

# RESEARCH & INFORMATION FLUENCY

In the 21st Century classroom, students find, navigate through, and evaluate large amounts of information. Teachers provide guided and independent research opportunities for students to make informed decisions and create products.

Entry	Developing	Approaching	Ideal/Target
<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>provides print / digital resources for research and information acquisition.</li> <li>directs student use of print / digital resources.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>locate and acquire information using provided resources.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>models search techniques and critical analysis of various media and information sources.</li> <li>provides controlled opportunities for student search and analysis of media and information sources.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>locate, acquire and document the source of information.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>plans and implements strategies to guide student investigation.</li> <li>supports students as they acquire, evaluate, and ethically use information.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>develop questions to guide research.</li> <li>apply research methods to find and evaluate resources.</li> <li>critique and select information from a variety of digital resources / databases.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>develops, facilitates and assesses a learning environment where students are consistently engaged in the following:</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>select appropriate digital tools to assemble, evaluate, and utilize information.</li> <li>apply varied research skills to find and evaluate resources.</li> <li>use information and resources to accomplish real-world tasks.</li> </ul>

Modern tools that promote research and information fluency include search engines, databases, social bookmarking, push/ pull technologies and organizational structures and strategies.

*How to Use This Document: Each chart title reflects essential 21st Century skills and collectively embodies a vision of instruction in technology-rich classrooms. Columns are snapshots of student and teacher behaviors in various stages of classroom development. Each column increases in degree of student-centered focus. A progression occurs between columns with the most desired behaviors in the right hand column.*

# COMMUNICATION & COLLABORATION

In a 21st Century classroom, students communicate and collaborate effectively to reach a common goal or create a product. The teacher utilizes a variety of communication methods, structures student interaction in groups, and engages students in collaborative projects.

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<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>disseminates information with limited student interaction.</li> <li>initiates and regulates communication opportunities.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>work independently to create individual products.</li> <li>rely on teacher prompts to ask questions or communicate with others.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>creates structures for student communication within the classroom.</li> <li>provides opportunities for students to work in groups on products and projects.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>communicate using a variety of techniques.</li> <li>work in groups to accomplish measurable tasks or products.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>models effective communication.</li> <li>provides opportunities for students to make global connections.</li> <li>establishes group norms to facilitate effective collaboration.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>communicate with audiences within and beyond the classroom.</li> <li>assume one or more roles within their team to more effectively create collaborative products.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>develops, facilitates and assesses a learning environment where students are consistently engaged in the following:</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>initiate communication in real and non-real time.</li> <li>communicate and collaborate with learners of diverse cultural backgrounds.</li> <li>form collaborative teams to solve real-world problems and create original works.</li> </ul>

Technologies that foster communication and collaboration include electronic messaging, multimedia publishing, video conferencing, shared authoring tools, and social networking applications.

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# CRITICAL THINKING & PROBLEM SOLVING

Students will apply knowledge and skills in practical ways to solve real world problems. The teacher provides the activities, experiences, and feedback needed for students to develop critical thinking and problem solving skills.

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<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>disseminates information with limited real world connections.</li> <li>challenges students to complete tasks based on information recall.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>use limited range of resources to solve comprehension-based tasks.</li> <li>do not elaborate on the reasoning behind their decision-making or problem-solving practices.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>provides direct instruction on critical thinking and problem solving skills.</li> <li>creates opportunities for students to solve basic problems.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>use resources including technology to make decisions and solve problems.</li> <li>can justify their decision-making or problem-solving practices when prompted.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>incorporates problem- and project-based learning into instruction.</li> <li>utilizes open-ended questions and emphasizes higher order thinking skills.</li> <li>guides and encourages the use of appropriate resources to solve authentic problems.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>use technology to work with limited teacher help to solve problems.</li> <li>engage in open-ended learning experiences that require higher order thinking skills.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>develops, facilitates and assesses a learning environment where students are consistently engaged in the following:</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>use multiple resources to plan, design, and execute real-world problems.</li> <li>use technology to collaborate and solve authentic problems.</li> <li>develop and answer open-ended questions using higher order thinking skills.</li> </ul>

Critical thinking and problem solving require specific behaviors that ultimately lead to insights and quality decisions. Modern tools that encourage and promote thinking critically and solving problems are flexible, varied and include simulation and data visualization software in addition to the tools included in the Research & Information Fluency and Communication and Collaboration sections.

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# CREATIVITY & INNOVATION

In the 21st Century classroom, students develop original ideas and create products by applying critical thinking, research methods, communication tools, and collaborative processes. Teachers provide experiences that allow students to create unique ideas and products.

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<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>limits instruction to specific content.</li> <li>makes connections to existing knowledge.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>make connections to existing knowledge.</li> <li>create standard products following teacher direction.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>provides instruction to accommodate a range of learning styles, interests, and capabilities.</li> <li>prompts students to identify trends, make predictions and think skillfully.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>engage in activities that have some aspects of choice or open-ended response.</li> <li>question, summarize and make predictions on their existing base of knowledge.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>includes skills-based learning outcomes that exceed minimum requirements outlined in state standards.</li> <li>provides opportunities for students to demonstrate collaboration, communication, and critical thinking skills.</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>identify trends and make predictions independently.</li> <li>apply existing knowledge to create ideas and products.</li> </ul>	<p><b>Teacher:</b></p> <ul style="list-style-type: none"> <li>develops, facilitates and assesses a learning environment where students are consistently engaged in the following:</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>apply critical thinking, research methods, and communication tools to create original work.</li> <li>collaborate effectively beyond the classroom to create original work.</li> </ul>

Creativity and innovation ultimately lead to new products, perspectives and insights. Modern tools that augment and accelerate creativity and innovation are flexible and varied. Examples of such powerful tools are included in the Research & Information Fluency and Communication and Collaboration sections of this document.

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