

Summary

Optional theme - Knowledge and technology

Subject	Year	Start date	Duration
Theory of Knowledge	IB2	Week 3, September	6 weeks 12 hours

Course Part

Optional Theme

Description

The relationship between knowledge and technology is not something new. Humankind has always sought a way to understand the world and to find solutions to the problems they face by appealing to technological advancements.

This relationship has, in a way, been a virtuous cycle since technological advances have been both the result of, and the inspiration for, new discoveries (and, by extension, advances in knowledge).

Inquiry & Purpose

Inquiry / Higher Order Questions

Type

Inquiry Questions

Debatable

Have you ever wondered how much more knowledge there is left for humankind to develop? Do you think that by improving technologies we will be able to find more answers to what is currently unknown? Or will new technologies perhaps bring us more questions?

Curriculum

Aims

The aims of the TOK course are:

- to encourage students to reflect on the central question, “How do we know that?”, and to recognize the value of asking that question
- to expose students to ambiguity, uncertainty and questions with multiple plausible answers
- to equip students to effectively navigate and make sense of the world, and help prepare them to encounter novel and complex situations
- to encourage students to be more aware of their own perspectives and to reflect critically on their own beliefs and assumptions
- to engage students with multiple perspectives, foster open-mindedness and develop intercultural understanding
- 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

to prompt students to consider the importance of values, responsibilities and ethical concerns relating to the production, acquisition, application and communication of knowledge.

◇ Objectives

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

demonstrate TOK thinking through the critical examination of knowledge questions

identify and explore links between knowledge questions and areas of knowledge

use examples and evidence effectively to support a discussion

demonstrate awareness and evaluation of different points of view

consider the implications of arguments and conclusions.

📖 Syllabus Content

Optional theme: Knowledge and technology

For many, advances in technology have provided easy access to massive amounts of data and information, and have facilitated unprecedented levels of global interaction. However, they have also raised important questions about how we engage with, and understand, information; about our understanding of the world; and about our understanding of ourselves.

This optional theme focuses on issues relating to the impact of technology on knowledge and knowers, and how technology helps and hinders our pursuit of knowledge. It examines the ways that technology can be seen to shape knowledge creation, knowledge sharing and exchange, and even the nature of knowledge itself.

This theme provides an opportunity for students to engage with highly topical and engaging issues, such as those relating to the impact of artificial intelligence on knowledge and knowing. For example, there could be discussion of whether humans are needed to create new knowledge; whether machines can know, think or learn; or whether a knower is always human.

It also provides excellent opportunities for discussions of ethical and power issues relating to emerging technologies. For example, students could consider examples relating to biometric data, or situations where people are unaware that their personal data is being collected.

As in all elements of the course, it is crucial that these discussions focus explicitly on the knowledge questions that are woven into these discussions, rather than debating the ethical issues themselves.

For example, students could consider the example of driverless cars—as a 21st-century variation on the “trolley problem”—as a way to identify issues about the assumptions that underpin, and the criteria we use to make, our moral decisions.

Social networks are another rich source of examples that could be discussed in this theme. For example, there could be discussion of the impact of social networks on knowledge sharing, or of whether social networks create “echo chambers” that reinforce existing perspectives rather than boosting engagement with diverse perspectives.

In addition to examples arising from the “information age”, this theme also provides an opportunity for discussion of the impact of historical technological developments on knowledge and knowing. For example, students could consider the impact of developments such as mass printing or machine translation on access to knowledge.

They could also consider the impact of technological developments such as advances in navigational instruments and map-making, or developments in air travel, and how these have had an impact on the transmission of knowledge and have allowed us to gain greater knowledge of different places and cultures.

It is crucial that discussions within this optional theme stay focused explicitly on knowledge rather than consisting of general discussions about technology. The following examples of knowledge questions can help to ensure this focus.

Scope

How has technology had an impact on collective memory and how knowledge is preserved?

What is the difference between “data”, “information” and “knowledge”?

To what extent is the internet changing what it means to know something?

In what sense, if any, can a machine be said to know something?

Does technology allow knowledge to reside outside of human knowers?

Does technology just allow us to arrange existing knowledge in different ways, or is this arrangement itself knowledge in some sense?

Have technological developments had the greatest impact on what we know, how we know, or how we store knowledge?

Perspectives

How are online or virtual communities similar to/different from “traditional” communities of knowers?

Do social networks reinforce our existing perspective rather than boosting our engagement with diverse perspectives?

What impact has the fact that English is the primary language of the internet had on knowledge sharing?

How has technology had an impact on how we browse, search and filter data and information? Can algorithms be biased?

Is big data creating a new cognitive paradigm?

Methods and tools

How does technology extend or transform different modes of human cognition and communication?

To what extent are technologies, such as the microscope and telescope, merely extensions to the human senses, or do they introduce radically new ways of seeing the world?

Is artificial intelligence restricted to processing information or can it also allow machines to acquire knowledge?

How does computation help people to process data and information to gain knowledge?

What is the difference between computational thinking, algorithmic thinking and critical thinking?

How do the tools that we use shape the knowledge that we produce?

Ethics

How might technology exacerbate or mitigate unequal access, and divides in our access, to knowledge?

Does the existence of the deep web influence our view on whether some knowledge should remain secret or largely inaccessible?

Should we hold people responsible for the applications of technologies they develop/create?

Are there situations where ignorance/lack of knowledge is an excuse for unethical behaviour?

On what criteria could we decide whether activities such as “hacktivism” are morally justifiable? To what extent have technological developments led to an increase in data being collected without people’s consent or when they are

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unaware that it is being collected?

Making connections to the core theme

How has increased access to images and other multimedia sources had an impact on what we know and how we know? (scope)

How might personal prejudices, biases and inequality become “coded into” software systems? (perspectives)

How does technology extend and modify the capabilities of our senses? (methods and tools)

Do you use different criteria to make ethical decisions in online environments compared to in the physical world? (ethics)

 **ATL Skills**

 **Approaches to Learning**

 **Thinking**

- In this unit, we will

give students time to think through their answers before asking them for a response

set students a task which required higher-order thinking skills (such as analysis or evaluation)

build on a specific prior task

ask questions that required the use of knowledge from a different subject from the one you are teaching

 **Social**

- In this unit, we will

allocate, or ask students to allocate among themselves, different roles in a classroom discussion or activity

have students discuss their understanding of a text or idea among themselves and come up with a shared understanding

provide an opportunity for students to analyse the impact of their behaviour on the class or on a group performance

encourage students to consider alternative points of view or to take the perspective of others

 **Developing IB Learners**

 **Learner Profile**



Principled



Reflective