

Knowledge Questions

A list of Knowledge Questions compiled by examining the various Subject reports from 2015-2020

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General:

- Does each area of knowledge contain within itself a common groundwork of explanation? What might this imply for creation of such a common groundwork across disciplines?
- Why would we want to create a common groundwork of explanation across all the disciplines?
- Why might it be impossible to link facts and / or theories across some disciplines?
- Do the traditional boundaries between disciplines correspond to differences in the facts and theories found on either sides of these boundaries?

History

- How can we draw a clear line between fact and interpretation in history?
- How does perception work to actively interpret events in History?
- Does our interpretation of knowledge from the past allow us to reliably predict the future?
- How do historians look for a convergence of rational and empirical evidence to provide support for knowledge claims?
- It has been claimed that a good historian cannot be neutral. If this is so, could the same be said of the providers of knowledge in other areas?
- What methods are used in history to go about understanding the past?
- If history is unable to change the future, what is it about its nature and methods that make this impossible?
- Are historical claims restricted by the language they use?
- Is all history biased?
- How important is the role of statistics in history?
- Does history show we have made ethical progress?
- To what extent does emotion play a role in historical interpretation?
- Is historical objectively possible?
- To what extent does historical knowledge change over time?
- How is knowledge about the past different from other kinds of knowledge?
- How does the language used to describe the past change how history is understood?

Natural science

(Key words: scientific method, Popper's principle of falsification, scientific revolution and paradigm shift)

- How can we be sure that scientific evidence gained through the use of technology is genuine?
- How does a scientific explanation distinguish between correlation and causation?
- How can we know when we have a good scientific explanation?
- Is it true that all scientific beliefs are held provisionally and is this what makes science unique?

- How does the scientific method allow scientists to develop explanations? Is there an equivalent method in other areas of knowledge?
- What is the nature of a scientific 'fact' or a scientific 'theory'?
- In what ways are scientific facts connected and combined to 'build' science?
- How do scientists and the institutions of science cope with 'facts' and 'explanations' that change or are falsified over time?
- Could it ever be claimed that the natural sciences contribute more to the understanding of individuals and societies than the human sciences do?
- In what way can re-testing make knowledge claims more secure?
- If re-testing means the exact reproduction of experimental or observational conditions, to what extent is this possible in the given areas of knowledge?
- What assumptions need to be made about the nature of scientific or human scientific knowledge in order for re-testing to yield validity?
- To what extent is the method of re-testing vulnerable to the problem of induction?
- To what extent is re-testing purely a psychological requirement of human investigators?
- What other forms of protection against research error and bias are available to scientists, and how important are they as compared with re-testing?
- On what foundations should ethical judgments about methods in the natural sciences and the arts rest?
- Are there circumstances in which the value of the products of the natural sciences overrides any concerns as to how these products were arrived at?
- Is language necessary for the construction of knowledge in the natural sciences?
- Do scientists have ethical responsibilities?
- How certain is scientific knowledge?
- If all scientific experiments have 'uncertainty' how can we know 'truth' in science?
- How certain is the theory of evolution?
- How is knowledge in literature similar to knowledge in natural science?
- To what extent does knowledge in science change?
- Is previous knowledge more important than creativity in science?
- How do we know when scientific conclusions are justified?
- Does science allow for intuition?

Human science

(Key words: determinism, free will, Hawthorne effect, nature vs. nurture)

- What are the strengths and limitations of quantification in the human sciences?
- How can we distinguish causal relationships from mere correlation?
- Are there general laws that describe human behavior?
- Are there areas of human experience which cannot be quantified? If so, why?
- If an aim of the human sciences is to change the future, what is it about their nature and methods that make this possible?
- To what extent do the human sciences provide an understanding of the past?

- Are the human sciences adequate to fully understand an individual?
- Is it true to say that the human sciences are less certain than the natural sciences?
- What determines whether a theory in the human sciences is convincing?
- How reliable are statistics in economics and business decisions?
- To what extent should business decisions be based on ethical considerations?
- Which is more important in advertising: reason, emotion, language or perception?
- How true are economic models?
- The law of supply and demand relies on the assumption of 'ceteris paribus'. To what extent does this exist in real life?
- Can one model ever represent an entire economy accurately?
- How reliable are geographic models?
- What are the limits of statistics in the human sciences?

Mathematics

(Key words: axiomatic system, mathematical logic, a priori reasonings, rules of inference (applied to axioms), proof)

- Are mathematical statements true because we define them to be so, or because we discover them to be so?
- To what extent do mathematics and ethics make use of the ways of knowing in similar manner?
- Does mathematics need language to be understood?
- Is mathematics a language?
- How far is intuition used in mathematics?
- Is mathematics the most certain area of knowledge?
- Is emotion irrelevant to the construction of Mathematical knowledge?
- Can mathematicians trust their results?
- To what extent does mathematics describe the real world?
- How much statistical data should be used to determine the reliability of a result?
- Does belief play a role in mathematics?
- Are all mathematical statements either true or false?

Arts

- What kinds of truth are the arts capable of expressing?
- To what extent are the insights available from the appreciation of a work of art dependent upon the intentions of the artist?
- What could be meant by artistic truth?
- What might be meant by a 'lie' in the context of an artwork?
- To what extent are the limits of art defined by morality?
- Do the arts allow us to discover truths that are difficult to express in straightforward language?
- Is knowledge in the arts the intentions of the artist, the art work itself, the views of the consumers of the art?
- Is artistic knowledge something that cannot be expressed in any other way?

- How can an imaginative process such as that employed by the arts lead to knowledge about the world?
- What similarities and contrasts are generated when the arts and a different area of knowledge tackle the same topic?
- Are ways of knowing exploited in radically different ways in the arts as opposed to other areas of knowledge?
- Given that the product of literary activity is often fiction, how can it contribute to an understanding of real individuals and societies?
- To what extent is there an overlap between the contributions of literature and science to the understanding of individuals and societies?
- Is there more agreement in the natural sciences or the arts regarding what is ethical?
- To what extent does the natural exploration of ethical issues in the arts intensify scrutiny of the methods employed?
- Are there circumstances in which the value of the products of the natural sciences overrides any concerns as to how these products were arrived at?
- Do all art forms (literature, painting, music, sculpture, architecture, dance etc) use a language?
- How important is it that the artist intention be perceived or understood by the audience?
- Should art be beautiful?
- Must true art be recognised by experts?
- Can art give us knowledge?
- To what extent is creativity linked to reason?
- Can art help us to understand individuals and societies?
- Should the arts have an ethical function?
- If an author justifies their work, can we trust the knowledge?
- How true is it to say, 'what constitutes art is relative to the individual time and place'?
- Does perception affect creativity?
- How does prior learning or experience influence our interpretation of art?

Ethics

(Key words: Moral relativism, religious absolutism, ethics, utilitarianism, self interest theory, duty, ethics, consequentialism)

- How do moral judgments differ from other types of judgment?
- Is there an analogue to the appeal to experiment in the natural sciences by which ethical claims can be tested (such as, for example, appeals to ethical intuitions)?
- To what extent can we use reason to evaluate two competing ethical systems?
- Are there ethical claims that are true regardless of what anyone thinks of them?
- What knowledge (if any) is completely independent of ethical responsibilities?
- How can we know whether / when knowing something brings with it an ethical responsibility?
- How can we be confident of the ethical responsibilities that may arise from knowing something when that knowledge is always provisional or incomplete?
- To what extent does the recognition of the ethical responsibilities of knowing influence the further production or acquisition of knowledge?
- Is there any knowledge that is completely independent of ethical responsibilities?

- What do we mean by 'ethical theory' as opposed to 'mathematical theory' or 'historical theory'?
- What constitutes 'moral wisdom'?
- Is it the practitioners in the natural sciences and the arts or is it the societies in which they operate which exerts a greater influence on what is ethically acceptable in these areas of knowledge?
- To what extent do ethical judgments about methods in the natural sciences and the arts vary by time or place?
- At what point do the means of knowledge acquisition become unethical?
- How important is it to be consistent in our moral reasoning?
- Can ethical truths be as certain as mathematical truths?
- Can our values change our perception of things?
- To what extent does religion shape moral belief?
- Is it true to say, ethical beliefs are more based on emotion than reason?
- Can ethical knowledge be constructed without sensory perception?
- Is moral belief constant?
- Does ethical knowledge differ from other kinds of knowledge?
- Does possession of knowledge carry an ethical responsibility?

General

(Key words: truth (Justified True Belief), Correspondence Theory, Pragmatic Theory, Coherence Theory, Relative truth and absolute truth, justification, evidence, certainty, all AOKs, all WOKs, media, perspective, technology, knowledge by authority, values, critical thinking, knower, belief, certainty, culture, society, experience, intuition, explanation, interpretation's role in constructing knowledge, knowledge questions, bias, knowledge claim, assumption, objective, subjective)

- To what extent is faith a way of knowing?
- How reliable is intuition as a way of knowing in different AOKs?
- Can imagination be a WOK?
- How far can belief be considered knowledge?
- Does truth transcend culture?
- Does some degree of unjustified belief exist in each area of knowledge?
- To what extent is certainty attainable in different areas of knowledge?
- What constitutes good evidence in different areas of knowledge?
- What characteristics must an explanation have to be considered sufficient within the different areas of knowledge and ways of knowing?
- What are the dangers of equating personal experience and knowledge?
- How is learning from CAS different from other areas of knowledge encountered in IB?
- Are some ways of knowing less open to interpretation than others?
- Do new technologies affect the beliefs of a society?
- What role does personal experience play in the formation of knowledge claims?

Truth & Knowledge:

- Does the word 'truth' have different meanings in different contexts?
- What are the best grounds for saying that we know something rather than believe it?
- In what ways can we overcome problems of knowing to arrive at an understanding of things as they really are?
- How do provisionally accepted but distrusted beliefs become ones we are certain are true?
- Are there areas where it is not necessary to rely on one's experience and culture to understand something?
- To what extent can we understand knowledge claims from a different culture?
- How do provisionally accepted but distrusted beliefs become ones we are certain are true?
- How does understanding differ, if at all, from knowledge?

Justification:

- What does it mean to say that a belief is justified in different areas of knowledge?
- What constitutes a strong justification in any given area?
- To what extent are the methods of justification different in different areas of knowledge?
- On what basis are methods of justification selected in different areas of knowledge?
- How can we know when to suspend judgement on a knowledge claim?
- Do the changes in knowledge over time imply changes in the standards for justification?

Conviction & Certainty:

- What is the relationship between a convincing theory and a correct theory?
- Who needs to be convinced by a theory?
- Which features or functions of theories are most effective in making them convincing?
- How convincing does a theory need to be in order to be accepted?

Generalization:

- How can we be sure that general patterns represent genuine features of reality and thus can act as a sound basis for knowledge?
- Why is generalization seen as very important in some areas of knowledge and does it follow that these areas of knowledge are seen as the most secure?
- Are we as likely to be mistaken in looking for generalizations as in looking for particular patterns and how does that affect our knowledge and understanding?

Value Judgments:

- How important is the role of value judgments in different areas of knowledge?

- What makes a knowledge claim valuable?
- To what extent should it be expected that areas of knowledge make normative judgments (deciding what should be the case) rather than merely descriptive ones (describing what is the case)?

Assumptions:

- What counts as an assumption? What are the respective roles of conscious and unconscious assumptions in the construction of knowledge?
- What are the possible reasons why an assumption may be untestable?
- At what point does assumed knowledge justify action?

Simplicity & Truth:

- What does 'simplicity' mean in different areas of knowledge?
- How does the human need for easily graspable and readily understood explanations and certainties manifest itself in different areas of knowledge?

The Role of Experts:

- In what ways and areas would the absence of experts most severely limit our knowledge?
- Under what circumstances should we ignore the opinions of experts in the various areas of knowledge?
- On what basis might we decide between the judgements of experts if they disagree?
- To what extent is the knowledge that experts possess transferable?
- What role does authority play in the shaping of personal knowledge?

The Role of Doubt:

- To what extent do different areas of knowledge incorporate doubt as a part of their methods?
- Under what circumstances might doubt undermine the construction or acquisition of knowledge?
- Why is the possibility of doubt needed for knowledge?
- Since doubt can be taken to be lack of convincing support for a claim, how can this lead to a situation in which the claim has convincing support?

The Role of Disagreement:

- On what basis should differing views be taken seriously in different AOKs?
- Why might there be different amounts of disagreement in the natural sciences and the human sciences?
- Why might some ways of knowing be more likely than others to generate and sustain disagreement in the natural and human sciences?
- At what stage in the production of knowledge is disagreement helpful to the pursuit of knowledge?
- To what extent is disagreement a vital part of scientific methods?
- What methods are employed in the natural and human sciences by which disagreement may be converted into consensus?
- What might be the consequences of a broad consensus about knowledge within scientific disciplines?

The Use of Evidence and Examples:

- What counts as evidence in various areas of knowledge?
- To what extent are we obliged as knowers to provide evidence for our beliefs?
- How can we know when we have sufficient evidence?
- What could be the value of an unsupported belief?
- When is quantitative data superior to qualitative data in describing a phenomenon?
- How do we deal with experiences and evidence which contradict or appear to contradict our theories?
- What kind of relationship to an example must we have in order for it to promote understanding?
- When does the burden of supporting a knowledge claim lie with the claimer and when with the appraiser?
- Do all knowledge claims require evidential support?
- Are there areas of knowledge in which the support for knowledge claims is not provided in the form of evidence?
- Under what circumstances might it be sensible to accept knowledge claims in the absence of evidence?
- What counts as evidence in different areas of knowledge? Do all areas of knowledge rely on evidence?

Content vs. Methodology:

- To what extent does the methodology of an academic discipline remain constant?
- What counts as a method in the natural sciences and in the arts?
- To what extent does the methodology of an investigation limit or determine the outcomes that are possible?

- Why might we be more concerned with process rather than product in the search for knowledge?
- Is there always a clear distinction between content and methodology?

Absolute / universal truth:

- To what extent does truth exist in each area of knowledge regardless of whether we can recognize it?
- To what extent is knowledge dependent upon having absolute distinctions between what is true and what is false?
- How difficult is it to establish universal truths in various areas of knowledge?

Progress in Knowledge:

- Are there viable universal criteria for measuring progress that are applicable in all areas of knowledge?
- Which ways of knowing are most useful in measuring progress?
- What are the problems associated with progress in various areas of knowledge?
- To what extent should academic disciplines be ranked according to their usefulness?
- Why can new historical or scientific or ethical theories explain the same events in completely different ways to old theories?
- What does it mean to 'expand' knowledge in ethics as opposed to knowledge in art?
- What might constitute progress in an area of knowledge, and how could we know that it has been achieved?
- Is it possible to reach universal agreement that progress, rather than merely change, has taken place? If so, on what basis?
- What is it that makes progress often seem easier to identify in the natural sciences than in the arts?
- Can progress be measured entirely within an area of knowledge (with reference to knowledge alone) or only with reference to some benchmark outside it (such as its practical application)?
- Can an increase in the amount of knowledge always be considered to be progress?
- Can the rejection of knowledge ever be considered to be progress?
- To what extent is the ability to make progress a measure of the worth of an area of knowledge?
- How can we know that the deployment of ways of knowing that exists in areas of knowledge is the most effective arrangement for the pursuit of knowledge?

Prediction:

- What is it about the methods of an area of knowledge that allow it to make predictions?

Observation & Experiment:

- What is the relationship between observation and experiment?
- Can introspection and reflection count as types of observation?
- Is there a role for observation or experiment in every area of knowledge?
- Can activities that are unplanned or lacking a clear prior purpose count as experiments?
- Do observation and experiment have roles in the production of personal knowledge?

Discarding Previously Accepted Knowledge:

- Is the discarding of accepted knowledge a routine feature of areas of knowledge?
- By whom might an accepted knowledge claim legitimately be discarded? Who is empowered to accept it in the first place?
- Is it a good thing that knowledge claims are accepted, only to be abandoned later and superseded by other knowledge claims?
- Are there different standards for accepting or discarding knowledge in different areas of knowledge?
- Do the processes of accepting and discarding imply that progress is being made in areas of knowledge?
- Given the continual accepting and discarding of knowledge, what are the implications of maintaining that knowledge is justified true belief?
- Under what circumstances does it make sense to question all knowledge claims that one encounters?

The Role of Models:

- In the construction of a model, how can we know which aspects of the world to include and which to ignore?
- What aspects of the world are not amenable to representation by models?
- How is new knowledge acquired through the use of models?
- Since a model is, strictly speaking, false how can it lead to knowledge traditionally thought of as being true?

Differences / Similarities Between AOKs:

- To what extent can we maintain a viable distinction between knowledge and understanding across various areas of knowledge?
- Are some areas of knowledge more about knowledge than understanding, and others more about understanding than knowledge?
- What roles do the ways of knowing play in giving us knowledge and understanding and how do those roles differ across different areas of knowledge?
- What counts as evidence? Does this vary from one area of knowledge to another?

Objectivity / Subjectivity:

- Does 'objective knowledge' mean different things in, say, the Social Sciences and the Natural Sciences?

Assumptions:

- Do the principles of ethical theories and the axioms of mathematics perform the same functions in their respective areas of knowledge?
- Are some areas of knowledge more dependent on (sets of) assumptions than others?
- If sets of assumptions underpin all areas of knowledge, what does that imply for knowledge as a whole?
- Are there particular circumstances in which assumptions facilitate our attempts to know the world, and other circumstances in which they limit these attempts?

Facts & Theories:

- What is the relationship between facts/data and theories and how does this differ in different areas of knowledge?
- Can facts and theories be successfully distinguished on the basis of their degree of certainty?
- To what extent does the insensible or deliberate twisting of facts undermine theories in different areas of knowledge?
- Under what circumstances might it be justified to "twist facts" in the interests of a theory?
- Are there circumstances in which problems might arise from twisting theories to suit facts?
- To what extent does the concept of theory change across areas of knowledge and how might we compare and contrast those theories? What is the influence of ways of thinking on the collection of data or facts?
- How can the discovery of data or facts and of new ways of thinking work together in the production of knowledge?
- What counts as a fact in different areas of knowledge? Do all areas of knowledge deal in facts?
- To what extent can areas of knowledge be characterized by their factual content and organized structure? Is this a sufficient description?
- What criteria could be used in order to organize facts in a systematic fashion?
- What room is there for personal interpretation / cultural differences in a system of organized facts?
- What are the roles of facts and theories in the creation of explanations

Knowledge & Culture:

- Are there areas where it is not necessary to rely on one's experience and culture to understand something?
- To what extent can we understand knowledge claims from a different culture?
- What is the impact of culture in the production and distribution of knowledge in various areas of knowledge?
- Are our beliefs or our knowledge more susceptible to cultural influences?
- To what extent do the perspectives that are fostered through membership of a particular culture exert positive or negative influences on our knowledge?
- To what extent are we aware of the impact of culture on what we believe or know?
- Is there anything which is true for all cultures?
- Who is best placed to attempt to evaluate a culture (and its impact on knowledge or belief) objectively?

Bias, Selectivity & Neutrality:

- In what ways can bias and selection make positive contributions to attaining knowledge?
- To what extent can bias and selection be considered as independent influences on the construction of knowledge?
- In order to be accepted as knowledge, must claims be free of bias? Is this possible?
- What are the roles of deliberate and inadvertent selection in various areas of knowledge?
- Under what circumstances is it possible to maintain a detached relationship with subject matter under investigation?
- How do language, concepts and methodology affect the neutrality of questions asked within an area of knowledge?

Questions:

- On what basis can we decide whether a question is neutral or not?
- Does the unavoidable choice of words in a question make neutral questions unattainable?
- Do neutral questions / enquiries promote the acquisition of knowledge? Are there are circumstances in which they might hinder knowledge acquisition?
- What does the nature of the questions asked in an area of knowledge tell us about that area of knowledge?

Creativity & Innovation:

- What counts as a new way of thinking in different areas of knowledge?
- How can we know when a new way of thinking is needed?
- To what extent does creative thinking depend on critical thinking, and vice versa?
- To what extent does creative thinking rely on established methods that lead to knowledge?
- To what extent does creative thinking build upon prior knowledge?
- Is it possible to generate knowledge through creative thinking alone?
- Is creativity learned or innate?

Technology:

- How might technology influence specific ways of knowing which in turn influence the areas of knowledge under discussion?
- To what extent does technology enable or limit the production of knowledge as opposed to the dissemination of knowledge?
- Is technology more important in some areas of knowledge than others and what are the implications for those areas of knowledge?
- What role do ethics play in how technology is used in the production of knowledge?
- With what degree of certainty can we know that technology is enabling or limiting and what role might its historical development play in allowing us to make decisions on this?
- To what extent has technology changed the nature of the knowledge we gain in different areas of knowledge?
- How might we distinguish between the production of knowledge and the acquisition of knowledge and what might be the similar or differing roles played by technology?

Shared & Personal Knowledge:

- What is the role of personal experience in the construction of knowledge?
- To what extent can the knowledge gained from CAS be applied in another area of knowledge?
- To what extent does our particular repertoire of ways of knowing affect our personal conception of knowledge?
- How effective is the distinction between shared and personal knowledge?
- What is the relationship between shared and personal knowledge in the different areas of knowledge?
- Do shared and personal knowledge effect each other differently in different areas of knowledge?
- Under which circumstances do shared and personal knowledge fail to influence each other?
- How can shared knowledge contribute to personal meaning and purpose?
- Is shared knowledge inherently beneficial?
- In what ways does shared knowledge contribute to individual understanding?
- How important is experience in the acquisition of knowledge?

Genera WoKI:

- Are ways of knowing best thought of as distinct tools with different functions?
- To what extents do the natures of ways of knowing vary in their nature according to the areas of knowledge under discussion?
- To what extent are we capable of conceptualizing problems for which we do not possess the appropriate tools?
- How do various ways of knowing influence the types of question that can be asked?

Language:

- In what ways does language affect how we interpret the world?
- Might the language(s) we speak affect how we understand ideas?
- What is it about words that empowers them to do more than simply transfer knowledge from one person to another?
- Is it possible for a concept to be incomprehensible to speakers of a particular language if it is inexpressible in that language?
- If the vocabularies of different languages carve out different sets of concepts, what are the implications for knowledge?
- What impact do specialized vocabularies have on the shaping of knowledge and is this more dramatic in some areas of knowledge than others?
- How do the features of natural language assist or frustrate us in the production and acquisition of knowledge?
- Do propositional and non-propositional knowledge have equal value?
- Does all reliable knowledge depend upon clear definitions of terms?
- What role does naming play in influencing our perceptions?