

Thinking Strategies in Language Arts

| Thinking Strategy | Cognitive Behaviors | Teacher Talk | Student Talk |
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| Monitoring for Meaning | <ul style="list-style-type: none"> ➤ Readers pause, consider the meanings in text, and use strategies to enhance understanding. ➤ Writers pause to consider the impact of their work and make conscious decisions about revisions such as: turning a small piece into a larger project, when revisions are complete, or when to abandon a piece. | | |
| Activating, Using and Building Background Knowledge | <ul style="list-style-type: none"> ➤ Readers use schema about authors and genre to better understand text. ➤ Writers think about and use what they know about genre, text structure, and conventions as they write. | | |
| Asking Questions | <ul style="list-style-type: none"> ➤ Readers ask questions to clarify meaning; to make predictions; to determine an author's style, content or form; and to locate a specific answer in text or consider rhetorical questions. ➤ Writers' questions lead to revision in their own pieces and in the pieces to which they respond for other writers. | | |

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| <p>Drawing Inferences</p> | <ul style="list-style-type: none"> ➤ Readers know when and how to combine text with their own background knowledge to seek answers to questions. ➤ Writers carefully consider their audience in making decisions about what to describe explicitly and what to leave to the readers' interpretation. | | |
| <p>Determining Importance</p> | <ul style="list-style-type: none"> ➤ Readers use their knowledge of important and relevant parts of text to prioritize what to remember and synthesize text for others. ➤ Writers study other authors' techniques for highlighting important points in their texts. | | |
| <p>Creating Sensory Images</p> | <ul style="list-style-type: none"> ➤ Readers adapt their images as they read to incorporate new information revealed through the text and to create new interpretations. ➤ Writers create images by selecting powerful words and strong nouns and verbs. | | |
| <p>Synthesizing Information</p> | <ul style="list-style-type: none"> ➤ Readers develop holistic/thematic statements that encapsulate the text's overall meaning. ➤ Writers include cues in their text to help readers determine essential themes and ideas that would need to be included in any synthesis statement. | | |

Thinking Strategies for Mathematicians

| Thinking Strategy | Cognitive Behaviors | Teacher Talk | Student Talk |
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| Monitoring for Meaning | <ul style="list-style-type: none"> • Mathematicians are metacognitive as they continually ask themselves, "Does this make sense?" and "Is my answer reasonable?" • Mathematicians use accurate math vocabulary and show their work in clear concise forms so others can follow their thinking | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |
| Activating, Using and Building Background Knowledge (schema) | <ul style="list-style-type: none"> • Use their prior knowledge to generalize about similar problems and to choose problem solving strategies. • Mathematicians add to schema by trying more challenging problems and hearing for others about different problem solving methods. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |
| Asking Questions | <ul style="list-style-type: none"> • Mathematicians test theories/answers/hypotheses by asking questions about various approaches to a problem. • Mathematicians extend their own thinking by asking themselves questions for which they don't have answers. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |

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| <p>Drawing Inferences</p> | <ul style="list-style-type: none"> • Mathematicians use patterns and relationships to generalize and infer what come next in the problem-solving process. • Mathematicians solve problems in different ways and support their methods through proof, number sentences, pictures, charts, and graphs. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |
| <p>Determining Importance</p> | <ul style="list-style-type: none"> • Mathematicians gather text information from graphs, charts, and tables. • Mathematicians use key words to decide what information is relevant and irrelevant to a problem. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |
| <p>Creating Sensory Images</p> | <ul style="list-style-type: none"> • Mathematicians use mental pictures/models of shapes, numbers, and processes to build an understanding of concepts and problems and to experiment with ideas. • Mathematicians visually represent their thinking through drawings, pictures, graphs, models, and charts. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |
| <p>Synthesizing Information</p> | <ul style="list-style-type: none"> • Mathematicians generalize from patterns they observe. • Mathematicians synthesize math concepts when they use them in real-life applications. | <ul style="list-style-type: none"> • | <ul style="list-style-type: none"> • |

Thinking Strategies in Science

| Thinking Strategy | Cognitive Behaviors | Teacher Talk | Student Talk |
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| Monitoring for Meaning | <ul style="list-style-type: none"> • Scientists reflect on the validity of their hypotheses in light of new data and assess the possibility of errors in their experiments. • Scientists repeat their investigations to ensure that their results are replicable. | | |
| Activating, Using and Building Background Knowledge (schemata) | <ul style="list-style-type: none"> • Scientists form hypotheses and draw inferences based on their background knowledge. • Scientists build their background knowledge by reading the publications of other scientists, attending scientific meetings, and participating in peer reviews of their work. | | |
| Asking Questions | <ul style="list-style-type: none"> • Scientists focus each investigation by posing specific, testable questions and designing experiments that can give definitive answers. • Scientists often pose new questions or modify their hypothesis after gathering new data. | | |
| Drawing Inferences | <ul style="list-style-type: none"> • Scientists develop hypotheses based on their inferences. • Scientists examine existing and new data and draw inferences to explain their observations. | | |

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| <p>Determining Importance</p> | <ul style="list-style-type: none"> • When designing investigations, scientists determine the sequence of steps to take in the process. • Scientists take data and carry out a statistical analysis to determine its significance and try to communicate the importance of their work to the larger community and public. | | |
| <p>Creating Sensory Images</p> | <ul style="list-style-type: none"> • Scientists gather qualitative data using their five senses. • Scientists record their qualitative observations with illustrations. | | |
| <p>Synthesizing Information</p> | <ul style="list-style-type: none"> • Scientists analyze and interpret quantitative data using tables, charts, graphs, and diagrams. • Scientists draw conclusions from their data by synthesizing what they learned with what they already knew before an investigation. | | |

Thinking Strategies for Historians / Social Scientists

| Thinking Strategy | Cognitive Behaviors | Teacher Talk | Student Talk |
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| Monitoring for Meaning | <ul style="list-style-type: none"> • Social Scientists pause and evaluate information. • Social Scientists use a variety of sources to validate information and to check for accuracy. | | |
| Activating, Using and Building Background Knowledge (schema) | <ul style="list-style-type: none"> • Social Scientists use their current background knowledge and how it impacts their interpretation of historical events, economic issues and culture. • Social Scientists launch investigations and ask questions based on previous interests and experiences. | | |
| Asking Questions | <ul style="list-style-type: none"> • Social Scientists evaluate their work by considering: What are the most effective resources and how will I access them? Do I have enough information? Have I used a variety of resources? What more do I need? Does it make sense? Have I told enough? Is it interesting and original thinking? Does my writing have voice? • Social Scientists ask critical questions of text: Is there a bias? Whose voice is left out? From whose point of view is this being told? | | |

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| Drawing Inferences | <ul style="list-style-type: none"> • Social Scientists use primary source documents and artifacts to infer themes and patterns. • Social Scientists use research to infer why and how historical choices were made, the implications of those choices, and how those choices impact us today. | | |
| Determining Importance | <ul style="list-style-type: none"> • Social Scientists use their understanding of primary and secondary source text structures to uncover information and navigate text. • Social Scientists determine importance as they sift through data and information collected on the Internet or in other sources. | | |
| Creating Sensory Images | <ul style="list-style-type: none"> • Social Scientists use sensory images to imagine other times and places in order to relate to the experiences of others. • Social Scientists incorporate auditory, visual, and kinesthetic imagery when they write. | | |
| Synthesizing Information | <ul style="list-style-type: none"> ▪ Social Scientists enhance their understanding of a topic by considering different perspectives, opinions, and sources. ▪ Social Scientists recognize misinformation and reconcile conflicting points of view. | | |