

TOK questions

Knowledge issues, knowers and knowing

“The time has come,” the Walrus said,
“To talk of many things:
Of shoes—and ships—and sealing-wax—
Of cabbages—and kings”

Lewis Carroll

People know many things: they know when they are cold, or sick; they know if they are sad or happy, lonely or in love; they know how to make fire; they know that the sun will set and rise.

Nonetheless people rarely stop to think about the processes by which knowledge is produced, obtained or achieved, nor about why, under what circumstances, and in what ways knowledge is renewed or reshaped by different individuals and groups at different times or from different perspectives or approaches.

The questions in this guide are meant to provide opportunities to pause and reflect upon the complexity and richness of knowledge and the process of knowing, on the scope and limits of knowledge, as well as on the roles and responsibilities that knowledge may bring to us as individuals, groups or communities. As such, these questions focus on knowledge issues. The use of this term “knowledge issues” is an expressly wide one, the purpose of which is to allow students to undertake an exploration of a diversity of TOK questions that are relevant to them in their specific context. Precisely because of its breadth, however, it is important to provide guidance for teachers and students as to what is and, importantly, what is not a knowledge issue.

Knowledge issues

Knowledge issues are questions that directly refer to our understanding of the world, ourselves and others, in connection with the acquisition, search for, production, shaping and acceptance of knowledge. These issues are intended to open to inquiry and exploration not only problems but also strengths of knowledge. Students sometimes overlook the positive value of different kinds of knowledge, and the discriminatory power of methods used to search for knowledge, to question it, and to establish its validity. Knowledge issues can reveal how knowledge can be a benefit, a gift, a pleasure and a basis for further thought and action, just as they can uncover the possible uncertainties, biases in approach, or limitations relating to knowledge, ways of knowing, and the methods of verification and justification appropriate in different areas of knowledge.

Two examples:

- Consider the question, “What is the value of distinguishing between what we know and what we don’t know?” In the context of problems of knowledge, the emphasis is likely to be on the good reasons we have for doubting whether the lines we draw between the two are as clear as we sometimes suppose them to be. In contrast, in the context of knowledge issues, the reasons we have to maintain the legitimacy and usefulness of the distinction are likely to come to the fore.
- Alternatively, consider the question, “Is there one way of knowing that is best for acquiring knowledge?” In the context of problems of knowledge, the emphasis is likely to be on why over-reliance on or confidence in each way of knowing would be unwise; in the context of knowledge issues, reasons for relying on or trusting ways of knowing should also be considered.

In the broadest understanding of the term, knowledge issues include everything that can be approached from a TOK point of view (that is, in accordance with the TOK aims and objectives as they are formulated) and that allows a development, discussion or exploration from this point of view. For example, a simple question that is often raised by students, “Are teachers’ course handouts and textbooks always right?”, can be treated as a knowledge issue when correctly framed in the context of TOK aims and objectives. On the contrary, it can be the prompt for entirely trivial answers that have little or nothing to do with TOK.

It is to be expected that a good treatment of many knowledge issues will necessarily deal with several aspects described above and that these can be interwoven in different, equally relevant ways. For this reason the treatment of knowledge issues can be distinguished from other issues that might arise in the context of a particular subject area. For example, a consideration of sense perception exclusively from the point of view of the psychology or biology of perception is not a TOK treatment of a knowledge issue.

Nature of knowing

- In English there is one word “know”, while French and Spanish, for example, each has two (savoir/connaître and saber/conocer). In what ways do various languages classify the concepts associated with “to know”?
- In English, French, Spanish or Chinese, for example, what is the relationship between the different ways of expressing “know”: “they know of it”, “they know about it”, “they really know it”, “they know that person”, “they know that this is so”, “they know how to do it”? Are there other ways of using the verb “to know”?
- How do “believing that” and “believing in” differ? How does belief differ from knowledge?
- What are the differences between the following: information, data, belief, faith, opinion, knowledge and wisdom?

Knowledge communities

- In the TOK diagram, the centre is represented as both an individual and a group. To what extent can we distinguish between knowing as an individual and knowing as a group or community enterprise?
- How much of one’s knowledge depends on interaction with other knowers?
- Are there types of knowledge that are specifically linked to particular communities of knowers?
- To what extent can we act individually in creating new knowledge? What are the strengths of working in a knowledge community? What are the dangers?
- Is common sense just what is taken for granted in a community? How can we decide when to question common sense?
- Presented with the belief system of a community of knowers, how can we decide what we personally believe? How can we decide which beliefs we ought to check further? In the end does it just amount to a question of trust? If so, how can we decide who to trust, and on which issues?
- Do we need to grow up in a human community in order to develop ways of knowing (sense perception, language, reason and emotion)? Or are we born “hard wired” to be able to use them? Is community more important in some ways of knowing than others?
- In what sense is a community of knowers like bees constructing the labyrinths of their hive or a group of builders constructing a building?

Knowers and sources of knowledge

- How is knowledge gained? What are the sources? To what extent might these vary according to age, education or cultural background?
- What role does personal experience play in the formation of knowledge claims?
- To what extent does personal or ideological bias influence our knowledge claims?
- Does knowledge come from inside or outside? Do we construct reality or do we recognize it?

- “Whoever acquires knowledge and does not practise it resembles him who ploughs his land and leaves it unsown.” (Sa’di) Are there responsibilities that necessarily come with knowing something or knowing how to do something? To whom might these responsibilities be owed?
- In what sense, if any, can a machine be said to know something? How can anyone believe that a machine can think?
- When a machine gives an instruction to press a certain button to make it work, where is that knowledge or awareness located? Does technology allow some knowledge to reside outside the human knower? Is knowledge even a “thing” that resides somewhere?

Justification of knowledge claims

- “If the frog tells you that the crocodile is dead, do not doubt it.” What might this Ghanaian proverb suggest about who it is that provides the justification for a knowledge claim? What is the difference between “I am certain” and “It is certain”? Is conviction sufficient for a knowledge claim to be validated? What are the implications of accepting passionate, personal belief as knowledge?
- How are knowledge claims justified? Are the following types of justification all equally reliable: intuition, sense perception, evidence, reasoning, memory, authority, group consensus, and divine revelation?
- Why should time be taken to assess critically the nature of knowledge claims?

Linking questions

- Do knowledge claims transcend different communities or cultures? What differences exist between public and private justifications? To what extent might this distinction between private knowledge and public knowledge be culturally dependent?
- Do the images of a web, building blocks, concentric circles, a spiral, or a grid make a convincing description of the interconnections in the ways of knowing and areas of knowledge? In what ways might these metaphors be useful?
- To what extent is knowledge about the past different in kind from other kinds of knowledge?
- Does making a knowledge claim carry any particular obligation or responsibility for the knower?

TOK questions

Ways of knowing

What this guide calls “ways of knowing” are often so automatic that it is hard to stop the process, as it were, in order to consider them carefully. The senses, through perception, seemingly provide a window on the world as it really is, and the emotions drive us onward without always giving time for reflection. Additionally, the acquisition of a first language occurs so easily for most people, and communication with others is so natural, that the influence of language in shaping thought is not obvious. Finally, a sound argument can be recognized as such without any formal training in logic or other forms of reasoning.

The questions that follow are intended to stimulate and guide reflection about these and related issues. While these four ways of knowing are the focus of this section, this should not be taken to imply either that there are only four ways of knowing, or that everything is known solely through one or other of these four ways (it may be useful to explore what other ways of knowing there might be, and how the various ways interact and overlap).

Sense perception

Do androids dream of electric sheep?

We perceive the world through our five senses: sense perception is the active, selective and interpretative process of recording or becoming conscious of the external world. Because sensory perception is an important dimension of our understanding of the world, its function and scope should be examined and critically evaluated. The following questions may help students become aware of the nature and power of sense perception, and how it relates to knowledge acquisition, knowledge claims, and their justification.

Nature of sense perception

- In what ways does the biological constitution of a living organism determine, influence or limit its sense perception? If humans are sensitive only to certain ranges of stimuli, what consequences or limitations might this have for the acquisition of knowledge? How does technology extend, modify, improve or restrict the capabilities of the senses?
- What possibilities for knowledge are opened to us by our senses as they are? What limitations?
- Is the nature of sense perception such that, as Huxley suggests, sensations are essentially private and incommunicable?

By its very nature every embodied spirit is doomed to suffer and enjoy in solitude. Sensations, feelings, insights, fancies—all these are private and, except through symbols and at second hand, incommunicable.

Aldous Huxley (1954)

Importance and limitations of sense perception

- To what extent do our senses give us knowledge of the world as it really is?
- Does the predominance of visual perception constitute a natural characteristic of our human experience or is it one among several ways of being in the world?
- What is the role of culture and language in the perceptual process? Given the partially subjective nature of sense perception, how can different knowers ever agree on what is perceived? Do people with different cultural or linguistic backgrounds live, in some sense, in different worlds?
- How, and to what extent, might expectations, assumptions and beliefs affect sense perceptions? How, if at all, can factors that bias our views of the world be identified? Is all sense perception necessarily theory-laden? Do knowers have a moral duty to examine their own perceptual filters?
- It is often claimed that information and communication technologies are blurring the traditional distinctions between simulation and reality. If this is so, what might be the consequences?

Linking questions

- To what extent is visual perception in particular a justifiable model not only of all sensory perception but of human understanding as well (in English, “I see” often means “I understand”)?
- What is the role of sense perception in the various areas of knowledge, for example, history or ethics? How does it differ across the disciplines? Is it more important in relation to some disciplines than others? Is there any knowledge that is completely independent of sense perception?

- Does sense perception perform fundamentally distinct functions in the arts and the sciences? To what extent does the artist make an advantage out of the subjective nature of sense perception, while the scientist regards it as an obstacle to be overcome?
- What can be meant by the *Panchatantra* saying, “Knowledge is the true organ of sight, not the eyes”? Is it necessary to have clear ideas to see?

Sense perception and areas of knowledge

- What role does observation play in the methods used to pursue knowledge in different disciplines? For example, are the conditions, function and results of observation the same for biology and human science? If not, what accounts for the differences?
- What role does what we expect to see, or are used to seeing, play in what we observe? For example, after learning about the structure of cells from a textbook, how “neutral” might the observation of a slide under the microscope be? Can we learn how to see things properly?

Language

Language exerts hidden power, like a moon on the tides.

Rita Mae Brown

Language is so much a part of human activity that it is easily taken for granted. The issues related to language and knowledge call for conscious scrutiny in order to recognize its influence on thought and behaviour.

Language can be thought of as a symbol system, engaged in representing the world, capturing and communicating thought and experience. Language also can be seen as existing in itself, as something to be played with and transformed and shaped in its own right and something that can transform and shape thought and action.

Nature of language

- What different functions does language perform? Which are most relevant in creating and communicating knowledge?
- What did Aldous Huxley (1947) mean when he observed that “Words form the thread on which we string our experiences”? To what extent is it possible to separate our experience of the world from the narratives we construct of them?
- In what ways does written language differ from spoken language in its relationship to knowledge?
- Is it reasonable to argue for the preservation of established forms of language, for example, as concerns grammar, spelling, syntax, meaning or use? Is one language common to the whole world a defensible project?
- What is the role of language in creating and reinforcing social distinctions, such as class, ethnicity and gender?
- What is the role of language in sustaining relationships of authority? Do people speak the same way to inferiors and superiors in a hierarchy? Does the professional authority speak in the same way as the person seeking opinion or advice? Can control of written language create or reinforce power?

- How does technological change affect the way language is used and the way communication takes place? How might innovations in language, such as Internet chat or text messaging, be assessed: as contributions to or assaults against how language and communication “should be”?
- What may have been meant by the comment “How strangely do we diminish a thing as soon as we try to express it in words” (Maurice Maeterlinck)?

Language and culture

- If people speak more than one language, is what they know different in each language? Does each language provide a different framework for reality?
- How is the meaning of what is said affected by silences and omissions, pace, tone of voice and bodily movement? How might these factors be influenced in turn by the social or cultural context?
- What is lost in translation from one language to another? Why?
- To what degree might different languages shape in their speakers different concepts of themselves and the world? What are the implications of such differences for knowledge?

Language and thought

- How have spoken sounds acquired meaning? What is the connection between the sounds and what they are taken to represent? Given that a word such as “tree” groups together a lot of different individual objects, what is lost in using language to describe the world? What are the advantages?
- Is it possible to think without language? How does language facilitate, extend, direct or limit thinking?
- To what extent does language generalize individual experience, classifying it within the experience of a linguistic group? On the other hand, to what extent do some kinds of personal experience elude expression in language?
- Can language be compared with other human forms of symbolic representation, such as conventionalized gestures, sign language for the deaf, dance, painting, music or mathematics? What might language share with these other forms in the communication of what we know? In what ways might it be considered distinct?
- How do “formal languages”, such as computer-programming languages or mathematics, compare with the conventional written and spoken languages of everyday discourse?

Language and knowledge

- How does the capacity to communicate personal experiences and thoughts through language affect knowledge? To what extent does knowledge actually depend on language: on the transmission of concepts from one person or generation to another, and on exposure of concepts or claims to public scrutiny?
- How does language come to be known? Is the capacity to acquire language innate?

- In most of the statements heard, spoken, read or written, facts are blended with values. How can an examination of language distinguish the subjective and ideological biases as well as values that statements may contain? Why might such an examination be desirable?

Linking questions

- To what extent is it possible to overcome ambiguity and vagueness in language? In what contexts might ambiguity either impede knowledge or contribute to its acquisition? Does the balance between precision and ambiguity alter from one area of knowledge to another?
- What do we gain, and what do we lose, when we name something? Do different areas of knowledge manage differently the balance between particularity and generality?

Language and areas of knowledge

- How do the words we use to describe an idea affect our understanding of the world? For example, is “globalization” a synonym for “westernization”? What is the meaning of the term “anti-globalization”? Does it matter which words we use?
- How does the language used to describe the past (for example, a massacre, an incident, a revolt) change history? Does something similar occur when different terms are used to describe natural phenomena (greenhouse effect, global warming, sustainable development) or human behaviour (refugee, asylum seeker)?
- How important are technical terms in different areas of knowledge? Is their correct use a necessary or sufficient indicator of understanding? The following illustrative examples relate to the Diploma Programme subject groups.
 - Group 1: metaphor, alliteration, onomatopoeia, synecdoche, genre, sonnet, haiku
 - Group 2: preposition, active/passive, pluperfect, genitive, creole, dialect
 - Group 3: cost–benefit analysis, price elasticity, evapotranspiration, neo-fascism, push–pull technology, ontology, cognitive dissonance, enculturation
 - Group 4: symbiosis, allotrope, ergonomics, trophic level, entropy
 - Group 5: irrational number, asymptote, dot product, isomorphism, minimum spanning tree
 - Group 6: dynamic content, L cut, sonata, dramaturgy, trompe l’œil
- To what degree might each area of knowledge be seen as having its own language? Its own culture?

Reason

It has been said that man is a rational animal. All my life I have been searching for evidence which could support this.

Bertrand Russell (1950)

Reason is a way of knowing that involves different elements. In a very general sense, reasoning is a collective endeavour by which people construct meaning together by exchanging, modifying and improving

their ideas and opinions. When someone makes a claim to know, it is legitimate to ask for reasons and to expect that these will be coherent. Arguments require consistency. Reason is perhaps as present in everyday decision making and problem solving as it is in mathematics, sciences and other areas of knowledge. The requirements of logical validity and rigour serve these various purposes.

In different degrees and in different ways, it is arguable that reason has its place in many, if not all, areas of knowledge as well as in the everyday experience of individuals and the groups to which we belong. It may be worth considering how reason is used in these different domains to discover and create, to articulate, to justify and assess knowledge claims. For when disputes arise, what is at issue is not only the substance or facts of the matter, but also the appropriateness of the reasons given for acceptance of the facts, and the validity of the logical procedures used in reaching the conclusion.

The questions in this section probe the nature, value and limits of reason, and the logic that many suppose is a shared standard of evaluation.

Nature of reason

- One of the roles traditionally attributed to reason is to find balance or equilibrium between two extremes. Is this idea still relevant as a description of the role that reason plays in the search for self-knowledge? What does it mean for someone to be reasonable?
- What is the difference between reasoning about means and reasoning about ends? Is one more prevalent or more valuable than the other?
- What is the role of reason in the creation and recognition of patterns in nature and in social life?
- Is reason purely objective and universal, or does it vary across cultures? Is logic purely objective and universal?
- Formal logic is the study of form in argument, irrespective of the subject matter. Is it really possible to study the logic of an issue independent of its content, and how beneficial is it to do so? Does the answer to this question depend upon the subject matter under consideration? Does it depend on the area of knowledge to which the subject matter belongs?
- What is the relationship between reason as a way of knowing and logic in its different forms (inductive, deductive, intuitive, natural)? Is it possible and worthwhile to “translate” everyday arguments into formal logical structure, and what might be lost in the translation? How does the commonsense use of “it’s logical”, meaning “it makes sense to me”, differ from its technical meaning of “it has a valid argument form”?

Reason and knowledge

- What possibilities for knowledge are created by reason? What are the advantages of being able to reason about something rather than, say, feeling something, dreaming about something, wishing something to be the case?
- Does all knowledge require some kind of rational basis?
- If knowledge claims cannot be rationally defended, should they be renounced? Is the answer to this question dependent on the area of knowledge of the claim?
- Can reason on its own, independent of sense perception, emotion and language, ever give us knowledge? Or are reason and language inseparable in the quest for, construction and justification of knowledge?

- What constitutes a good argument? What is the value of learning to distinguish between valid and invalid arguments?

Strengths and weaknesses of reason

- What are the advantages of discriminating between valid and invalid arguments, good and bad reasons, more or less persuasive reasoning, both for the individual knower and for society?
- Why are informal fallacies often plausible and convincing? When, where and by whom are they formulated? Are there circumstances under which the use of informal fallacies can be justified, for example, in public advertising campaigns aimed at persuading us to donate money for good causes (for example, humanitarian relief, children's funds)?
- How can beliefs affect our capacity to reason well and to recognize valid arguments? Can they affect a person's capacity to distinguish between fallacy, good argument and rationalization? What is the difference between a rational argument and a rationalization?
- What, if any, are the advantages of expressing arguments in symbolic terms? Are the ambiguity and vagueness of conventional language eliminated by this formulation?
- Are there some parts of human life or experience where reason has no real function?

Linking questions

- To what extent do you agree with André Gide's view that, "L'illogisme irrite. Trop de logique ennue. La vie échappe à la logique, et tout ce que la seule logique construit reste artificiel et contraint. *Donc* est un mot que doit ignorer le poète, et qui n'existe que dans l'esprit." [Lack of logic annoys. Too much logic is boring. Life escapes logic, and everything built on logic alone is artificial and limited. *Therefore* is a word that the poet must ignore, that exists only in the mind.]?
- Susan Sontag said that, "Thinking is a form of feeling...feeling is a form of thinking." Are they related in this way?
- How does the role of reason compare with the roles of the other ways of knowing? Why might some people think that reason is superior, and what consequences does holding this position have for the knowledge pursued and the methods considered appropriate in the pursuit?
- Does the role of reason affect the degree of certainty in, or the social status of, the various areas of knowledge? What are the implications of the answer to this question when disputes arise among practitioners and between cultures?
- Attempts have been made to identify universal, self-evident and incontrovertible laws of logic, such as the law of identity (for example, "an apple is an apple") or the law of non-contradiction (for example, "nothing can be an apple and also a non-apple"). Are these actually laws in the scientific sense of the term, or are they axioms? How do logical axioms compare with axioms in mathematics, and with the underlying beliefs we take for granted in other areas of knowledge? What is the role of reason in ethical principles and their justification? Is reason more important to acting morally than other ways of knowing?

Emotion

[Emotion] has the advantage of being open to all, the weak and the lowly, the illiterate and the scholar. It is seen to be as efficacious as any other method and is sometimes said to be stronger than the others, since it is its own fruition, while other methods are means to some other ends.

Bhagavad Gita

Emotions play a powerful role in shaping thoughts, influencing behaviour, and steering the pursuit of knowledge. While emotions may be a key to self-understanding and to understanding the world, the extent to which they contribute to both can be explored through a discussion of questions like those that follow, probing the nature, value, and limits of emotion as a way of knowing.

Nature of emotion

- Can we ever know anything purely through emotions? How do emotions interact with reason, sense perception and language?
- To what degree is emotion biological or “hard-wired”, and hence universal to all human beings? To what extent is it shaped by culture and hence displayed differently in different societies?
- What sorts of things count as emotions? Are emotions and feelings the same thing?
- Can feelings have a rational basis? Is “emotional intelligence” an oxymoron? Robert Solomon says that emotions are “systems of judgments”, and that “virtually all of our experience is to some degree ‘affective’, and even our most dispassionate judgments...can be adequately understood only within some larger emotional context”. Is he correct in claiming that virtually all sense perception, and reasoning, must involve emotion?
- Is it possible to experience an emotion, a feeling, an attitude or sensibility that cannot be expressed in language? Can an emotion, such as love or grief, have its origins in, or be shaped by, language?
- Can emotions be trained? To what extent can we control our emotions, not in terms of how we act on them, but what we actually feel? Do cultures select emotions to foster and use?
- Are concepts such as solidarity, patriotism and racism examples of collective emotions?
- Is faith an emotion, a feeling, or neither?

Emotion and knowledge

- Does emotion reside in the realm of private knowledge in the sense that it cannot be verified by others? Can people be mistaken about their own emotions? Can others lead them to recognize previously unknown emotions?
- Is there any kind of knowledge that can be attained solely through emotion? Is the answer to the question dependent on factors such as gender, age, culture, and/or socio-economic group?
- Is emotion an essential ingredient of the pursuit or validation of scientific or artistic knowledge? Can there be creativity without emotion?

- Why has emotion sometimes been seen as a less valuable way of knowing than, say, reason? Or does the value of emotion as a way of knowing depend on the kind of knowledge that is being pursued?
- Susan Stebbing says, "I do not in the least wish to suggest that it is undesirable for us to be set on thinking by emotional considerations. On the contrary, nothing else will suffice to make us think to some purpose." David Hume claims that, "Reason is, and ought only to be, the slave of the passions." Is it true that emotions are an essential driver of any purposeful activity?

Linking questions

- What part does emotion play in the acquisition of knowledge? Does the role of emotion vary across the different areas of knowledge?
- Should emotion play a role in the evaluation of knowledge claims? Are there circumstances under which, in order to evaluate a knowledge claim, one should ignore or, alternatively, pay special attention to one's emotions?
- Is an action morally justifiable if it feels right? What part do, or should, emotions play in the formation of moral judgments or political judgments?
- Can emotions be classified as good or bad? Can there be correct, or appropriate, emotional responses? Is it correct to be horrified by accounts of torture?
- Is faith purely emotional or is it possible to provide a rational justification for religious belief? Is emotion a source of spiritual knowledge?
- Do people act their way into feeling or feel their way into action? What is the relationship between emotion and experience (for example, in CAS activities)?
- How did your feelings or emotions affect (positively or negatively) your ability to perform, to make decisions or to reason in regard to particular CAS activities? How did you deal with such situations?

TOK questions

Linking questions

[...] j'ay seulement faict icy un amas de fleurs estrangieres, n'y ayant fourny du mien que le filet a les lier.
[I have gathered a garland of other men's flowers, and nothing is mine but the cord that binds them.]

Michel de Montaigne

Connections between the elements of the TOK diagram can also be explored through further linking questions such as those offered below, which raise issues and concepts central to the course.

Belief

Under all that we think, lives all we believe, like the ultimate veil of our spirits.

Antonio Machado

- What may be meant by Ugo Betti's comment that "When you want to believe in something you also have to believe in everything that's necessary for believing in it"?
- How do beliefs about the world, and beliefs about what is valuable, influence the pursuit of knowledge?

- To what extent can beliefs be justified on the basis of ways of knowing? To what extent should they be justified this way?
- Does some degree of unjustified belief exist within each element of the TOK diagram?
- What may be meant by the following comment?

First there is a time when we believe everything without reasons, then for a little while we believe with discrimination, then we believe nothing whatever, and then we believe everything again—and, moreover, give reasons why we believe everything.

Georg Christoph Lichtenburg

Certainty

We know accurately only when we know little; with knowledge doubt increases.

Johann Wolfgang von Goethe

- What may be meant by Martin Luther King's claim that "Nothing is more dangerous than sincere ignorance and conscientious stupidity", or the following lines by W B Yeats?

The best lack all conviction, while the worst
Are full of passionate intensity.

- To what extent is certainty attainable within each of the ways of knowing or within each of the areas of knowledge?
- In the absence of evidence, is certainty possible? Can there be certainty about a claim that is false?

Culture

Just because we aren't all the same doesn't mean we have nothing in common.

Kirk Kerekes

- What beliefs or knowledge, if any, are independent of culture?
- How do cultures differ with respect to the ways of knowing and areas of knowledge that they value above others? How would one justify valuing one way, or one area, more than another?
- If one looks at most western compilations of quotations, it seems that most are attributed to dead, white, European males. Why might this be so? To what extent does the identity of the author of a quotation influence how its content is interpreted and how seriously its ideas are taken? What does the choice of quotations in this guide signify?

Evidence

Tell a man there are 300 billion stars in the universe and he'll believe you. Tell him a bench has wet paint on it and he'll have to touch to be sure.

Anon

- What constitutes **good evidence** within the different ways of knowing and areas of knowledge?

- Do sense perception, reason and emotion have the same weight in providing good evidence for claims within the different areas of knowledge? Must evidence always be expressed in words?
- What could be meant by “A mind all logic is like a knife all blade. It makes the hand bleed that uses it” (Tagore)?
- Which, if either, is the more definitive: facts from books, or facts from databases?
- Can a fact exist without a context?
- What does Luigi Pirandello mean by his comment that “My opinion is a view I hold until—well—until I find out something that changes it”?

Experience

- In what ways have your perspectives changed as a result of your experiences of working with other people in the Diploma Programme, for example, in science projects or CAS activities?
- What kinds of knowledge can be gained only through experience?
- In which areas of knowledge is experience of least importance?
- What are the dangers of equating personal experience and knowledge?
- CAS is often described as “experiential education”. In what ways is learning in CAS similar to or different from learning in other areas of the Diploma Programme?

Explanation

The reverse side also has a reverse side.

Japanese proverb

- What characteristics must an explanation possess to be considered **good** within the different ways of knowing and areas of knowledge?
- Must all good explanations make predictions with the same degree of success?
- Where would explanations about each area of knowledge rate, in a continuum from stories through models to reality? What is reality?
- What are the differences between persuasive explanations, good explanations and true explanations?
- What may be meant by Eugène Ionesco’s statement: “Explanation separates us from astonishment, which is the only gateway to the incomprehensible”?

Interpretation

- To what extent do the classification systems (labels and categories) adopted in the pursuit of knowledge affect the knowledge we obtain?
- How does interpretation occur within areas of knowledge? Within ways of knowing? Are some ways of knowing less open to interpretation than others?

Intuition

Intuition will tell the thinking mind where to look next.

Jonas Salk

- In attempting to understand what is commonly called “intuition”, is it best to think of it as a rapid cognitive process or perhaps, as some say, as an irrational or unmediated awareness of phenomena?
- Germaine Greer once commented that “The frequently celebrated female intuition...is after all only a facility for observing tiny insignificant aspects of behaviour and forming an empirical conclusion which cannot be syllogistically examined.” Does “feminine intuition” exist? Do men’s ways of knowing differ from those of women?
- To what extent is intuition to be taken seriously in the different areas of knowledge?

Technology

Before you become too entranced with gorgeous gadgets and mesmerizing video displays, let me remind you that information is not knowledge, knowledge is not wisdom, and wisdom is not foresight. Each grows out of the other and we need them all.

Arthur C Clarke

Although technology is certainly not new, rapid and accelerating advances in the fields of information and communication technology are commonly recognized as having profound effects on what we do and can know. Technology offers a means of communication that, more than any other, crosses cultures.

- In what ways has technology expanded knowledge? In what ways has it affected how much we value the different ways of knowing and areas of knowledge? What fields of study have been founded on technological developments?
- Does information technology, like deduction, simply allow the knower to arrange existing knowledge in a different way, without adding anything, or is this arrangement itself knowledge in some sense?
- To what extent do information and communication technologies influence the way we think about the world? To what extent do these technologies determine what we regard as valuable or important? Could it be argued that the increasing global dominance of a particular form of information technology gives rise to an increasing uniformity of thinking?
- Can it be said that every new technology affects the beliefs of individuals and societies, in both positive and negative ways? How can the impact of new technologies be predicted? How reliable are these predictions?
- What is the difference between data, information, knowledge and wisdom? Are there technologies specifically designed to impart data, information, knowledge and wisdom?
- In what ways do information and communication technologies influence the accessibility of information, and the reasons for believing such information to be true? Who controls such technologies, and what are the effects of such control?
- What did Sydney Harris mean when he said that “The real danger is not that computers will begin to think like men, but that men will begin to think like computers”?

- What is meant by Akio Morita's claim that "You can be totally rational with a machine. But if you work with people, sometimes logic has to take a back seat to understanding"?

Truth

They who know the Truth are not equal to those who love it, and they who love it are not equal to those who delight in it.
Confucius

- How useful are the truth tests of coherence, correspondence and pragmatism in arriving at knowledge?
- Is there such a thing as **false knowledge**?
- What is the difference between justified true belief and true belief?
- What is meant by the following statement?

As the wise test gold by burning, cutting and rubbing it... so are you to accept my words after examining them and not merely out of regard for me.

Buddha, *Compendium of All the Essences of Wisdom*

- To what extent does the truth of a statement depend on the language used to express it?

Values

To live is, in itself, a value judgment. To breathe is to judge.

Albert Camus

- How do values underlie the pursuit of truth in the different areas of knowledge? How, if at all, do they influence methodology?
- To what extent do the different ways of knowing and areas of knowledge influence the values adopted by individuals and societies?
- In what ways do values affect our representations of the world, for example, in language, maps, visual images, or statistics? When might a persuasive representation be praised as "effective", or, in contrast, condemned as "manipulative"?

At the end of nine or ten nights he realized, with a certain bitterness, that he could expect nothing from those students who accepted his teaching passively, but he could of those who sometimes risked a reasonable contradiction.

Jorge Luis Borges