

**FIGURE 1. A Picture of Disciplinary Literacy**

	<b>Read</b>	<b>Write</b>	<b>Think</b>
<b>Science</b>	<p><b>When scientists read, they</b></p> <ul style="list-style-type: none"> <li>• Ask “why?” more than “what?”</li> <li>• Interpret data, charts, lab notes, illustrations, and observations</li> <li>• Seek to understand concepts and scientific theories</li> <li>• Determine validity of sources and quality of evidence</li> <li>• Pay attention to details</li> <li>• Estimate, extrapolate, and predict</li> <li>• Identify systems and patterns</li> </ul>	<p><b>When scientists write, they</b></p> <ul style="list-style-type: none"> <li>• Use precise vocabulary</li> <li>• Compose in phrases, bullets, graphs, or sketches</li> <li>• Favor accuracy over craft or excessive elaboration</li> <li>• Communicate in a systematic form</li> <li>• Explore theories but rely on evidence</li> <li>• Create and revise models</li> </ul>	<p><b>When scientists think, they</b></p> <ul style="list-style-type: none"> <li>• Generate questions</li> <li>• Allow curiosity to drive learning</li> <li>• Rely on prior knowledge or research</li> <li>• Consider new hypotheses or evidence</li> <li>• Propose explanations</li> <li>• Create solutions</li> <li>• Consider ethical concerns</li> <li>• Seek connections, patterns, and systems</li> <li>• Ask “what if?”</li> </ul>
<b>History</b>	<p><b>When historians read, they</b></p> <ul style="list-style-type: none"> <li>• Interpret primary and secondary sources</li> <li>• Identify bias</li> <li>• Think sequentially</li> <li>• Compare and contrast events, accounts, maps, infographics, documents, photos, and visuals</li> <li>• Determine meanings of words within historical contexts</li> <li>• Evaluate credibility of sources</li> <li>• Seek a wide variety of texts to gain deeper understandings</li> </ul>	<p><b>When historians write, they</b></p> <ul style="list-style-type: none"> <li>• Create timelines with accompanying narratives</li> <li>• Synthesize, compare, and contrast information and evidence from multiple sources</li> <li>• Organize ideas coherently</li> <li>• Grapple with multiple ideas and large quantities of information</li> <li>• Make historical claims supported by evidence</li> <li>• Corroborate accounts</li> <li>• Utilize argumentative principles</li> </ul>	<p><b>When historians think, they</b></p> <ul style="list-style-type: none"> <li>• Create narratives</li> <li>• Seek credible primary and secondary sources</li> <li>• Compare, contrast, and ponder causes and effects</li> <li>• Consider big ideas or inquiries across long periods of time</li> <li>• Recognize bias</li> <li>• Use the past as a mirror to the present</li> <li>• Question content and purpose</li> <li>• Wonder what has been left out and seek to discover what’s missing</li> </ul>
<b>Math</b>	<p><b>When mathematicians read, they</b></p> <ul style="list-style-type: none"> <li>• Use information to piece together a solution</li> <li>• Look for patterns and relationships</li> <li>• Decipher symbols and abstract ideas</li> <li>• Ask questions</li> <li>• Apply mathematical reasoning and habits of mind</li> </ul>	<p><b>When mathematicians write, they</b></p> <ul style="list-style-type: none"> <li>• Explain, justify, describe, estimate, analyze, and solve</li> <li>• Favor calculations over words</li> <li>• Use precise vocabulary</li> <li>• Include reasons and examples</li> <li>• Utilize real-world situations</li> <li>• Explain reasoning</li> </ul>	<p><b>When mathematicians think, they</b></p> <ul style="list-style-type: none"> <li>• Consider patterns</li> <li>• Rely on previous understandings</li> <li>• Find connections</li> <li>• Estimate, generalize, and look for exceptions</li> <li>• Employ mathematical principles</li> <li>• Ask questions</li> </ul>
<b>English Language Arts</b>	<p><b>When students of English read, they</b></p> <ul style="list-style-type: none"> <li>• Understand how figurative language works</li> <li>• Find underlying messages that evolve as themes</li> <li>• Assume a skeptical stance</li> <li>• Pay attention to new vocabulary or words used in new ways</li> <li>• Employ background knowledge</li> <li>• Vary reading skills based on genre, purpose, and audience</li> <li>• Explore a wide variety of texts to build background knowledge or corroborate information</li> <li>• Consider literacy criticism</li> <li>• Identify bias and perspective</li> <li>• Lose themselves in fiction</li> <li>• Make choices about the texts they want to read</li> <li>• Experience joy or inspiration</li> </ul>	<p><b>When students of English write, they</b></p> <ul style="list-style-type: none"> <li>• Engage in a process that includes drafting, revising, and editing</li> <li>• Use mentor texts to aid writing craft</li> <li>• Pay attention to word choice, organization, details, and voice</li> <li>• Consider feedback from others</li> <li>• Avoid formulaic writing</li> <li>• Vary writing based on audience, purpose, and format</li> <li>• Use evidence to support arguments</li> <li>• Develop voice</li> <li>• Take risks in composing</li> </ul>	<p><b>When students of English think, they</b></p> <ul style="list-style-type: none"> <li>• Compare, contrast, synthesize, and reflect on multiple texts</li> <li>• Generate questions</li> <li>• Consider validity of evidence</li> <li>• Employ creativity and curiosity</li> <li>• Evaluate and critique</li> <li>• Argue both sides of a point</li> <li>• Develop empathy</li> <li>• Consider what more they want to know</li> <li>• Appreciate the beauty of language</li> </ul>

	Read	Write	Think
<b>Visual Arts</b>	<p><b>When artists read, they</b></p> <ul style="list-style-type: none"> <li>• Interpret meaning, intent, symbols, details, and purpose</li> <li>• Find inspiration</li> <li>• Connect artistic ideas and works with societal, cultural, and historical context</li> <li>• Explore a variety of texts that utilize artistic creations</li> </ul>	<p><b>When artists write, they</b></p> <ul style="list-style-type: none"> <li>• Translate visual input to written output</li> <li>• Explain and evaluate the processes, techniques, materials, and evolution of ideas in artistic pieces, including their own</li> <li>• Create meaning through artistic endeavors</li> <li>• Compare, contrast, and critique artistic works</li> <li>• Express or show in other artistic ways how art affects the emotions</li> </ul>	<p><b>When artists think, they</b></p> <ul style="list-style-type: none"> <li>• Consider various perspectives or hidden meanings</li> <li>• Generate ideas</li> <li>• Apply problem-solving to determine methods and meaning</li> <li>• Consider how art can be used to understand cultures and values</li> <li>• Use specialized vocabulary</li> <li>• Consider personal expression</li> <li>• Wonder</li> </ul>
<b>Music</b>	<p><b>When musicians read, they</b></p> <ul style="list-style-type: none"> <li>• Integrate knowledge and experience while reading musical pieces</li> <li>• Decipher symbolic notation and musical scores</li> <li>• Interpret meaning in lyrics</li> <li>• Intuit musical nuances in a piece</li> <li>• Utilize historical context when reading music</li> <li>• Determine validity of sources and quality of evidence in critiques and reviews</li> </ul>	<p><b>When musicians write, they</b></p> <ul style="list-style-type: none"> <li>• Deliver feedback to others in writing</li> <li>• Convey meaning and emotion by creating lyrics and musical scores</li> <li>• Reflect on how to improve and develop technique</li> <li>• Express subjective reactions to music</li> <li>• Translate musical input to written output</li> <li>• Compose or write for a specific audience</li> </ul>	<p><b>When musicians think, they</b></p> <ul style="list-style-type: none"> <li>• Share personal stories regarding music</li> <li>• Develop listening and intuitive skills to receive and understand musical messages</li> <li>• Consider how music tells a story</li> <li>• Understand and use specialized vocabulary</li> <li>• Consider how collaboration improves performance</li> <li>• Discover how personal expression relates to music</li> </ul>
<b>Physical Education &amp; Health</b>	<p><b>When students of P.E. and health read, they</b></p> <ul style="list-style-type: none"> <li>• Interpret video clips to learn and improve performance</li> <li>• Understand specialized vocabulary</li> <li>• Seek to comprehend actions, plays, and movements when viewing games, plays, or fitness activities</li> <li>• Incorporate understanding about bodily movement</li> <li>• Interpret and analyze numerical data</li> <li>• Read books and informational texts about sports and health</li> <li>• Make personal connections</li> </ul>	<p><b>When students of P.E. and health write, they</b></p> <ul style="list-style-type: none"> <li>• Provide specific, detailed, written feedback</li> <li>• Evaluate feedback from others</li> <li>• Note similarities and differences when analyzing plays or health content</li> <li>• Create infographics, bullets, sketches, or diagrams</li> <li>• Examine personal skills and habits</li> <li>• Utilize background knowledge or personal experience</li> <li>• Utilize specialized vocabulary</li> </ul>	<p><b>When students of P.E. and health think, they</b></p> <ul style="list-style-type: none"> <li>• Articulate cause and effect relationships in sports and in health</li> <li>• Employ curiosity and look for answers</li> <li>• Make choices about health or bodily movements</li> <li>• Consider personal goals</li> <li>• Consider their responsibilities to their team</li> </ul>
<b>World Language</b>	<p><b>When students of world language read, they</b></p> <ul style="list-style-type: none"> <li>• Infer meaning from context</li> <li>• Communicate with others about what they have read or read aloud</li> <li>• Rely on prediction and guesses to aid understanding</li> <li>• Seek to understand cultural practices and perspectives</li> <li>• Improve comprehension through syntax and structure of a language</li> </ul>	<p><b>When students of world language write, they</b></p> <ul style="list-style-type: none"> <li>• Apply rules of syntax and spelling</li> <li>• Analyze and then imitate patterns, structures, and organization of mentor texts</li> <li>• Prioritize communication of ideas</li> <li>• Compare and contrast the new language to the home language</li> <li>• Employ dialogue, narration, or description</li> </ul>	<p><b>When students of world language think, they</b></p> <ul style="list-style-type: none"> <li>• Transfer skills from native language to a new language</li> <li>• Analyze gestures and facial expressions in communication</li> <li>• Discover how language is used to create meaning</li> <li>• Consider how environment and culture influence language</li> <li>• Utilize sharp listening skills</li> </ul>

Source: Adapted from "Disciplinary Literacy: A Shift that Makes Sense," by ReLeah Lent, in the February 23, 2017 issue of *ASCD Express* and from *Disciplinary Literacy in Action: How to Create and Sustain a School-Wide Culture of Deep Reading, Writing, and Thinking* (Lent & Voigt, 2018).