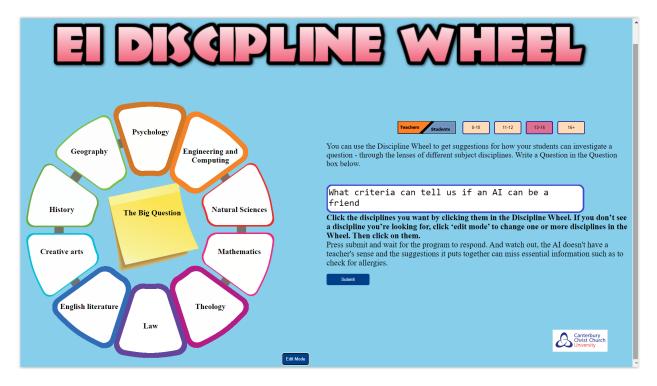
EPISTEMIC INSIGHT DISCIPLINE WHEEL

The Epistemic Insight Discipline Wheel is a tool that enables a user to enter a question and see how different disciplines approach it. Disciplines can be selected by clicking on them. In addition, changes can be made to the Discipline Wheel to customise which disciplines appear. We have recorded a couple of examples:

In this example we use the Discipline Wheel to explore a Big Question - a question where many disciplines have something to say. The question is "What criteria can tell us if an AI is a friend?" <u>https://youtu.be/9JeN1pFtSEA</u>



Big Questions and Bridging Questions

Here are some more examples of Big Questions:

- What does it mean to be human?
- What is colour?
- You are what you eat or are you?
- What does it mean to be alive?

So far we've looked at using the EI Discipline Wheel to ask a Big Question and explore it through different disciplinary lenses. We can also use the interactive to explore a question that seems relevant to two disciplines (a bridging question).

A bridging question is a question that we can explore via two disciplines to compare and contrast their approaches: Why did the Titanic think? - explored through science and history. Here are some more examples

- Will we ever live and work in Space? explored through science and history
- What is the boiling point of water on the top of Everest? A question explored through physics and geography
- An example of addressing a real world opportunity or problem: What's the point of recycling

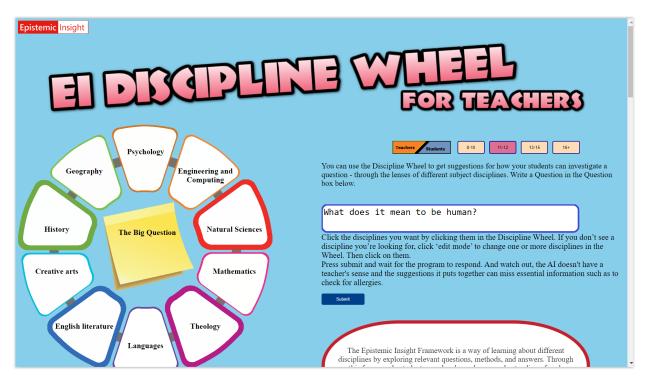


Students can use the Discipline Wheel to create a 'Think Tank' of scholarly experts to who can help us to address a question. The idea here is to push our own boundaries about which disciplines might have something to say – and include some 'wild cards' as well as the ones we see as obvious choices to make. Students can work in groups to decide which four disciplines to choose and think outside the box and suggest a group of experts that will help us to stretch our horizons.

In this example, the question is: How bright are stars? <u>https://youtu.be/SKCvlk_wdR8</u>

THE EI DISCIPLINE WHEEL FOR TEACHERS

There is another version of the wheel designed to give teachers ideas about how a question can be investigated in the classroom through the lenses of selected disciplines.



AI's response:

The Epistemic Insight Framework is a way of learning about different disciplines by exploring relevant questions, methods, and answers. Through this framework, students can develop a deeper understanding of each discipline, including what makes it unique, how it is similar to other disciplines, and how to determine a good answer. Let's explore how this framework can be applied to the investigation of the question, "What does it mean to be human?" from the perspectives of Natural Sciences, Theology, English literature, and History.

1. Natural Sciences:

Question: How can we understand human biology to better understand what it means to be human?

Methods: Conduct research, perform experiments, and analyze data related to human anatomy, physiology, genetics, and evolution.

Epistemic Insight: Investigating human biology in the natural sciences discipline helps students build an understanding of how our physical bodies function. It also

provides insights into the connections between our anatomy, genetics, and evolution, allowing students to explore the similarities and differences between humans and other species.

Example: Students can study the anatomy of different organisms, including humans, to identify common structures that indicate shared ancestry. They can observe similarities in the skeletal structures, organ systems, and cellular components, emphasizing both the distinctiveness and interconnectedness of human life.

2. Theology:

Question: How do different religious beliefs and teachings contribute to our understanding of what it means to be human?

Methods: Exploring sacred texts, discussing religious beliefs, and analyzing the teachings of different faiths.

Epistemic Insight: In the field of theology, investigating the question of what it means to be human allows students to explore the religious and philosophical perspectives on our existence. It encourages students to recognize the diversity of religious beliefs, identify commonalities, and develop empathy and respect for different worldviews.

Example: Students can read and analyze passages from religious texts such as the Bible, Quran, or Bhagavad Gita, which discuss the nature and purpose of human life. They can compare and contrast the teachings of different religions, recognizing the various perspectives on human dignity, purpose, and morality.

3. English Literature:

Question: How do literary works explore the complexities of human emotions, experiences, and identity?

Methods: Reading, analyzing, and discussing works of fiction and poetry that delve into the human condition.

Epistemic Insight: The study of English literature provides an opportunity for students to gain insights into the human experience, as portrayed through diverse characters and narratives. It helps them understand the complexities of human emotions, relationships, and identity, as well as fostering empathetic connections across different cultures and time periods. Example: Students can analyze literary pieces such as "To Kill a Mockingbird" by Harper Lee or "The Diary of a Young Girl" by Anne Frank, examining how these works address issues of discrimination, resilience, and personal growth. Through exploring these texts, students gain understanding about the joys, challenges, and transformative moments of being human.

4. History:

Question: How have different cultures and historical events shaped our understanding of what it means to be human?

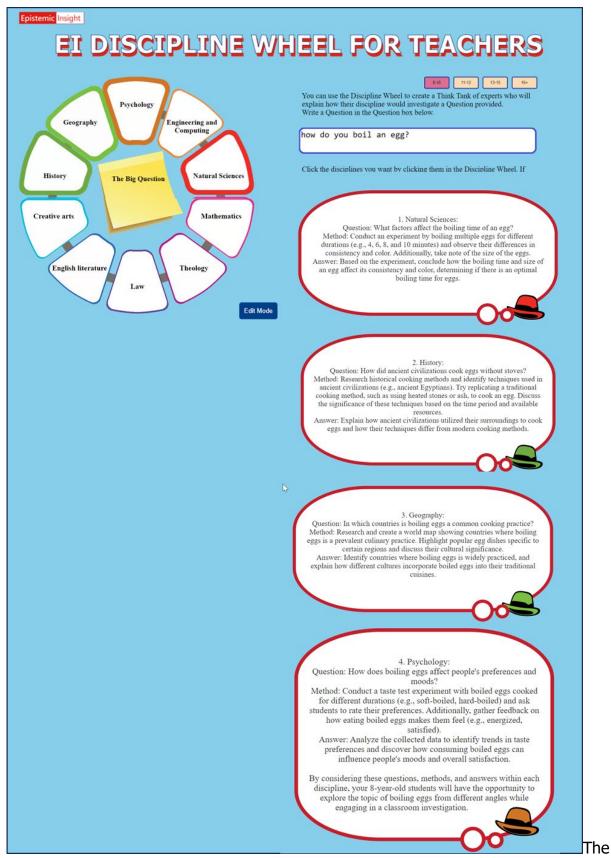
Methods: Researching historical events, studying primary and secondary sources, and analyzing cultural artifacts.

Epistemic Insight: Investigating the question of what it means to be human through the study of history allows students to trace the development of societies, institutions, and ideas across time. It enables them to recognize the diverse factors that have influenced human thought and behavior, fostering critical thinking and cultural awareness.

Example: Students can explore significant historical events or cultural movements such as the Renaissance or the civil rights movement, examining how these periods challenged prevailing notions of what it means to be human. They can analyze primary sources, such as speeches, artworks, or letters, to gain insights into the perspectives and experiences of people living during those times.

Remember, the Epistemic Insight Framework encourages students to pose relevant questions, use appropriate methods, and work towards answers that align with the characteristics and goals of each discipline. By engaging in investigations across different subjects, students will develop a deeper understanding of what it means to be human, from multiple perspectives, ultimately leading to enriched knowledge and holistic learning.

How do you boil an egg?



next example here – 'how to boil an egg' gives cause to talk about the strengths and

weaknesses of working with Gen AI – and the importance of thinking critically about the answers it offers.

Once given a prompt, the AI searches the internet to pick up snippets of information that seem to match the request and then these are refashioned into a response using a model of how language works. The strengths for teachers of this AI Application are that it can 'think' in ways that we find difficult – e.g. in this case, the problem we have is that our knowledge can become zoned into curriculum compartments – and the AI can give us sight of what happens in curriculum compartments that may otherwise be blocked from view.

At the same time, the Gen AI hasn't highlighted the importance of checking for allergies – and that's a potentially dangerous oversight if it is left in any teacher's final responses. Most teachers would spot the missing health link when they saw the AI's response but to have another Talking about planning with other teachers would quickly bring this into view.

The answer from the AI:

The Epistemic Insight Framework is a way of learning about different disciplines by exploring relevant questions, methods, and answers within each field of study. Let's investigate the question "How do you boil an egg?" through the lenses of Natural Sciences, History, Geography, and Psychology, providing investigations suitable for your 8-year-old students to conduct in the classroom.

1. Natural Sciences:

Question: What factors affect the boiling time of an egg?

Method: Conduct an experiment by boiling multiple eggs for different durations (e.g., 4, 6, 8, and 10 minutes) and observe their differences in consistency and color. Additionally, take note of the size of the eggs.

Answer: Based on the experiment, conclude how the boiling time and size of an egg affect its consistency and color, determining if there is an optimal boiling time for eggs.

2. History:

Question: How did ancient civilizations cook eggs without stoves?

Method: Research historical cooking methods and identify techniques used in ancient civilizations (e.g., ancient Egyptians). Try replicating a traditional cooking method, such as using heated stones or ash, to cook an egg. Discuss the significance of these techniques based on the time period and available resources.

Answer: Explain how ancient civilizations utilized their surroundings to cook eggs and how their techniques differ from modern cooking methods.

3. Geography:

Question: In which countries is boiling eggs a common cooking practice?

Method: Research and create a world map showing countries where boiling eggs is a prevalent culinary practice. Highlight popular egg dishes specific to certain regions and discuss their cultural significance.

Answer: Identify countries where boiling eggs is widely practiced, and explain how different cultures incorporate boiled eggs into their traditional cuisines.

4. Psychology:

Question: How does boiling eggs affect people's preferences and moods?

Method: Conduct a taste test experiment with boiled eggs cooked for different durations (e.g., soft-boiled, hard-boiled) and ask students to rate their preferences. Additionally, gather feedback on how eating boiled eggs makes them feel (e.g., energized, satisfied).

Answer: Analyze the collected data to identify trends in taste preferences and discover how consuming boiled eggs can influence people's moods and overall satisfaction.

By considering these questions, methods, and answers within each discipline, your 8year-old students will have the opportunity to explore the topic of boiling eggs from different angles while engaging in a classroom investigation.

MORE EXAMPLES OF OUTPUTS BY THE BOT

WHY DID THE TITANIC SINK?

Physics:

Preferred Questions: - What were the physical factors that led to the sinking of the Titanic? - How did the design, construction, and materials of the Titanic contribute to its sinking? - Which laws of physics played a role in the sinking of the ship and how?

Methods: - Conducting experiments and simulations to understand the behavior of water, icebergs, and ship structures. - Analyzing data related to Titanic's speed, impact, and buoyancy. - Applying principles of fluid dynamics, structural mechanics, and thermodynamics to study the sinking process.

Norms of Thought: - Emphasis on empirical evidence and reproducibility. - Utilizing mathematical models and equations to precisely explain the phenomena. - Focusing on cause-and-effect relationships and physical laws to provide a scientific understanding of the sinking.

History:

Preferred Questions: - What were the social, political, and economic factors that led to the sinking of the Titanic? - How did the actions of individuals, such as crew members and passengers, contribute to the sinking? - What were the immediate and long-term consequences of the Titanic's sinking?

Methods: - Examining primary and secondary sources, including survivor accounts, documents, and photographs. - Conducting archival research to analyze historical context and events leading up to the disaster. - Investigating official investigations, testimonies, and narratives related to the sinking.

Norms of Thought: - Focus on interpreting and analyzing historical evidence. -Employing critical thinking and contextualization to understand the complexities of the event. - Considering multiple perspectives and underlying motivations of individuals involved. Note: These are general characteristics and may vary within the disciplines themselves. Also, keep in mind that each discipline can contribute to a comprehensive understanding of the Titanic's sinking by considering both physical and historical aspects.

WHAT IS COLOUR?

Sure! Here's how the epistemic insight framework can be used to show how different disciplines address the question "What is color?" for the disciplines of Astronomy, Creative Arts, History, Philosophy, and Engineering:

1. Astronomy:

- Preferred Questions: How does color relate to the light emitted or absorbed by celestial objects? How can we use color to determine the composition, temperature, or distance of astronomical objects?

- Methods: Observational data collection using telescopes, spectroscopy, and color analysis techniques. Mathematical modeling to understand the relationship between color and physical properties of celestial objects.

- Norms of Thought: Objectivity, empiricism, and reliance on empirical evidence for understanding the nature and properties of color in the universe.

2. Creative Arts:

- Preferred Questions: How does color evoke emotions or convey meaning in visual art? How can color be used to create aesthetic impact or express ideas?

- Methods: Exploratory and experimental approaches using various mediums, such as painting, photography, or digital art. Observation, analysis, and interpretation of how color interacts with other visual elements and its effect on the audience.

- Norms of Thought: Subjectivity, creativity, and personal interpretation of color as a visual language in artistic expression.

3. History:

- Preferred Questions: How has the perception and significance of color evolved over different time periods and cultures? How have historical events and social contexts influenced the meanings and symbolism associated with colors?

- Methods: Examination and interpretation of historical texts, artworks, and artifacts. Analysis of cultural, societal, and contextual factors that shaped the understanding and use of color in different periods.

- Norms of Thought: Contextual analysis, critical thinking, and understanding the connection between color and societal perceptions throughout history.

4. Philosophy:

- Preferred Questions: What is the nature of color? How does color relate to our perception and understanding of reality? Can color be objectively defined, or is it only a subjective experience?
- Methods: Conceptual analysis, logical reasoning, and argumentation. Exploration of philosophical theories, such as the relationship between color and qualia, the nature of perception, and debates on realism vs. subjectivism in regards to color.
- Norms of Thought: Critical thinking, logical rigor, and the examination of abstract concepts and metaphysical aspects of color.

5. Engineering:

- Preferred Questions: How can color be scientifically understood and reproduced? How can color be accurately measured, controlled, and applied in engineering and technology?
- Methods: Experimental design, scientific measurement, and analysis of color properties. Development and application of color models, such as CIE L*a*b*, to describe and reproduce colors. Integration of color measurement devices and color management systems in engineering solutions.
- Norms of Thought: Precision, accuracy, reliance on empirical data, and the application of scientific principles to practical problems related to color.

By applying the epistemic insight framework, we can understand that different disciplines approach the question "What is color?" from distinct angles, employing specific methods and emphasizing different norms of thought to explore and comprehend the concept of color within their respective fields.

WHAT IS THE BOILING POINT OF WATER ON TOP OF EVEREST?

Physics:

- Preferred Question: What factors affect the boiling point of water?
- Methods: Experimentation, mathematical modeling, data analysis.
- Norms of Thought: Precision, accuracy, objectivity, logical reasoning.

Geography:

- Preferred Question: How does altitude affect the boiling point of water?
- Methods: Field observations, data collection, comparison and analysis.
- Norms of Thought: Contextual understanding, spatial analysis, interdisciplinary perspective.

In physics, the discipline would approach the question by focusing on the factors that affect the boiling point of water, including altitude. Physicists would conduct experiments in controlled conditions, manipulate variables such as pressure and temperature, and analyze data using mathematical models. The preferred question in physics is broader, aiming to understand the underlying principles governing the boiling point phenomenon.

On the other hand, geography would specifically investigate how altitude affects the boiling point of water. Geographers would gather field data from different altitudes, comparing boiling points and climatic conditions at various locations. They would utilize spatial analysis techniques, map representations, and statistical tools to understand the relationship between altitude and boiling point. The preferred question in geography is more focused on the spatial aspect and would consider how other geographical factors might come into play.

Both disciplines share some common methods, such as data collection and analysis. However, their preferred questions and norms of thought differ. Physics seeks a more general understanding of the boiling point of water, while geography focuses on the specific impact of altitude. Each discipline's norms of thought guide their approach, with physics emphasizing precision, accuracy, and logical reasoning, and geography prioritizing contextual understanding, spatial analysis, and interdisciplinary perspective.

WHAT'S THE POINT OF RECYCLING?

Sure! Here's a breakdown of how different disciplines might approach the question: "What is the point of recycling?" using the epistemic insight framework:

1. Biology:

Preferred questions:

- How does recycling benefit the environment in terms of biodiversity?

- How does recycling contribute to resource conservation and sustainability?

Methods of study:

- Researching and analyzing the impact of recycling on ecosystems, population dynamics, and biodiversity.

- Conducting experiments or field studies to assess the efficiency and effectiveness of different recycling methods.

Norms of thought:

- Logical reasoning and empirical evidence are valued.

- Seeking to understand the ecological implications and evaluating the tangible benefits of recycling.

2. Theology:

Preferred questions:

- What are the theological perspectives on stewardship of the Earth and its resources?

- How does recycling align with religious teachings on caring for creation?

Methods of study:

- Interpreting religious texts and exploring theological writings related to environmental ethics.

- Analyzing religious teachings and doctrines on human responsibility towards the Earth.

Norms of thought:

- Considering moral and ethical dimensions of recycling.

- Reflecting on philosophical perspectives and religious guidance to examine the significance of recycling in relation to human duty and divine will.

3. Psychology:

Preferred questions:

- How does recycling behavior relate to attitudes, beliefs, and values?

- What psychological factors motivate individuals to recycle or discourage recycling?

Methods of study:

- Conducting surveys, experiments, and interviews to investigate people's attitudes and behaviors towards recycling.

- Analyzing data to understand cognitive processes, social norms, and influences on recycling behavior.

Norms of thought:

- Emphasizing understanding human motivations and behaviors.

- Examining the role of education, persuasion, and social influence in fostering recycling habits.

It's important to note that these disciplines may have overlapping interests and interdisciplinary approaches could yield a broader understanding of the question. Additionally, there are various other disciplines that could also contribute unique insights to the topic of recycling.

WHY IS THE SKY BLUE?

Astronomy:

- Preferred question: What is the physical explanation behind the blue color of the sky?

- Methods: Observational data, measurements, and analysis of celestial bodies and atmospheric phenomena.

- Norms of thought: Emphasis on empirical evidence, mathematical modeling, understanding of planetary atmospheric composition, light scattering, and physical properties.

Physics:

- Preferred question: How does light interact with the Earth's atmosphere to create the blue color of the sky?

- Methods: Experimental setups, theoretical calculations, and mathematical models to study the behavior of light in different mediums.

- Norms of thought: Reliance on scientific laws and principles, understanding of electromagnetic wave properties, phenomenon of Rayleigh scattering, particle interactions, and exploring the physical processes involved.

Theology:

- Preferred question: What significance or divine purpose does the blue sky hold?

- Methods: Analysis of religious texts, philosophical contemplation, and interpretation of spiritual and metaphysical principles.

- Norms of thought: Reliance on faith, belief systems, theological doctrine, exploring the relationship between humans and the divine, and seeking meaning within a religious context.

Languages:

- Preferred question: How is the color blue (or the concept of blue) represented and understood across different languages and cultures?

- Methods: Comparative analysis of language structures, linguistic studies, crosscultural surveys, and examination of color perception.

- Norms of thought: Emphasis on cultural diversity, linguistic relativity hypothesis, cognitive processes of color perception and categorization, studying the evolution of language and its impact on our understanding of color.

Psychology:

- Preferred question: How does the perception of the color blue affect human cognition, emotions, and behavior?

- Methods: Experimental studies, surveys, behavioral observations, and neuroimaging techniques to investigate the psychological and physiological responses to blue color perception.

- Norms of thought: Focus on human perception, cognition, sensory processing, emotional associations, cultural influences, psychological theories, and exploring the impact of color on individuals' mental states and well-being.

Note: The Epistemic Insight Framework is a theoretical model that considers the knowledge, methods, and norms specific to different disciplines. The information provided above is a sample representation and may not reflect the entire range of possible questions, methods, or norms within each discipline.

WHAT DOES IT MEAN TO BE ALIVE

Sure! The Epistemic Insight Framework can help us understand the disciplines' preferred questions, methods, and norms of thought related to the question of "What does it mean to be alive?" Here's how different disciplines might approach this question:

1. Astronomy:

- Preferred questions: How is life sustained on Earth and potentially in other astronomical bodies? Are there any extraterrestrial life forms?

- Methods: Observations and data analysis using telescopes, spacecraft, and planetary missions.

- Norms of thought: Objectivity, logical reasoning, and quantitative analysis are crucial.

2. Physics:

- Preferred questions: How do the laws of physics enable and support life? What energy sources are vital for living organisms?

- Methods: Mathematical modeling, empirical testing, and experimental observations.

- Norms of thought: Deductive reasoning, empirical evidence, and consistency with existing physical theories.

3. Biology:

- Preferred questions: What are the characteristics and processes that define living organisms? How do they evolve and adapt?

- Methods: Observation, experimentation, data collection, and analysis.

- Norms of thought: Empirical evidence, hypothesis testing, peer review, and adherence to the scientific method.

4. Dance:

- Preferred questions: How does movement and expression relate to the essence of being alive? How does dance contribute to our understanding of life experiences?

- Methods: Choreography, improvisation, embodied practices, and artistic interpretation.

- Norms of thought: Creativity, personal expression, cultural context, and subjective interpretation.

5. History:

- Preferred questions: How has the concept and understanding of life evolved throughout human history? How have different societies and cultures defined and valued life?

- Methods: Analysis of historical documents, artifacts, and social contexts.

- Norms of thought: Critical analysis, interpretation, contextualization, and understanding diverse perspectives.

6. Theology:

- Preferred questions: What is the spiritual and divine essence of life? Can the concept of life be understood beyond physical existence?

- Methods: Analysis of religious texts, philosophical discourse, and spiritual experiences.

- Norms of thought: Faith, reflection, contemplation, and exploration of moral and existential dimensions.

By considering these disciplines' different approaches, methods, and norms of thought, we can gain a more comprehensive understanding of the question "What does it mean to be alive?" Each discipline offers unique insights from its distinct epistemological perspectives, enriching our overall comprehension.

YOU ARE WHAT YOU EAT OR ARE YOU?

Using the epistemic insight framework, we can explore how different disciplines address the question "You are what you eat, or are you?" and analyze their preferred questions, methods, and norms of thought. Let's examine how the disciplines of Biology, Theology, and Psychology approach this topic:

1. Biology:

Preferred Questions: Biology seeks to understand the relationship between diet and overall health. It explores questions such as: How does nutrition impact the body's development and functioning? How do different nutrients interact with our biological systems? Can certain dietary patterns contribute to disease prevention or increase the risk of certain conditions?

Methods: Biologists employ empirical methods, conducting experiments, observations, and detailed investigations. They use various tools like microscopes, gene sequencing techniques, and statistical analyses to identify and understand the mechanisms through which different foods affect the body.

Norms of Thought: In biology, critical thinking and the scientific method prevail. Researchers strive for objectivity and rely on empirical evidence to draw conclusions. Biological explanations often emphasize cause-and-effect relationships and aim to understand the underlying mechanisms that underpin the interaction between food and our physiological processes.

2. Theology:

Preferred Questions: Theology explores the relationship between diet and a person's spiritual well-being. Key questions might include: How does food play a role in religious rituals and practices? Are there any dietary restrictions or guidelines mentioned in religious texts? How do spiritual and ethical considerations influence food choices?

Methods: Theological inquiry often involves interpreting religious texts, engaging in philosophical discussions, and studying cultural beliefs. Scholars might conduct textual

analysis, examine historical contexts, and consider the experiences of religious individuals regarding their dietary practices.

Norms of Thought: Theological thinking often involves reflecting on personal beliefs, values, and faith. Norms of thought include empathy, moral reasoning, and respect for diverse perspectives. Theological explanations focus on understanding the significance of food within religious frameworks and exploring its broader spiritual implications.

3. Psychology:

Preferred Questions: Psychology explores the psychological aspects related to food and eating behaviors. Relevant questions might include: How do our thoughts, emotions, and past experiences influence our food choices and eating habits? How does food affect our mood and overall psychological well-being? Are there psychological factors related to eating disorders or unhealthy relationships with food?

Methods: Psychologists employ both quantitative and qualitative research methods. Surveys, experiments, interviews, and observations are used to explore individual behaviors, motivations, and cognitive processes related to food. Statistical analysis is applied to draw conclusions about general patterns of human behavior.

Norms of Thought: Psychological inquiry emphasizes understanding the subjective experiences and mental processes of individuals. Researchers value objectivity, ethical considerations, and sensitivity to cultural and individual differences. Psychological explanations explore how psychological factors influence the way we perceive food, make choices, and relate to our bodies.

In conclusion, different disciplines approach the question "You are what you eat, or are you?" with distinct preferred questions, methods, and norms of thought. Biology focuses on the physiological impact of food on the body, Theology explores the spiritual and religious aspects, while Psychology investigates the psychological factors influencing food-related behaviors. By considering multiple disciplines, a more holistic understanding of the question can be achieved.

MORE QUESTIONS TO TRY

Here are some more questions to try

Here are some of the questions that we could put into the app that operates the epistemic insight framework to unpack questions through different disciplinary lenses, which we have explored in this conversation:

- Why does water boil at different temperatures depending on where you are?
- Why do some words sound like what they mean?
- Why are some people more prone to addiction than others?
- Why are some colours more appealing than others?
- Why do we dream?
- How do plants grow?
- What is money?
- How do stars form?
- What is art?
- Why are some people left-handed and some people right-handed?
- Why are some people more creative than others?
- Why are some languages more widely spoken than others?
- How do we breathe?
- How do we digest food?
- How do we heal wounds?
- Why do we laugh?