Creating epistemically insightful learning experiences in primary classrooms: insights into the nature of science

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Epistemic Insight

Creating Epistemically Insightful Learning Experiences in Primary Classrooms – Insights into the Nature of Science

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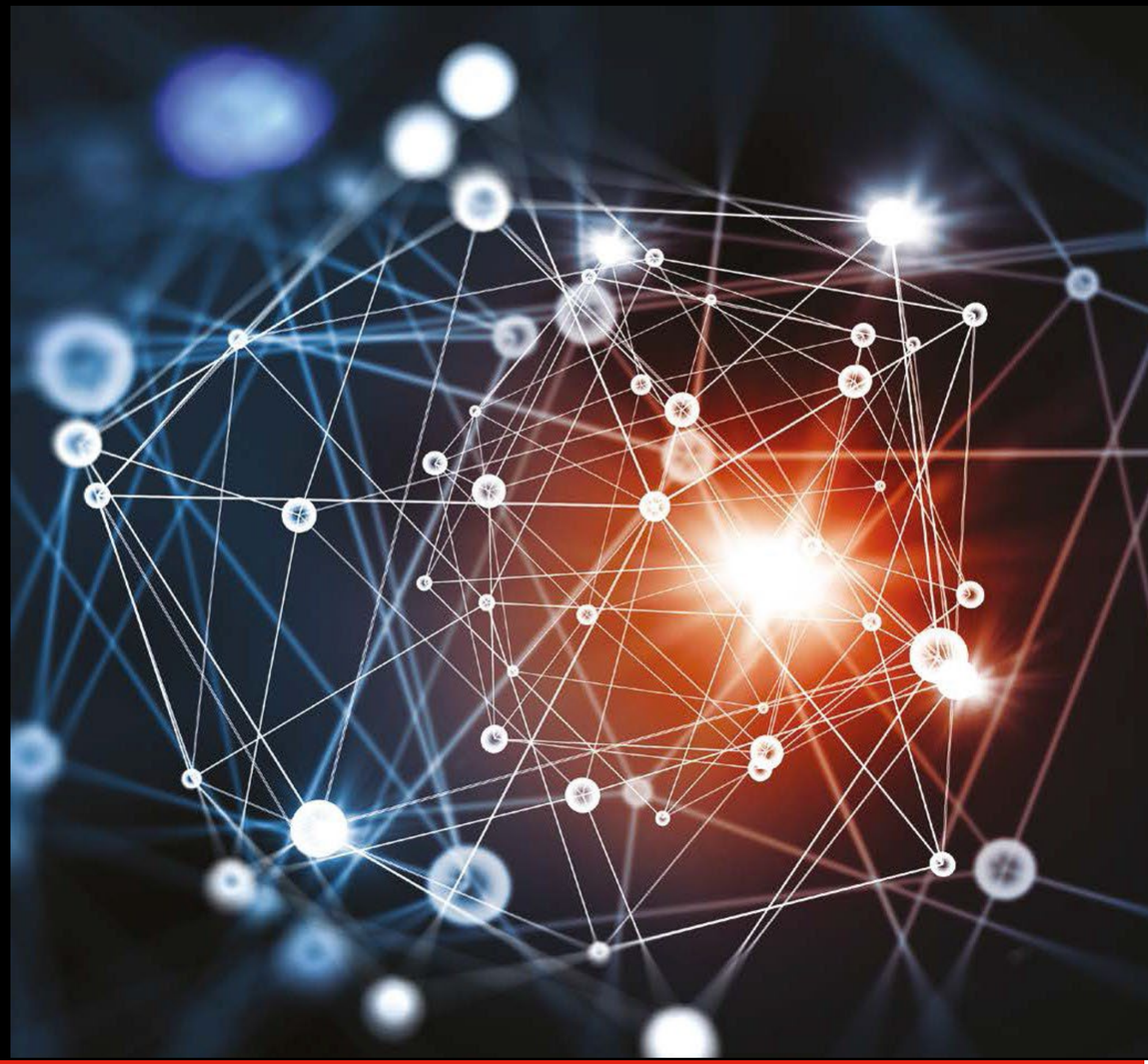

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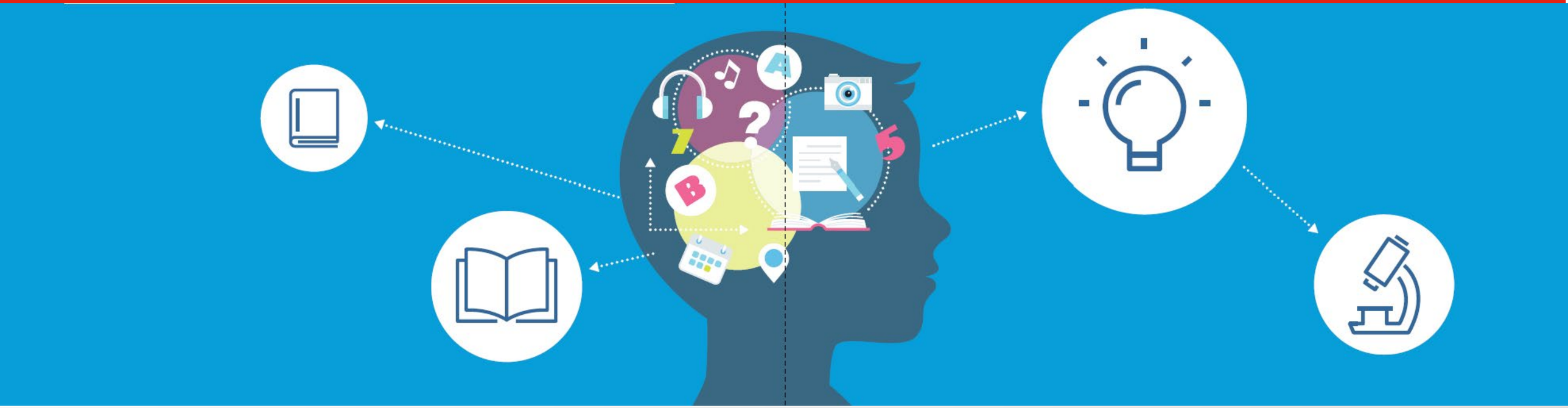
Developing Knowledge



- How do we gain knowledge?
- Does knowledge change over time?
- Can different disciplines provide complementary (but different) types of knowledge about the same question?

My students' experience of making links across subject/ disciplinary boundaries is...

My students' experience of making links between science and another subject is...

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What is Epistemic Insight?

- Knowledge about knowledge – particularly methods and norms of thought within disciplines and interaction between disciplines

(intellectual virtue –teachable & assessable)

- Moving beyond topic work through recognising the distinctiveness of and interaction between the disciplines

(pedagogical approach)

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What is Epistemic Insight?

intellectual virtue –teachable & assessable

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pedagogical approach

- Moving beyond topic work through recognising the distinctiveness of and interaction between the disciplines

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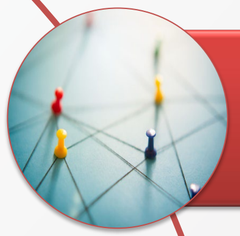
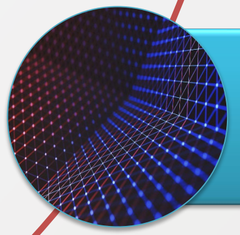
Why Epistemic Insight?



Scholarly thinking about global issues is increasingly highlighting the need for interdisciplinary work

Technology in the classroom/ online learning environment provides new opportunities to develop students' epistemic insight and challenge their misperceptions

Increase of AI, robotics & technology in everyday life brings Big Questions to the fore



OECD "Future Ready" students 'future -ready'? … '**Disciplinary knowledge** … together with **the capacity to think across the boundaries** of disciplines and "connect the dots".

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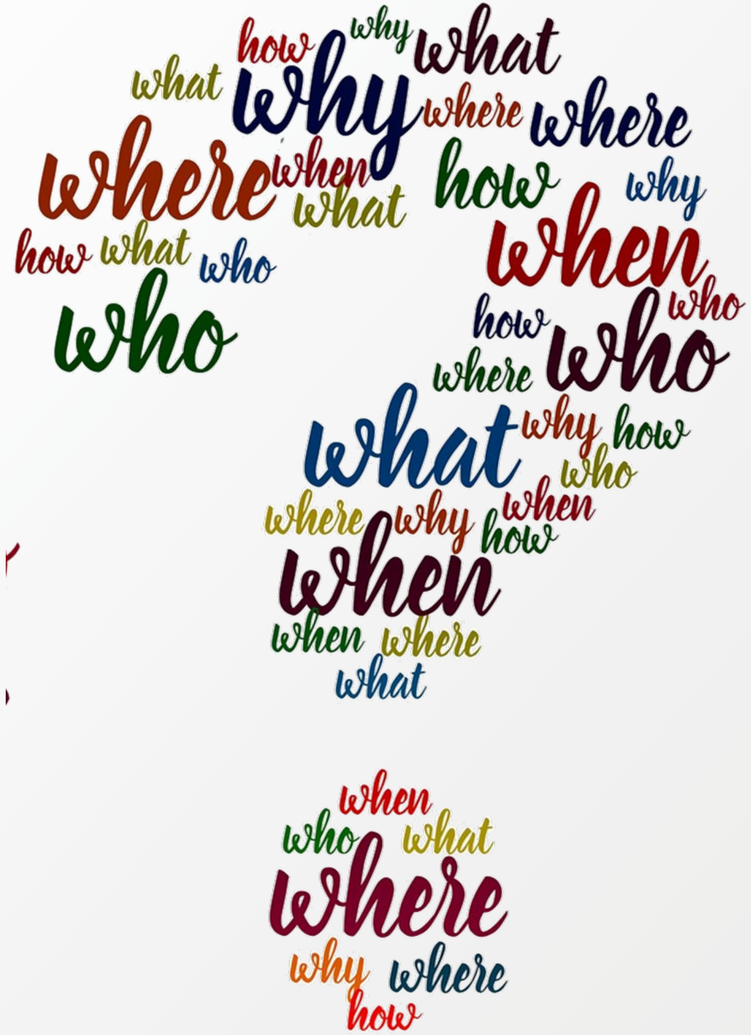
Big Questions…

Menti – "Why are plants important?" can be answered using both historical and scientific perspectives.
If you were looking at both in a topic how would students know that they were "doing" the science part?



What makes a “good” question?

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What is a “good” question?

“all students should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, students should be encouraged to recognise the power of rational explanation” (NC).

Can you spot the “missing” step between KS1 and LKS2?

asking simple questions and recognizing that they can be answered in different ways

asking relevant questions and using different types of scientific enquiries to answer them

asking their own questions about scientific phenomena

become aware of some of the big ideas underpinning scientific knowledge and understanding

develop understanding of the nature, processes and methods of science [...] that help them to answer scientific questions about the world around them

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What makes something a good question for science answer?

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Key Questions to Check Understanding

1. How does my/this discipline **interpret** the question?
2. How does my/this discipline **investigate** the question?
3. How would my/this discipline know it has **a good answer**?

*Methods questions and norms of thought not content

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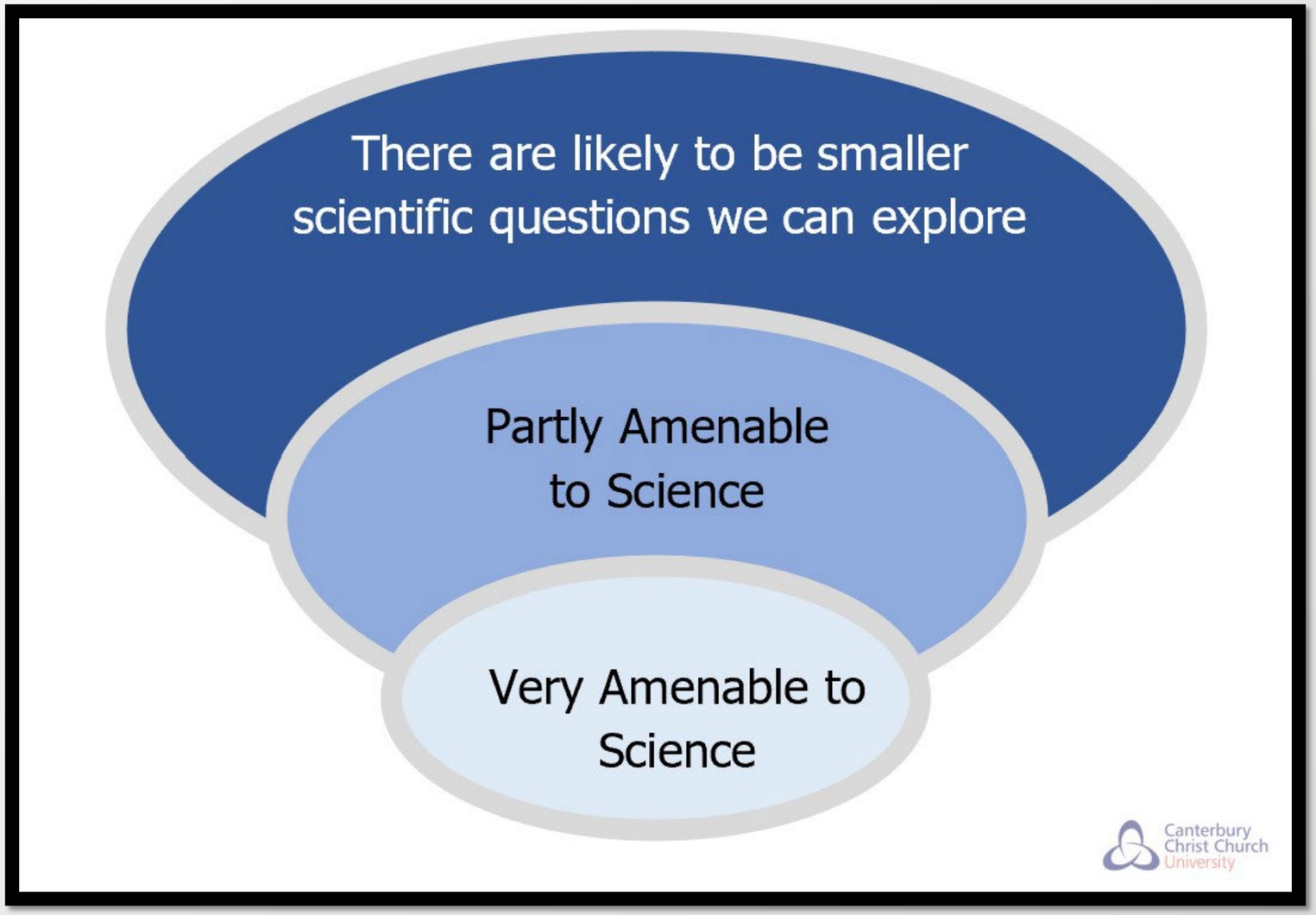
Learning Tools



Menti:

Thinking about the teaching you have done/observed so far:

There has been opportunity to teach about what makes a discipline distinctive

When teaching science there has been opportunity to compare science with another disicpline

Why did the Titanic Sink?

Menti slide

How amenable to science is the question **“Why did the Titanic sink?”**?

And why

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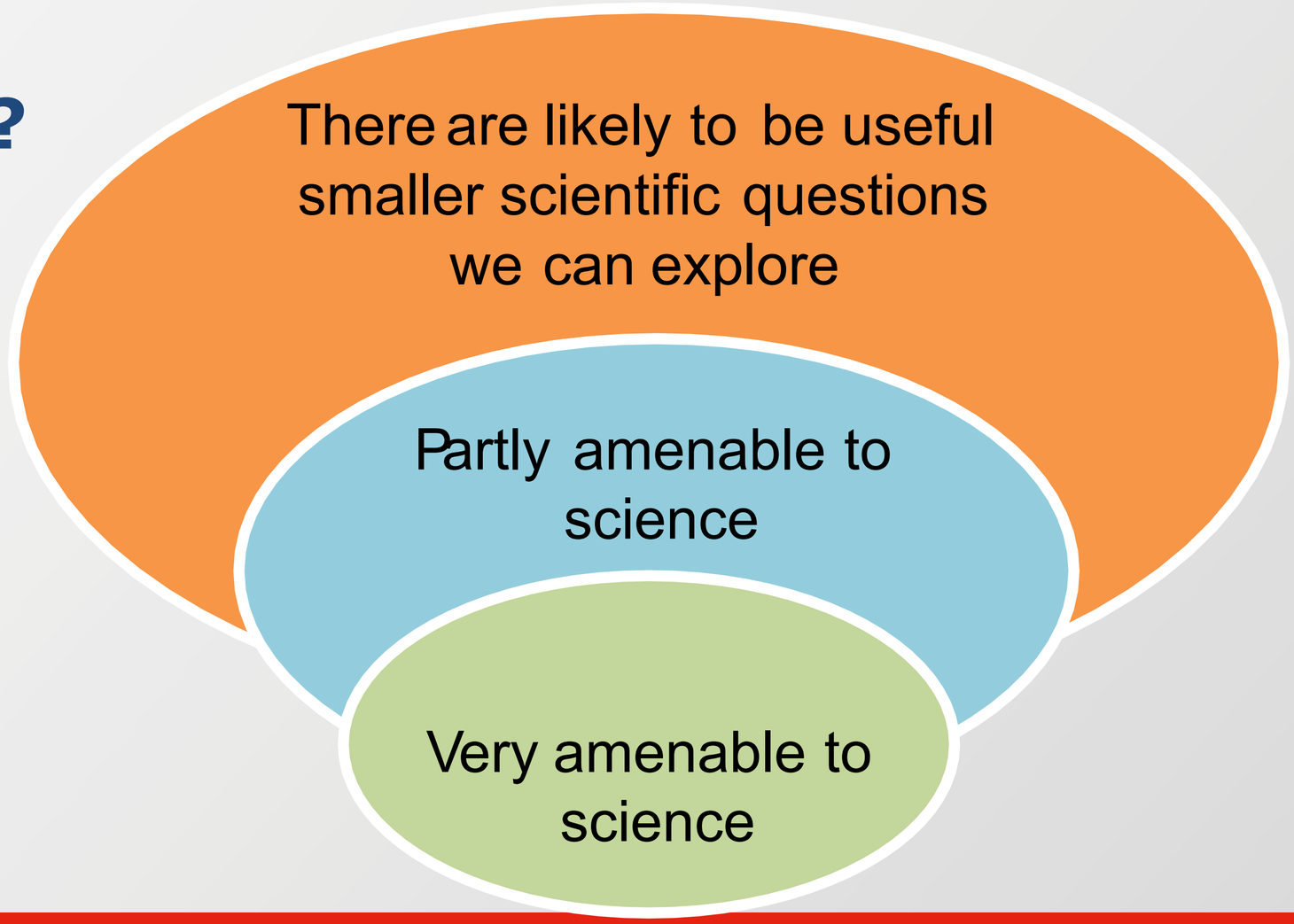
Starter: Science Bubble

Why did the Titanic sink?

Being a scholar



Menti slide

Besides science what other disciplines could investigate **“Why did the Titanic sink?”**.

Rationale to go in the chat

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The 'Discipline Wheel'

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KS2 Learning objectives

I can think like a scholar when I can…

1. Science begins with observation of the natural world
2. Explain how different disciplines investigate a question
3. Illustrate how another discipline [like history] is different to science

Epistemic Insight Science Card

- Science answers the smaller question… "What caused the Titanic to sink?"
- The answer focuses on questions about materials, floating, sinking, density – forces & water resistance.
- These types of questions can all be investigated by experiment using observations.

Science prefers to ask questions which investigate the nature of the world around us? What caused the Titanic to sink?

Science preferred methods:
Investigate through observation.
Undertake measurement to test hypothesis

Science norms of thought (what science values):
A consensus about the results
Results allow accurate predictions
Results are objective

Epistemic Insight History Card

- History answers the smaller question… “Who was to blame for the Titanic sinking?”
- The answer focuses on different people aboard the Titanic and those who built the ship.
- The question is investigated through a range of sources
- Thinking about any bias or purpose of diary entries, newspaper reports…

History prefers questions about people and events from the past:
Who was to blame for the Titanic sinking of the Titanic?

History’s preferred methods:
Investigate through examining sources
Select and organise relevant information
Seek an accurate account

History’s norms of thought (what history values):
Check sources for bias and motive
Results help understand our present/future
Results are subject to interpretation

Menti slide

Having investigated the titanic through science and history,
How could you assess (epistemic insight) learning?

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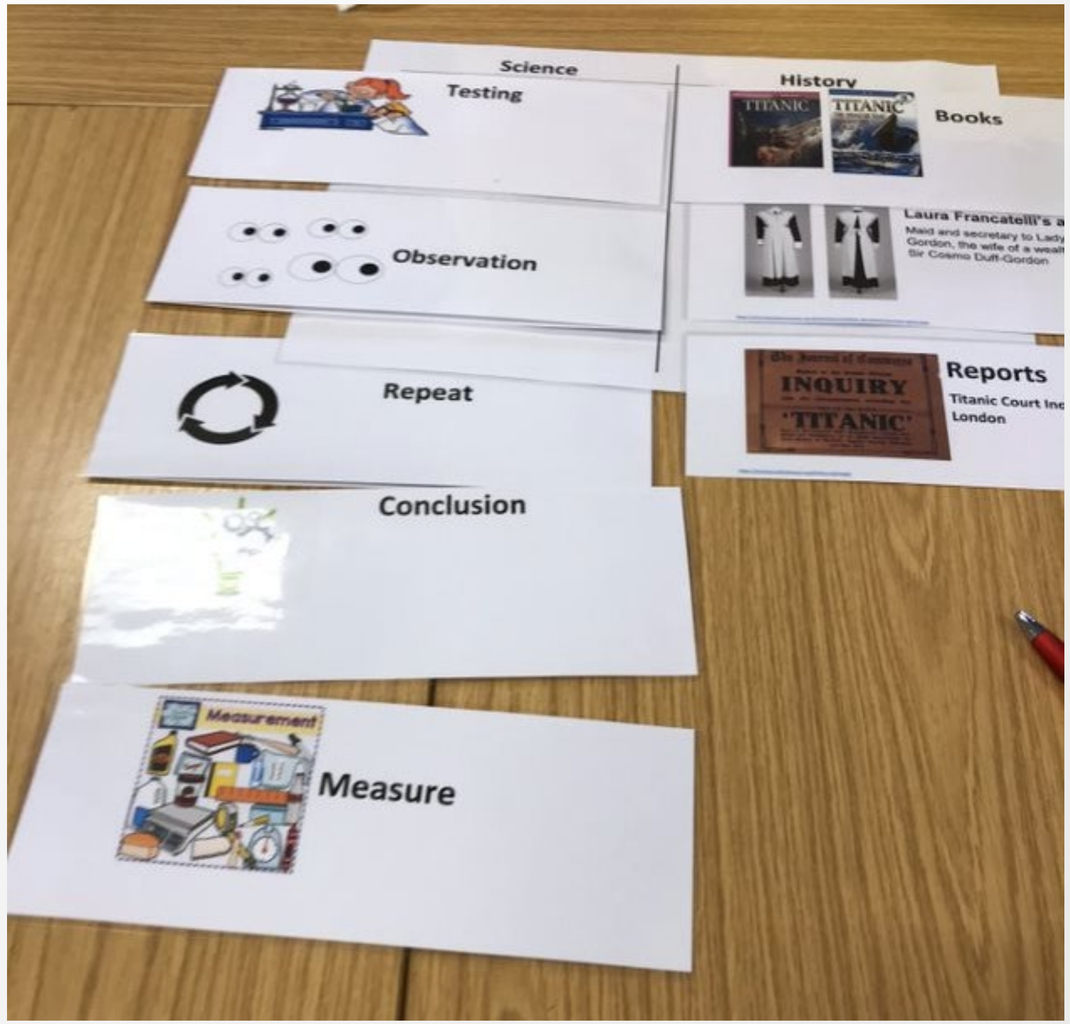
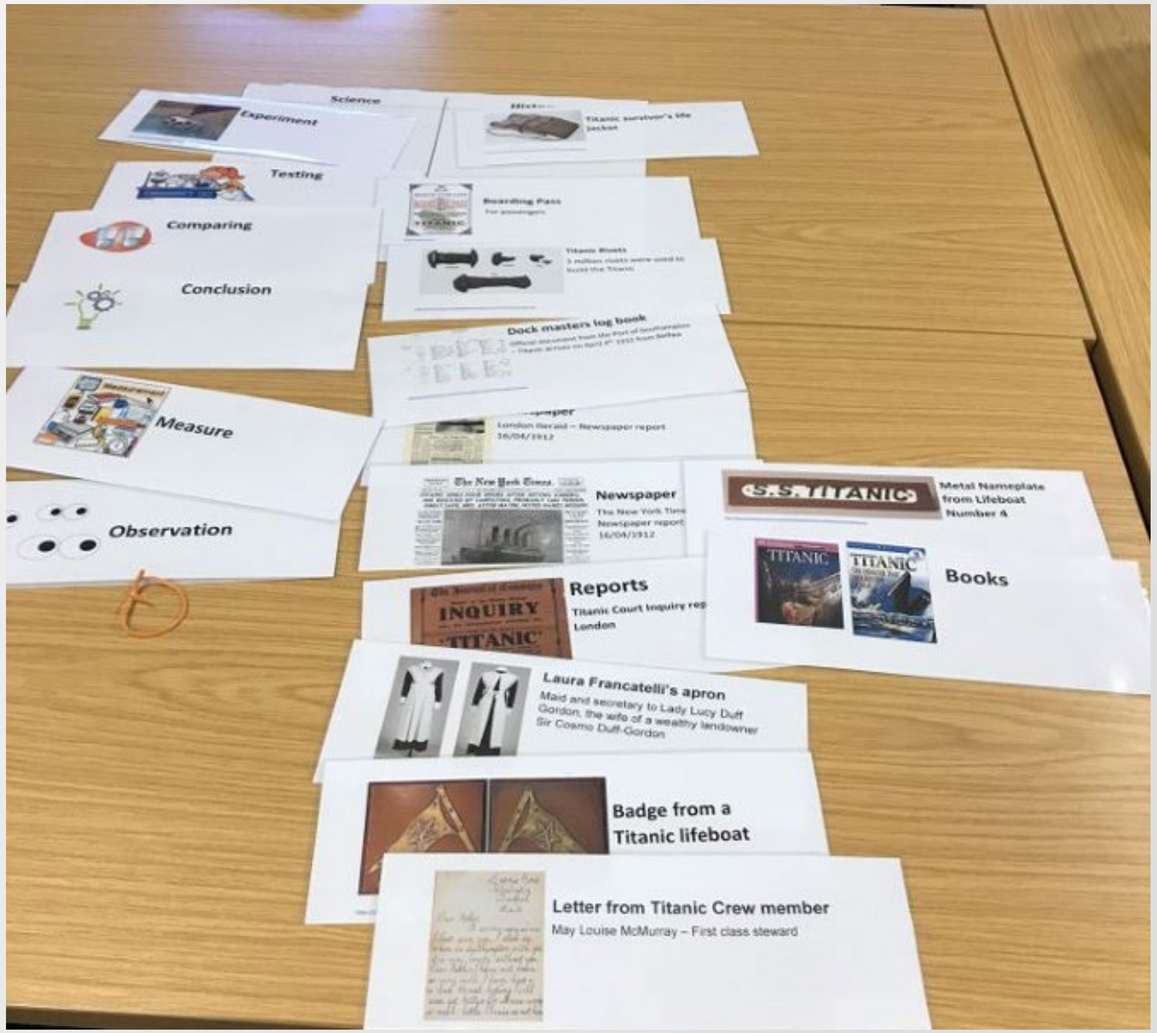
Being a scholar
Sorting the disciplines





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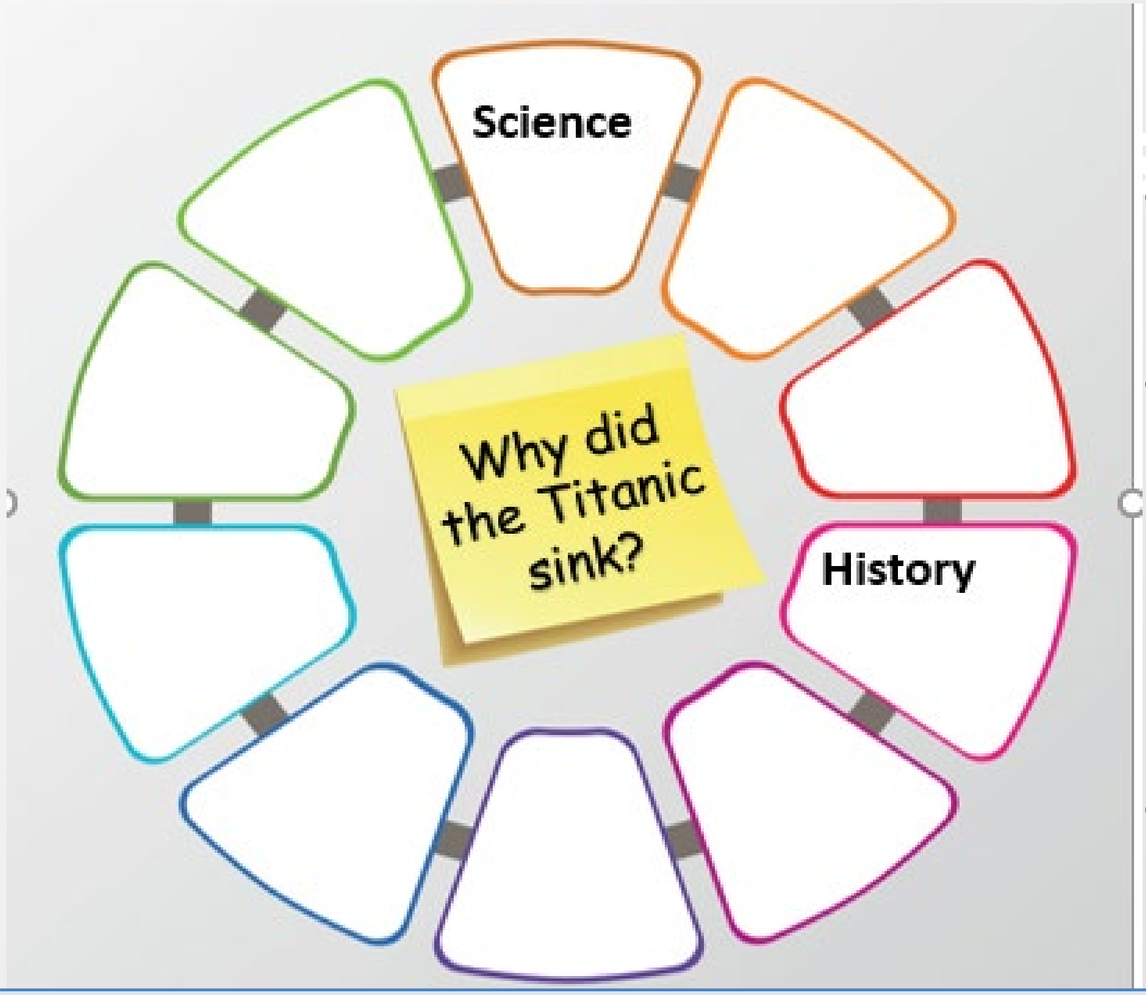
Being a scholar

Science

- Observe
- Experiment
- Test
- Predict
- Repeat
- Agree
- Scientific evidence



History

- Collect, organise, interpret
- Sources
  - People's stories
  - Newspapers
  - Reports
  - Books
  - Objects/Artefacts
- Historical evidence

How are the methods similar or different?
How do we make a better answer? Could we look at other disciplines?

Menti slide

Give an example of a Big question your students could explore through epistemic insight pedagogy. What disciplines would you incorporate?

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Questions or thoughts

Find out more about epistemic insight and Big Questions at epistemic insight.com or contact us via lasar@canterbury.ac.uk.