

Summary

Methodology

Subject	Year	Start date	Duration
Theory of Knowledge	IB1	Week 1, January	7 weeks 14 hours

Course Part

Knowledge framework - methodology of knowledge production in various areas of knowledge

Description

From the subtopic on Perspectives, recall that knowledge is framed in different ways by people from their different perspectives. Awareness, helped by analysis, can enlarge your understanding of varied avenues of thought and enrich your own thinking. Recall, too, that keeping an open mind demands self-awareness and active attention.

Throughout, we have emphasised that Knowledge is entwined with knowers. Knowledge is not something sitting around in the material world, ready to be weighed and measured as you would some lump of matter. Knowledge is an idea that people construct in their minds and apply mainly to *other ideas* they construct in their minds. Looking closely at knowledge, as you do in this course, involves also looking closely at the human beings who claim it.

Inquiry & Purpose

Inquiry / Higher Order Questions

Type

Inquiry Questions

Skills-based

Do you think that all knowledge claims should be supported by rational thinking and evidence in order to be accepted? Why or why not? Do you think that emotions are useful and enriching for knowledge, or that they create problems to overcome? Does your re

Curriculum

Aims

The aims of the TOK course are:

to encourage students to make connections between academic disciplines by exploring underlying concepts and by identifying similarities and differences in the methods of inquiry used in different areas of knowledge

Objectives

Having completed the TOK course, students should be able to:

identify and explore links between knowledge questions and the world around us

use examples and evidence effectively to support a discussion

Syllabus Content

Core theme: Knowledge and the knower

An interesting focus for discussions in this theme could be misinformation and disinformation, deliberate deception and manipulation, and how we know who/what to trust. This could include reflection on which sources of knowledge (books, websites, personal experience, authority figures, and so on) students consider most trustworthy, and why.

Another interesting focus for discussions could be to explore how we perceive and construct our understanding of the world. This could include consideration of the way that culture can be seen as a lens through which we look at the world, or the impact of filters, image manipulation and propaganda.

Methods and tools

How do we acquire knowledge?

What constitutes a “good reason” for us to accept a claim?

Are intuition, evidence, reasoning, consensus and authority all equally convincing methods of justification?

Does knowledge always require some kind of rational basis?

How do our expectations and assumptions have an impact on how we perceive things?

What are the advantages and disadvantages of requiring that all knowledge is verified by a group?

Area of knowledge - History

Studying history involves exploration and inquiry into the past. This raises questions about whether it is possible to talk meaningfully about a historical fact, or how far we can speak with certainty about anything in the past.

History provides particularly interesting material for TOK discussions because of the challenges presented by not being able to directly observe the past, and because the historian is unable to utilize some of the methods of inquiry that are used in other areas of knowledge.

As we cannot directly observe historical events, documentary evidence plays a vital role in helping historians to understand and interpret the past. This raises questions about the reliability of that evidence, particularly given that historical sources are often incomplete and that different sources can corroborate, complement or contradict each other.

In addition to being heavily evidence-based, history is also an interpretive discipline that allows for multiple perspectives and opinions. Students could be encouraged to consider the role and importance of historians, particularly in terms of why their interpretations may differ or how we evaluate conflicting interpretations of past events.

Methods and tools

What methods do historians use to gain knowledge?

What is unique about the methodology of history compared to other areas of knowledge?

On what criteria can a historian evaluate the reliability of their sources?

If our senses are sometimes unreliable, does this mean that eyewitness testimony is an unreliable source of evidence?

Have technological developments enabled us to observe the past more directly?

What challenges does archive-based history emphasize about how knowledge is shared and preserved?

Is there less emphasis on collaborative research in history than there is between researchers in other areas of knowledge?

How do the methods and conventions of historians themselves change over time?

Area of knowledge - The human sciences

One interesting focus for discussion could be, for example, whether there are fundamental differences between the human sciences and the natural sciences in terms of how they interpret the word “science”, the methods they use for collecting data, or how they test the validity and reliability of hypotheses.

Another interesting focus for discussion could be the use of questionnaires and polls in the human sciences. This could include whether the results of questionnaires can be reliable given the challenges around neutral language, leading questions, or sampling and selection effect. It could also include discussion of issues relating to respondents not being truthful or deliberately giving misleading responses.

Methods and tools

What role do models play in the acquisition of knowledge in the human sciences?

Are observation and experimentation the only two ways in which human scientists produce knowledge?

What assumptions underlie the methods used in the human sciences?

To what extent are the methods used to gain knowledge in the human sciences “scientific”?

How does the use of numbers, statistics, graphs and other quantitative instruments affect the way knowledge in the human sciences is valued?

To what extent can the human sciences use mathematical techniques to make accurate predictions?

Area of knowledge - The natural sciences

The natural sciences are often seen to rely on evidence, rationality and the quest for deeper understanding. Observation and experimentation play a key role, and terms such as “theory” have a special meaning in the natural sciences compared to how they are used in daily life and in other areas of knowledge.

Students could also consider whether the word “science” means different things in different languages, or whether it has been used differently in different periods of history.

Another interesting focus for discussions could be scientific development, revolutions and paradigm shifts. This could include what is meant by a paradigm shift, whether scientific knowledge has always grown, or how technological developments have driven scientific progress and discoveries. It could also include reflection on whether we could ever reach a point where everything important to the natural sciences is known.

Students could also consider the role of consensus in the natural sciences, and the role and importance of the “scientific community”. For example, they could consider the role of peer review as a method of scrutinizing scientific claims and the extent to which this is an effective and objective form of self-regulation.

Methods and tools

Is there a single “scientific method”?

What is the role of imagination and intuition in the creation of hypotheses in the natural sciences?

What kinds of explanations do natural scientists offer?

Why are many of the laws in the natural sciences stated using the language of mathematics?

What is the role of inductive and deductive reasoning in scientific inquiry, prediction and explanation?

Does scientific language have a primarily descriptive, explanatory or interpretative function?

Area of knowledge - The arts

The arts provide rich material for discussions of concepts such as interpretation. For example, students could consider how we ascribe meaning to works of art, or whether the intention of the artist is what determines meaning.

Another interesting focus for discussions could be the social character and function of the arts. This could include the way that the arts are often seen as helping to shed light on fundamental questions about the human condition, or how the arts are often regarded as having an important function as a medium for social criticism and a vehicle for social change.

Methods and tools

Does convention play a different role in the arts compared to other areas of knowledge?

Does sense perception perform a radically different role in the arts compared to other areas of knowledge?

If the language of an art form is non-verbal, does this free it from being limited to propositional knowledge?

Can some knowledge in the arts only be gained through experience? How does the medium used change the way that knowledge is produced, shared or understood?

To what extent are the methods of justification different in the arts compared to other areas of knowledge?

Area of knowledge - Mathematics

One interesting focus for discussions could be the status of mathematics as an area of knowledge. Students could consider why disciplines in the human sciences are often keen to cast their conclusions in mathematical terms, or why mathematical treatments of a topic are often taken by many to be a sign of intellectual rigour. They could also consider why mathematics is often given a privileged position in many education systems.

Another rich source of material for TOK discussions can be the role of creativity, imagination, beauty and elegance in mathematics. Despite, or perhaps because of, the strict confines of mathematical logic, mathematics can be an enormously creative subject, asking its practitioners to make great leaps of imagination. This could lead to discussion of whether, or why, elegance and beauty should be relevant to mathematical value.

Methods and tools

Is mathematical reasoning different from scientific reasoning or reasoning in other areas of knowledge?

What is meant by the term “proof” in mathematics, and how is this similar to, or different from what is meant by this term in other areas of knowledge?

How do mathematicians reconcile the fact that some conclusions seem to conflict with our intuitions?

What does it mean to say that mathematics is an axiomatic system?

How is an axiomatic system of knowledge different from, or similar to, other systems of knowledge?

Do mathematical symbols have meaning in the same way that words have meaning? Is personal experience more important or less important in mathematics compared to other areas of knowledge?

ATL Skills

Approaches to Learning



Self-management

- In this unit, we will
 - require students to revise and improve on work previously submitted
 - ask students to set their own learning goals
 - ask students to break down a larger task into specific steps
 - practise or discuss strategies to increase concentration
 - help students to learn from failures or mistakes
 - create an atmosphere where students do not think they have to get everything right first time

Developing IB Learners

Learner Profile



Knowledgeable



Reflective