiquing another source for learning about the dodecahedron. The author included a claim, evidence, and reasoning in her report, but her work is mixed up. Cut out the sentences below and arrange her argument by C-E-R. What is the best order for these parts of the argument?*



\_\_\_\_\_

This tells me that the magazine might not be reliable because it does not use historical evidence in all of its articles.



\_\_\_\_\_

You should not use the source from the HistoryMystery magazine to teach about the dodecahedron because the magazine is not a reliable source.



\_\_\_\_\_

The headnote for the HistoryMystery article says the magazine has “articles about aliens/UFOs and strange stories.”

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### Defining Claim-Evidence-Reasoning

Directions: Define *critique* from your discussion earlier in this investigation. Then, in your own words and using the mentor text as an example, define *claim*, *evidence*, and *reasoning*. After you've done that, look at the Useful Language on page 7 and add useful language to your definitions.

CRITIQUE	
Claim	
Evidence	
Reasoning	

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**Your Writing Assignment: Write the teachers about which source they should not use in their lesson**

Teachers in DISTRICT X are planning a lesson about the dodecahedron. They want to include sources that are useful and trustworthy for learning about the dodecahedron. They argue that all three sources we've just read are reliable for understanding the dodecahedron.



Teachers' CLAIM: **The sources by Guggenberger, Hallett, and Lewis are useful and trustworthy for understanding the dodecahedron.**

Your task is to write to the teachers to **critique the source(s) they should NOT use**. Make sure you include a CLAIM, EVIDENCE, and REASONING. You might want to use some of the useful language in your argument too.

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### **USEFUL LANGUAGE for writing your argument:**

#### **Making a claim:**

- *The source (title of the source) is not reliable for learning about the dodecahedron because...*
- *I disagree with using the source (title) in your lesson because...*
- *I disagree with your claim because...*

#### **Providing evidence:**

- *For example, the headnote says that "..."*
- *For example, in the article "...", AUTHOR X says...*
- *According to \_\_\_\_\_, "...."*

#### **Reasoning:**

- *This means that .....*
- *This makes me think that .....*
- *This shows that ...*
- *The source might not be reliable because....*

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## Writing to the teachers

Dear teachers,

### Claim

Which source(s) is NOT reliable for learning about the dodecahedron?

### Evidence

What information from the source(s) supports your claim?

### Reasoning

Explain how the evidence supports your claim and why the source(s) might not be reliable.

Sincerely,

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