

Science as a Knowledge Source

Lesson 4: Writing a TOK Essay

Focus: *How can knowledge users develop strong, structured arguments?*

Objectives	<ul style="list-style-type: none">● Write a fully developed TOK essay claim using the TOK essay structure.● Apply real-world examples and counterclaims to support arguments.● Engage critically with TOK concepts (e.g., justification, objectivity, perspective).
Activities	<ol style="list-style-type: none">1. Introduction (5 mins)<p>Guiding Question: <i>“How do we develop a strong argument in a TOK essay?”</i></p><p>Recap: What makes a TOK essay unique?</p><ul style="list-style-type: none">● Focus on knowledge (not merely opinions).● Use real-world examples drawn from multiple Areas of Knowledge (AOKs).● Include counterclaims.● Refer to TOK concepts (e.g., justification, objectivity, perspective).● Reflect on the implications and limitations of your argument.<ul style="list-style-type: none">○ Teacher Tip: Show a quick visual of the TOK essay structure (introduction, body claims, conclusion), highlighting where this developed paragraph fits in.2. Examining a Strong TOK Essay Claim (10 mins)<ul style="list-style-type: none">● Break down an example paragraph of your choice with students. Ask them to annotate:<ul style="list-style-type: none">○ Claim: The stance or argument addressing the TOK prompt.○ Example: A real-world situation supporting or illustrating the claim.○ Counterclaim: A contrasting perspective that challenges the claim.○ TOK Links: Explicit connection to TOK concepts and reflection on how knowledge is produced or validated.● Discussion Questions:<ul style="list-style-type: none">○ How does the example strengthen the claim?○ Which Ways of Knowing (WOKs) or Areas of Knowledge (AOKs) are relevant here?○ Does the counterclaim effectively challenge the claim, encouraging deeper exploration?3. Writing Task: Drafting a TOK Paragraph (15 mins)<ul style="list-style-type: none">● Select a prompt: Provide students with a list of essay prompts to choose from. These could be prompts that you have prepared (e.g., “To what extent does institutional control shape the production of scientific knowledge?”) or a prescribed title from the official IB list that ties to cultural appropriation.● Students plan the paragraph, including notes on:<ul style="list-style-type: none">○ Claim: A statement connecting directly to the prompt.● Example: A real-life scenario that demonstrates the claim.<ul style="list-style-type: none">○ Counterclaim: An alternative viewpoint or critique that challenges the initial argument.○ TOK Link: Reference how the TOK concepts of justification, perspective, or objectivity influence what is considered reliable scientific knowledge.● Write the paragraph: Emphasise clarity, coherence, and the TOK focus (not just describing the event but analysing how it affects knowledge).<ul style="list-style-type: none">○ Teacher Tip: Remind students to refer to the AOK: The Natural Sciences, and avoid simply praising or criticizing. Instead, focus on how knowledge is formed, judged, and communicated.4. Peer Review & Refinement (10 mins)<ul style="list-style-type: none">● Students exchange their writing in pairs or small groups, and use the essay checklist to give feedback. Use the following discussion points to help students’ develop their feedback:<ul style="list-style-type: none">○ Claim: Is it clearly stated, and does it tie back to the prompt?○ Example: Is it concrete, relevant, and well-explained?○ Counterclaim: Is it meaningfully different or just a weaker version of the claim?



	<ul style="list-style-type: none"> ○ TOK Link: Does it show awareness of how knowledge is justified, constructed, or challenged? ○ Language and Clarity: Are there any vague statements or unclear references? ● If time permits, students revise immediately based on peer feedback.
Reflection	<p>Discuss the following reflection questions in open discussion or exit ticket format:</p> <ul style="list-style-type: none"> ● What was the most challenging part of writing this? ● How do different perspectives influence debates on the reliability of scientific knowledge? ● How does this practice help prepare for the TOK essay assessment? <p>Extension / Homework</p> <ul style="list-style-type: none"> ● Option A: Expand the paragraph by adding another real-world example or a deeper analysis of the counterclaim. ● Option B: Research a different context (another region or era) to see if the claim holds universally or changes with cultural/political conditions. ● Option C: Draft an introductory or concluding paragraph linking the argument to a broader TOK theme (e.g., sugar industry vs. fat narrative, climate change denial, replication crisis).
Resources	<p>Lesson Slides Example TOK Essay prescribed titles</p>
TOK Concepts	<ul style="list-style-type: none"> ● Justification: To what extent can we trust scientific claims when the bodies validating them are embedded in political and economic power? ● Objectivity: Can science ever be truly objective if its research questions, data, and framing are steered by powerful interests? ● Perspective: How do competing perspectives decide which scientific findings are spotlighted or ignored and who ultimately benefits?
Critical Thinking Concepts	<ul style="list-style-type: none"> ● Confronting Biases & Assumptions: <ul style="list-style-type: none"> ○ Challenging Authority Bias: Questioning the assumption that claims made by doctors, scientists, or experts are automatically justified, and examining how their status can discourage scrutiny or dissent. ○ Recognizing Institutional Bias: Analyzing how corporations, governments, and media organizations may shape, skew, or selectively present scientific research to protect interests, manage public perception, or maintain authority. ● Exploring Contexts: <ul style="list-style-type: none"> ○ Stakeholder Analysis: Identifying who benefits or loses when scientific data is manipulated, selectively disclosed, or withheld, such as pharmaceutical companies, regulators, patients, or the wider public, and how those stakes influence what gets accepted as reliable knowledge. ○ Cultural and Social Impact: Considering how misinformation or partial truths affect public health, social trust, and everyday behavior, and how different communities experience these impacts unequally. ● Responsiveness and Flexibility of Thought: <ul style="list-style-type: none"> ○ Adapting Judgments: Being willing to reconsider prior beliefs about scientific neutrality, especially when confronted with evidence of bias, omission, or manipulation. ○ Evaluating Multiple Perspectives: Weighing how your trust in the scientific claim shifts depending on who is interpreting, funding, or communicating the data, including scientists, companies, regulators, media, or activists, and using these contrasts to form a more nuanced judgment. ● Extrapolation & Reapplication of Principles: <ul style="list-style-type: none"> ○ Applying Ethical Reasoning: Assessing whether it is ethically defensible to withhold or delay trial data for reasons such as profit, control, or reputation management, using principles like transparency, harm reduction, and fairness. ○ Connecting to Modern Issues: Extending the same critical framework to contemporary debates, for example vaccine skepticism, climate science denial, or controversies over drug approval, to examine how scientific information is promoted, contested, or distrusted today.

