

Theory of knowledge guide

First assessment 2015

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Diploma Programme

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IB mission statement

The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.

IB learner profile

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:

Inquirers	They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives.
Knowledgeable	They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines.
Thinkers	They exercise initiative in applying thinking skills critically and creatively to recognize and approach complex problems, and make reasoned, ethical decisions.
Communicators	They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others.
Principled	They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them.
Open-minded	They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience.
Caring	They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.
Risk-takers	They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs.
Balanced	They understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others.
Reflective	They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development.

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Purpose of this document

This publication is intended to guide the planning, teaching and assessment of theory of knowledge (TOK) in schools. TOK teachers are the primary audience, although it is expected that teachers will use the guide to inform students and parents about the course.

This guide can be found on the TOK page of the online curriculum centre (OCC) at <http://occ.ibo.org>, a password-protected IB website designed to support IB teachers. It can also be purchased from the IB store at <http://store.ibo.org>.

Teachers are not obliged to follow the suggested examples and ideas presented here; this guide offers a framework rather than prescribed content. Teachers should consider the examples and ideas provided and then construct their own unique TOK course around key TOK concepts that include, but are not limited to, the nature of knowledge, ways of knowing and areas of knowledge. When designing a TOK course, teachers must above all consider the aims and objectives of TOK.

This guide is to be read in conjunction with the teacher support material (TSM) available on the OCC which will help teachers design a TOK course.

Additional resources

Additional resources such as subject reports, assessment exemplars, past prescribed essay titles and sample TOK presentations can also be found on the OCC.

Teachers are encouraged to check the OCC for additional resources created or used by other teachers. Teachers can provide details of useful resources, for example: websites, books, videos, journals or teaching ideas.

Acknowledgment

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First assessment 2015

The Diploma Programme

The Diploma Programme is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The Diploma Programme

The course is presented as six academic areas enclosing a central core (see figure 1). It encourages the concurrent study of a broad range of academic areas. Students study: two modern languages (or a modern language and a classical language); a humanities or social science subject; an experimental science; mathematics; one of the creative arts. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.



Figure 1
Diploma Programme model

Choosing the right combination

Students are required to choose one subject from each of the six academic areas, although they can choose a second subject from groups 1 to 5 instead of a group 6 subject. Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL.

At both levels, many skills are developed, especially those of critical thinking and analysis. At the end of the course, students' abilities are measured by means of external assessment. Many subjects contain some element of coursework assessed by teachers. The courses are available for examinations in English, French and Spanish, with the exception of groups 1 and 2 courses where examinations are in the language of study.

Special educational needs

Schools must ensure that equal access arrangements and reasonable adjustments are provided to candidates with special educational needs that are in line with the IB documents *Candidates with special assessment needs* and *Special educational needs within the International Baccalaureate programmes*.

The core of the programme model

All Diploma Programme students participate in the three elements that make up the core of the programme model. Reflection on all these elements is a principle that lies at the heart of the thinking behind the Diploma Programme.

The theory of knowledge course encourages students to think about the nature of knowledge, to reflect on the process of learning in all the subjects they study as part of their Diploma Programme course, and to make connections across them. The extended essay, a substantial piece of writing of up to 4,000 words, enables students to investigate a topic of special interest that they have chosen themselves. It also encourages them to develop the skills of independent research that will be expected at university. Creativity, action, service (CAS) involves students in experiential learning through a range of artistic, sporting, physical and service activities.

Coherence in the core

The three elements of the core (TOK, CAS and the extended essay) were introduced by the original curriculum designers of the Diploma Programme as a way to educate the whole person. The core consists of three separate elements, but links and relationships are evident between them even if these links have not previously been clearly articulated.

Strongly committed to the principle of developing the whole person, the IB believes that this is best achieved by identifying and developing clearer and more explicit aims for and relationships between TOK, CAS and the extended essay. Specifically, the IB believes a coherent view of the core will:

- support the interconnectedness of learning
- support concurrency of learning
- support the IB continuum of education and the learner profile
- support a broader view of the subject disciplines.

Coherence does not mean similarity. Coherence in this context refers to the three elements of the core complementing each other and working together to achieve common aims. All three elements of the core should be grounded in three coherent aims:

- to support, and be supported by, the academic disciplines
- to foster international-mindedness
- to develop self-awareness and a sense of identity.

Supporting, and being supported by, the academic disciplines

The core is seen as the heart of the Diploma Programme. The academic disciplines, while separate to the core, are nonetheless linked to it. The core relies on the disciplines to provide enrichment, and individual subjects should be nourished by the core. Teachers in each of the three elements of the core need to think about, and plan carefully, how TOK, CAS and the extended essay can feed into a deeper understanding of the subject matter studied by Diploma Programme students. This might include, for example:

- transferring the critical thinking process developed in TOK to the study of academic disciplines
- developing service learning opportunities in CAS that will build on a student's existing subject knowledge and contribute to the construction of new and deeper knowledge in that subject area
- exploring a topic or issue of interest which has global significance in an extended essay through one or more disciplinary lenses.

Fostering international-mindedness

The core has a responsibility to foster and nurture international-mindedness, with the ultimate goal of developing responsible global citizens. To a large extent, the core should be driven by the IB's mission "to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect" and "encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right" (IB mission statement).

To this end, the core should encourage an exploration of issues of global significance and in so doing allow students to examine links between the local and the global. It should encourage students to consider the contexts and views of others, and should ensure that the principles and values developed by students are reflected upon throughout their lifetime. This might include, for example:

- emphasizing different cultural perspectives in TOK and how different cultural traditions have contributed to our current constructions of knowledge
- considering a service project that reflects an issue of global significance, but is explored from a local perspective
- encouraging students to write a world studies extended essay—an interdisciplinary extended essay on a global theme.

Developing self-awareness and a sense of identity

The core should strive to make a difference to the lives of students. It should provide opportunities for students to think about their own values and actions, to understand their place in the world, and to shape their identity. This might include, for example:

- providing opportunities in TOK for students to have conversations with others from different backgrounds and with different viewpoints, thereby challenging their own values
- encouraging students in CAS to evaluate their commitment to helping those in need and exploring the notion of advocacy
- asking students to reflect on the process of writing the extended essay and in so doing identifying areas of strength and areas for development.

TOK and the learner profile attributes

The table below shows some of the links between TOK and the learner profile attributes.

Attribute	Link to TOK
Inquirers	TOK students seek to find out how knowledge is constructed using various ways of knowing and by considering what constitutes knowledge in various areas of knowledge. It is a fundamental premise of TOK that personal knowledge should not result from simple acceptance of knowledge claims without sufficient inquiry and evidence.
Knowledgeable	TOK students strive to be knowledgeable about the nature of knowledge. This means becoming knowledgeable about the methods of inquiry of a variety of subject areas, from a number of perspectives. Students are encouraged to explore the processes by which individuals arrive at their own knowledge and understanding of the world and the presuppositions that underpin this understanding.
Thinkers	TOK students examine thinking in order to understand what constitutes good thinking and also to recognize potential flaws in thought processes. Students also think about what thinking is required in a variety of situations, as well as how thinking relates to emotional processing and intuition.
Communicators	TOK students are required by the TOK assessment tasks to communicate their understanding and perspective in both oral and written form. Students also study the language that is used to develop a body of knowledge, so they learn what gives language its power as well as what causes failures of communication.
Principled	TOK students scrutinize knowledge in a critical manner, leading to what could be called principled knowledge. Students are required to examine the relationship between possessing knowledge and the moral obligations that this carries. Learning to see the world from a TOK perspective challenges students to think about acting in principled ways.
Open-minded	TOK students need to be open-minded about knowledge claims they encounter. They will learn not to simply accept claims at face value, but to consider the factual accuracy of any proposition and the potential emotional, social or cognitive bias of any person making a proposition. At the same time, they must learn to balance skepticism with belief, and recognize that in many situations there is a need to make decisions without possessing absolute certainty.
Caring	TOK students are asked to care about how they use their knowledge. This necessarily means thinking about how knowledge can be used in sympathetic, empathetic and compassionate ways.

Attribute	Link to TOK
Risk-takers	TOK students must be willing to risk questioning what they hold to be true. This means that they must be willing to risk being wrong. When we are willing to accept being wrong then we make progress towards correcting existing misconceptions and increasing our knowledge and understanding of the world. The word “judgment” is central in TOK, and students should be prepared to take the risks involved in making judgments in matters where the evidence does not definitively favour one view or another, while at the same time acknowledging the provisional nature of these judgments.
Balanced	TOK students are committed to viewing knowledge claims from different perspectives. They are also required to consider a range of areas of knowledge. TOK requires a balance of ability in speaking and writing, and a balance of ability in drawing general conclusions from specific examples and in drawing on specific examples to demonstrate general claims.
Reflective	TOK students learn to reflect on the degree to which their own and other people’s motivations, beliefs, thought processes and emotional reactions influence what they know and what they are capable of knowing.

TOK at a glance

Knowing about knowing

TOK is a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge. It is a core element which all Diploma Programme students undertake and to which all schools are required to devote at least 100 hours of class time. TOK and the Diploma Programme subjects should support each other in the sense that they reference each other and share some common goals. The TOK course examines how we know what we claim to know. It does this by encouraging students to analyse **knowledge claims** and explore **knowledge questions**. A knowledge claim is the assertion that “I/we know X” or “I/we know how to Y”, or a statement about knowledge; a knowledge question is an open question about knowledge. A distinction between **shared knowledge** and **personal knowledge** is made in the TOK guide. This distinction is intended as a device to help teachers construct their TOK course and to help students explore the nature of knowledge.

The ways of knowing

While there are arguably many ways of knowing, the TOK course identifies eight specific ways of knowing (WOKs). They are **language, sense perception, emotion, reason, imagination, faith, intuition, and memory**. Students must explore a range of ways of knowing, and it is suggested that studying four of these eight in depth would be appropriate.

The WOKs have two roles in TOK:

- they underlie the methodology of the areas of knowledge
- they provide a basis for personal knowledge.

Discussion of WOKs will naturally occur in a TOK course when exploring how areas of knowledge operate. Since they rarely function in isolation, the TOK course should explore how WOKs work, and how they work together, both in the context of different areas of knowledge and in relation to the individual knower. This might be reflected in the way the TOK course is constructed. Teachers should consider the possibility of teaching WOKs in combination or as a natural result of considering the methods of areas of knowledge, rather than as separate units.

The areas of knowledge

Areas of knowledge are specific branches of knowledge, each of which can be seen to have a distinct nature and different methods of gaining knowledge. TOK distinguishes between eight areas of knowledge. They are **mathematics, the natural sciences, the human sciences, the arts, history, ethics, religious knowledge systems, and indigenous knowledge systems**. Students must explore a range of areas of knowledge, and it is suggested that studying six of these eight would be appropriate.

The **knowledge framework** is a device for exploring the areas of knowledge. It identifies the key characteristics of each area of knowledge by depicting each area as a complex system of five interacting components. This enables students to effectively compare and contrast different areas of knowledge and allows the possibility of a deeper exploration of the relationship between areas of knowledge and ways of knowing.

Assessment

There are two assessment tasks in the TOK course: an essay and a presentation. The essay is externally assessed by the IB, and must be on any one of the six prescribed titles issued by the IB for each examination session. The maximum word limit for the essay is 1,600 words.

The presentation can be done individually or in a group, with a maximum group size of three. Approximately 10 minutes per presenter should be allowed, up to a maximum of approximately 30 minutes per group. Before the presentation each student must complete and submit a presentation planning document (TK/PPD) available in the *Handbook of procedures for the Diploma Programme*. The TK/PPD is internally assessed alongside the presentation itself, and the form is used for external moderation.

Nature of the subject

TOK plays a special role in the Diploma Programme by providing an opportunity for students to reflect on the nature of knowledge. The task of TOK is to emphasize connections between areas of knowledge and link them to the knower in such a way that the knower can become aware of his or her own perspectives and those of the various groups whose knowledge he or she shares. TOK, therefore, explores both the personal and shared aspects of knowledge and investigates the relationships between them.

The raw material of TOK is knowledge itself. Students think about how knowledge is arrived at in the various disciplines, what the disciplines have in common and the differences between them. The fundamental question of TOK is “how do we know that?” The answer might depend on the discipline and the purpose to which the knowledge is put. TOK explores methods of inquiry and tries to establish what it is about these methods that makes them effective as knowledge tools. In this sense TOK is concerned with knowing about knowing.

The individual knower has to try to make sense of the world and understand his or her relationship to it. He or she has at his or her disposal the resources of the areas of knowledge, for example, the academic disciplines studied in the Diploma Programme. He or she also has access to ways of knowing such as memory, intuition, reason and sense perception that help us navigate our way in a complex world.

It is easy to be bewildered by the sheer diversity of the knowledge on offer. For example:

- In physics, experiment and observation seem to be the basis for knowledge. The physicist might want to construct a hypothesis to explain observations that do not fit current thinking and devises and performs experiments to test this hypothesis. Results are then collected and analysed and, if necessary, the hypothesis modified to accommodate them.
- In history there is no experimentation. Instead, documentary evidence provides the historian with the raw material for interpreting and understanding the recorded past of humanity. By studying these sources carefully a picture of a past event can be built up along with ideas about what factors might have caused it.
- In a literature class students set about understanding and interpreting a text. No observation of the outside world is necessary, but there is a hope that the text can shed some light upon deep questions about what it is to be human in a variety of world situations or can act as a critique of the way in which we organize our societies.
- Economics, by contrast, considers the question of how human societies allocate scarce resources. This is done by building elaborate mathematical models based upon a mixture of reasoning and empirical observation of relevant economic factors.
- In the islands of Micronesia, a steersman successfully navigates between two islands 1,600 km apart without a map or a compass.

In each case above there is clearly knowledge at work, although the collection as a whole illustrates a wide variety of different types of knowledge. The task of TOK is to examine different areas of knowledge and find out what makes them different and what they have in common.

At the centre of the course is the idea of **knowledge questions**. These are questions such as:

- what counts as evidence for X?
- what makes a good explanation in subject Y?

- how do we judge which is the best model of Z?
- how can we be sure of W?
- what does theory T mean in the real world?
- how do we know whether it is right to do S?

While these questions could seem slightly intimidating in the abstract, they become much more accessible when dealt with in specific practical contexts within the TOK course. They arise naturally in the subject areas, the extended essay and CAS. The intention is that these contexts provide concrete examples of knowledge questions that should promote student discussion.

Discussion forms the backbone of the TOK course. Students are invited to consider knowledge questions against the backdrop of their experiences of knowledge in their other Diploma Programme subjects but also in relation to the practical experiences offered by CAS and the formal research that takes place for the extended essay. The experiences of the student outside school also have a role to play in these discussions, although TOK seeks to strike a balance between the shared and personal aspects of knowledge.

Recognizing the discursive aspect of the course, the TOK presentation assesses the ability of the student to apply TOK thinking to a real-life situation. The TOK essay gives the opportunity to assess more formal argumentation prompted by questions of a more general nature.

TOK is a course in critical thinking but it is one that is specifically geared to an approach to knowledge that is mindful of the interconnectedness of the modern world. “Critical” in this context implies an analytical approach prepared to test the support for knowledge claims, aware of its own weaknesses, conscious of its perspectives and open to alternative ways of answering knowledge questions. It is a demanding course but one that is an essential component not only of the Diploma Programme but of lifelong learning.

TOK and international-mindedness

“Teachers open the door, but you must enter by yourself.”

Chinese proverb

Knowledge can be seen as the shared legacy of mankind, a legacy which has been shaped and influenced by a wide range of cultures. This era of increased global interconnectedness promises unprecedented possibilities for interaction and enhancement of mutual understanding arising from the nurturing of international-mindedness.

The Chinese anticipated a period of “*Tai*”, a time when communication between individuals and the world at large is totally open and people are receptive to new ideas. The TOK course provides an ideal vehicle for such global exchange and beneficial action through its examination of shared and personal knowledge in an atmosphere of critical and reflective inquiry.

We have inherited rich traditions from indigenous knowledge systems, stretching back to the origins of our societies and cultures. Africa, where the human adventure began, has transmitted a treasure trove of wisdom. The Swahili proverb *akili ni mali* (“intelligence is wealth”) and the Gikuyu saying, “wisdom is ahead of might”, represent the clear call for the primacy of good thinking for humans to survive and flourish. Early African cultures celebrated diversity, a model for our times. The Asante proverb from West Africa *tenabea nyinaa nse* reminds us that all dwelling places are not alike and the Swahili *kila ndege huruka na mbawa zake* encourages every bird to fly with its own wings.

Responsible action underpins this respect for diversity. This is also seen in the Australian aboriginal idea of “Dreamtime”, which promotes a sophisticated ecological perspective, including a celebration of nature’s bounty in multiple art forms and careful stewardship of the earth’s resources.

Ancient Asian civilizations have bequeathed profound insights which continue to guide our thinking. The Chinese were among the first cultures to recognize knowledge (“Shi”), its power, and the deep respect for learning and the wise sage figure permeates educational systems in that part of the world. The understanding of the self is seen as the essential foundation to effective membership and action in ever expanding spheres of community. The Indian concept of “Brahman” links the individual knower to a boldly conceived “universal spirit”, a sense of human and cosmic unity.

The Chinese sage, Confucius, inspired a tradition of inclusive and merit-based education allied to critical thinking: “A gentleman can see a question from all sides without bias”. Inheriting the inquiring spirit of Indian Vedanta, the Buddha boldly linked human suffering and dissatisfaction not only to a craving for physical and worldly pleasures but also to an attachment to ideas, opinions, and beliefs, to be replaced by a more dynamic and open-minded approach to knowledge construction. Greek thinkers introduced the notion of political democracy and the important foundations of modern science and mathematics, while their dramatists confronted audiences with complex characters and multiple perspectives. The deep understandings of these traditions were preserved and enriched in the golden age of Islamic civilization in the 10th to 12th centuries CE, a renaissance of learning and artistic flowering that continues to inspire our knowledge quest.

Students and teachers today are the inheritors of this grand journey. The path ahead, as usual, presents us with both opportunities and challenges. The TOK classroom invites a unique partnership of learning, for global controversies often rest on significant knowledge questions that can provide useful starting points for TOK explorations and TOK, in turn, can contribute significantly to the understanding of these large questions. The IB vision of internationally minded individuals implies a global engagement, embodying a commitment to address these 21st century challenges. TOK exists at the very core of the quest, as we strive toward an enlightened and fulfilled humanity.

Engaging with sensitive topics

Studying TOK allows the opportunity for students to engage with exciting, stimulating and personally relevant topics and issues. However, it should be noted that often such topics and issues can also be sensitive and personally challenging. Teachers should be aware of this and provide guidance to students on how to approach and engage with such topics in a responsible manner.

Concurrency of learning

The TOK course requires at least 100 hours in the classroom spread over two years of the Diploma Programme. It would not be possible to teach all the different topic suggestions in this guide to the same depth in this time, therefore teachers will have to select which topics to cover in more detail and which in less detail. The important point is that coverage should be broad enough to provide a balanced outlook.

Prior learning

The TOK course requires no specific prior learning. No particular background in terms of specific subjects studied for national or international qualifications is expected or required.

Links to the Middle Years Programme

The programmes of the IB place the student at the centre of the models. This underscores the IB's belief in educating the whole person and placing importance on student inquiry as the driving force for learning. The embodiment of the characteristics of the learner profile are the aim of IB programmes; they are brought into focus in the Primary Years Programme (PYP), refined and developed through the Middle Years Programme (MYP) and exemplified in the Diploma Programme and the Career-related Certificate.

The process of inquiring into subject content through the different perspectives provided by MYP global contexts enables students to develop a deeper understanding of both the subject and the dimensions of the global contexts. Through the inquiry cycle of understanding and awareness, reflection and action, students engage in reflection and metacognition, which can lead them from academic knowledge to thoughtful action, helping to develop positive attitudes and a sense of personal and social responsibility.

Alongside the development of thinking skills, MYP students are prepared for TOK in the Diploma Programme in many ways, three of which are the ability to think critically, to reflect and to make connections.

- MYP students are asked to question and challenge information and arguments. These critical thinking skills will help students in TOK understand that there are different ways of thinking about knowledge claims.
- Self-evaluation is important in the MYP. Students are encouraged to reflect at different stages in the learning process. Active reflection on one's own perspectives is an important attribute of a TOK student.
- The ability to make connections across subjects to create products or solutions is important in the MYP. In TOK, this ability will allow students to make links between ways of knowing and areas of knowledge.

Aims

The overall aim of TOK is to encourage students to formulate answers to the question “how do you know?” in a variety of contexts, and to see the value of that question. This allows students to develop an enduring fascination with the richness of knowledge.

Specifically, the aims of the TOK course are for students to:

1. make connections between a critical approach to the construction of knowledge, the academic disciplines and the wider world
2. develop an awareness of how individuals and communities construct knowledge and how this is critically examined
3. develop an interest in the diversity and richness of cultural perspectives and an awareness of personal and ideological assumptions
4. critically reflect on their own beliefs and assumptions, leading to more thoughtful, responsible and purposeful lives
5. understand that knowledge brings responsibility which leads to commitment and action.

Assessment objectives

It is expected that by the end of the TOK course, students will be able to:

1. identify and analyse the various kinds of justifications used to support knowledge claims
2. formulate, evaluate and attempt to answer knowledge questions
3. examine how academic disciplines/areas of knowledge generate and shape knowledge
4. understand the roles played by ways of knowing in the construction of shared and personal knowledge
5. explore links between knowledge claims, knowledge questions, ways of knowing and areas of knowledge
6. demonstrate an awareness and understanding of different perspectives and be able to relate these to one's own perspective
7. explore a real-life/contemporary situation from a TOK perspective in the presentation.

Knowledge in TOK

Knowledge is the raw material of the TOK course. It is important that students and teachers have a clear idea of what might be meant by the term “knowledge”, however, this is not such a simple matter. Thinkers have wrestled with the problem of a simple definition of knowledge since before the time of Plato, without substantial consensus. How can we expect students to be able to tackle this question satisfactorily?

TOK is not intended to be a course in philosophy. While there might be a certain degree of overlap in the terms that are used, the questions that are asked, or the tools that are applied to answer these questions, the approach is really quite different. It is not a course of abstract analysis of concepts. TOK is designed to apply a set of conceptual tools to concrete situations encountered in the student’s Diploma Programme subjects and in the wider world outside school. The course should therefore not be devoted to a technical philosophical investigation into the nature of knowledge.

It is useful for students to have a rough working idea of knowledge at the outset of the course. Towards the end of the course this picture will have become more rounded and refined. A useful metaphor for examining knowledge in TOK is a map. A map is a representation, or picture, of the world. It is necessarily simplified—indeed its power derives from this fact. Items not relevant to the particular purpose of the map are omitted. For example, one would not expect to see every tree and bush faithfully represented on a street map designed to aid navigation around a city—just the basic street plan will do. A city street map, however, is quite a different thing to a building plan of a house or the picture of a continent in an atlas. So knowledge intended to explain one aspect of the world, say, its physical nature, might look really quite different to knowledge that is designed to explain, for example, the way human beings interact.

Knowledge can be viewed as the production of one or more human beings. It can be the work of a single individual arrived at as a result of a number of factors including the ways of knowing. Such individual knowledge is called **personal knowledge** in this guide. But knowledge can also be the work of a group of people working together either in concert or, more likely, separated by time or geography. Areas of knowledge such as the arts and ethics are of this form. These are examples of **shared knowledge**. There are socially established methods for producing knowledge of this sort, norms for what counts as a fact or a good explanation, concepts and language appropriate to each area and standards of rationality. These aspects of areas of knowledge can be organized into a **knowledge framework**.

Shared and personal knowledge

In many languages, the verb “to know” has two first person forms: “I know” and “we know”. “I know” refers to the possession of knowledge by an individual—personal knowledge. “We know” refers to knowledge that belongs to a group—shared knowledge. It can be useful in TOK to draw a distinction between these two forms of knowledge, as illustrated below.

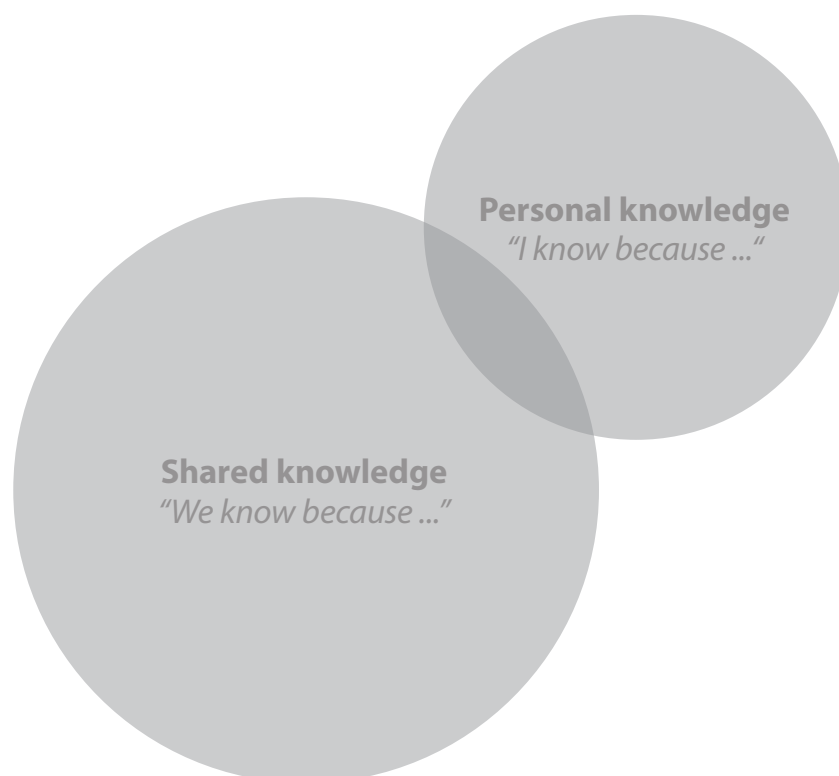


Figure 2

Shared knowledge

Shared knowledge is highly structured, is systematic in its nature and the product of more than one individual. Much of it is bound together into more or less distinct areas of knowledge such as the familiar groups of subjects studied in the Diploma Programme. While individuals contribute to it, shared knowledge does not depend only upon the contributions of a particular individual—there are possibilities for others to check and amend individual contributions and add to the body of knowledge that already exists.

Examples are easy to come by.

- Physics is a subject discipline with knowledge that is shared. Many have access to it and can contribute to it. Much of the work done is by teams of people building on existing knowledge. While individuals can and do contribute to this body of knowledge, the work of individuals is subject to group processes such as peer review and replication of experimental results before it becomes part of the corpus.
- The knowledge required to build a computer is also shared. It is unlikely that there is an individual who has the knowledge of building such a device from scratch (rather than simply assembling it from pre-constructed components). Yet we know how to make computers. A computer is the result of a complex worldwide cooperative effort.

Shared knowledge changes and evolves over time because of the continued applications of the methods of inquiry—all those processes covered by the knowledge framework. Applying the methodology belonging to an area of knowledge has the effect of changing what we know. These changes might be slow and incremental—areas of knowledge possess a certain stability over time. However, they could also be sudden and dramatic, revolutionary shifts in knowledge or paradigm shifts, as an area of knowledge responds to new experimental results, say, or advances in the underlying theory.

There might be areas of knowledge that are shared by all of us. The subjects studied in the Diploma Programme might fall into this category. Of course it is not the case that every IB student understands higher level biology or geography, but rather it is knowledge that is available subject to certain conditions.

We are all members of other smaller groups too. We are members of ethnic groups, national groups, age groups, gender groups, religious groups, interest groups, class groups, political groups, and so on. There might be areas of knowledge that we share as members of these groups which are not available to those outside, such as knowledge that is anchored in a particular culture or in a particular religious tradition. This might raise questions regarding the possibility of knowledge transgressing the boundaries of the group.

Here are some examples of such questions:

- Is it really possible to have knowledge of a culture in which we have not been raised?
- Are those outside a particular religious tradition really capable of understanding its key ideas?
- Does there exist a neutral position from which to make judgments about competing claims from different groups with different traditions and different interests?
- To what extent are our familiar areas of knowledge embedded in a particular tradition or to what extent might they be bound to a particular culture?

Thinking about shared knowledge allows us to think about the nature of the group that does the sharing. It allows international-mindedness into our exploration of knowledge questions.

Personal knowledge

Personal knowledge, on the other hand, depends crucially on the experiences of a particular individual. It is gained through experience, practice and personal involvement and is intimately bound up with the particular local circumstances of the individual such as biography, interests, values, and so on. It contributes to, and is in turn influenced by, an individual's personal perspective.

Personal knowledge is made up of:

- skills and procedural knowledge that I have acquired through practice and habituation
- what I have come to know through experience in my life beyond academia
- what I have learned through my formal education (mainly shared knowledge that has withstood the scrutiny of the methods of validation of the various areas of knowledge)
- the results of my personal academic research (which may have become shared knowledge because I published it or made it available in some other way to others).

Personal knowledge therefore includes what might be described as skills, practical abilities and individual talents. This type of knowledge is sometimes called procedural knowledge, and refers to knowledge of **how** to do something, for example, how to play the piano, how to cook a soufflé, how to ride a bicycle, how to paint a portrait, how to windsurf, how to play volleyball and so on.

Compared to shared knowledge, personal knowledge is often more difficult to communicate to others. Sometimes it has a stronger linguistic component and is communicable to others, but often it cannot easily be shared. For example, an experienced tea taster who has developed their palette through years of experience of tasting different teas will have a complex knowledge of tea tastes. But the tea taster might find it difficult to describe the taste of a particular tea in words in a way that can be understood by others. The taster might use metaphor and simile to try to relate the experience of drinking this tea to others but the task is a difficult one. In this way personal knowledge is frequently characterized by this difficulty in sharing.

Personal knowledge also includes a map of our personal experiences of the world. It is formed from a number of ways of knowing such as our memories of our own biography, the sense perceptions through which we gain knowledge of the world, the emotions that accompanied such sense perceptions, the values and significance we place on such thoughts and feelings.

Like shared knowledge, personal knowledge is not static, but changes and evolves over time. Personal knowledge changes in response to our experiences. What is known by an 18-year-old could be quite different to what he or she knew at only 6 years of age. The various ways of knowing covered in the TOK course contribute to these changes.

Links between shared and personal knowledge

Clearly there are links and interactions between shared knowledge and personal knowledge. These are discussed in more depth in the knowledge framework.

Consider the example of a scientist such as Albert Einstein who has contributed much to modern physics. Clearly, he had some personal qualities that enabled him to see further than some of his peers. He had personal knowledge, a way of looking at things perhaps, that he was able to use to propel his exploration of the difficult questions that characterized the physics of the early 20th century. But his insights had to go through a thorough process of review before being accepted as part of the shared body of knowledge that is the discipline of physics.

There were disciplinary-specific methods that placed demands on Einstein's thought. For example, his ideas had to be logically consistent, had to conform to previous experimental findings and had to go through a process of peer review. They also had to provide predictions that could be independently tested and verified (for example, the predictions made about the visibility of stars normally obscured by the sun in the solar eclipse of 1919). Only then could Einstein's vision become an accepted part of physics. This illustrates how personal knowledge leads to advances in shared knowledge.

The reverse process can and does occur. Shared knowledge can have a big effect on our personal view of the world. Not only do the familiar areas of knowledge impinge on our personal experiences—someone studying economics might regard everyday shopping in a different light as a result of studying economics—but shared knowledge as membership of our cultural, ethnic, gender and other groups might influence our world view. This is what we call perspective. Membership of such groups provides a horizon against which the significance of the events of our lives is measured. Acknowledgment of such perspectives is an important goal of the TOK course.

From an individual perspective, shared knowledge often appears in the form of an authority—a source of knowledge whose justification is not immediately available to the individual. An example here is the authority of medical science to the patient who is not trained in medicine.

Balance between shared and personal knowledge

It is important that the TOK course reflects the balance between shared knowledge and personal knowledge. Too much emphasis on the personal at the expense of the shared is likely to result in a course that is oriented towards the subjective experiences of the students and does not look at knowledge beyond the individual to how knowledge is constructed in the wider world. There is a tendency for such a course to become a succession of personal anecdotes strung together with little or no analysis.

Biasing the course in the opposite direction risks losing the important links between the areas of knowledge and the individual knower. Shared knowledge has a significance and value for the individual that gives it relevance and importance. There is a danger that such a TOK course could become too arid and fact-oriented. Making the distinction central to the course brings the balance of these two elements to the forefront.

The ideal balance might not be 50:50; it is likely that significantly less time will be spent on personal knowledge and more on shared knowledge. It is also likely that the best strategy is not to teach them entirely separately. It seems difficult to examine areas of knowledge without considering the impact on individual knowers. Similarly, it seems difficult to examine personal knowledge in a vacuum without acknowledging that as individuals we are embedded in a web of social relationships.

Knowledge claims and knowledge questions

Knowledge claims

In TOK there are two types of knowledge claims.

- Claims that are made within particular areas of knowledge or by individual knowers **about the world**. It is the job of TOK to examine the basis for these first-order claims.
- Claims that are made **about knowledge**. These are the second-order claims made in TOK that are justified using the tools of TOK which usually involve an examination of the nature of knowledge.

Here are some examples:

- “There are an infinite number of prime numbers.” This is a first-order knowledge claim because it resides firmly inside the area of knowledge mathematics. It is established using the method of mathematical proof.
- “Mathematical knowledge is certain.” This is a second-order knowledge claim because it is about mathematical knowledge. We establish this by examining the methods of mathematics themselves using the tools of TOK.

Both types of knowledge claims might be found in TOK. The first type will feature in examples offered in the essay and presentation illustrating the manner in which areas of knowledge go about the business of producing knowledge. The second type will constitute the core of any piece of TOK analysis.

Knowledge questions

TOK is primarily concerned with knowledge questions. This phrase is used often in describing what is seen in a good TOK presentation or a good TOK essay. An essay or presentation that does not identify and treat a knowledge question has missed the point. It also occurs in the assessment descriptors that examiners use to mark the essay and that the teacher uses to mark the presentation. To put it briefly, the whole point of the presentation and essay tasks is to deal with knowledge questions.

Knowledge questions are questions about knowledge, and contain the following features.

- Knowledge questions are questions **about** knowledge. Instead of focusing on specific content, they focus on how knowledge is constructed and evaluated. In this sense, knowledge questions are a little different from many of the questions dealt with in the subject classrooms. In this way, they are considered second-order questions in TOK.
- Knowledge questions are **open** in the sense that there are a number of plausible answers to them. The questions are contestable. Dealing with open questions is a feature of TOK. Many students encountering TOK for the first time are struck by this apparent difference from many of the other classes in their school experience. Many find the lack of a single “right” answer slightly disorienting. Nevertheless, knowledge questions underlie much of the knowledge that we take for granted. Much of the disagreement and controversy encountered in daily life can be traced back to a knowledge question. An understanding of the nature of knowledge questions can allow a deeper understanding of these controversies.

- Knowledge questions should be expressed in **general** terms, rather than using subject-specific terms. For example, instead of a question focusing on a specific model in development economics, such as the Harrod-Domar model, a knowledge question might focus on the reliability of modelling as a method of gaining knowledge in economics.

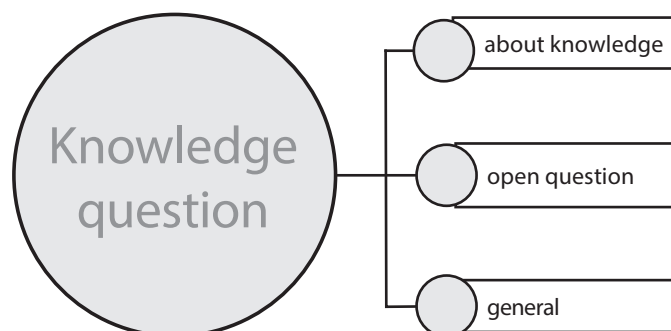


Figure 3

It might be worth considering and discussing with students why questions of knowledge are open and therefore so interesting. Why is it that the typical TOK question does not have one straightforward correct answer? Students might find themselves facing this sort of question in class. Perhaps a typical response might start with “it depends what we mean by ...” In other words, the first task in trying to answer a TOK question is to establish an understanding of the key concepts involved. There may be a number of different ways of thinking about these concepts. Each might give rise to a different analysis and ultimately a different answer to the question.

It is inevitable that personal perspectives will play a part in the judgments made in any analysis. The intellectual resources that each of us has to draw upon might well be different and lead us to different or even diametrically opposed conclusions.

The possibility of a lack of unanimity in answering TOK questions can be initially challenging for students. After all, in mathematics a student getting a different answer to his or her neighbour can be a cause for concern, prompting the thought that one or other has made a mistake. In a TOK question it is perfectly conceivable that the answers differ. What is important is that the analysis is thorough and that there are good reasons to back it up. It is possible that both conclusions are true. It is tempting to explain the plurality of good answers to knowledge questions in terms of a type of truth relativism: “it is just a matter of perspective”. A more likely explanation is that different interpretations of key ideas account for the different conclusions or that the weighting of different factors in the argument differ.

Knowledge questions are general questions about knowledge

Another challenging aspect of TOK is the requirement that a knowledge question is somehow more general than the particular examples which illustrate it. This requirement springs from the idea that TOK deals with second-order questions.

For example:

- In physics, one deals with questions about the material world. In TOK, we ask questions about knowledge in physics. How can the physicist be sure of his or her conclusions given that they are based on hypothesis and experiment? The student in TOK is not talking in physical terms because he or she is not talking about the physical world but the discipline of physics. Therefore, it is necessary to use a different, more generalized vocabulary. The physicist uses terms like particle, energy, mass and charge. In TOK, the student uses terms such as hypothesis, experimental data, interpretation, anomaly, induction, certainty, uncertainty, belief and knowledge. So knowledge questions should employ these terms, not the terms of physics.

This distinction can be seen in the following diagram.

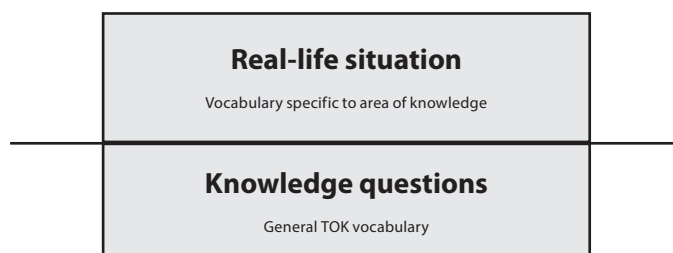


Figure 4

Examples of knowledge questions

You can find knowledge questions underlying almost any issue. They are sometimes difficult to formulate precisely but they often lurk underneath popular and often controversial subjects that are discussed in the media, for example. It is a very useful exercise to try to tease out knowledge questions underlying articles in the media.

Here are two examples of a topic that has been discussed in newspaper articles and possible knowledge questions associated with the topic.

Example 1: Future population growth in Africa

- Not a knowledge question: “How can we predict future population growth in Africa?” This is not a knowledge question because it is a technical question within the discipline of population studies.
- Good knowledge question: “How can a mathematical model give us knowledge even if it does not yield accurate predictions?” This is now sufficiently general and explores the purpose and nature of mathematical modelling.

Example 2: The placebo effect and its impact on the medical profession

- Not a knowledge question: “How does the placebo effect work?” An answer to this might involve a technical explanation in psychology. This therefore sits above the line in figure 4.
- A good knowledge question: “How could we establish that X is an ‘active ingredient’ in causing Y?” This question is actually a rather general one about how we can know about causal links. It is a classic knowledge question.

Knowledge questions and assessment

Knowledge questions are at the heart of the assessment of TOK. The presentation and the essay both deal with knowledge questions.

The diagram in figure 4 can help explain the two assessment tasks in TOK. The TOK presentation starts above the line with a real-life situation described in “real-life” terms. At a certain point in the presentation the student is required to identify the underlying knowledge question (below the line). This is then explored using the language of TOK and a conclusion is reached which is translated back into real-life terms.

The TOK essay follows a path that is in some sense a mirror image of this. The prescribed titles for the essay are expressed in rather general TOK language; they sit below the line. The student is required to identify knowledge questions connected to the prescribed title. The student must then give them some concrete form by finding examples (above the line) which illustrate them. These examples are explored using the tools of TOK (which might require some excursions back below the line). Finally, a general conclusion to the essay will be located in TOK language below the line.

More details and guidance on the assessment tasks can be found in the section “Assessment details”.

Ways of knowing

The TOK course identifies eight specific ways of knowing (WOKs). They are:

- language
- sense perception
- emotion
- reason
- imagination
- faith
- intuition
- memory.

Students must explore a range of WOKs. It is suggested that studying **four** of these eight in depth would be appropriate. The WOKs selected for detailed study should be carefully selected to ensure a coherent and balanced approach.

There are two central purposes to the WOKs in TOK. On the one hand they are the tools that answer the question “how do we know?” and on the other hand they help us answer the question “how do I know?” For example, we can analyse the role of imagination in the construction of shared knowledge in terms of scientific discovery, but we can also discuss imagination in the context of personal knowledge and understanding.

While there may be a place in a TOK course to analyse WOKs and their impact on how individuals construct their own personal knowledge, TOK teachers are encouraged to explore WOKs, not in isolation, but from the perspective of their contribution to understanding different areas of knowledge.

Specific ways of knowing

Below is a brief introduction to each WOK. The questions preceding the description of each WOK are simply stimulus questions, designed to promote discussion and raise awareness of the individual WOKs and their impact on knowledge.

Language

How does language shape knowledge? Does the importance of language in an area of knowledge ground it in a particular culture? How are metaphors used in the construction of knowledge?

Language can refer to the mental faculty which allows people to learn and use complex communication systems, or it can refer to those systems themselves. Language consists of a system of signs with agreed or conventional meanings combined according to a set of rules for the purposes of communication, formulation of ideas, storage of knowledge or as a medium of thought. The term “signs” can be interpreted very broadly to include letters, symbols, sounds, gestures, images and even objects. Language is a crucial

part of our daily lives, but is also filled with potential problem areas, for example, ambiguity, sarcasm, irony and translation issues.

Language plays an important role in communicating knowledge. However, some see language as having an even more central role, arguing that language doesn't just describe our experiences of the world but in fact actually structures those experiences. In the section on the knowledge framework there is a discussion about whether certain types of knowledge are actually constituted by language—the idea that language is part and parcel of the knowledge claim itself and not merely a description of something that exists independently of language. The view that facts about the world might be determined by the language is called linguistic determinism.

Sense perception

How can we know if our senses are reliable? What is the role of expectation or theory in sense perception? What is the role of language in sense perception?

Sense perception is the process by which we can gain knowledge about the outside world. Traditionally, there were believed to be five senses: sight, touch, smell, taste and hearing. However, many now argue that there are others such as a sense of heat, sense of pain, sense of movement, sense of balance and the senses of hunger and thirst, or a sense of where our body parts are.

Historically, the view that the senses provide the basis for all our knowledge was challenged by the idea that prior concepts might be needed before any perception takes place at all. Indeed, it is common now to view sense perception as an active process of interpreting the world according to prior expectations, conceptual frameworks and theories. There is, therefore, some disagreement as to whether we directly perceive the world as it is, or whether perception is an active process where we supply much of the content of our experiences ourselves.

Emotion

Are emotions universal? Can/should we control our emotions? Are emotions the enemy of, or necessary for, good reasoning? Are emotions always linked to belief?

The naturalistic view of emotions is that they are the products of natural processes, with physiological causes and effects. One supporter of this view was Darwin, who believed that emotions are purely physiological and therefore universal and experienced across all cultures. However, there seem to be many examples of culturally bound emotions, for example, the Chinese notion of “sad love”. The opposite view is therefore that of the social constructionists, who argue that emotions depend on a social consciousness, and have no natural basis at all. For example, emotions such as shame seem to presuppose a notion of right and wrong.

Emotion has sometimes been regarded as an unreliable way of knowing. Emotions have, for example, been criticized as being irrational obstacles to knowledge that distort our picture of reality. However, others believe that not only do emotions help make sense of social and cultural experiences and behaviours, but they are also the source of social, ethical and political knowledge by helping us form an understanding of the world around us.

Reason

What is the difference between reason and logic? How reliable is inductive reasoning? Are we predictably irrational?

Reason allows us to go beyond the immediate experience of our senses. It is closely linked to logic—the deducing of valid conclusions from given starting points or premises. Human reasoning can also be inferential in nature, allowing conclusions to be drawn that cannot be strictly deduced from their premises. It then becomes an interesting question of whether standards of rationality and norms of reasoning are

grounded in culture. Areas of knowledge might set their own requirements for the types of reasoning that are accepted.

Inductive reasoning is the process of supporting general statements by a series of particular ones—the reverse of deductive reasoning which tends to proceed from the general to the particular. Inductive reasoning is by its nature inferential. Statements involving the word “all” are often not strictly provable given the difficulties in making observations of an infinite set of particulars. This is of importance in the natural sciences but also in human sciences such as psychology and economics.

Imagination

What is the role of imagination in producing knowledge about a real world? Can imagination reveal truths that reality hides? What is the role of the imagination in understanding others?

Imagination is often identified in a narrow sense as the capacity to form a mental representation of something without the stimulus of sense experience. Traditionally imagination has been associated with imagery and making a mental image of something. However, more recently interest in the imagination has also focused on exploring propositional imagining, or “imagining that”. The importance and power of the imagination is highlighted by a number of medical conditions which impact upon it, for example, conditions which can impair imagination such as severe autism, or conditions which can cause delusions such as severe schizophrenia.

Imagination is sometimes viewed in a broader way as being associated with creativity, problem-solving and originality. Here it might be the making of connections between otherwise disparate ideas in order to solve problems. This might be useful in model making or theory creation in the sciences and solving structural problems in the arts. Imagination is, however, also sometimes distrusted, in part because it is regarded as something that is derived in the mind of the individual and therefore subjective. Imagining is also sometimes associated with counterfactual reasoning; imagining “what would happen if ...”, or “what would have happened if ...”.

Imagination is also sometimes associated with possibility, in that it can be argued that only things which are possible can be imagined. In this way, the imagination is seen by some to provide evidence of what is and is not possible. In daily life, imagination has a particularly prominent role in entertainment, for example, fictional films or television programmes. However, it can be argued that imagination also plays a deeper role, for example, in moral education, developing empathy, or providing opportunity for self-expression and an increased understanding of the self.

Faith

Should humanism or atheism be described as a faith? Can theistic beliefs be considered knowledge because they are produced by a special cognitive faculty or “divine sense”? Does faith meet a psychological need?

The term “faith” is most frequently used to refer specifically to religious faith, but can also be used in a secular sense as a synonym for trust. Although most associated with belief in a God or gods, faith can be religious without being theistic, for example, in Buddhism. Alternatively it can be seen as a commitment to a particular interpretation of experience and reality which is not necessarily religious at all, such as humanism. Logical positivism claims that statements of faith have no meaningful cognitive content, so it doesn’t make sense to speak of faith as a way of knowing. However, for many people faith is a key way in which they try to understand and explain the world.

The evidence on which faith is based on is often controversial. This is particularly the case in the example of scripture, which those within the religious group often see as infallible evidence, while those outside the religious group might be more circumspect. While critics argue that faith is irrational and incoherent, others would argue that faith should be seen as a way of going beyond reason rather than being purely irrational. Indeed, although faith is often contrasted with reason, many religions regard faith and reason as

interdependent, for example, natural theology argues that it is only possible to access God through reason, and many religions regard reason as a God-given gift.

Some would argue that the criticism and controversy surrounding the evidence for faith claims is misplaced, arguing that faith is an act of trust and is an example of knowledge which is not evidence based. Indeed, in some traditions belief that is not based on evidence is seen as superior to belief that is based on evidence, the demand for concrete evidence being seen to signify a lack of faith. Given this controversy, teachers should provide the opportunity for a critical discussion of faith as a way of knowing. Its inclusion as a way of knowing should not be seen as an excuse for unthinking acceptance of knowledge claims in religion or other areas of knowledge.

Intuition

Why are some people considered more intuitive than others? Are there certain things that you have to know prior to being able to learn anything at all? Should you trust your intuition?

Intuition is sometimes described as immediate cognition, or knowledge which is immediately evident without prior inference, evidence or justification. Intuition is often contrasted with reason, as it is regarded as knowing without the use of rational processes. Jung (*Psychologische Typen* 1921) famously referred to intuition as perception via the unconscious, highlighting the idea that intuition is often seen as beliefs which are known without understanding how they are known.

Intuition is sometimes associated with the concepts of instinct and innate knowledge. For example, some would argue that although we do not have innate knowledge of any particular language, we have an intuitive capacity to use language. Intuition has been much discussed in the field of ethics in terms of whether we have moral intuition, or a kind of innate sense of right and wrong. It is also seen by some to play an important role in scientific advances.

To know something by intuition is to know something through introspection or an immediate awareness. In this way, some argue that it is impossible to justify, or that as it is immediately evident it requires no further justification. Some people are regarded as more intuitive than others, with intuitive people often being said to make quick instinctive decisions without having any identifiable rationale for those decisions. However, some have denied the existence of intuition as a separate way of knowing. For example, it has been suggested that intuition is a term which is often used to describe a combination of other ways of knowing, such as prior experience, heightened sense perception and an active imagination.

Memory

Can we know things which are beyond our personal present experience? Is eyewitness testimony a reliable source of evidence? Can our beliefs contaminate our memory?

Many discussions of knowledge tend to focus on how beliefs and knowledge are formed rather than on how they are remembered by the individual. However, most of the knowledge that individuals have is in the form of memory and therefore how we retain information and how past events and experiences are reconstructed is an important aspect of how personal knowledge is formed.

Memory, and particularly habit, has a strong link to procedural knowledge and remembering how to perform actions. In contrast to perception, memory refers to things which are not currently happening. And in contrast to imagination, memory refers to things which we believe really happened. Some would argue that memory is not itself a source of knowledge, but instead is a process which we use to recall knowledge gained in the past. However, although memory refers to knowledge gained in the past, it can be argued that even new knowledge is dependent on and influenced by memory. For example, how we interpret new situations can be heavily influenced by experience and previous events. In this way, apart from being a

“storage unit” for existing knowledge, memory can also be a mechanism that allows us to process new and unique situations.

The importance of memory can be highlighted by imagining the challenges that would be presented by losing our memory. Because so much of our personal knowledge is in the form of memory, issues surrounding the reliability of memory are also crucial. Memory retrieval is often regarded as unreliable, for example, because it is seen to be subjective or heavily influenced by emotion. However, we rely on our memory every day and because many of our memories seem to be reliable, this gives us confidence that our other memories are reliable.

Ways of knowing do not operate in isolation

Ways of knowing should not be viewed in isolation. They interact in various ways in the construction of knowledge and the formation of knowledge claims. For example, even a simple claim such as “this table is blue” involves a number of ways of knowing coming together. I need language to be able to understand the terms “table” and “blue”. I need a conceptual system based on reason to realize that a table is something that has the possibility of being blue. I need sense perception to recognize that what I see is a table and that the colour of the table is blue. In this way, the individual ways of knowing are woven together into more elaborate structures in order to generate knowledge in the areas of knowledge.

Areas of knowledge

How do we know things? We know things because we use a range of methods of inquiry that incorporate ways of knowing to help construct knowledge in different areas of knowledge (AOKs).

The theory of knowledge course distinguishes between eight AOKs:

- mathematics
- natural sciences
- human sciences
- history
- the arts
- ethics
- religious knowledge systems
- indigenous knowledge systems.

Students must explore a range of AOKs. It is suggested that **six** of these eight would be appropriate.

While this guide identifies eight broad AOKs, students should be encouraged to think about individual academic disciplines, that is, to think about the nature of knowledge in their own specific IB subjects, such as chemistry, geography and dance.

Knowledge framework

One effective way to examine the AOKs is through a knowledge framework. A knowledge framework is a way of unpacking the AOKs and provides a vocabulary for comparing AOKs.

For each AOK the following can be examined:

- scope, motivation and applications
- specific terminology and concepts
- methods used to produce knowledge
- key historical developments
- interaction with personal knowledge.

Within this knowledge framework, key features of each area are identified, as are specific terminology and concepts which shape that area of knowledge. The key historical developments that have influenced and shaped each area are identified, as well as the ways that each makes use of particular methodology. Finally, there is opportunity for reflection on the interaction between shared and personal knowledge in each area. Knowledge frameworks are a very effective device to compare and contrast areas of knowledge.

The idea is that each AOK can be thought of, broadly speaking, as a coherent whole—a vast system with a rich inner structure. TOK aims to explore this structure and to understand just what it is that gives each AOK its particular character. It is also concerned with what these AOKs have in common. A useful strategy is to build a TOK course around comparing and contrasting the various AOKs, to look for features they have in common but also to highlight their differences and pinpoint what gives each its own characteristic flavour.

Comparison of different AOKs is not purely a descriptive task. It is analytical in the sense that the student should link the practices of inquiry to the knowledge that comes out in the end. For example, the reliability of knowledge within an AOK will depend critically upon the methods used to produce it. Making links of this sort is what is meant by analysis in TOK.

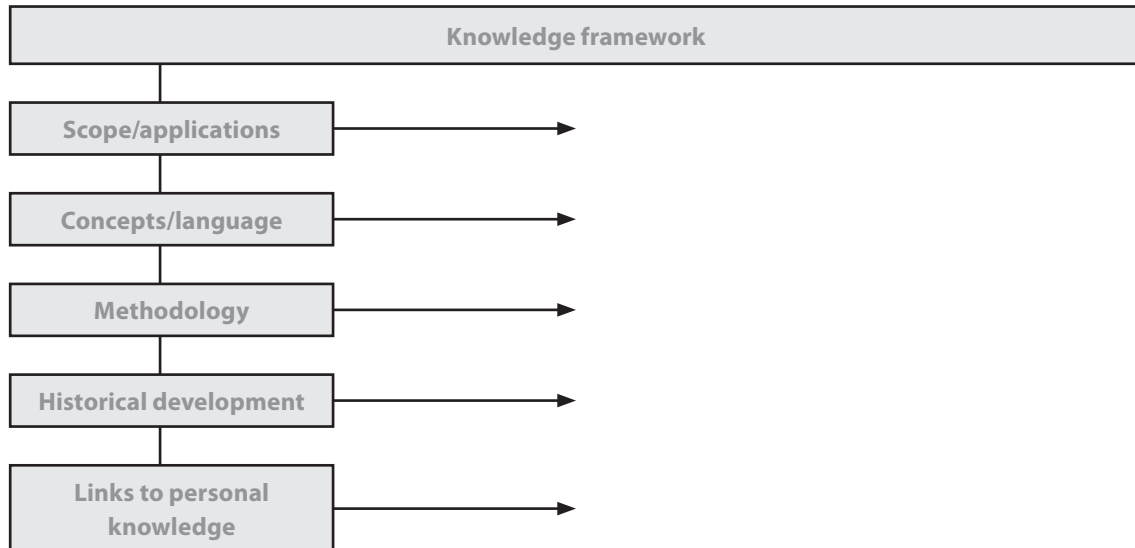


Figure 5

1. Scope/applications

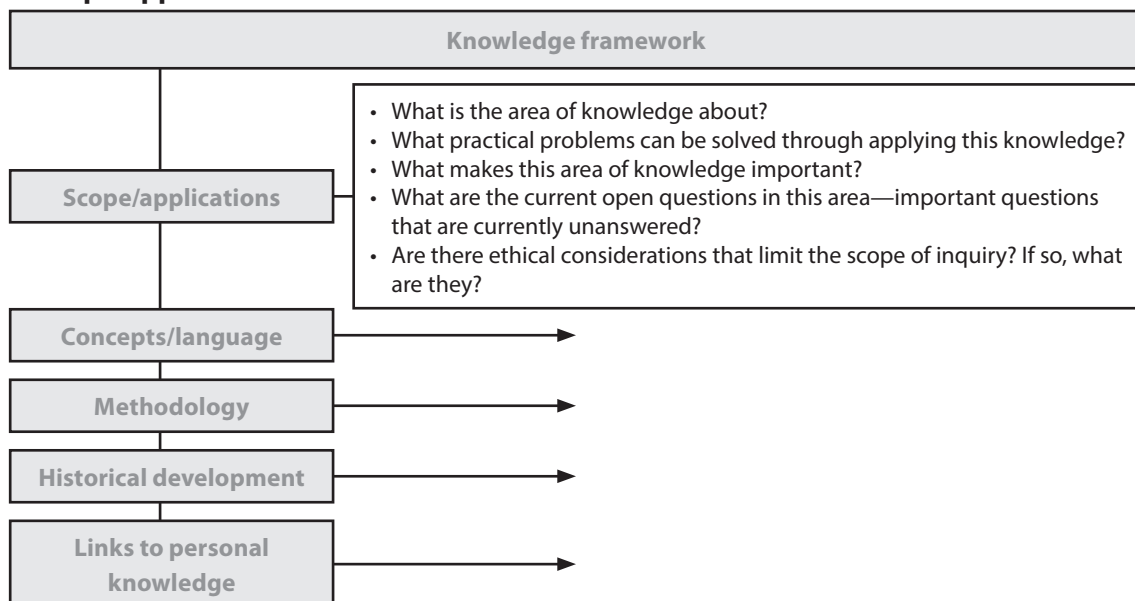


Figure 6

This component attempts to explore the range of the specific AOK within the totality of human knowledge and how that knowledge is used. Scope refers to the definition of the AOK in terms of subject matter, and the form that an AOK takes depends critically upon the nature of the problems it is trying to answer.

For example:

- biology studies living organisms and is mainly concerned with how they function
- mathematics is the study of quantity, space, shape and change
- in engineering, however, precise numerical methods are a matter of life and death

- music might not seem concerned with solving practical problems at all but the composer has to solve the “musical engineering” problems of building a piece of music; it has to be a unified whole and yet at the same time there has to be some sort of inherent contrast there to provide tension and energy and, for the listener, interest.

Exploration of the scope and applications of a particular AOK can lead to interesting discussions of the ethical considerations that have to be taken into account. Practitioners in a particular AOK might not be permitted to explore all the aspects that are of interest. There might be moral and ethical limits on the sort of investigations they undertake and experiments they perform.

2. Concepts/language

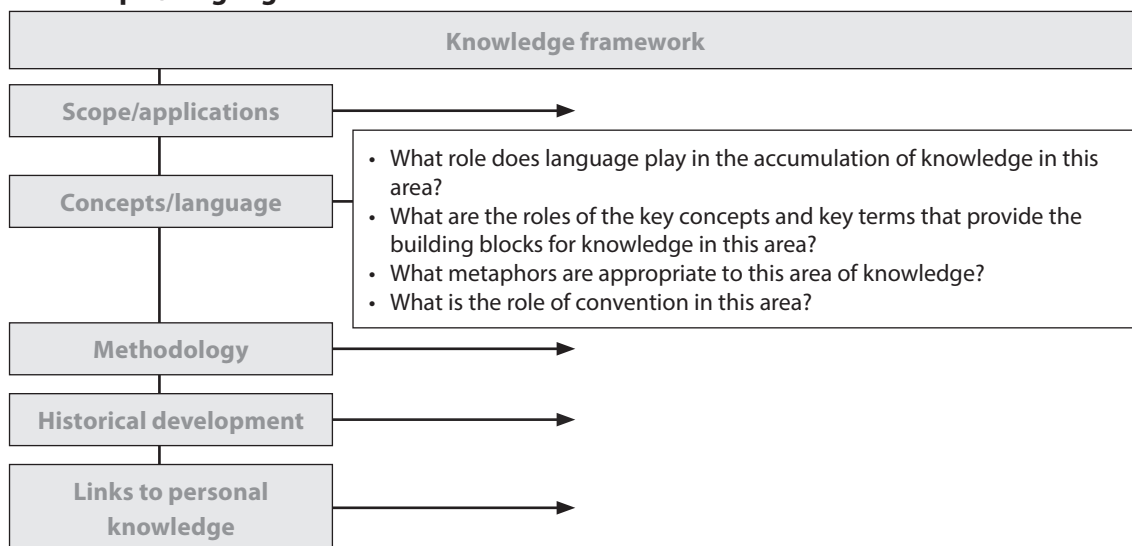


Figure 7

This element explores the way in which language is used in the production of knowledge in each AOK. The key idea is that language does not just communicate pre-existing “non-verbal” knowledge but that, in many cases, the language used actually constitutes knowledge. Take language away and there is nothing left. One of the reasons for this is that the language names concepts—these are the building blocks for knowledge. An AOK is a system of relationships between its key concepts. Different building blocks build quite different AOKs and produce different ways of thinking about the world.

For example:

- in physics key concepts include those of causation, energy and its conservation principle, field, charge and so on
- in visual arts we might be concerned with the colour palette, texture, composition, movement, symbolism and technique
- in music the central concepts might be melody, rhythm, harmony, tension, relaxation, texture and colour.

Discussions of the concepts and language that shape an AOK can link well to discussions about shared knowledge. Language allows knowledge to be passed on to others and to be accumulated over time for future generations. This is what makes this sort of knowledge “shared knowledge”. The fact that it can be communicated between individuals across space and over time is important. A significant proportion of current knowledge is not new but has been passed down to us from the past or from other parts of the world.

3. Methodology

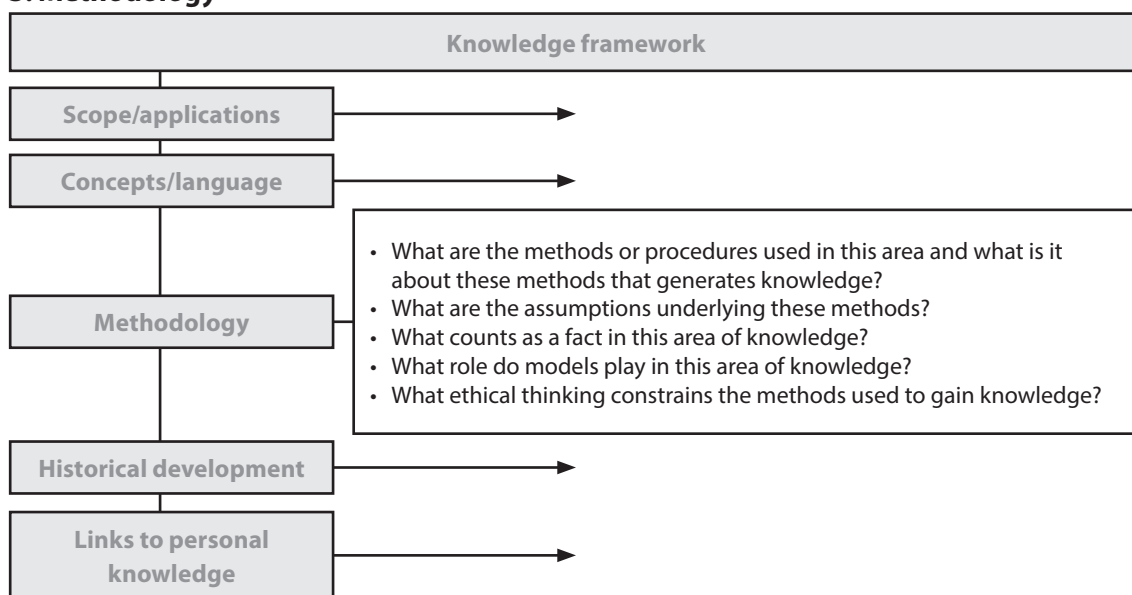


Figure 8

One of the most striking differences between the AOKs is the methods that they use. Examining and comparing the methodologies of the different AOKs begins with students being able to identify the specific methods or procedures used in an AOK, and exploring the assumptions that underlie those methods.

Assumptions and values play an important part in the methodology that underpins the production of knowledge. Each AOK establishes certain things as being important and others less so—each has a set of values that underpin the knowledge that is produced. No AOK is value free—some methods are better than others, some facts are more reliable than others, some theoretical models give better understanding than others. Recognition of these values and how they affect the methodology that is used is crucial to understanding the character of the AOK.

For example, in the natural sciences, much knowledge comes about through testing hypotheses by experiment; this assumes that laboratory conditions accurately mimic what happens in the rest of the universe and that the world can be understood as a system of causes determining effects.

One way to explore methodology is to examine the question of what counts as a fact in this particular AOK. Another way would be to examine the question of what counts as an explanation in this particular AOK. For example:

- in history, an explanation might consist of an overarching theory giving plausible motivations to the various historical actors that joins up the isolated historical documents
- in literature, the explanation of text might involve examination of its themes, motives and characterization through the literary devices employed.

Another way to explore methodology is to examine any constraints on the methods that can be used; for example, ethical constraints on experiments conducted in the human sciences.

4. Historical development

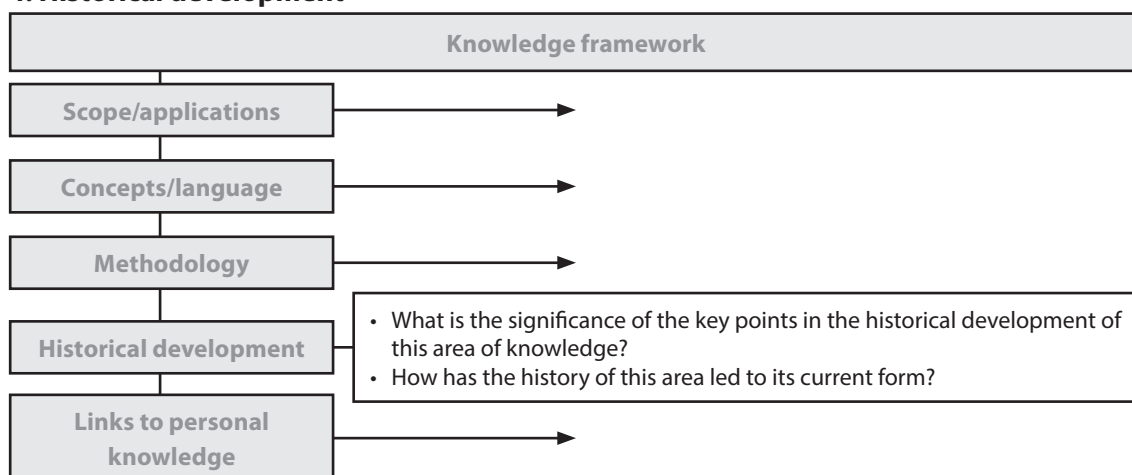


Figure 9

AOKs are dynamic entities that change over time as conceptual developments and advances are made in methodology. This need not be seen as a problem but rather an advantage—our systems are flexible and capable of responding to developments. Knowledge can, therefore, be considered provisional.

For example:

- consider a Swedish school textbook in history from 1912: it is quite different in its idea of history from those used today; a physics textbook from 1912 seems to have much the same idea about physics but the content is likely to be different
- an artwork might derive much of its meaning from the historical context in which it is produced and might even reference other earlier works.

Tracking the rough historical development of an AOK is a valuable tool in TOK. It is tempting to speculate that if we re-ran the history of human knowledge then the AOKs might look quite different to their current form. How much of our knowledge depends on accidents of history? Are certain AOKs more susceptible to these historical factors than others? Even our systems of measurement (m, kg, s) are historically situated and so, of course, are the concepts and the language employed by subject disciplines. Interesting discussions can be had over why particular historical events and factors have had such an impact on the development of a particular AOK.

5. Links to personal knowledge

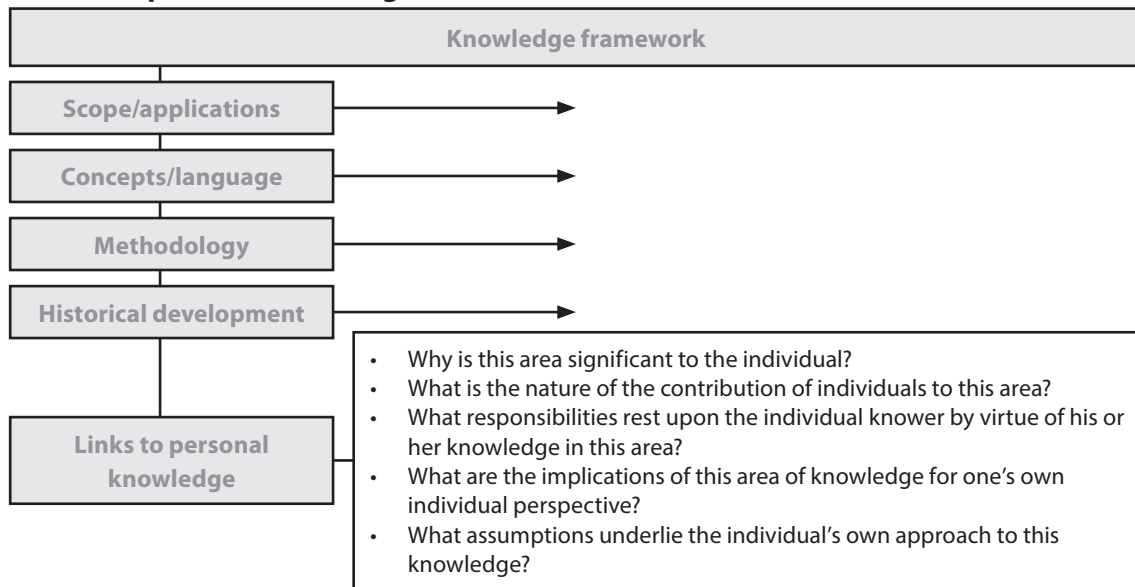


Figure 10

There are links and interactions between shared and personal knowledge. Individuals contribute to shared knowledge. Their contributions have to go through whatever validation procedures are required by a particular discipline in order to be counted as “common” knowledge in that area. But shared knowledge also contributes to an individual’s own understanding of the world. This is one, but not the only, purpose of shared knowledge—that it enables individuals to make sense of the world. The nature of this interaction between shared and personal knowledge is the last component of the knowledge framework to be examined. It is important because it addresses the question “so what does this mean for me?” What impact do these AOKs have on our individual lives and the way in which we view the world? How does this area form or change our perspective?

Specific areas of knowledge

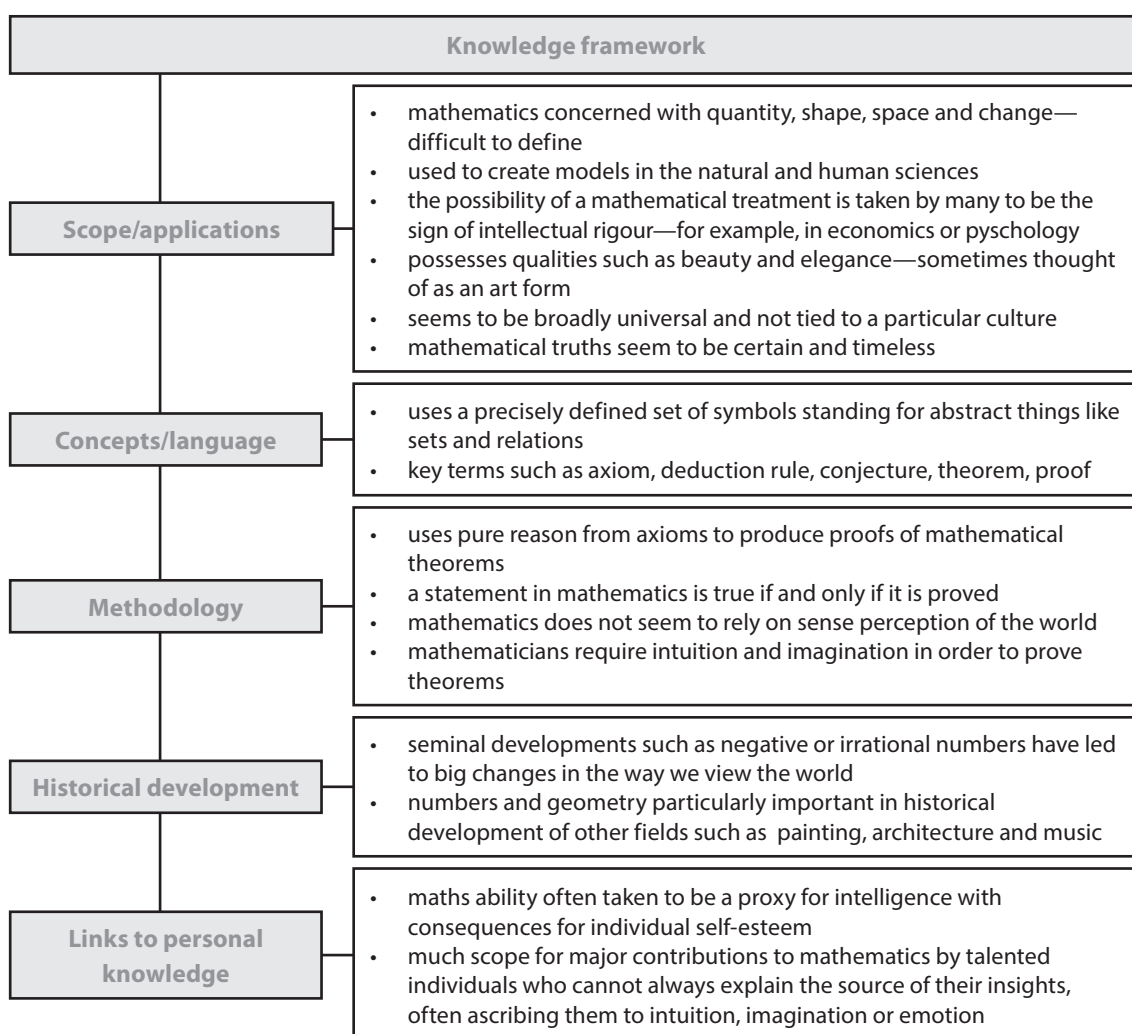
On the following pages there is a brief introduction to each AOK. There are also diagrams providing examples of how each AOK could be approached, including suggested topics for study and knowledge questions. It should be noted that these are **suggestions only**, and can be used or substituted for others according to the specific interests and needs of the TOK teacher and students. These diagrams are tools which teachers should use with good judgment, being careful not to use them in such a way that the course becomes formulaic.

Mathematics

Is there a distinction between truth and certainty in mathematics? Is mathematics independent of culture? Is mathematics discovered or invented?

Mathematics is founded on a set of more or less universally accepted definitions and basic assumptions. It proceeds from a system of axioms using deductive reasoning to prove theorems or mathematical truths. These have a degree of certainty unmatched by any other area of knowledge, making it excellent raw material for study in TOK.

Despite, or rather because of, the strict confines of mathematical logic, mathematics is an enormously creative subject, asking of its practitioners great leaps of the imagination. Pure mathematics requires no prior sense perception at the start of inquiry but the application of mathematics to real-world situations requires techniques such as those used in the natural and human sciences. Indeed, most research in the natural and human sciences is underpinned by mathematics. There are also often close links between mathematics and the arts where formal requirements for harmony or symmetry impose mathematical structures on a work.



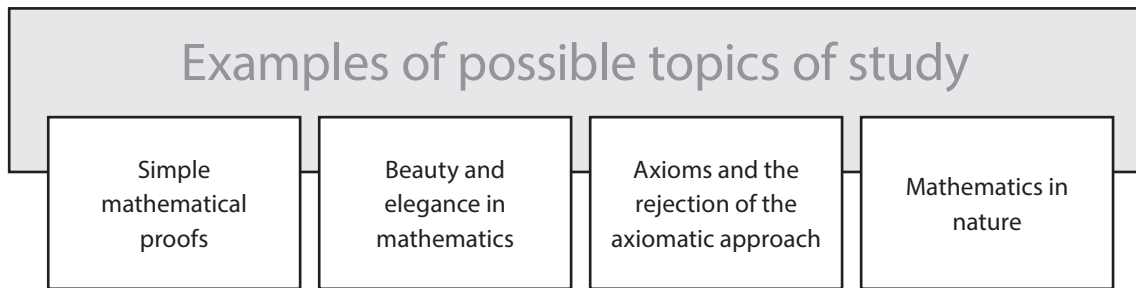
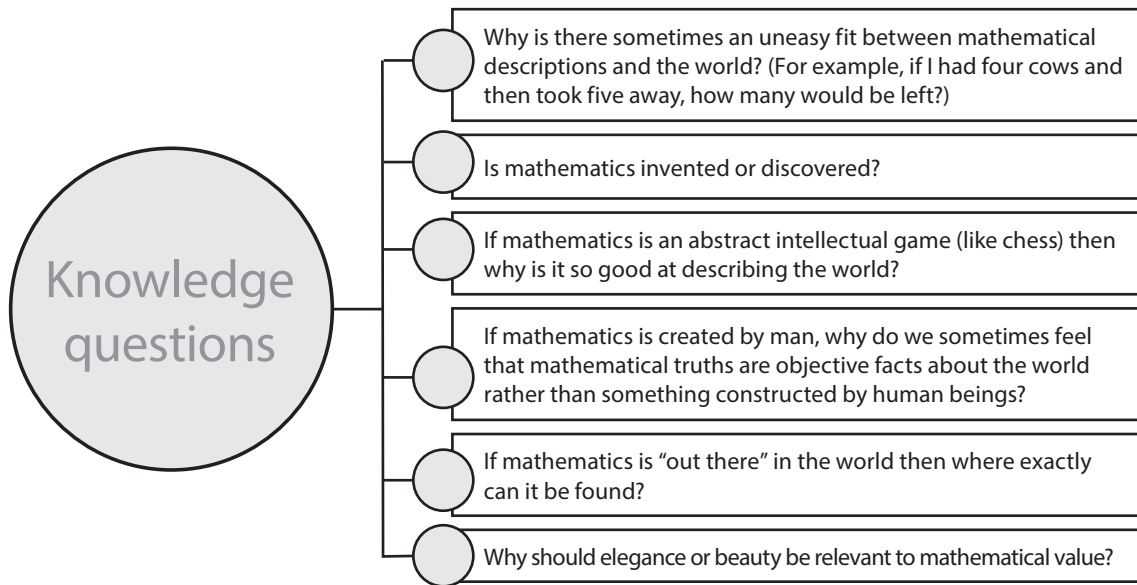


Figure 11

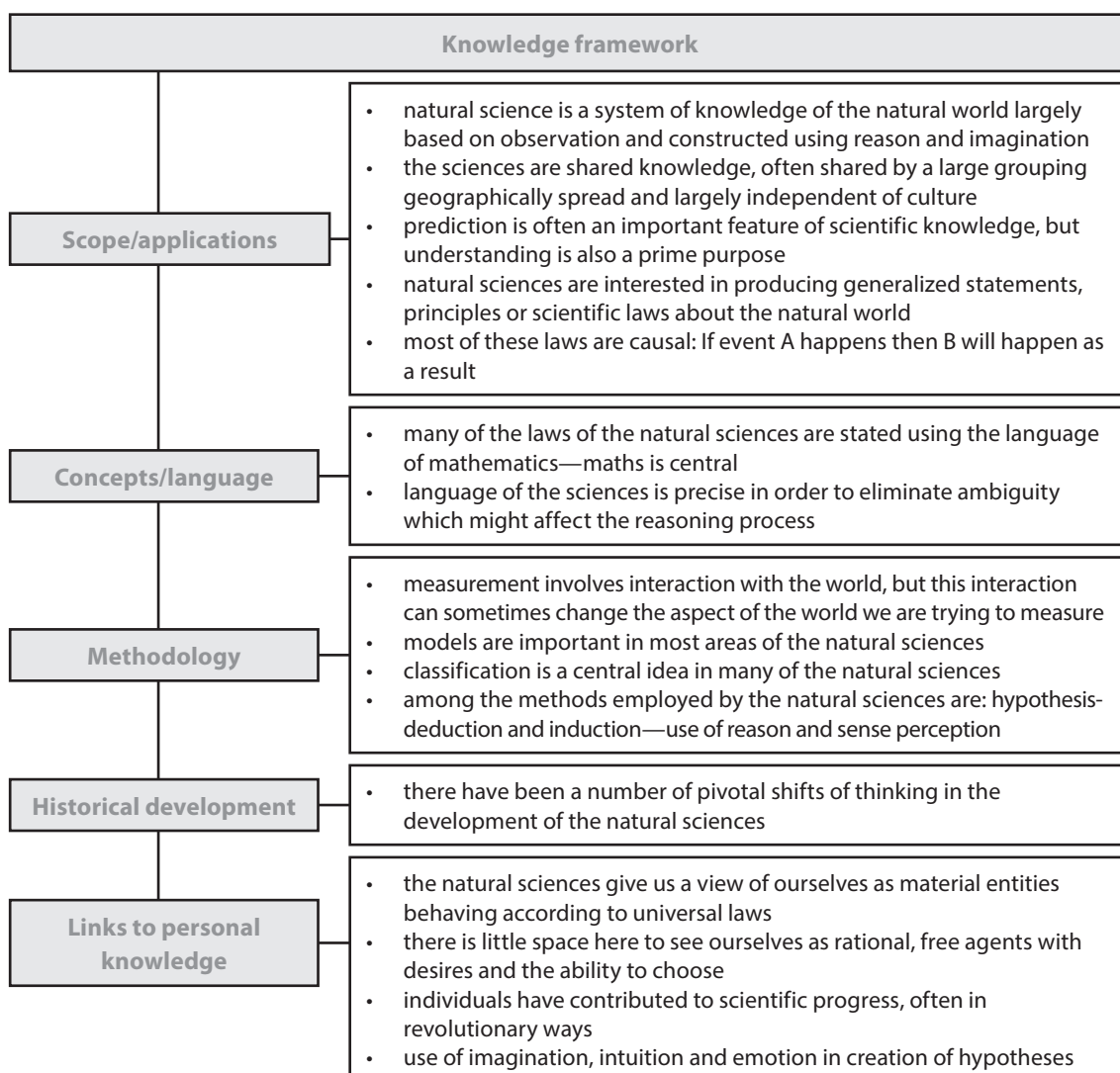
Natural sciences

What does it mean for a discipline to be a science? Is there just one scientific method? Should there be ethical constraints on the pursuit of scientific knowledge?

The natural sciences seek to discover laws of nature—regularities in the natural world. These are often causal relationships of the form “if X happens then Y will be the result”. This description implies that there is an attempt to produce a system of knowledge that is independent of human agency. Whether this is indeed possible is a matter of debate.

The methods of the natural sciences based on observation of the world as a means of testing hypotheses about it are designed to reduce the effects of human desires, expectations and preferences, in other words they are considered objective. In this sense, the natural sciences emphasize the role of empirical inquiry: scientific knowledge must be able to withstand the test of experience and experiment.

One interesting area of discussion is what differentiates the scientific from the non-scientific. Many would suggest that it is the methods used in science. It is therefore interesting to consider what it is about these methods that mean that the knowledge they generate is often regarded as more reliable than those employed by other AOKs.



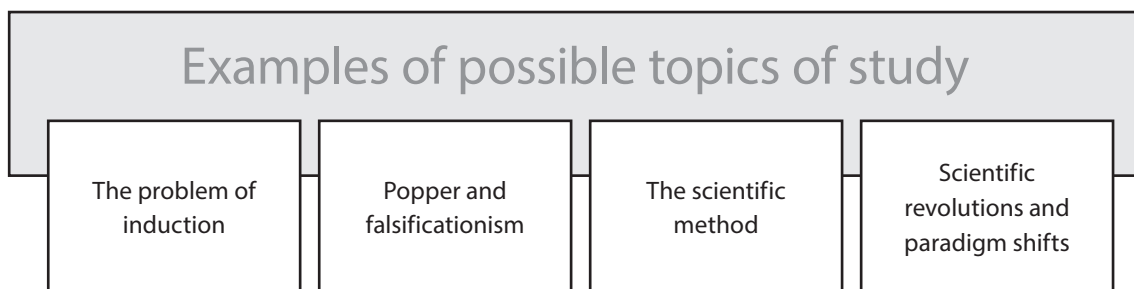
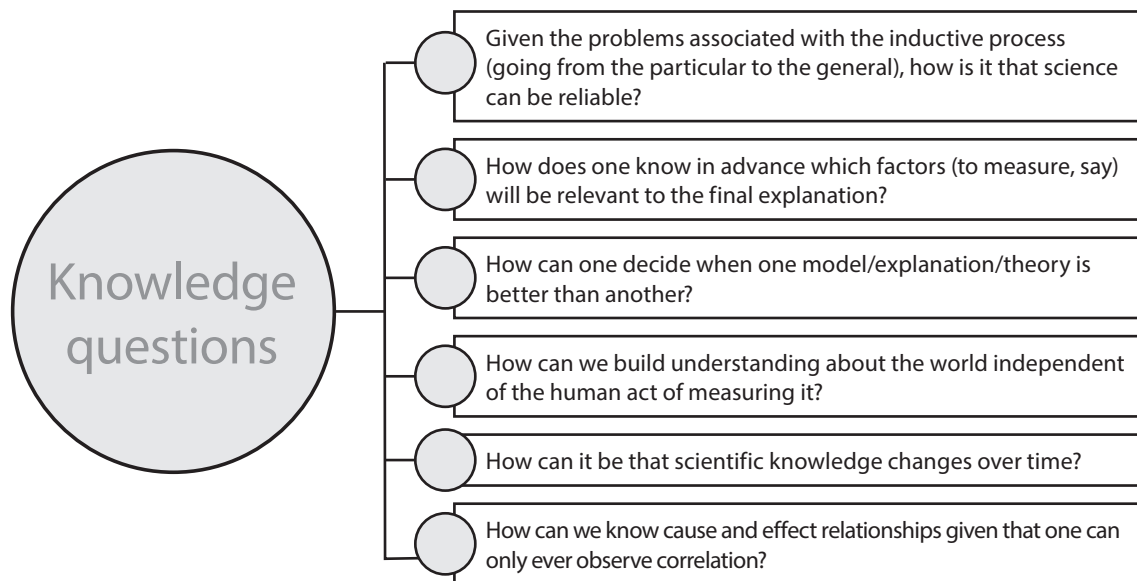


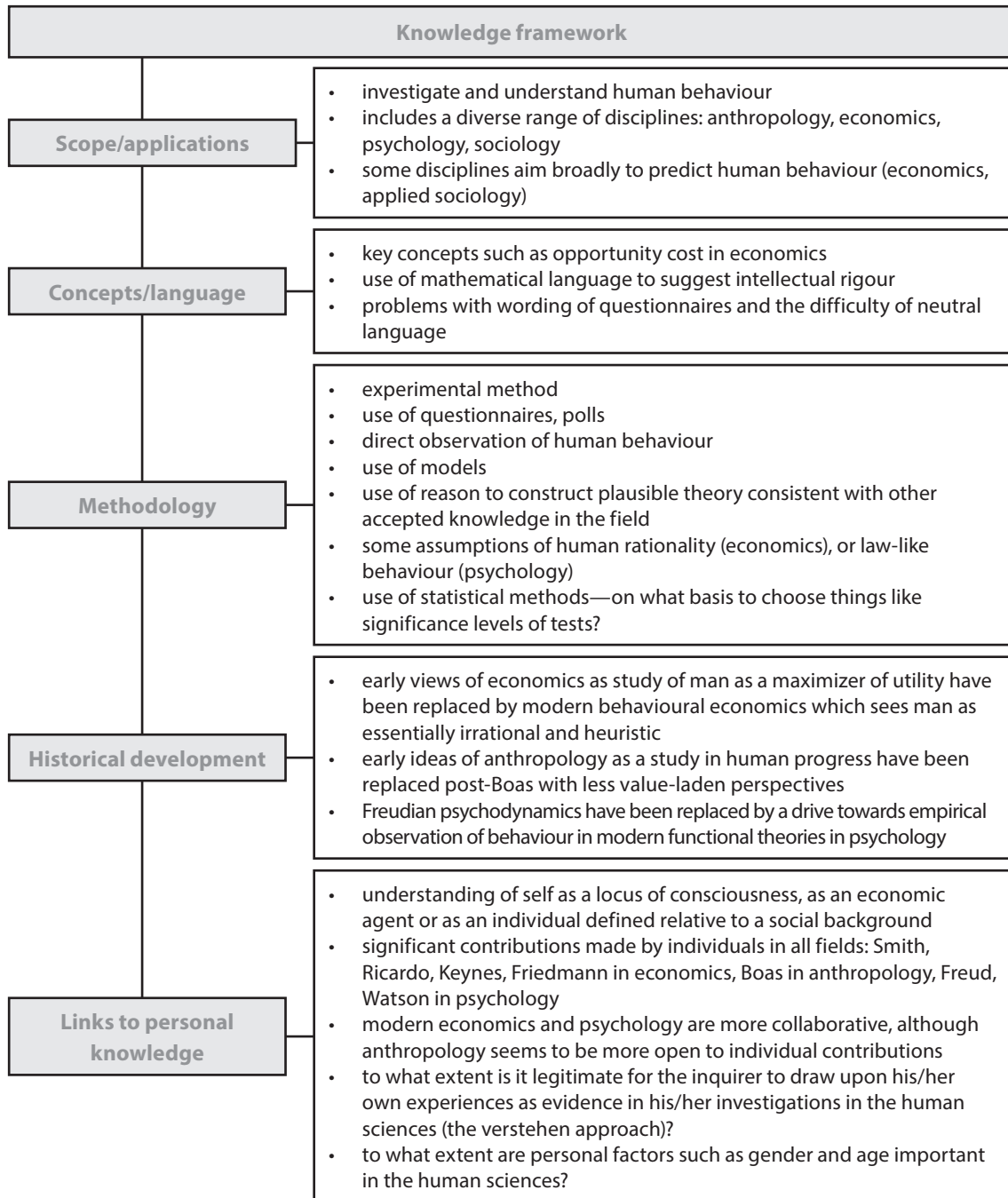
Figure 12

Human sciences

To what extent are the human sciences reliable? Can human behaviour be subject to laws in the same way as the material world? What constitutes good evidence in the human sciences?

In TOK, the term “human sciences” includes many of the subjects in group 3 (individuals and societies) in the Diploma Programme. In simple terms, the human sciences study the reality of being human. More specifically, the human sciences study the social, cultural and biological aspects of human existence. If we add the study of human behaviour to this definition then the Diploma Programme offerings cover a range of human sciences including psychology, social and cultural anthropology, economics and geography.

A fundamental difference between human sciences and natural sciences is in the interpretation of the word “science”. The human sciences might be classified as science because they use the scientific method to test the validity and reliability of hypotheses. However, unlike the natural sciences, the phenomena they try to explain might not possess hard and fast laws that admit no exceptions. They might therefore resort to statistical methods to establish their findings, producing knowledge that is less reliable in terms of issuing predictions.



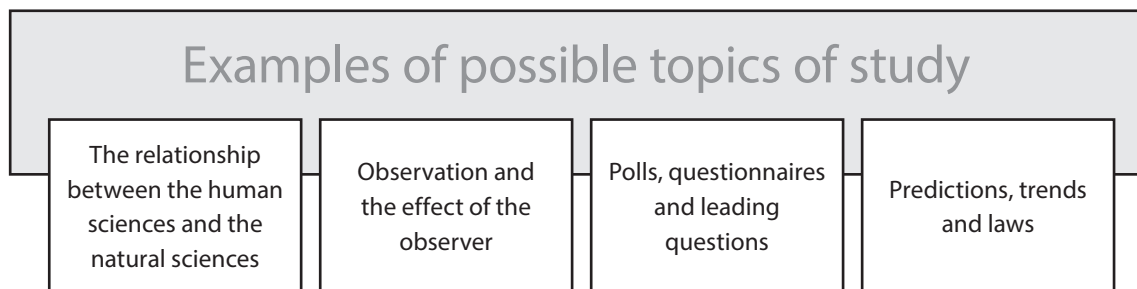
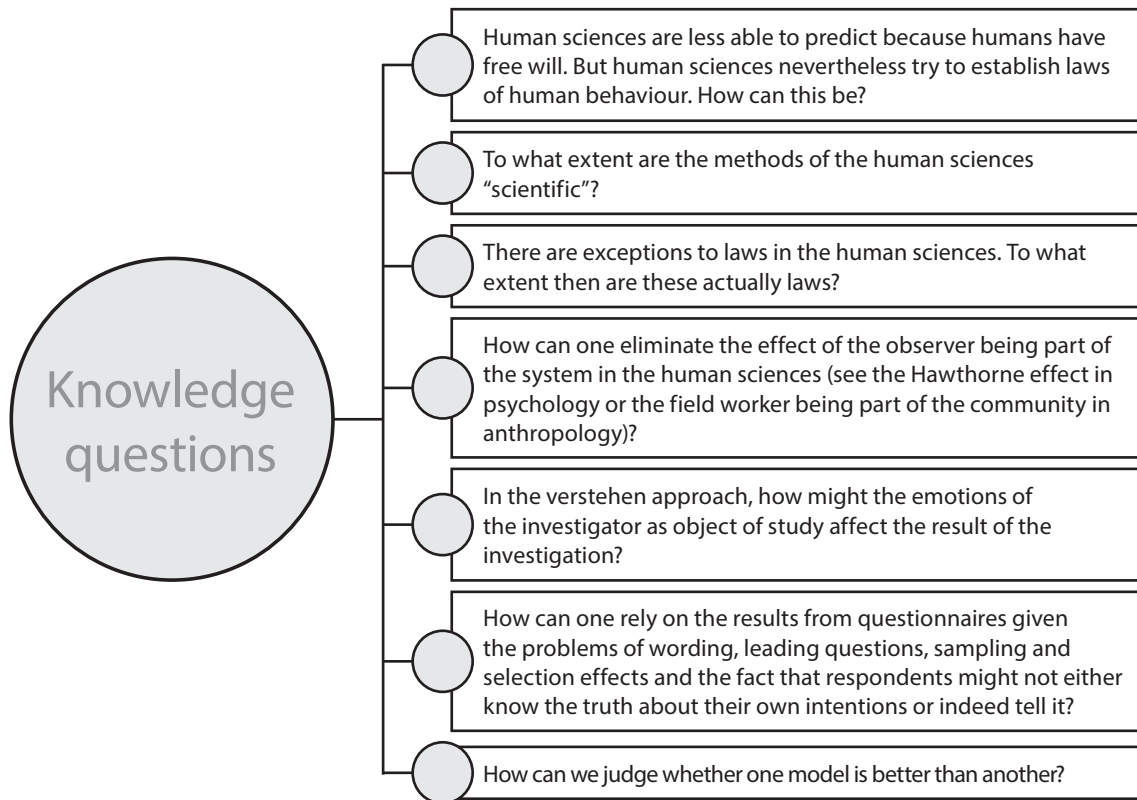


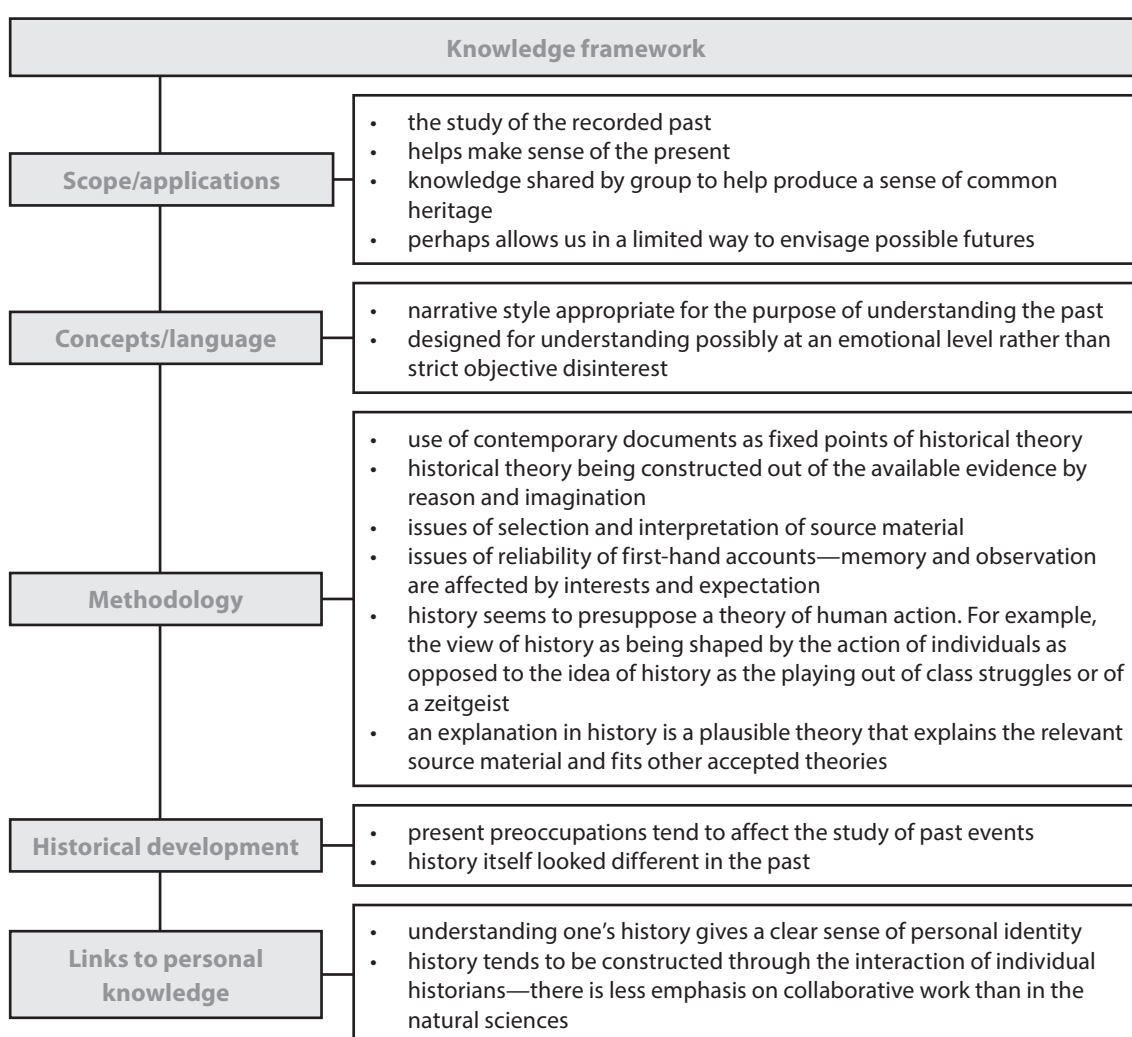
Figure 13

History

What is unique about the methodology of history? Is eyewitness testimony a reliable source of evidence? How do we decide which events are historically significant?

History is an area of knowledge that studies the recorded past. It raises knowledge questions such as whether it is possible to talk meaningfully about a historical fact and what such a fact might be, or how far we can speak with certainty about anything in the past. Studying history also deepens our understanding of human behaviour, as reflecting on the past can help us to make sense of the present.

Documentary evidence plays an important role in history, which raises questions about the basis for judgments of reliability of that evidence. The individual historian also plays an important role in history and in the 20th century there was much debate over whether historical facts exist independently of historians. Some argue that there is always a subjective element in historical writing because historians are influenced by the historical and social environment in which they are writing and this unavoidably affects their selection and interpretation of evidence.



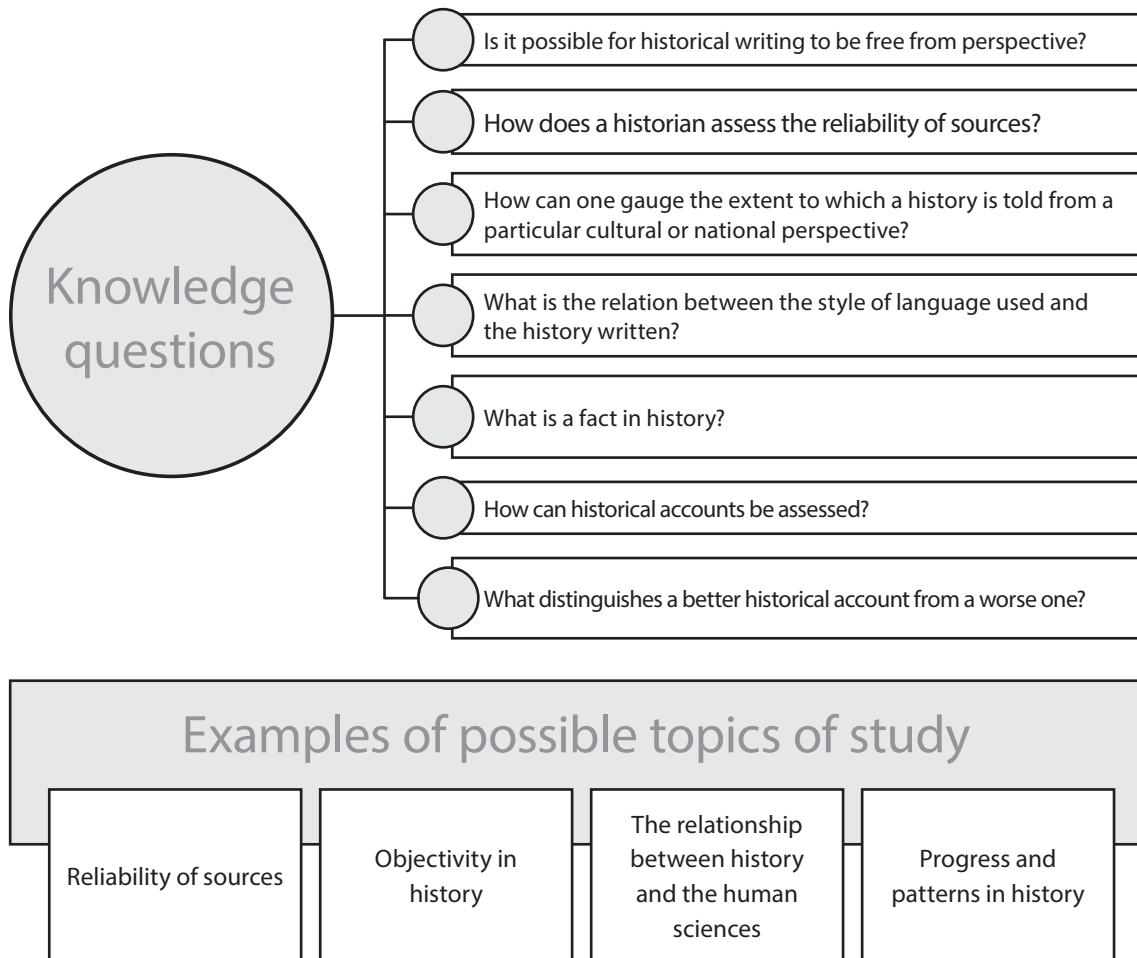


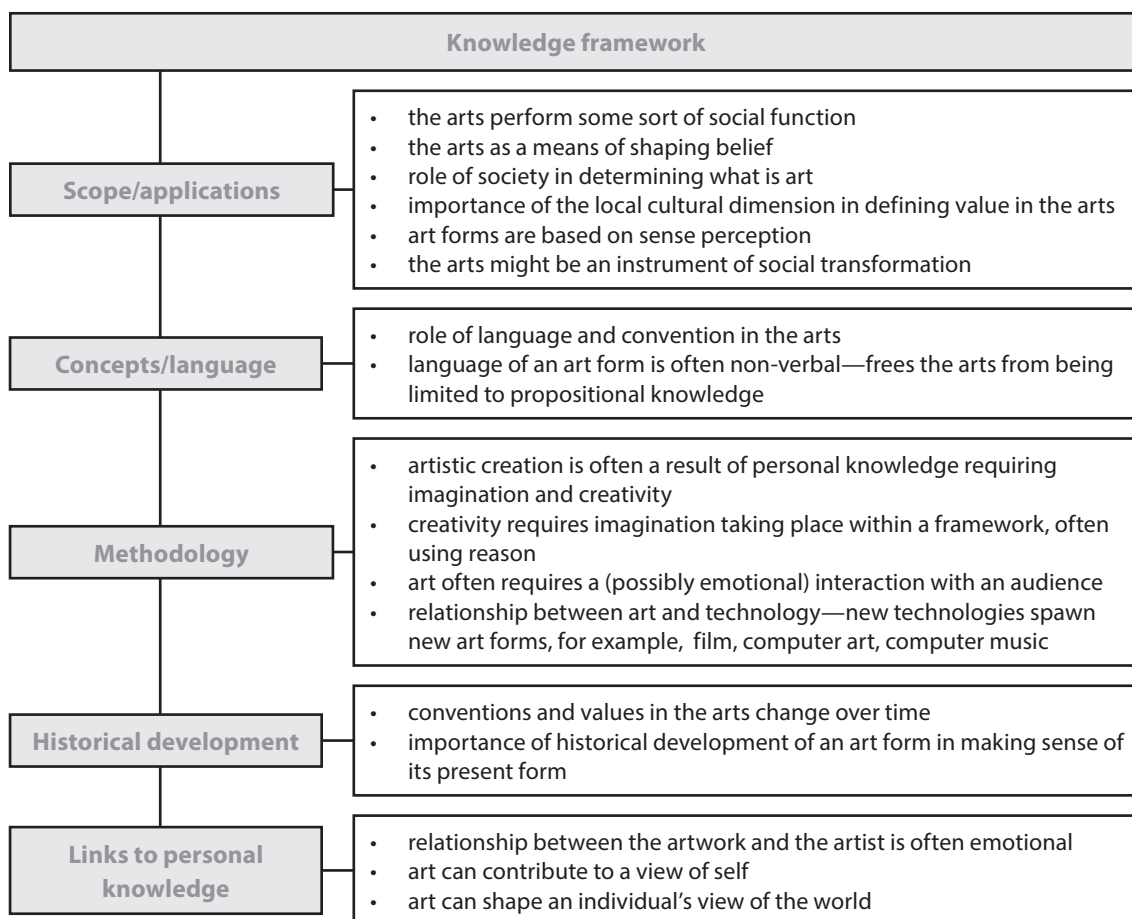
Figure 14

The arts

How can the subjective viewpoint of an individual contribute to knowledge in the arts? On what basis can the merit of a work of art be judged? Is there any point in discussing the arts—should we not simply experience them?

“The arts” is a collective term that encompasses the creative productions of humans and encompasses the visual arts, the performing arts and the literary arts. The arts explore the experience and reality of being human and are an essential element of culture.

The arts could be thought of as creating a bridge between personal knowledge and shared knowledge. Many of them are collaborative. They use emotion as a currency to generate significance at a personal level but reason provides a restrictive framework necessary for the creation of meaning: artworks have their own inner logic. Some regard the arts as having an extra-artistic cognitive function, that they have a message about man’s place in the world which might have social or political implications. For example, there might be a case for supposing that the arts have an important function as a medium for social criticism and transformation. In any case, there is a widespread belief that the arts have a higher purpose to educate by encouraging introspection and sometimes making us think about how we should live our lives.



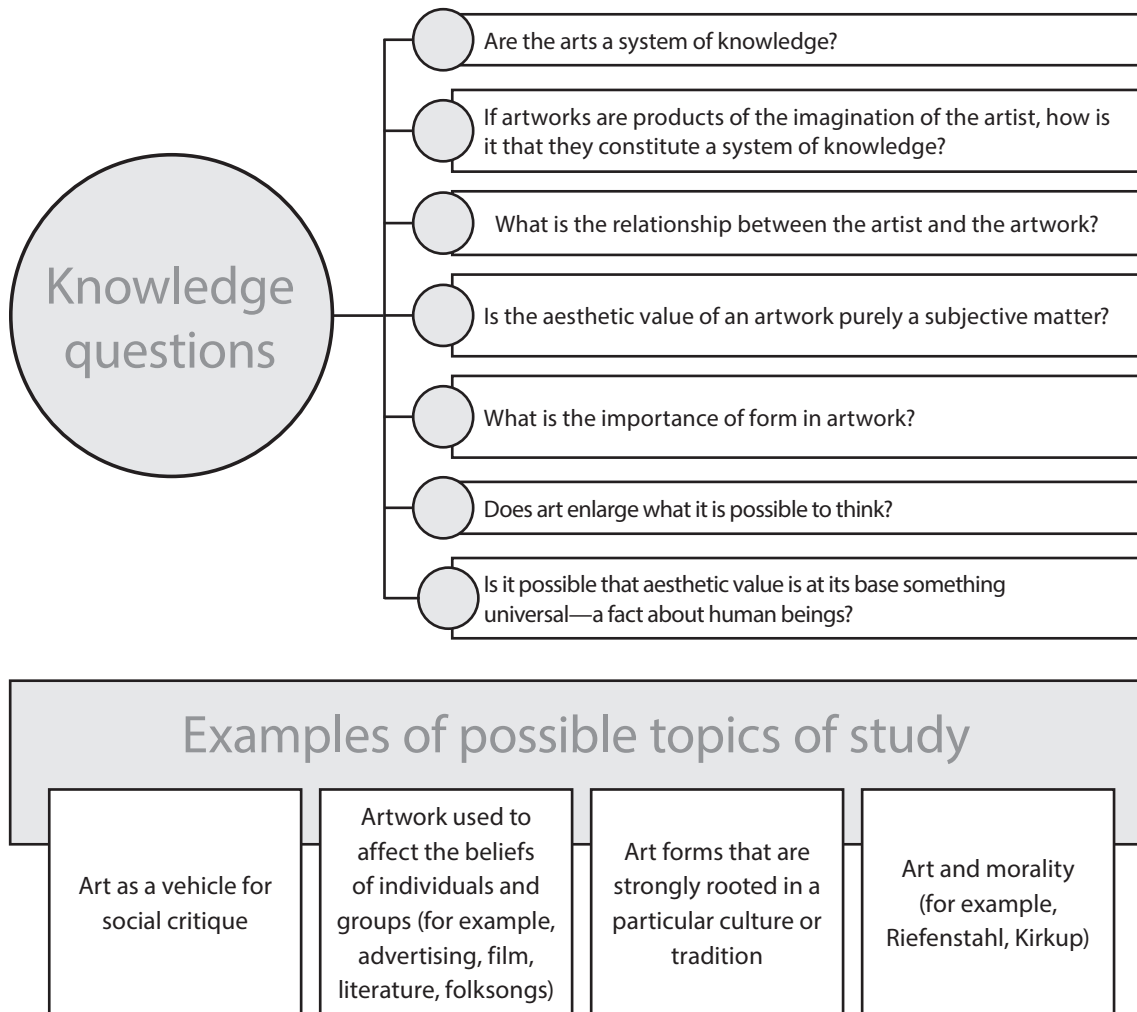


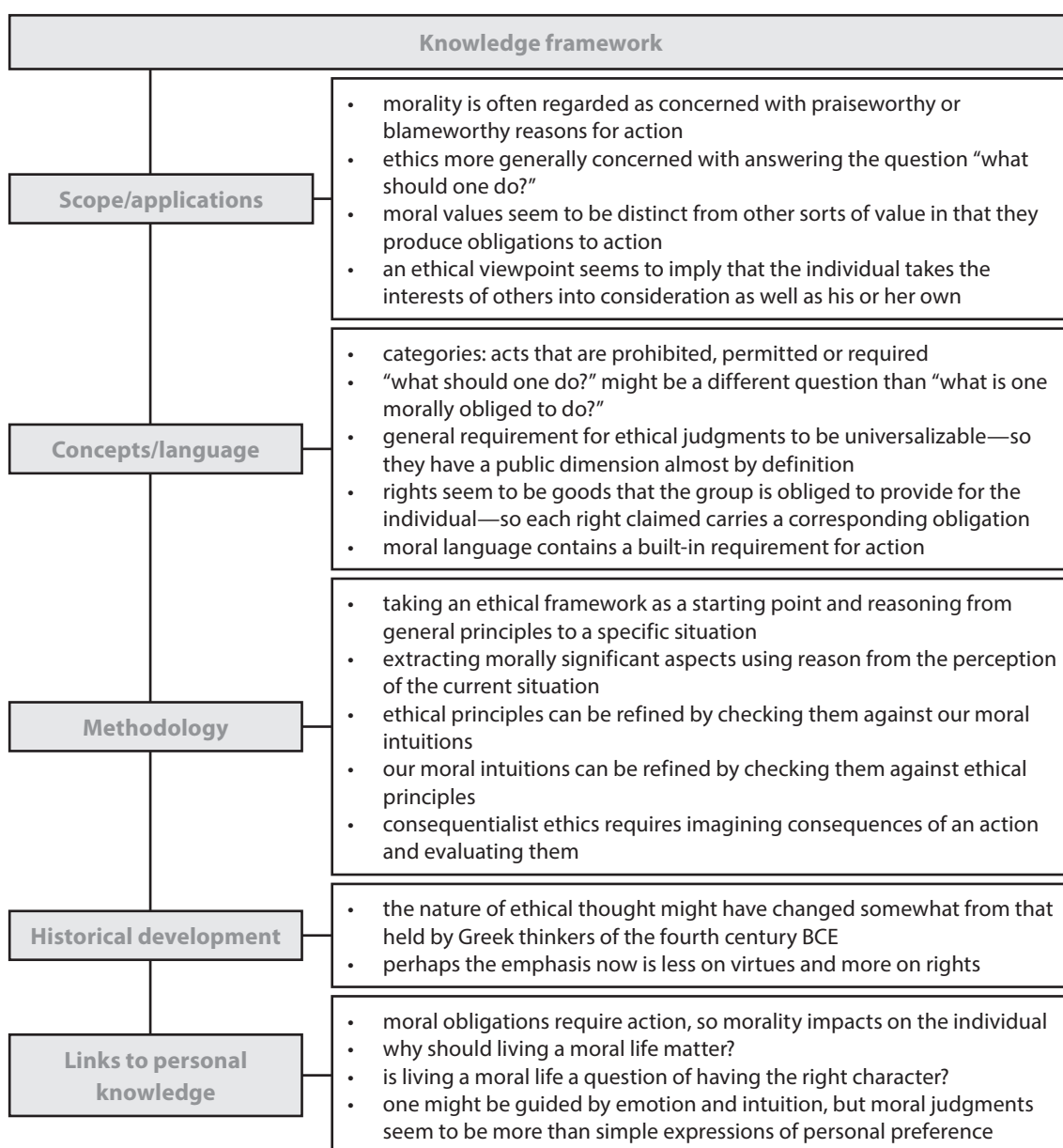
Figure 15

Ethics

Is there such a thing as moral knowledge? Does the rightness or wrongness of an action depend on the situation? Are all moral opinions equally valid? Is there such a thing as a moral fact?

One thing often said to distinguish humans from other animals is morality. A key question in ethical discussions in TOK is therefore whether we can really know whether something is moral. What is peculiar about moral values is that they seem to embody obligations for action.

An example of a key area of discussion in ethics is the issue of moral rules. There is disagreement about whether being moral is about following rules, not least because some would question whether moral rules really exist at all. There is also debate about whether moral rules should ever be broken, and if so, in what circumstances. Other key areas of discussion include the issue of whether humans are essentially altruistic or selfish, or whether the consequences of, or motivation for, an action is the location of moral value.



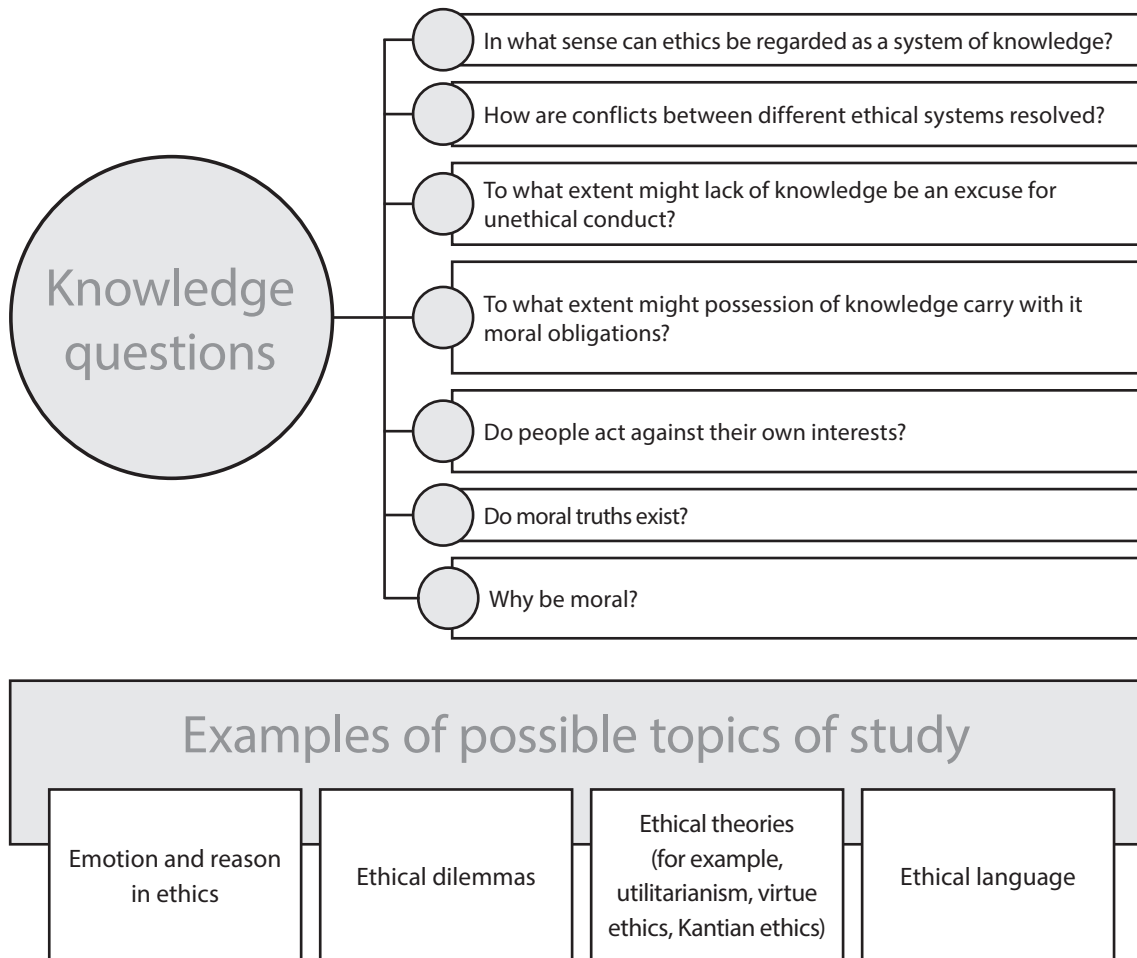


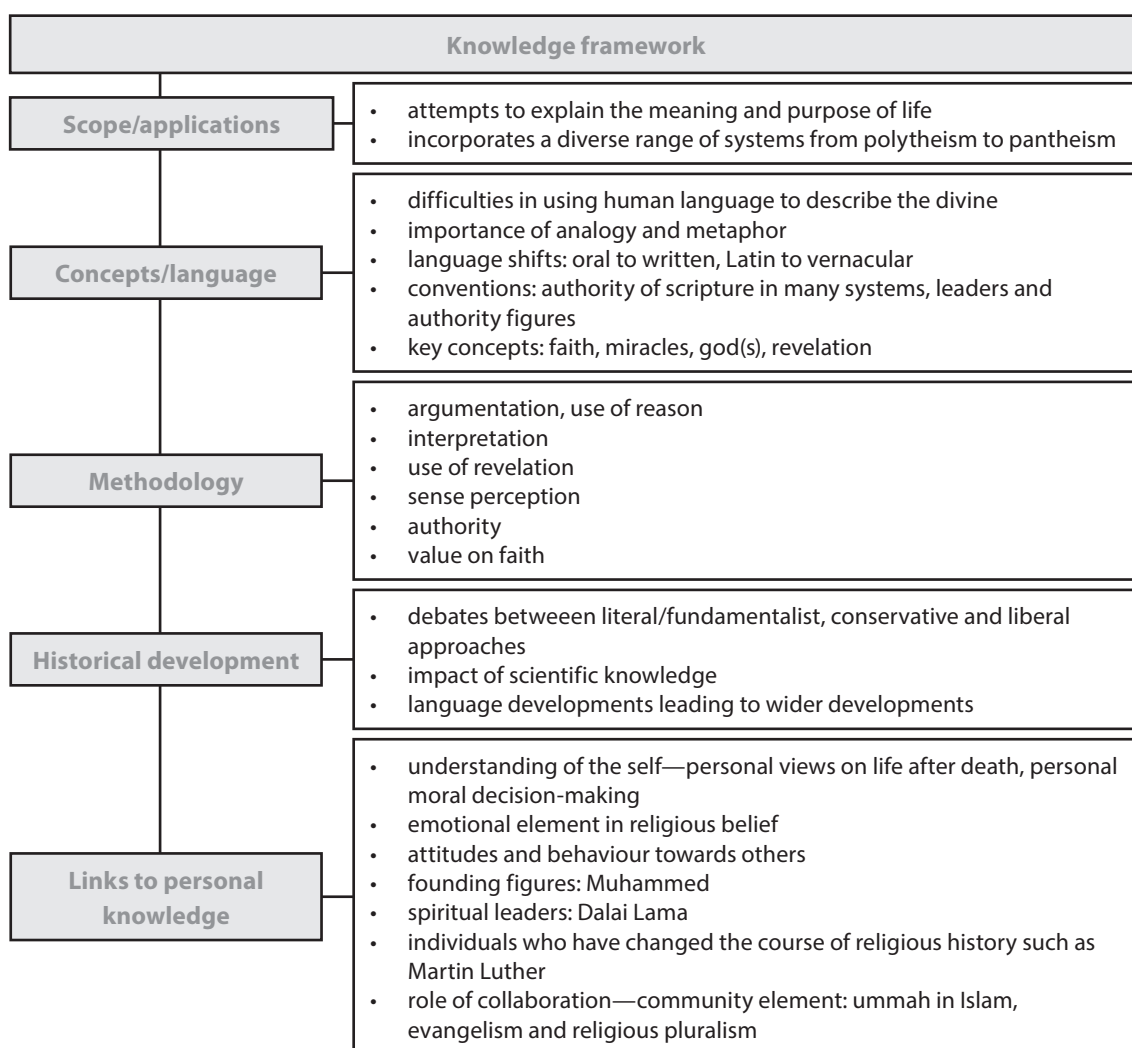
Figure 16

Religious knowledge systems

How do we decide between the competing claims of different religious knowledge systems? Can there ever be a basis for religious knowledge that is independent of the culture that produces it? Is atheism as much a matter of faith as religious belief?

Religious knowledge systems offer answers to fundamental questions about the meaning and purpose of human life. This area of knowledge incorporates a diverse range of different beliefs and systems; for example, varieties of theism, pantheism and polytheism. Some people believe that there is one true religion whereas others, known as religious pluralists, argue that the different religions are just different reflections of the same underlying truth. Religious knowledge has both a shared and personal dimension and offers a concrete context, within the TOK classroom, to explore the links between the two.

Religion is often regarded as a sensitive area in which discussions should be had with caution, in part because people have very personal and deeply held convictions regarding religious matters. However, for many people their religion has a major impact on how they understand the world, permeating their thinking and influencing their understanding of other AOKs, for example, the idea that ethics and religion are inextricably linked. In any case, for many, religion provides a backdrop to all the other knowledge they have.



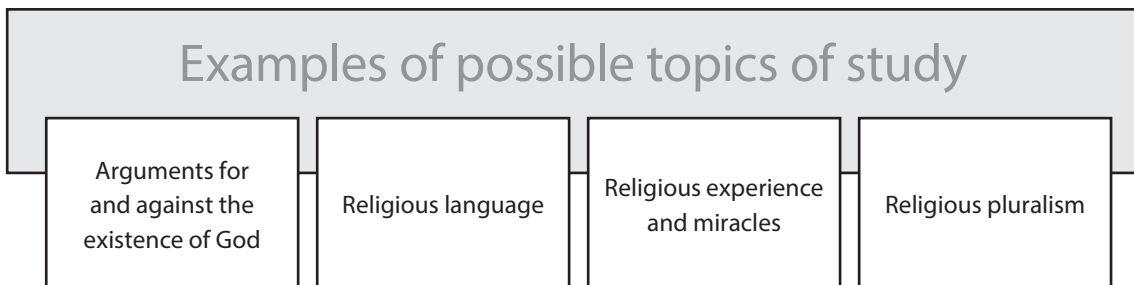
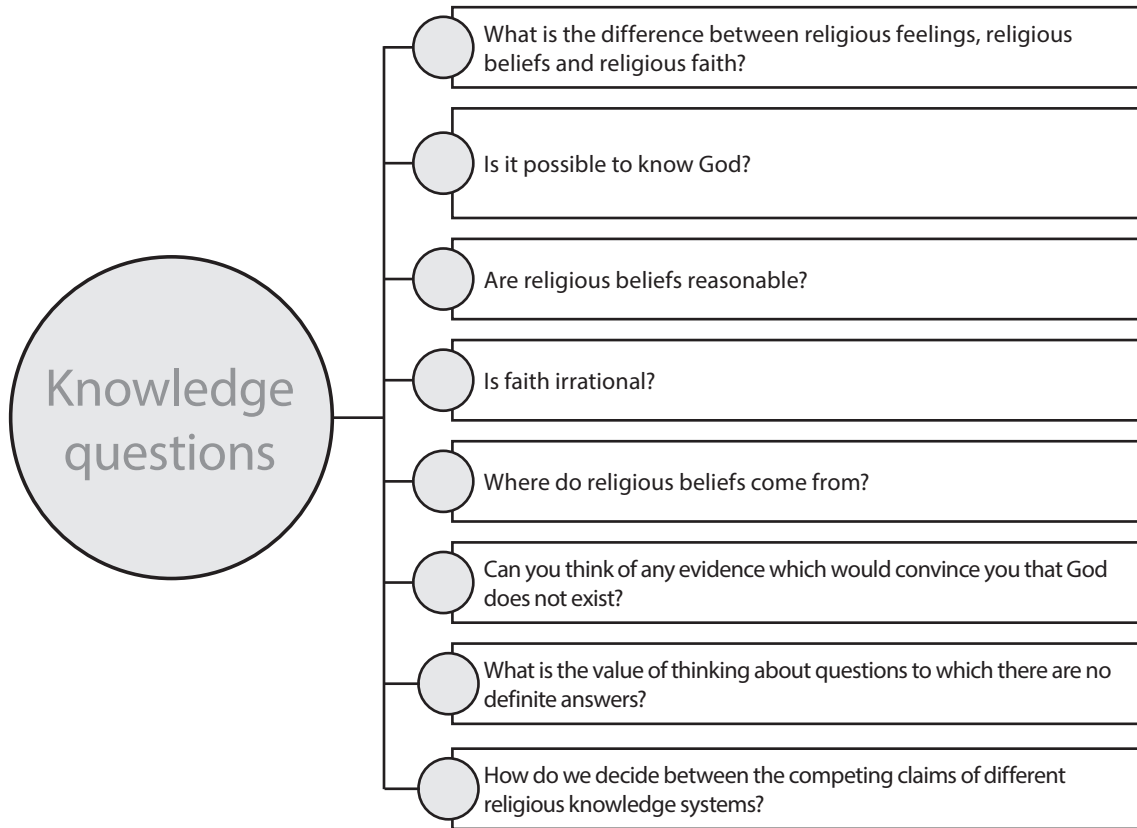


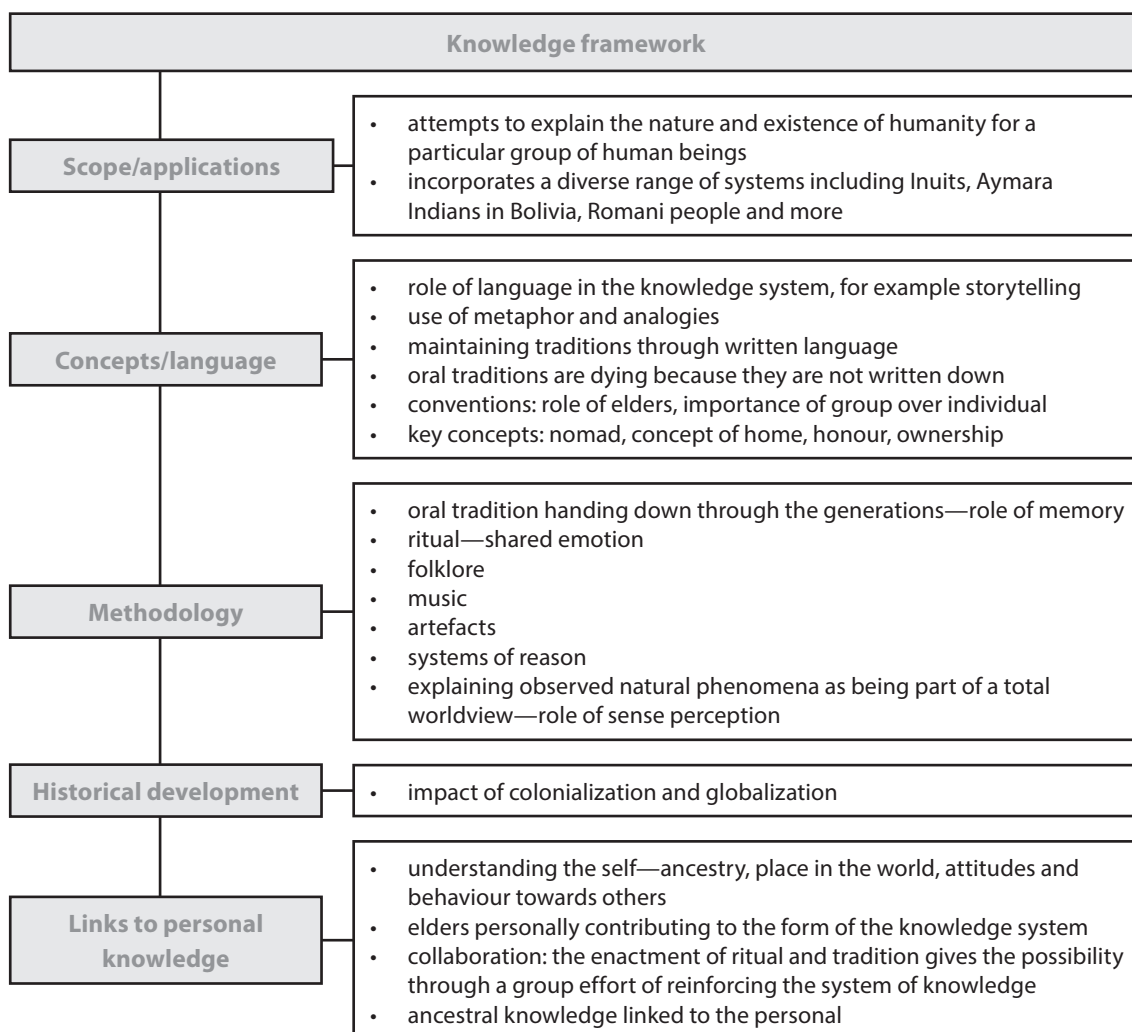
Figure 17

Indigenous knowledge systems

In what ways are sense perception and memory crucial in constructing knowledge in indigenous knowledge systems? How do beliefs about the physical and metaphysical world influence the pursuit of knowledge in indigenous knowledge systems? How do indigenous people use the concept of respect to relate to their view of the world?

Indigenous knowledge systems explore local knowledge unique to a particular culture or society. The term usually refers to the knowledge constructed by a particular group of people such as the Namaqua people of Southern Africa, the Secoya people of Ecuador and Peru, the Ryukyuan people of Japan and the Wopkaimin people of Papua New Guinea. An important feature of indigenous knowledge systems is that they are not static. They are dynamic as a result of both internal and external influences. The Maori knowledge system today, for example, is a mixture of traditional knowledge and knowledge inherited over time from exposure to European culture.

TOK students can explore this AOK from a general, broad point of view to raise awareness of the diversity of indigenous knowledge systems or they could study a particular indigenous knowledge system. When studying indigenous knowledge systems, it is important to examine the methods of communication, decision-making processes, thinking processes and the holistic view of knowledge.



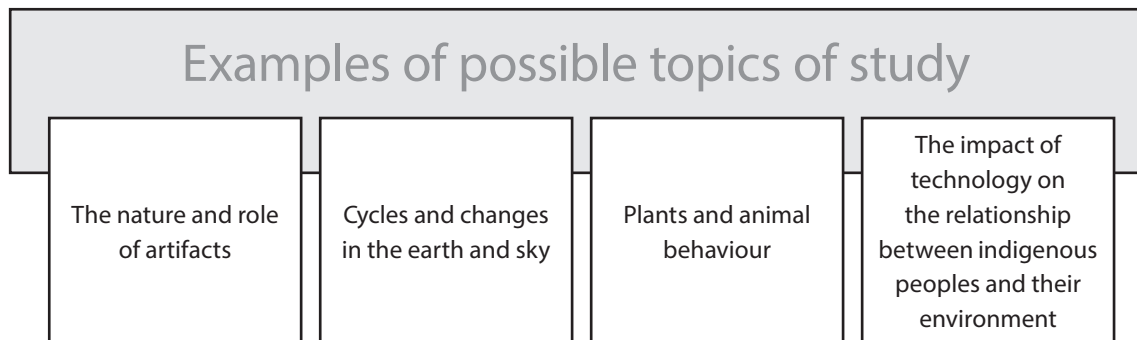
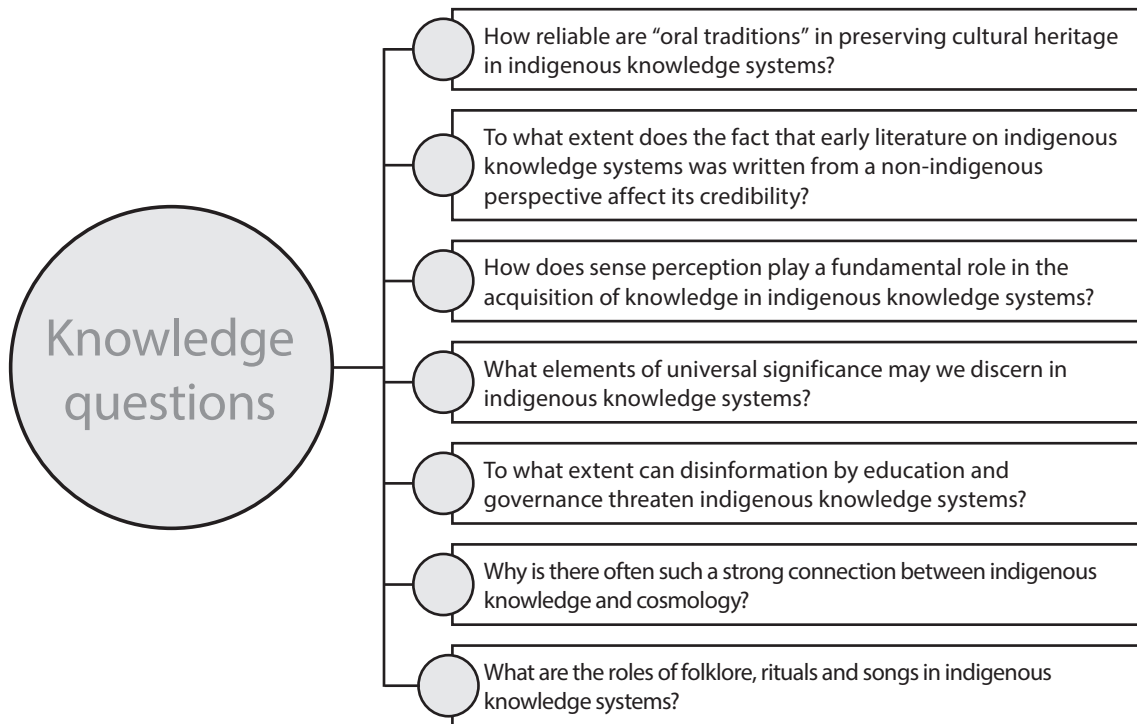


Figure 18

Assessment in the Diploma Programme

General

Assessment is an integral part of teaching and learning. The most important aims of assessment in the Diploma Programme are that it should support curricular goals and encourage appropriate student learning. Both external and internal assessment are used in the Diploma Programme. IB examiners mark work produced for external assessment, while work produced for internal assessment is marked by teachers and externally moderated by the IB.

There are two types of assessment identified by the IB.

- Formative assessment informs both teaching and learning. It is concerned with providing accurate and helpful feedback to students and teachers on the kind of learning taking place and the nature of students' strengths and weaknesses in order to help develop students' understanding and capabilities. Formative assessment can also help to improve teaching quality, as it can provide information to monitor progress towards meeting the course aims and objectives.
- Summative assessment gives an overview of previous learning and is concerned with measuring student achievement.

The Diploma Programme primarily focuses on summative assessment designed to record student achievement at or towards the end of the course of study. However, many of the assessment instruments can also be used formatively during the course of teaching and learning, and teachers are encouraged to do this. A comprehensive assessment plan is viewed as being integral with teaching, learning and course organization. For further information, see the IB *Programme standards and practices* document.

The approach to assessment used by the IB is criterion-related, not norm-referenced. This approach to assessment judges students' work by their performance in relation to identified levels of attainment, and not in relation to the work of other students. For further information on assessment within the Diploma Programme, please refer to the publication *Diploma Programme assessment: Principles and practice*.

To support teachers in the planning, delivery and assessment of the Diploma Programme courses, a variety of resources can be found on the OCC or purchased from the IB store (<http://store.ibo.org>). Teacher support materials, subject reports, internal assessment guidance, grade descriptors, as well as resources from other teachers, can be found on the OCC. Specimen and past examination papers, as well as markschemes, can be purchased from the IB store.

Special assessment arrangements are provided for candidates with special assessment needs. These arrangements enable candidates with diverse needs to access the examinations and demonstrate their knowledge and understanding of the constructs being assessed. For candidates who use sign language to access the examination, translations or transcriptions would be justified for assessment.

The IB document, *Candidates with special assessment needs* provides details on all the special assessment arrangements available to candidates with special needs. The IB document, *Special educational needs within the International Baccalaureate programmes* outlines the position of the IB with regard to candidates with diverse learning needs in the IB programmes. For candidates affected by adverse circumstances, the IB documents, *General regulations: Diploma Programme* and the *Handbook of procedures* provide details on special consideration.

Assessment outline

First assessment 2015

The assessment model in theory of knowledge (TOK) has two components, both of which should be completed within the 100 hours designated for the course.

Both the essay and the presentation are assessed using global impression marking. The essay contributes **67%** of the final mark and the presentation contributes **33%** of the final mark.

Assessment component	Marks available
<p>Part 1 Essay on a prescribed title</p> <p>One essay on a title chosen from a list of six titles prescribed by the IB for each examination session. The prescribed titles will be issued on the OCC in the September prior to submission for May session schools, and in the March prior to submission for November session schools.</p> <p>The maximum length for the essay is 1,600 words.</p> <p>All essays are externally assessed by the IB.</p>	10 marks
<p>Part 2 The presentation</p> <p>One presentation to the class by an individual or a group (a maximum of three persons in a group). Approximately 10 minutes per student is allowed for the presentation.</p> <p>One written presentation planning document (TK/PPD) for each student.</p> <p>The teacher must use the assessment descriptors published in this guide to arrive at a mark for the presentation based on the student's presentation plan (on the TK/PPD) and his/her observation of the presentation itself. The teacher must record his/her observations of the presentation on the TK/PPD. A sample of TK/PPDs is selected and moderated by the IB.</p>	10 marks

Assessment details

Nature of assessment tasks

The two assessment tasks, the essay and the presentation, both have at their centre reflection on knowledge questions, but this reflection is demonstrated differently in each. The emphasis in the TOK presentation is on demonstrating an understanding of knowledge at work in the world, and is in a sense an extensive TOK reflection on a single example (the real-life situation). It is thus distinguished from the TOK essay, where students are required to show their TOK thinking skills in the discussion of a prescribed title that may be primarily conceptual in nature.

Real-life examples play an important role in the essay by illustrating the main ideas or taking forward the argument. Real-life examples should come from the student's academic experience or from life beyond the classroom, as hypothetical examples are usually unconvincing. Anecdotal examples may be relevant but cannot on their own support the analysis in an essay. Neither the essay nor the presentation is primarily a research exercise, although some factual information may need to be included. If so, its reliability needs to be established through proper checks and referencing.

Part 1: Essay on a prescribed title

General instructions

Each student must submit for external assessment an essay on any **one** of the **six** titles prescribed by the IB for each examination session.

The titles ask generic questions about knowledge and are cross-disciplinary in nature. They may be answered with reference to any part or parts of the TOK course, to specific disciplines, or with reference to opinions gained about knowledge both inside and outside the classroom.

The titles are not meant to be treated only in the abstract, or on the basis of external authorities. In all cases, essays should express the conclusions reached by students through a sustained consideration of knowledge questions. Claims and counterclaims should be formulated and main ideas should be illustrated with varied and effective examples that show the approach consciously taken by the student. Essays should demonstrate the student's ability to link knowledge questions to AOKs and WOKs.

The chosen title must be used exactly as given; it must not be altered in any way. Students who modify the titles are likely to receive lower scores, since the knowledge questions that are explored in the essay must be connected to the titles in their prescribed formulation.

- If the title has been modified but it is still clear which prescribed title for the current session it refers to, the essay will be marked against that prescribed title. Any lack of relevance in the student's response to the prescribed title arising from this modification will be reflected in the score awarded.
- If it is clear that the title bears no literal resemblance to any title for the current session, the essay will be awarded a score of zero, in accordance with the TOK essay assessment instrument.

The essay must be written in standard 12 font and double spaced.

The role of the teacher

In relation to the student's essay on a prescribed title, the teacher has three principal responsibilities:

- to encourage and support the student in the writing of the essay
- to provide the student with advice on and guidance about the skills needed
- to ensure that the essay is the student's own work.

These responsibilities should be met through the following interactions.

1. The student should **discuss the prescribed titles** with the teacher, although the final choice remains with the student who should be encouraged wherever possible to develop his or her own ideas.
2. After choosing the title and unpacking/developing ideas in relation to it, the student may present his or her work (an **exploration**) to the teacher in some written form. For example, this might resemble a set of notes and ideas, with tentative connections drawn between them, spread over a large piece of paper. Discussion with the teacher should subsequently allow the student to create a **plan** in which the structure of the essay can be laid out by paragraph.
3. After this, the student is permitted (and should be encouraged) to present to the teacher one **full draft** of the essay. The teacher is permitted to provide written comments of a global nature, but is not permitted to mark or edit this draft.
4. While the student may seek further advice, for instance, on the appropriateness of a particular example, or on the degree of clarity if writing in a second or third language, **no further written advice** on drafts is permitted. It is the student's responsibility to correct mistakes and make improvements.

The procedure for uploading the TOK essay can be found in the *Handbook of procedures for the Diploma Programme*.

Academic honesty

Authenticity

Teachers must ensure to the best of their ability that essays are the student's own work. In cases where there is concern, the authenticity of the essay can be checked through a discussion with the student and scrutiny of one or more of the following before uploading:

- the student's initial exploration of the title
- the full draft of the essay
- the student's references and/or bibliography for the essay, where appropriate
- the style of the writing, which may reveal obvious discrepancies
- a report from an online plagiarism detection service.

Acknowledgments and references

Students are expected to acknowledge fully and in detail the work, thoughts or ideas of another person if incorporated in work submitted for assessment, and to ensure that their own work is never given to another student, either in the form of hard copy or by electronic means, knowing that it might be submitted for assessment as the work of that other student.

The IB does not prescribe which style(s) of referencing or in-text citation should be used by students; this is left to the discretion of appropriate faculty/staff in the school. Regardless of the reference style adopted by the school for a given subject, it is expected that the minimum information given includes name of author(s), date of publication, title of source, and page numbers as applicable.

Students are expected to use a standard style and use it consistently so that credit is given to all sources used, including sources that have been paraphrased or summarized. When writing text a student must clearly distinguish between their words and those of others by the use of quotation marks (or other method such as indentation) followed by an appropriate reference that denotes an entry in the bibliography or works cited. The title “bibliography” or “works cited” depends on the referencing style that has been chosen. If an electronic source is cited, the date of access must be indicated.

Students are not expected to show faultless expertise in referencing, but are expected to demonstrate that all sources have been acknowledged. Students must be advised that visual material, text, graphs, images and/or data published in print or in electronic sources that is not their own must also be attributed to the source. Again, an appropriate style of referencing/citation must be used.

Factual claims that may be considered common knowledge (for example, “animals are not capable of performing photosynthesis”) do not need to be referenced. However, it should be noted that what one person thinks of as common knowledge within a particular culture, may be unfamiliar to someone else, for example, an examiner in a different part of the world. This would relate particularly to examples given from popular culture. If in doubt, give an authoritative source for the claim.

Classroom handouts, if they are the original work of a teacher, must be cited in the same way as a book. If their contents have been taken from a separate source, that source should be cited.

Bibliography or works cited

The TOK essay is not primarily a research paper but it is expected that specific sources will be used and these must be acknowledged in a bibliography or works cited list.

The bibliography or works cited should include only those works (such as books, journals, magazines and online sources) used by the student. There needs to be a clear connection between the works listed and where they are used in the text. A list of books at the end of the essay is not useful unless reference has been made to all of them within the essay.

As appropriate, the bibliography or works cited list should specify:

- author(s), title, date and place of publication
- the name of the publisher or URL (<http://...>)
- the date when the web page was accessed, adhering to one standard method of listing sources.

Failure to comply with this requirement will be viewed as plagiarism and will, therefore, be treated as a case of academic misconduct.

Essay length

The maximum length of the essay is **1,600 words**. Extended notes, extensive footnotes or appendices are not appropriate to a TOK essay and may not be read.

The word count includes:

- the main part of the essay
- any quotations.

The word count does not include:

- any acknowledgments
- the references (whether given in footnotes, endnotes or in-text)
- any maps, charts, diagrams, annotated illustrations or tables
- the bibliography.

Essays that exceed the word limit will be penalized in the following ways:

- examiners are instructed to stop reading after 1,600 words and to base their assessment on just the first 1,600 words.
- a 1 mark penalty will be applied to the essay.

Students are required to indicate the number of words when the essay is uploaded during the submission process.

Part 2: The presentation

General instructions

Students must make one or more individual and/or small group presentations to the class during the course. Presentations must be delivered in a language accessible to all members of the class (if the school has been notified to submit presentation recordings, those presentations must be given in the language for which the students have been, or will be, registered).

The maximum group size is **three**. If a student makes more than one presentation, the teacher should choose the best one (or the best group presentation in which the student participated) for the purposes of assessment. **Students are not permitted to offer presentations on the same specific subject matter more than once.** This refers to either the same knowledge question, or the same real-life situation. It is advised that the presentation should take place towards the end of the course, as otherwise students may not have had the chance to develop skills such as formulating knowledge questions which are key to this task.

The TOK presentation requires students to identify and explore a knowledge question raised by a substantive real-life situation that is of interest to them. The selected real-life situation may arise from a local domain of personal, school, or community relevance, or from a wider one of national, international or global scope. Whatever situation is chosen, it must lend itself naturally to a question about knowledge.

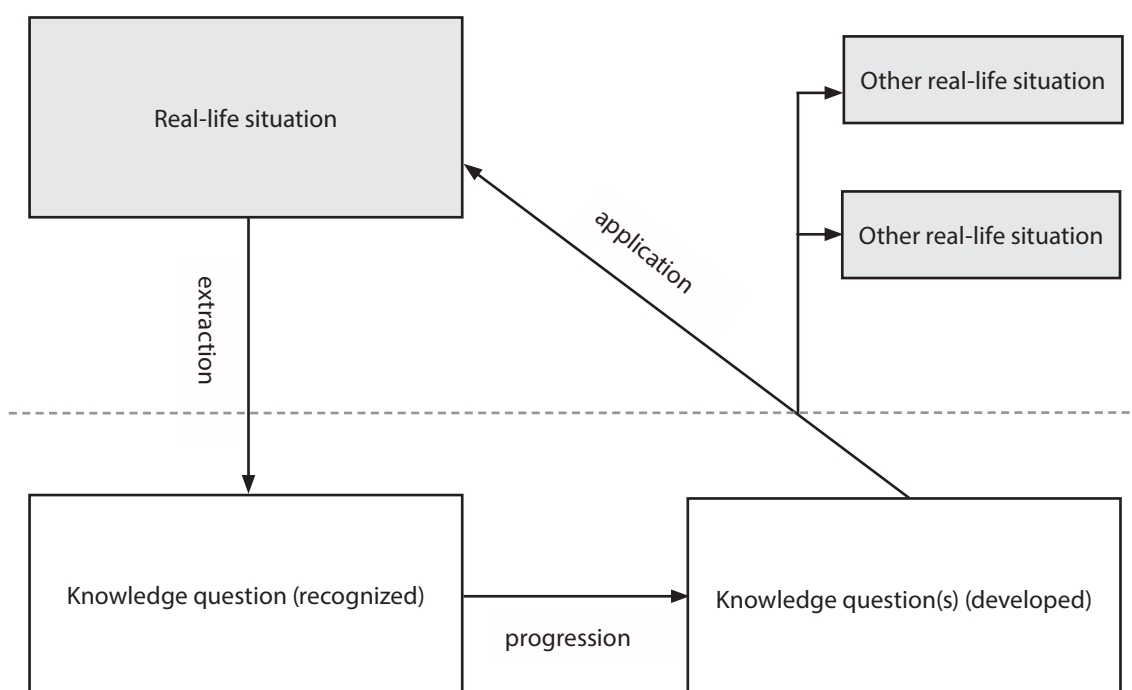


Figure 19

The student is required to extract and explore a knowledge question from a substantive real-life situation. For this reason, it is wise that students avoid real-life situations that need a great deal of explanation from outside sources before the extracted knowledge question can be understood in context.

The diagram indicates that a successful presentation will have several dimensions.

- The two levels in the diagram represent the students' experiences in the TOK course (lower level) and in the world beyond it (upper level). The connections between the levels demonstrate the relevance of TOK to life beyond the TOK classroom.
- At the "real-world" level, there is the real-life situation from which a knowledge question must be **extracted**.
- This knowledge question, residing in the "TOK world", must be **developed** using ideas and concepts from the TOK course, and in this **progression** it is likely that other related knowledge questions will be identified and will play a part in taking the argument forward.
- The product of this reflection can be **applied** back (during and/or after the development) to the real-life situation at the "real-world" level.
- In addition, the presentation should ideally aim to show how the process of application extends beyond the original situation to other real-life situations, thus demonstrating why the presentation is important and relevant in a wider sense.

Presentations may take many forms, such as lectures, interviews or debates. Students may use multimedia, costumes, or props to support their presentations. However, under **no circumstances** should the presentation be simply an essay read aloud to the class. While pre-recorded inserts **within** a presentation are permissible, the presentation itself must be a live experience and not a recording **of** the presentation.

If students incorporate the thoughts and ideas of others into the presentation, this **must** be acknowledged.

Before the presentation, the individual or group must give the teacher a copy of the **presentation planning document**. This is part of the assessment procedure (see below). The document is not to be handed out to the audience.

The role of the teacher

In relation to the presentation, the teacher has three principal responsibilities:

- to encourage and support the student(s) in the preparation of the presentation
- to provide guidance on presentation skills
- to assess the presentation using the presentation assessment instrument.

These responsibilities should be met through the following interactions.

- The student(s) should bring to an **initial meeting** with the teacher ideas for the selection of a real-life situation and the formulation of a knowledge question. The teacher should advise, but the final decisions belong with the student(s). The eventual success of this process will depend on a consideration of how the presentation will develop, so **a second planning meeting is permitted, if required**. Often a variety of appropriate knowledge questions can be identified in the kind of real-life situations most students will want to discuss. Teachers should help them concentrate their efforts on a clearly formulated one.
- A **final meeting** between student(s) and teacher can take place several days before the presentation, in which the final structure of the presentation can be discussed. The presentation is intended as a positive learning experience for the audience, and therefore it is important that the quality of the product is monitored at this stage.

Each real-life situation and knowledge question should be treated **only once** in a particular teaching group.

In summary, the teacher should give the presenter(s) every opportunity to construct a presentation that will advance the aims of the TOK course for the class as a whole. The teacher may support students by guiding them towards suitable approaches but should not do their work for them.

The date when each presentation is to take place should be given to students well in advance, to allow sufficient time for preparation of material.

Presentation duration

Approximately 10 minutes per presenter should be allowed, up to a maximum of approximately 30 minutes per group. Presentations should be scheduled to allow time for class discussion afterwards.

Interaction and audience participation are allowed during the presentation, not just in follow-up discussion, but there must be an identifiable substantial input from the presenter(s) that is assessable.

Internal assessment documentation

Presentation planning document (TK/PPD)

Each student must complete and submit a presentation planning and marking document (TK/PPD).

The procedure is as follows.

- The student will complete the student sections of the TK/PPD form.
- The student will provide a hard copy to the teacher for reference during the presentation.
- The student will subsequently give the presentation.
- The teacher will authenticate each student's form and add comments on the presentation.

The section to be completed by the student requires responses to the following.

Describe your real-life situation.

State your central knowledge question.

Explain the connection between your real-life situation and your knowledge question.

Outline how you intend to develop your presentation, with respect to perspectives, subsidiary knowledge questions and arguments.

Show how your conclusions have significance for your real-life situation and beyond.

This should be presented in skeleton or bullet point form, typed in standard 12 font and not exceed 500 words. It is acceptable to include diagrams, as long as they are clearly related to the text. It is not permitted to exceed the two sides of the TK/PPD form.

Participants in a group presentation must be given the same marks. In a group presentation, not every student need speak for the same amount of time, but it is the presenters' responsibility to ensure that all members of the group participate actively and make comparable contributions.

Moderation of internal assessment

The procedure for uploading the TK/PPD form can be found in the *Handbook of procedures for the Diploma Programme*.

Marks awarded by teachers for the presentation will be subject to moderation procedures through sampling of the associated TK/PPD forms that have been uploaded. The objective of this process is to judge whether the contents of the TK/PPD form justify the marks given by the teacher for the presentation.

In addition, some schools in each session may be required to record some or all of their presentations. These schools may be chosen:

- at random, in order to examine the relationships between plans and performance
- because students are producing excellent presentations which could be used for professional development purposes
- because an anomaly has been identified, for example, in the correlation between the marks for the presentations and the essays of students.

It is not necessary for schools to record presentations unless they are asked to do so, although it can be a useful exercise in order to standardize internal marking, where more than one teacher is involved.

Assessment instruments

Using global impression marking

The method of assessing the essay on a prescribed title and the presentation in TOK judges each piece of work in relation to written descriptions of performance and not in relation to the work of other students.

The assessment of both tasks is envisaged as a process of holistic or global judgment rather than an analytical process of totalling the assessment of separate criteria. Although in the essay the assessment is presented as two aspects, they are integrated into five described levels of performance, allowing for variation in student performance across different parts of the overall assessment. Because of the requirement for a reasonable mark range along which to differentiate student performance, each markband level descriptor corresponds to a range of two different marks.

Assessment judgments should in the first instance be made with reference to the level descriptors for **typical characteristics**. The **possible characteristics** underneath are intended as starting prompts for discussion and development of a shared vocabulary among examiners, moderators, teachers and students as to how work at each level might be described.

The possible characteristics corresponding to a level of performance should not be thought of as a checklist of attributes; they are intended to function only as tentative descriptions, some of which may seem appropriate to apply to work at that level.

The achievement level descriptors concentrate on positive achievement, although for the lower levels (zero is the lowest level of achievement) failure to achieve is included in the description.

These level descriptors are designed to be used as a whole, and operate at a global level. It is to be understood that:

- the described levels are not a checklist or necessary minimum
- the different levels of performance are not discrete, and differences of degree are involved
- different levels suggest typical performance, and there are always exceptions requiring individual or case by case judgments
- the performance of students can be uneven across different aspects, but it is the overall impression that is most important.

Examiners and moderators will use the levels of performance as the terms on which they make a judgment that draws on their knowledge of what students at this level can do with tasks of this kind. How examiners and moderators will make a judgement about the level of performance attained in a particular student response will vary.

Essay examiners may make a decision in the course of reading the piece, and then review it and make a final judgment after completing a reading. Or they may register the comments and arguments of a student, read the essay as a whole and make a decision in retrospect. In either case the described levels are to be seen as global and holistic rather than a checklist of necessary characteristics. Examiners will make judgments about individual pieces of work by taking into account and evaluating the distinctive characteristics of a particular script.

Presentation moderators will similarly endeavour to reach a holistic judgment based on the responses of the student(s) and teacher on the TK/PPD form.

The markbands for each assessment task in effect represent a single holistic criterion applied to the piece of work, which is judged as a whole. The highest descriptor levels do not imply faultless performance and examiners and teachers should not hesitate to use the extremes if they are appropriate descriptions of the work being assessed.

Part 1: Essay on a prescribed title

The following diagram shows the question underpinning a global impression judgment of the TOK essay. This question is to shape the reading and assessing of TOK essays.

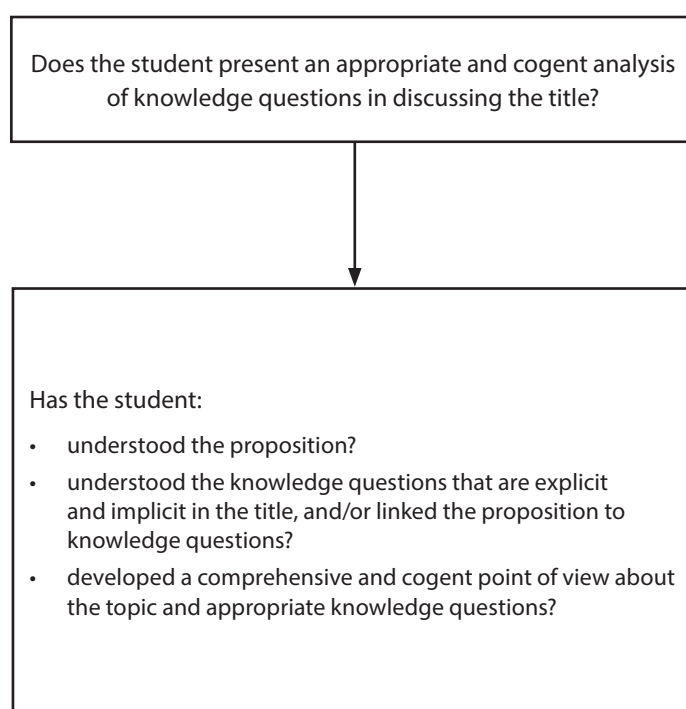


Figure 20

The judgment about the TOK essay is to be made on the basis of the following two aspects:

1. Understanding knowledge questions

This aspect is concerned with the extent to which the essay focuses on knowledge questions relevant to the prescribed title, and with the depth and breadth of the understanding demonstrated in the essay.

Knowledge questions addressed in the essay should be shown to have a direct connection to the chosen prescribed title, or to be important in relation to it.

Depth of understanding is often indicated by drawing distinctions within WOKs and AOKs, or by connecting several facets of knowledge questions to these.

Breadth of understanding is often indicated by making comparisons between WOKs and AOKs. Since not all prescribed titles lend themselves to an extensive treatment of an equal range of AOKs or WOKs, this element in the descriptors should be applied with concern for the particularity of the title.

Relevant questions to be considered include the following.

- Does the essay demonstrate understanding of knowledge questions that are relevant to the prescribed title?
- Does the essay demonstrate an awareness of the connections between knowledge questions, AOKs and WOKs?
- Does the student show an awareness of his or her own perspective as a knower in relation to other perspectives, such as those that may arise, for example, from academic and philosophical traditions, culture or position in society (gender, age, and so on)?

2. Quality of analysis of knowledge questions

This aspect is concerned only with knowledge questions that are relevant to the prescribed title.

Relevant questions to be considered include the following.

- What is the quality of the inquiry into knowledge questions?
- Are the main points in the essay justified?
- Are the arguments coherent and compelling?
- Have counterclaims been considered?
- Are the implications and underlying assumptions of the essay's argument identified?
- Are the arguments effectively evaluated?

Analysis of a knowledge question that is not relevant to the prescribed title will not be assessed.

Note: The TOK essay is not an assessment of first or second language literacy. Students should have properly edited their work, but whether they have done so is not in itself a matter for assessment. While the two are usually highly correlated, assessors will be wary of taking linguistic fluency for substantive understanding and analysis of knowledge questions. A fluent and stylish rendition of different knowledge questions does not in itself amount to analysis or argument. Discussion of knowledge questions must be clearly related and appropriately linked to a set title. Equally, an essay written with minor mechanical and grammatical errors can still be an excellent essay and examiners will not take these errors into consideration when marking the essay. It is only when these errors become major and impede the comprehension of the essay that they will be taken into account.

TOK essay assessment instrument

		Does the student present an appropriate and cogent analysis of knowledge questions in discussing the title?				
Aspect	Level 5 Excellent 9–10	Level 4 Very good 7–8	Level 3 Satisfactory 5–6	Level 2 Basic 3–4	Level 1 Elementary 1–2	Irrelevant 0
Understanding knowledge questions	There is a <i>sustained focus on knowledge questions</i> connected to the prescribed title and are well chosen— developed with <i>investigation</i> of different perspectives and linked <i>effectively</i> to areas of knowledge and/or ways of knowing .	There is a <i>focus on knowledge questions</i> connected to the prescribed title— developed with <i>acknowledgment</i> of different perspectives and linked to areas of knowledge and/or ways of knowing .	There is a <i>focus on some knowledge questions</i> connected to the prescribed title—with <i>some development</i> and linking to areas of knowledge and/or ways of knowing .	Some knowledge questions that are <i>connected</i> to the prescribed title are considered, but the essay is largely <i>descriptive</i> , with <i>superficial or limited links to areas of knowledge</i> and/or ways of knowing .	The essay has only very limited relevance to the prescribed title—relevant points are <i>descriptive</i> .	The essay does not reach a standard described by levels 1–5 or is not a response to one of the prescribed titles on the list for the current session.
Quality of analysis of knowledge questions	Arguments are <i>clear</i> , supported by real-life examples and are <i>effectively evaluated</i> ; counterclaims are <i>extensively explored</i> ; implications are <i>drawn</i> .	Arguments are <i>clear</i> , supported by real-life examples and are <i>evaluated</i> ; some counterclaims are identified and <i>explored</i> .	Some arguments are <i>clear</i> and supported by examples ; some counterclaims are <i>identified</i> .	Arguments are offered but are <i>unclear</i> and/or <i>not supported</i> by <i>effective examples</i> .	Assertions are offered but are <i>not supported</i> .	
Some possible characteristics						
	Cogent Accomplished Discerning Individual Lucid Insightful Compelling	Pertinent Relevant Thoughtful Analytical Organized Credible Coherent	Typical Acceptable Mainstream Adequate Competent	Underdeveloped Basic Superficial Derivative Rudimentary Limited	Ineffective Descriptive Incoherent Formless	

Part 2: Presentation

The following diagram shows the question underpinning a global impression judgment of the TOK presentation.

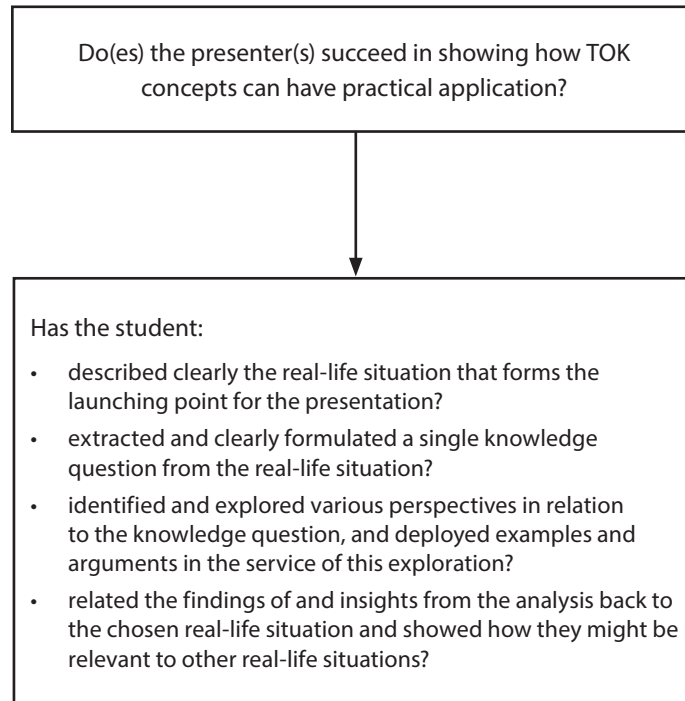


Figure 21

TOK presentation assessment instrument

Do(es) the presenter(s) succeed in showing how TOK concepts can have practical application?				
Level 5 Excellent 9–10	Level 4 Very good 7–8	Level 3 Satisfactory 5–6	Level 2 Basic 3–4	Level 1 Elementary 1–2
The presentation is focused on a <i>well-formulated knowledge question</i> that is <i>clearly connected</i> to a <i>specified real-life situation</i> . The knowledge question is <i>effectively explored</i> in the context of the real-life situation, using <i>convincing arguments</i> , with <i>investigation of different perspectives</i> . The outcomes of the analysis are shown to be <i>significant to the chosen real-life situation and to others</i> .	The presentation is focused on a knowledge question that is <i>connected</i> to a <i>specified real-life situation</i> . The knowledge question is <i>explored</i> in the context of the real-life situation, using <i>clear arguments</i> , with <i>acknowledgment of different perspectives</i> . The outcomes of the analysis are shown to be <i>significant to the real-life situation</i> .	The presentation identifies a knowledge question that has <i>some connection</i> to a <i>specified real-life situation</i> . The knowledge question is <i>explored</i> in the context of the real-life situation, using <i>some adequate arguments</i> . There is <i>some awareness of the significance of the outcomes of the analysis</i> .	The presentation identifies a knowledge question and a real-life situation , although the <i>connection between them may not be convincing</i> . There is <i>some attempt</i> to explore the knowledge question. There is <i>limited awareness of the significance of the outcomes of the analysis</i> .	The presentation describes a real-life situation without reference to any knowledge question , or treats an abstract knowledge question without connecting it to any specific real-life situation .
Irrelevant 0	The presentation does not reach the standard described by levels 1–5			
Some possible characteristics				
Sophisticated Discerning Insightful Compelling Lucid	Credible Analytical Organized Pertinent Coherent	Relevant Adequate Acceptable Predictable	Underdeveloped Basic Unbalanced Superficial Derivative Rudimentary	Ineffective Unconnected Incoherent Formless