

## CRITICAL INQUIRY SKILLS FOR THE DIGITAL ENVIRONMENT

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PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
<b>Connect</b>	Contextualization	<ul style="list-style-type: none"> <li>• Provide links to overview information</li> <li>• Design instruction around big ideas, central themes</li> <li>• Guide the connection to everyday life</li> <li>• Motivate inquiry into specific issues with provocative essential questions</li> <li>• Do diagnostic assessment to bring misconceptions and inaccurate mental models to surface</li> <li>• Teach mindmapping to help students visualize the whole</li> </ul>
	Focus	<ul style="list-style-type: none"> <li>• Teach students to capture key terms from overview</li> <li>• Teach webbing to enable students to identify their main ideas and supporting or peripheral ideas</li> <li>• Develop criteria with students for evaluating appropriateness and usefulness of websites</li> <li>• Provide criteria for self-assessment of topic breadth, depth, viability, and interest</li> </ul>
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<b>Wonder</b>	Higher-level questioning	<ul style="list-style-type: none"> <li>• Teach and provide templates for developing questions at different levels</li> <li>• Model questioning at convergent, divergent, and evaluative levels</li> <li>• Facilitate whole-class development of in-depth questions around the essential question</li> <li>• Scaffold the development of higher-level questions by providing provocative and diverse sources</li> <li>• Teach students to question the text</li> </ul>
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<b>Investigate</b>	Relational search strategies	<ul style="list-style-type: none"> <li>• Teach students to generate synonyms and natural-language related terms for key terms gathered through overview/background reading</li> <li>• Provide instruction and practice in both hierarchical and relational search strategies; emphasize relational strategies for web environment</li> </ul>
	Participatory organization	<ul style="list-style-type: none"> <li>• Provide opportunities and tools for students to tag and organize both information and websites as they are investigating</li> <li>• Teach students how to use digital tools for organizing their research information and sources</li> </ul>

	<ul style="list-style-type: none"> <li>• Provide opportunities for students to participate in the library catalog through tagging and comments on resources</li> <li>• Integrate collaborative activities into lesson design</li> <li>• Provide access to collaborative work tools</li> </ul>
Sourcing	<ul style="list-style-type: none"> <li>• Develop criteria for evaluating the authority of sources with the students. These should include authority of author/publisher, purpose, currency, credibility, accuracy, and perspective/viewpoint</li> <li>• Establish school-wide protocol of requiring annotated bibliographies for all research projects</li> </ul>
Corroboration	<ul style="list-style-type: none"> <li>• Teach students to weigh one source against another in terms of their accuracy and point of view</li> <li>• Teach students to challenge and question the information presented until they have corroborated it with evidence from other authoritative sources</li> </ul>
Connected Meaning	<ul style="list-style-type: none"> <li>• Provide templates and instruction to enable students to compare, contrast, and sequence information</li> <li>• Teach students relational thinking so that they find commonalities and differences among multiple perspectives, connect new information to their big ideas, and find a broad range of related information</li> </ul>
Deep reading	<ul style="list-style-type: none"> <li>• Teach the strategies of critical literacy, including questioning the text; reading for analysis; evaluating rather than summarizing the evidence; and reading for subtext and implicit meaning</li> </ul>
Transliteracy	<ul style="list-style-type: none"> <li>• Teach students to “read” and interpret information presented through multiple formats</li> <li>• Provide opportunities for students to recognize and counter the dangers of noncritical acceptance of visual information: <ul style="list-style-type: none"> <li>○ Use of visuals for illustration purposes only</li> <li>○ “Graphic seduction” of online visual information</li> <li>○ Positive and negative influence of graphics on critical reasoning</li> </ul> </li> </ul>
Ethical participation	<ul style="list-style-type: none"> <li>• Develop ethical guidelines in the accessing and use of information with the students</li> <li>• Provide explicit instruction in copyright, crediting sources, and plagiarism</li> <li>• Discuss proprietary and creative commons concepts</li> <li>• Develop digital citizenship curriculum and integrate it into teaching throughout the school</li> <li>• Expand students’ understanding of their social responsibilities by teaching them to seek and respect divergent viewpoints</li> </ul>

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<b>Construct</b>	Synthesis	<ul style="list-style-type: none"> <li>• Teach students specific skills to synthesize bits of information available through the hypertext environment and weave them together to form a meaningful whole:               <ul style="list-style-type: none"> <li>○ Determining the importance of ideas</li> <li>○ Identifying main ideas and supporting evidence</li> <li>○ Combining ideas to develop robust arguments</li> <li>○ Interpreting ideas in relation to similar and contrasting information</li> </ul> </li> </ul>
	Finding patterns and relationships	<ul style="list-style-type: none"> <li>• Provide access to online organizational tools to enable students to find patterns in their evidence</li> <li>• Teach students to generate their own graphic organizations to find connections among ideas (e.g., concept mapping, mindmapping)</li> </ul>
	Development of own interpretation or conclusion	<ul style="list-style-type: none"> <li>• Teach students strategies to develop their own interpretations and conclusions:               <ul style="list-style-type: none"> <li>○ Testing their interpretations against the evidence</li> <li>○ Constructing a decision-making matrix and making a decision</li> <li>○ Developing a line of argument with points and counterpoints</li> </ul> </li> </ul>
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<b>Express</b>	Shared learning	<ul style="list-style-type: none"> <li>• Provide opportunities and online tools for students to collaborate in the production and sharing of their work</li> <li>• Teach students the skills involved in using media in all formats and social tools to communicate their learning</li> <li>• Teach students to provide reflective feedback to their peers</li> </ul>
	Authenticity	<ul style="list-style-type: none"> <li>• Connect learning assignments and final products to authentic modes of communication and real-world issues</li> <li>• Establish clear criteria for authentic work, including the presentation of reasoned, in-depth, and accurate arguments that form a coherent whole</li> <li>• Teach students to create high-quality, professional products that would have legitimacy in the real world</li> </ul>
	Creative thinking	<ul style="list-style-type: none"> <li>• Provide opportunities for students to think outside of the box of “report writing” and use digital tools to create original and valid presentations</li> </ul>

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<b>Reflect</b>	Metacognition	<ul style="list-style-type: none"> <li>• Teach students to evaluate their own thinking using reflective questions:               <ul style="list-style-type: none"> <li>○ Did I learn anything new?</li> <li>○ Are there holes in my argument that I want to pursue?</li> <li>○ Do I trust my own conclusions?</li> <li>○ What new questions do I have?</li> </ul> </li> </ul>
	Self-assessment of product	<ul style="list-style-type: none"> <li>• Teach students to assess their own products in terms of how well they clarified concepts, constructed new knowledge, and communicated their ideas</li> </ul>
	Self-assessment of process	<ul style="list-style-type: none"> <li>• Teach students to evaluate their inquiry process and skills in terms of:               <ul style="list-style-type: none"> <li>○ Quality of questions</li> <li>○ Accuracy and authority of evidence</li> <li>○ Depth and breadth of evidence</li> <li>○ Validity of conclusions</li> </ul> </li> </ul>