



NA-MA POTI

THOUGHT PROCESSES AND CRITICAL THINKING SKILLS



National
Education
Institute
Slovenia



NA-MA POTI



REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION,
SCIENCE AND SPORT



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DEFINITION OF THOUGHT PROCESSES AND CRITICAL THINKING SKILLS

Critical thinking is skillful, self-regulating thinking that is sensitive to context and involves higher thought processes and skills, such as comparing, classifying, reasoning, judging, predicting, forming and evaluating arguments, searching for, and evaluating sources.

THOUGHT PROCESSES AND CRITICAL THINKING SKILLS

1. comparing
2. sorting/classifying
3. identifying and defining problems
4. asking questions
5. observing systematically and drawing conclusions
6. distinguishing facts from opinions and interpretations
7. designing goals and planning the process, product and pathways towards the goals
8. searching for and evaluating sources
9. deductive reasoning
10. inductive reasoning
11. forming, analysing and evaluating arguments
12. evaluating and decision making

List of abbreviations

CT – critical thinking

NA-MA POTI – Scientific and Mathematical Literacy: The Development of Critical Thinking and Problem-Solving



Thought processes and critical thinking skills	Student:
CT1: COMPARING	<ul style="list-style-type: none"> • Designs relevant criteria for comparing and uses them.
CT2: SORTING/CLASSIFYING	<ul style="list-style-type: none"> • Designs relevant criteria for sorting; • Classifyss according to one or multiple criteria
CT3: IDENTIFYING AND DEFINING PROBLEMS	<ul style="list-style-type: none"> • Detects or identifies a problem; • Clearly and accurately defines the problem; • Differentiates the consequences from the actual causes of the problem; • Evaluates the problem according to different criteria.
CT4: ASKING QUESTIONS	<ul style="list-style-type: none"> • Asks diverse questions (at higher taxonomy levels); • Asks questions at various phases of learning; • Asks questions in various situations (to clarify the problem; to define the research question; to define the variables and the relationships between them); • Asks self-reflective questions.
CT5: OBSERVING SYSTEMATICALLY AND DRAWING CONCLUSIONS	<ul style="list-style-type: none"> • Observes systematically and analytically; • Obtains the relevant information; • Searches for obvious and deep connections between facts (fact analysis); • Based on his/her observations, the student makes predictions, draws conclusions, and explains events, processes and phenomena.
CT6: DISTINGUISHING FACTS FROM OPINIONS AND INTERPRETATIONS	<ul style="list-style-type: none"> • Understands the difference between the following terms: fact (what actually happened, what we have noticed, measured); deduction (deriving logical conclusions based on facts); interpretation (possible explanations of facts, sense making); opinion (stating the characteristics, conditions based on one's knowledge); • When explaining events, processes and phenomena, the learner is aware of, considers and adopts different perspectives; • Is aware of and explains the impact of various factors and the limitations of opinions and interpretations (knowledge, motivation, emotions, experiences, etc.).
CT7: DESIGNING GOALS AND PLANNING THE PROCESS, PRODUCT AND PATHWAYS TOWARDS THE GOALS	<ul style="list-style-type: none"> • Designs goals skilfully so they are specific, measurable, attainable, realistic, and time manageable; • Plans the steps, strategies, time frame and sources for attaining the goals; • Analyses the barriers on the path towards the goals, and designs strategies to overcome them; • Defines the success criteria; • Monitors his/her progress according to the criteria.
CT8: SEARCHING FOR AND EVALUATING SOURCES	<ul style="list-style-type: none"> • Knows diverse sources according to different criteria; • Knows the criteria for evaluating the credibility of sources; • Searches for and assesses sources according to purpose, and cites them correctly.
CT9: DEDUCTIVE REASONING	<ul style="list-style-type: none"> • Deduces from the general to the individual; • Determines the reality/validity of premises; • Builds an understanding of a concept; • Is aware of potential errors in deductive reasoning and recognizes them in himself/herself and in others; • Recognizes opportunities for deductive reasoning; • Assesses the relevance of deductions.

Thought processes and critical thinking skills	Student:
CT10: INDUCTIVE REASONING	<ul style="list-style-type: none"> • Deduces from the individual (fact, event, characteristic, etc.) to the general (principle, rule, theory); • Determines the reality/validity of premises; • Builds concepts; • Is aware of potential errors in inductive reasoning (hasty generalization) and recognizes them in himself/herself and in others; • Recognizes opportunities for inductive reasoning; • Analyses and assesses the relevance of inductive reasoning in a situation.
CT11: FORMING, ANALYSING AND EVALUATING ARGUMENTS	<ul style="list-style-type: none"> • Forms arguments (supports a claim with relevant reasons); • Analyses arguments (identifies arguments and defines their structure); • Evaluates arguments (assesses reasons from the aspect of relevance, acceptability and adequacy); • Expresses diverse views, supported by facts/evidence/reasons.
CT12: EVALUATING AND DECISION MAKING	<ul style="list-style-type: none"> • Raises awareness of the importance of developing clear and relevant criteria; • Designs criteria; • Evaluates based on the relevant criteria; • Applies the criteria when making decisions.

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