

Areas of knowledge

The areas of knowledge, which are situated within the perimeter of the TOK diagram (figure 1), are subject areas or disciplines into which knowledge is frequently classified. They may be seen as an application of ways of knowing, perhaps shaped by methodology, to particular subject matter. The questions that follow in this section deal with both the rationale for such classification and the interdisciplinary comparisons that clarify or challenge the division of knowledge into areas. Reference to the following linking questions may also be useful.

The students' own experience as knowers would ideally base many of the questions on their studies in the Diploma Programme. Teachers may find it necessary to supplement the students' educational experience with additional concepts, but they should be guided always by the aim of stimulating students' personal reflection on knowledge. The question "How do I know?", which is implied in the "Ways of knowing" section, interacts in this section with another question, "What do I know?", or, more specifically, "How do I know that a given assertion is true, or a given judgment is well grounded?"

Mathematics

Mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true.

Bertrand Russell (1917)

From a TOK point of view mathematics is a rather special area of knowledge. On the one hand it seems to supply a certainty often missing in other disciplines. On the other, its methods—for example, the application of strict logical procedures to supposedly self-evident first principles—suggest a subject matter that is removed from the real world. It is hardly surprising then to find a variety of responses to mathematical knowledge, from astonishment at the beauty of some mathematical argument, to wonder at the power of mathematics to solve problems in the sciences or engineering, to frustration in the face of apparently meaningless symbols manipulated as part of a pointless game.

What is unarguable is the ability of mathematics to yield important knowledge about the world, often in conjunction with other areas of knowledge. Why mathematics should be so successful in this regard rests upon a number of questions concerning the nature of mathematics itself and its relation to the world and to human intelligence. Some mathematicians argue that their subject is a language, that it is, in some sense, universal or that there is great beauty to be found in it. What is clear, in any case, is that mathematics is a rich area of exploration for the TOK student.

Nature of mathematics

- Why is it that some mathematicians and students of mathematics feel that mathematics is in some sense "already there" to be discovered?
- What does it mean to say that mathematics can be regarded as a formal game devoid of intrinsic meaning? If this is the case, how can there be such a wealth of applications in the real world?
- What does it mean to say that mathematics is an axiomatic system?

- Some educational systems make a distinction between pure mathematics and applied mathematics. Does this reflect a fundamental difference in approach to mathematical knowledge?
- It is sometimes said that mathematical reasoning is a process of logical deduction. If this is true, and if the conclusion of a proof must always be implied by (contained in) its premises, how can there ever be new mathematical knowledge?

Mathematics and the world

- We can use mathematics successfully to model real-world processes. Is this because we create mathematics to mirror the world or because the world is intrinsically mathematical?
- Some major advances in physics, for example, discoveries of elementary particles, have come about through arguments involving the beauty, elegance or symmetry of the underlying mathematics. What does this tell us about the relationship between the natural sciences, mathematics and the natural world?
- Is mathematics better defined by its method or by its subject matter?
- In the light of the questions above, is mathematics invented or discovered?
- Mathematicians marvel at some of the deep connections between disparate parts of their subject. Is this evidence for a simple underlying mathematical reality?

Mathematics and knowledge claims

- What do mathematicians mean by mathematical proof, and how does it differ from good reasons in other areas of knowledge?
- What are the roles of empirical evidence and inductive reasoning in establishing a mathematical claim?
- Are all mathematical statements either true or false?
- Can a mathematical statement be true before it has been proven?
- In hypothesis testing, a statistician could state that a result was true at the 5% significance level. What does this mean?
- It has been argued that we come to know the number 3 through examples such as three oranges or three cups. Does this support the independent existence of the number 3 and, by extension, numbers in general? If so, what of numbers such as 0, -1, i (the square root of -1) and a trillion? If not, in what sense do numbers exist?
- In the light of the question above, why might it be said that mathematics makes true claims about non-existent objects?
- In what sense might chaos (non-linear dynamical systems) theory suggest a limit to the applicability of mathematics to the real world?

Mathematics and the knower

- Can mathematics be characterized as a universal language?
- To what extent is mathematics a product of human social interaction?

- What is the role of the mathematical community in determining the validity of a mathematical proof?
- Why is it that mathematics is considered to be of different value in different cultures?
- How would you account for the following features that seem to belong particularly to mathematics: some people learn it very easily and outperform their peers by years; some people find it almost impossible to learn, however hard they try; most outstanding mathematicians supposedly achieve their best work before they reach the age of 30?
- What counts as understanding in mathematics? Is it sufficient to get the right answer to a mathematical problem to say that one understands the relevant mathematics?
- Are there aspects of mathematics that one can choose whether or not to believe?
- How do we choose the axioms underlying mathematics? Is this an act of faith?
- Do the terms “beauty” or “elegance” have a role in mathematical thought?
- Is there a correlation between mathematical ability and intelligence?
- Is there a clear-cut distinction between being good or bad at mathematics?
- How have technological innovations, such as developments in computing, affected the nature and practice of mathematics?

Natural sciences

The natural sciences reflect a concerted effort on the part of humans to search for understanding of the world. Like any other human endeavour, the development of scientific knowledge forms a web with more practical, even everyday, interests and concerns. The natural sciences are recognized as a model for knowledge owing to many factors, prime among which is their capacity to explain and make precise predictions.

The influence of the natural sciences permeates much of modern life, for example, in the widespread and growing use of technologies. This prominence has led to a wide variety of attitudes towards the nature, scope and value of the natural sciences. Discussion of questions like the ones that follow about scientific methodologies, and the context in which kinds of scientific work take place, raises many knowledge issues.

Nature of the sciences

- Which subjects does the term “natural sciences” include or exclude? Are there any grey areas? Do these areas change from one era to another, from one culture or tradition to another?
- Should the natural sciences be regarded more as a method or more as a system of knowledge? How does this relate to what Poincaré meant when he said “Science is built of facts the way a house is built of bricks: but an accumulation of facts is no more science than a pile of bricks is a house”? To what extent do the answers to these questions vary among the natural sciences?
- Do the natural sciences make any assumptions that are unprovable by science (for example, that everything that happens is caused, that all causes are physical)? If so, what does this imply about natural sciences as an area of knowledge?

Natural sciences: Methods of gaining knowledge

- What is meant by the “scientific method”? Is there a single scientific method, used in all the natural sciences and distinct from the methods of the other areas of knowledge? To what extent does the scientific method vary in different cultures and eras?
- To what extent do methods vary within the natural sciences? What effects might such variation have? For example, have you experienced methodological disputes or confusions in your own work in experimental science? What are the roles of various kinds of reasoning in science?
- To what extent do scientists rely on either confirming or falsifying a hypothesis? Is either matter ever straightforward? What does this tell us about the nature of the scientific endeavour?
- What are the implications of the following claim for the aspirations of natural sciences in particular and for knowledge in general?

One aim of the physical sciences has been to give an exact picture of the material world. One achievement of physics in the twentieth century has been to prove that this aim is unattainable.

Jacob Bronowski

- In the Diploma Programme, group 4 subjects are designated “experimental sciences”. What counts as an experiment? Can experiments be undertaken in other subjects? Are there some necessary conditions for an activity to be an experiment, for example, hypotheses, data, manipulation of variables, observations, generalizations and expectations of outcomes?
- What are the similarities and differences in methods used in the natural sciences in comparison with those used in the human sciences? To what extent do their fields of study overlap? To what extent would it be true to say that the human sciences appear less scientific because their subject matter is more complex? What difference does it make if instead of studying atoms or plants we are studying creatures who can think and act?
- What is the role of imagination and creativity in the sciences? To what extent might the formulation of a hypothesis or the invention of a research method be comparable to imagining and creating a work of art?
- What knowledge, if any, will always remain beyond the capabilities of science to investigate or verify? If there is, or can be, such knowledge, why will it always elude effective scientific treatment?

Natural sciences and knowledge claims

- What kinds of explanations do scientists offer, and how do these explanations compare with those offered in other areas of knowledge? What are the differences between theories and myths as forms of explanation?
- To what extent can all the natural sciences be understood through the study of just one science, for example, physics? If biology relies on chemistry, and chemistry relies on physics, can it be said that all natural sciences are reducible to physics? If so, what would be the implications of this position?
- Is scientific knowledge progressive? Has scientific knowledge always grown? In this respect, how do the natural sciences compare with other areas of knowledge, for example, history, the human sciences, ethics and the arts? Could there ever be an “end” to science? In other words, could we reach a point where everything important in a scientific sense is known? If so, what might be the consequences of this?

- Is it accurate to say that much of science investigates entities and concepts beyond everyday experience of the world, such as the nature and behaviour of electromagnetic fields, subatomic particles, or the space–time continuum? Do the entities in scientists’ explanatory models and theories (for example, Higgs bosons, selfish genes) actually exist, or are they primarily useful inventions for predicting and controlling the natural world? What consequences might questions about the reality of these entities have for the public perception and understanding of science? But if they are only fictions how is it that they can yield such accurate predictions in many cases?
- How different are the knowledge claims of those disciplines that are primarily historical, such as evolutionary biology, cosmology, geology and paleontology, from those that are primarily experimental, such as physics and chemistry?

Natural sciences and values

- How does the social context of scientific work affect the methods and findings of science?
- Is science, or ought it to be, value-free? What implications does your answer have for the regulation of science? For example: Who should decide whether particular directions in research are pursued? Who should determine priorities in the funding of research?
- Should scientists be held morally responsible for the applications of their discoveries? Is there any area of scientific knowledge the pursuit of which is morally unacceptable or morally required?
- It has been argued that certain discoveries (such as quantum mechanics, chaos theory, Heisenberg’s uncertainty principle, Einstein’s theory of relativity, Darwin’s theory of evolution) have had major implications for knowledge outside their immediate field. Why is it that science has the power to inform thinking in other areas of knowledge such as philosophy and religion? To what extent should philosophy and religion take careful note of scientific developments?

Natural sciences and technology

- Is scientific knowledge valued more for its own sake or for the technology that it makes possible? Is there any science that can be pursued without the use of technology?
- There are some scientific fields that depend entirely upon technology for their existence, for example, spectroscopy, radio or X-ray astronomy. What are the knowledge implications of this? Could there be problems of knowledge that are unknown now, because the technology needed to reveal them does not exist yet?

Natural sciences: Metaphor and reality

- If natural sciences are defined as investigating the natural world, what is meant by “natural” or “nature” in this context? What difference might it make to scientific work if nature were to be regarded as a machine (for example, as a clockwork mechanism) or as an organism (such as in some interpretations of the Gaia hypothesis)? How useful are these metaphors?
- Does scientific language and vocabulary have primarily a descriptive or an interpretative function? Consider here expressions such as “artificial intelligence”, “electric current”, “natural selection” and “concentration gradient”.

Human sciences

It is the great destiny of human science not to ease man's labour or to prolong his life, noble as these ends may be, nor to serve the ends of power, but to enable man to walk upright without fear in a world he at length will understand and which is his home.

Paul B Sears

It is often said that human behaviour is unpredictable, and that this is what makes it impossible to study humans scientifically. But our everyday interactions depend on the fact that we do, most of the time, think we know how other people will respond to what we say or do. Does the fact that we are sometimes wrong mean that prediction of human behaviour is impossible?

Can human behaviour be studied scientifically? What differences and similarities are there between the human sciences and the natural sciences, in terms of both their methods and procedures for gaining knowledge and the nature of the knowledge produced?

In order to understand conscious behaviour do we have to examine motives, or the meaning of an action for the people involved?

Research in the human sciences often has a relationship to practical matters and concerns. Market research typically aims to increase profits; research in economics may seek to influence public policy. Does such a relationship between research and its context affect its status as science?

Nature of the human sciences

- What kinds of knowledge are usually included in the category of human science? How do we decide whether a particular area of study is a human science? What are the similarities and differences between the subject matter and methodologies of the various human sciences?
- To what extent does the human subject matter of this area of knowledge affect a scientific approach? Is it reasonable to think that human behaviour can be studied scientifically?
- "Under the most rigorously controlled conditions of pressure, temperature, humidity, and other variables, the organism will do exactly as it pleases" (Anon). In what ways and to what extent are the objects of study in the natural and the human sciences similar or different?

Human sciences: Methods of gaining knowledge

- Are the human sciences, as a whole, fundamentally different from the natural sciences? Or are there sometimes surprising similarities between the two areas in, for example, the ways they use models and theories, their methods for collecting data, the nature of facts, the role of observation and experimentation, the impact of the observer on the observed phenomena, quantification, falsifiability, precise prediction, identification of constants, and the degree of complexity of the phenomena studied?
- It is not uncommon for very different approaches to coexist within a single human science (for example, classical versus Keynesian versus Marxist economics, or psychodynamic versus behaviourist versus humanistic approaches in psychology). If two competing paradigms give different explanations of a phenomenon, how can we decide which is correct?

- The human sciences are sometimes conceived as aiming not only to explain human behaviour or action (“from the outside”) but also to understand it (“from the inside”). From this perspective, can the human sciences be said to have a richness that the natural sciences lack, in terms of ways of knowing and access to different forms of justification?
- In what ways does language play a similar or different role in the human sciences and the natural sciences? In what senses can empathy, intuition and feeling be considered legitimate or especially powerful ways of knowing in the human sciences? Are there circumstances under which this might not be the case?
- How might the language used in polls, questionnaires and other information-gathering devices of this sort influence the conclusions reached? If there is an influence, does it, or a similar one, occur in natural science research? Does the extent of the influence relate to the degree of certainty attributed to the natural sciences and the human sciences respectively, or to the social status or value associated with each?
- What are the main difficulties human scientists confront when trying to provide explanations of human behaviour? What methods have been invented to circumvent these difficulties and to minimize their influence on the results that are obtained?
- Both the human sciences and certain forms of art, such as poetry and literature, seek knowledge about humans. In what ways are these types of knowledge similar or different? Is Geertz’s search for meaning similar to the poet’s or novelist’s?

Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be, therefore, not an experimental science in search of laws but an interpretive one in search of meaning.

Clifford Geertz

Human sciences and knowledge claims

- How does the use of numbers, statistics, graphs and other quantitative instruments affect the way knowledge claims in the human sciences are valued?
- Is it reasonable to attempt to explain human behaviour independently of what people claim are their intentions? Are there insights into behaviour that can only be afforded by finding these out?
- What kinds of explanations do human sciences offer, and how do these explanations compare with those in other areas of knowledge? To what extent do the human sciences offer any of the following: scientific laws, recognition of general patterns and tendencies, prediction of the future? To what extent do they offer insight or understanding?

Human sciences and values

- Can human behaviour be usefully classified and categorized? Can it be classified within a culture? Across cultures? Can patterns of behaviour be identified as human behaviour? Within a culture? Across cultures? What beliefs or prejudices might be involved in our answers to these questions?
- In what ways might the beliefs and interests of human scientists influence their conclusions? Do the same considerations apply in other areas of knowledge such as the natural sciences or mathematics?
- In what ways might social, political, cultural and religious factors affect the types of human science research that are financed and undertaken, or rejected?

- Is research in the human sciences a viable route to learn about and, in the long run, transform or improve public policy or the common good? Or is human science research intrinsically valuable for the sake of the knowledge that can be gained? Might it rather have a utilitarian or even covert purpose behind it? How, if at all, can we determine when it is which, and if one or another of these purposes predominates?

History

History is more or less bunk. It's tradition. We don't want tradition. We want to live in the present and the only history that is worth a tinker's damn is the history we made today.

Henry Ford

Those who cannot remember the past are condemned to repeat it.

George Santayana

Although history is sometimes considered a human science, it is treated separately because, unlike all the other human sciences, or indeed other sciences in general, knowers cannot directly observe the past. This characteristic of history opens up many questions of knowledge that are unique to it.

History reflects an attempt on the part of individuals and communities to understand the temporal nature of human life. "Remembering the past" is never straightforward.

Historiography, that is, a study of the writings of history, is not a study of every event that has occurred, but rather a study of those traces that have been deemed relevant and meaningful by historians. The availability of those traces, and their relevance and meaning, may be influenced in many ways, by factors such as ideology, perspective or purpose. As knowers seek to clarify the past, and to determine whether or not what is claimed is true, they will face problems of reliability and attitudes, and may consider the purpose of historical analysis and the issue of the nature of historical truth. The opportunities for distinctions and interpretations that are culturally driven abound, and invite analysis.

Nature of history

- What is history? Is it the study of the past, or the study of records of the past?
- To what extent is the very nature of this area of knowledge affected by being about the past? In what ways do other areas of knowledge also concern themselves with the past? Is all knowledge, in a sense, historical knowledge?
- Which of the following is the most persuasive description of history: an account of great individuals, an account of great historical forces, an account of a decline from the greatness of the past, an account of progress towards the future, or a cycle of recurring events? What other descriptions might be appropriate?
- What is the significance of Carlyle's view that "The history of the world is but the biography of great men"?
- What do you understand by George Orwell's comment that "Who controls the past controls the future. Who controls the present controls the past"? To what extent do you agree with it, and its implications?

History: Methods of gaining knowledge

- Can one talk meaningfully of a historical fact? How far can we speak with certainty about anything in the past?
- In what ways has technology affected the study of history? How have the methods of gaining evidence and the means of communicating historical interpretation, for example, been affected by technological development? Can we now observe the past more directly?
- What are the implications for historical knowledge of the following claim?

It is impossible to write ancient history because we lack source materials, and impossible to write modern history because we have far too many.

Charles Péguy

- Which is the more important attribute of the historian, the ability to analyse evidence scientifically (and so secure the foundations of an argument), or the ability to expand it with creative imagination (and create a living account)?
- What is the role of the historian? Does the historian record history, or create it? Can the historian be free of bias in the selection and interpretation of material? Could it be reasonably argued that the personal understanding of historians, despite or even because of their possible bias, is necessary or even desirable in the interpretation and recording of history? Is the power of persuasion a characteristic of a good historian?
- How does the context within which historians live affect historical knowledge? To what extent might the position of historians within their own epoch and culture undermine the value of their interpretation, and to what extent might it increase its value in making it relevant to a contemporary audience?
- What is a historical explanation? How are causal connections between events established in history? According to what criteria can such explanations be critically evaluated?

History and knowledge claims

- Why study history? Is it possible to know who we are without a knowledge of the past? Is there any other way of describing and assessing the process of change in human societies?
- Can history provide a guide to understanding contemporary affairs? Can it provide a guide to the future? What might be “the lessons of history” for future generations?
- If truth is difficult to prove in history, does it follow that all versions are equally acceptable?
- What knowledge of history might be gained by focusing attention on each of the following: the historian, the historical documents and written history, the readership, and the social, cultural and historical context?

History and values

- About whom is history written? Are the lives of some groups of people more historically significant than the lives of others? Why do selected past events appear in books as historically important while others are ignored? To what extent is history dependent on who kept or preserved a written record? To what extent is history about those who held power, and to what extent is it about ordinary people?
- Are value judgments a fault in the writing of history? Should value-laden terms, such as atrocity, regime, hero or freedom, always be avoided, or does exclusion of value judgments deprive history of meaning?
- To what extent can distinctions be made between factual report, biased interpretation and calculated distortion? Can history be used for propaganda? If so, how?

The arts

El arte es una mentira que nos acerca a la verdad.
[Art is a lie that brings us nearer to the truth.]

Pablo Picasso

“The arts” is a very broad field. It is hard to say clearly what it includes; it is even harder to characterize it simply. As used here, the term certainly includes literature, from group 1 of the Diploma Programme, and the various forms in group 6: dance, film, music, theatre and visual arts. The differences between the forms may be at least as interesting as their similarities. For example, how much is there in common between knowing a poem and knowing a dance? Is it entirely clear what “knowing” means in either case?

With one exception, none of the following questions mentions specific works of art. Most of them, however, need relevant cases, or examples, to “come alive”.

Nature of the arts

- Does art have to have meaning? Conversely, if something is meaningless, can it be art?
- Is a work of art enlarged or diminished by interpretation? What makes something a good or bad interpretation?
- Can anything be art (for example, Duchamp’s *Fountain*, Cage’s *4’33’’*)? Are there limits to what is acceptable in art (for example, Kirkup’s *The love that dares to speak its name*, Hirst’s *Mother and Child Divided*)? Who decides?
- Some languages, such as Balinese, have no generic word for “the arts”. To what extent might the concept be a culturally relative one? To what extent, even within those languages that have a generic term, is the term “the arts” elastic in definition?
- Do all the arts share certain common features? What might these be? Is there a distinction between arts and applied arts (crafts)?
- What roles do the arts play in people’s lives? Are these roles unique to the arts? (Can art change the way we interpret the world? Does involvement in the arts help the development of personal value systems? Can art express emotion? Does art enlarge what it is possible to think?)
- Are the arts a kind of knowledge, or are they a means of expressing knowledge? If the latter, what knowledge might they express?

- How important is form in art?

C'est joli la vie, mais cela n'a pas de forme. L'art a pour objet de lui en donner une...

[Life is very nice but it lacks form. It's the aim of art to give it some.]

Jean Anouilh

- What is the origin and nature of a sense of beauty? Is this sense specific to the individual or to the culture, or is it universal?

The arts: Methods of gaining knowledge

- What is the proper function of the arts: to capture a perception of reality, to teach or uplift the mind, to express emotion, to create beauty, to bind a community together or to praise a spiritual power? Are there functions omitted here? Do the various arts have the same functions?
- To what extent and in what ways might the arts be regarded as a representation of reality? What kinds of art might be seen as "realistic"?
- Is originality essential in the arts? Is the relationship between the individual artist and tradition similar in all the arts, in all cultures and across all times?
- Most arts have used technology, over many centuries (for example, musical instruments, pencils). Has the relationship between the arts and technology changed as a result of the possibilities of mechanical reproduction and digital manipulation?

The arts and knowledge claims

- Does familiarity with art itself provide knowledge and, if so, of what kind? Knowledge of facts? Of the creator of the art form? Of the conventions of the form or tradition? Of psychology or cultural history? Of oneself?
- Does art, or can art, tell the truth? If so, is artistic truth the same as truth in the context of the natural sciences, the human sciences, or history? How might the knowledge claims of art be verified or falsified?
- In science the idea of progress is dominant: new knowledge builds on what is already known; knowledge once discovered cannot be "unlearned". Is the same true in the arts?
- What do artists do to exercise "critical control" over the imagination, in Popper's phrase?

Far from being engaged in opposing or incompatible activities, scientists and artists are both trying to extend our understanding of experience by the use of creative imagination subjected to critical control, and so both are using irrational as well as rational faculties. Both are explaining the unknown and trying to articulate the search and its findings. Both are seekers after truth who make indispensable use of intuition.

Karl Popper

- Is explanation a goal of the arts? How do the arts compare in this regard with other areas of knowledge?
- What did Frank Zappa mean when he claimed that "Talking about music is like dancing about architecture"?

The arts and values

- What is the value of learning an art form (for example, Diploma Programme music or visual arts)? What is of value in each of the different art forms (dance, film, literature, music, theatre, visual arts, and so on)? Are any of the arts of more or less value than the others? Can what is of value in arts education be learned in other ways? How are value judgments in the arts justified? How is “good art” recognized or decided on?
- What are the justifications and implications of claiming that there are absolute standards for good art, or that the only standard for good art is individual taste?
- Does the artist carry any moral or ethical responsibility? Is it possible for an artwork to be immoral? Should art be judged on its ability to please or shock?
- What is the role of education in creating art, and in appreciating it? Is an art form legitimate if it can be enjoyed only by those trained in its appreciation through having had relevant education or through having become familiar with it in their own cultural context? (Would your answer be the same if the question was about the legitimacy of, for example, quantum physics?) Is a critical assessment of an art form legitimate if it is made by someone with no relevant education or cultural familiarity?
- If art has power to change how people think, does this mean it should be controlled? Should art be politically subversive? Or should it serve the interests of the community, or the state, or the patron or funding organization?

The arts and knowledge perspectives

- What knowledge of art can be gained by focusing attention on the **artist**? Can or should artists’ intentions, and the creative process itself, be understood through observing artists or knowing something of their lives? Is the creative process as important as the final product, even though it cannot be observed directly? Are an artist’s intentions relevant to assessing the work? Can a work of art contain or convey meaning of which the artist is oblivious?
- What knowledge of art can be gained by focusing attention solely on the **work** itself, in isolation from the artist or the social context? Can or should technical virtuosity in itself, a skilled mastery of the medium, be enough to distinguish a work of art? Are certain compositions, ways of structuring sounds or shapes, inherently more pleasing than others? Can a work be judged primarily by the harmony of form and content, the way in which structure and style work effectively to create or support the subject matter?
- What knowledge of art can be gained by focusing on the reader or audience’s **response**? Can it be plausibly argued that art is brought into being only in the response of the audience, that a work is created anew each time it is viewed, heard or read? What is the role of the critic in judgment of the worth of art? Are any of the following sufficient indicators of the value of a work: its popularity, its commercial value in the market, its universality in its appeal beyond its cultural boundaries, and/or its longevity?
- What knowledge of art can be gained by focusing attention on its social, cultural or historical **context**? To what extent do power relationships determine what art or whose art is valued? Is all art essentially a product of a particular place and time in terms of its subject matter and conventions of expression? Is art best seen as anthropological or historical documentation, bringing to life a remote society or era, but understood esoterically, only with independent knowledge of that remote life? Does art become obsolete? Is art understood more fully by emphasizing what all cultures have in common rather than by stressing what is unique to each?

Ethics

To avoid any evil, to seek the good, to keep the mind pure: this is the essence of the Buddha's teaching.

Buddha, *The Way of Practice*

Few areas of the TOK course are concerned with such immediate and personal matters as ethics. Ethics involves a discussion of the way we ought to live our lives, the distinctions between right and wrong, the justification of moral judgments, and the implications of moral actions for the individual and the group. In TOK, the major emphasis is on how we can know or justify what we ought to do. In this sense, an exploration of ethical questions from the point of view of TOK focuses on knowledge issues woven and implied in them, rather than exclusively on the questions themselves.

Nature of ethics

- Is there any real distinction between “morality” and “ethics”? Is ethics concerned primarily with what **is** or what **ought to be**?
- In what ways might a moral judgment differ from other judgments?
- Are ethical differences between people the result of holding different sets of values?
- Does morality necessarily involve action, or can it involve thoughts and attitudes alone?
- How does living a moral life matter?
- In what ways might justifications for moral beliefs be influenced by assumptions about human nature—whether humans are by nature good, evil, or amoral?
- “If you travel with fraud you reach your destination, but are unable to return” (Ghanaian proverb). What are the assumptions underlying this quote? How possible is it to undo the bad we do?
- “He who wears his morality but as his best garment were better naked” (Kahlil Gibran). What are the assumptions underlying this quote? Is it necessary to be sincere, if your actions are to be moral?
- In an ethical discussion, must the participants accept rules that go beyond their own particular theoretical frame or position? What can be the implications of answering yes or no to this question?
- Why and how does knowledge matter in ethical conflicts?

Ethics: Methods of gaining knowledge and knowledge claims

- What is the source of the sense of right and wrong? For moral beliefs, can one distinguish between the source and the justification, or are the two the same?
- What are the justifications for, and implications of, claiming that there are universal standards for morality, or that there are societal standards of morality, or that there are only individual standards of morality? Are the three positions mutually exclusive?
- If moral claims are in conflict, does it follow that there is no such justifiable concept as right or wrong?
- Does ambiguity in ethics make it “weak knowledge”?
- Is there a sharp distinction between ethics, etiquette and matters of taste?

Ethics and knowledge perspectives

- To what extent does the state of a person's knowledge play a part in deciding whether an act is right or wrong? Under what conditions would it be legitimate for a person to plead ignorance? Are people responsible for finding out as much relevant information as possible?
- What knowledge of morality may be gained by focusing attention on the **individual** making moral judgments? Is freedom of choice a necessary condition for making moral judgments? Should the person's intentions be the criterion for deciding whether an action is right or wrong? Are people always aware of their real intentions or motives?
- What knowledge of morality may be gained by focusing attention on the features of the **moral judgment** or **act** itself? Are some thoughts or actions intrinsically right or wrong, independent of circumstances? Is it possible to establish firm principles to determine moral action? If so, on what basis? On the basis of reason? Divine revelation? Is it possible to rank principles in order of importance? What are "human rights" and on what basis do they rest?
- What knowledge of morality may be gained by focusing attention on the **consequences** of the thoughts or actions? Which matters more, the consequences for individuals or the consequences for the group? Can consequences be quantified or weighed scientifically?
- What knowledge of morality may be gained by focusing attention on the social, cultural or historical **context** of the moral judgment? Is a shared moral code a necessity for a harmonious society? To what extent can acceptance of dissent be a feature of a shared moral code? To what extent do moral values differ, depending on the society or the historical time? For example, can a practice such as slavery be right in one era or region and wrong in another? Can the practices of one society be judged with any validity by applying the values of another generation or another culture? Do some values seem to be universal, or nearly so?
- How may moral dilemmas arise? Is it possible for an individual to act in a morally justifiable way within a context of restricted choice, oppression, or corruption? To what extent may the circumstances of people's lives excuse actions that might be condemned by society's moral principles? Can respect for a culture, in harmony with principles of tolerance and openness, be reconciled with a condemnation of specific practices within that culture, on the basis of other principles?
- When confronted by an unjust situation, is a person obliged to act? If the unjust situation is in the context of friendship or family, does this make a difference? Should this make a difference? Are there ethical constraints on the actions that a person should take to "right a wrong"?

Ethics and politics

- How important are values ("principles", "ideals") in politics? Is politics primarily concerned with what **is** or what **ought to be**? Is it better for society if politicians are skilled in the workings of power, or if they have strong principles that govern their actions?
- Are the following ideas political, ethical, or both: justice, rights, social responsibility, equality and freedom? Is the concept of property an ethical idea? Is the concept of society an ethical idea?
- To what extent are political systems such as autocracy, democracy, theocracy, capitalism and communism, in their ideal forms, allied with ethical ideas of the right way for people to live in a society? To what extent might each system embody different concepts of justice and social responsibility?
- Does politics affect the ethics of a society?

- Is there an obligation on an individual to be politically aware, or even politically active? Conversely, is there an obligation on an individual to refrain from political action? Can one avoid being affected by politics?
- How should the language of political debate be analysed and judged? Is there a greater need for analysis in politics than in other areas of knowledge?
- What is the influence of politics on other areas of knowledge, such as the natural and human sciences, history, and the arts? What, conversely, might be the influence of these other areas of knowledge on politics?
- When the moral codes of individual nations conflict, can criteria be developed for an international morality that transcends them? What are the justifications for, and functions of, such ethical and political documents as the Geneva Conventions for warfare or the United Nations Universal Declaration of Human Rights?

Ethics and areas of knowledge

- Can one reasonably separate values in ethics from the definition of the discipline, its methods and its knowledge claims? How does it compare in this regard with other areas of knowledge?
- Do established moral values change in the face of new knowledge from other areas of knowledge?
- How does the method of ethics compare with methods in other areas of knowledge? Is the method in ethics closer to the axioms and reasoning of mathematics, or is it closer to the evidence and theory of the sciences, or perhaps to the argument by analogy, from the particular to the general, of art? To what extent is argument a method?
- How important is the study of literature, and of history, in an individual's ethical development? In what ways?
- Are there ethical obligations for humanity to treat the natural environment in a certain way? Are there constraints? If so, are the obligations and constraints based solely on a concern for the indirect effects on humanity, or are there other issues and principles involved?
- Should research be subject to ethical principles, or is the pursuit of knowledge through research intrinsically worthwhile and, of itself, value-free? Do some areas of knowledge (mathematics? natural science?) create knowledge that is more value-free than others (human science? history?)?
- What ethical responsibilities do researchers have when they are working with human subjects? In what ways do these differ from the ethical responsibilities they have when working with animals?
- Are there some types of knowledge that should not be sought on ethical grounds?
- Does art have to be morally good in order to be good art?
- Does the possession of knowledge carry an ethical responsibility?
- What moral responsibilities do we have with regard to knowledge that has been created or published by others (intellectual property)? What moral responsibilities do we have with regard to the Internet? What ethical issues are raised by highly skilled Internet users breaking into private and public computer systems?
- In what ways might CAS be said to promote ethical education? Is service to others, in whatever form, a moral obligation? If so, on what might the obligation be based? If not, why not?