

Through the Roof: Raising Students' Thinking Skills through Depth & Complexity

with Lisa Van Gemert | giftedguru.com

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Intro to depth & complexity: bit.ly/depth-complex-byrd

And then of course there's this bit.ly/depth-complex-math for the math peeps.

Depth: Language of the discipline, big idea, essential details, rules, patterns, trends, unanswered questions, ethics: bit.ly/elements-of-depth.

Complexity: Change over time, multiple points of view, across the disciplines. bit.ly/depth-complex2.



Introduction slide deck: bit.ly/intro-depth-complex. Ugly, but comprehensive and with good techniques in the classroom.

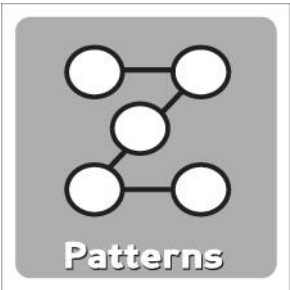


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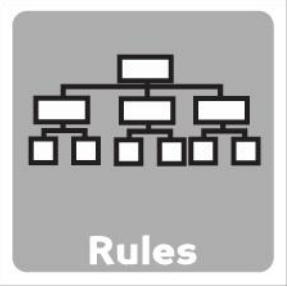


The Elements of DEPTH and COMPLEXITY




Note: This chart identifies questions, thinking skills, prompts, and ideas associated with the eleven elements of the Depth & Complexity Framework. It shares the icon itself, along with:

- Sample Questions that can be used in the course of lesson plans
- Associated Thinking Skills
- Resources most likely to help students locate the information associated with the element and examples of activities

ICON	PROMPT	SAMPLE QUESTIONS	THINKING SKILLS	RESOURCES/EXAMPLES
	<ul style="list-style-type: none"> • specialized vocabulary • tools of the discipline • signs & symbols • names of skills or tasks • jargon/idioms • acronyms 	<p>What words are specific to the work in this discipline?</p> <p>What tools does a ____ use?</p> <p>Where did these words come from?</p> <p>Evaluate the most important words in understanding ____?</p>	<p>categorize</p> <p>identify</p> <p>prioritize</p> <p>identify relationships (among the terms)</p> <p>determine appropriate use of terminology</p>	<ul style="list-style-type: none"> • text • biographies • dictionaries <p>Create a brochure advertising the literary devices the author uses to greatest effect.</p> <p>What piece of equipment is most difficult to be substituted in this lab?</p>
	<ul style="list-style-type: none"> • features • attributes • defining characteristics • parts • factors • data 	<p>What are its attributes?</p> <p>How can we distinguish this from other things?</p> <p>Evaluate the details through the lens of more/most important?</p> <p>How can we add to the information we already know about __?</p> <p>Where do we see elements repeat?</p>	<p>identify traits</p> <p>describe</p> <p>compare/contrast</p> <p>prove with evidence</p> <p>observation</p> <p>note ambiguity</p>	<ul style="list-style-type: none"> • pictures • documents • diagrams <p>Illustrate how ____ would change if we _____?</p> <p>Use a graphic organizer to prove that _____.</p> <p>Create a crossword puzzle using at least 12 important details from the text.</p>

 <p>Patterns</p>	<ul style="list-style-type: none"> • repetition • predictability • recurring events • cycles • repeated features 	<p>Can you put the events in sequence/order?</p> <p>Predict what will happen based on past events.</p> <p>Identify elements/ events/ ideas that are repeated over time.</p> <p>When the pattern broke, how did that impact ____?</p>	<p>determine relevancy v. irrelevancy</p> <p>summarize</p> <p>distinguish similarities and differences</p>	<ul style="list-style-type: none"> • timeline • plot outlines • equation patterns • diagrams <p>With a partner, design a 20 Questions game that reveals the pattern of _____.</p>
 <p>Trends</p>	<ul style="list-style-type: none"> • influences • forces • direction • fads <p>[Note: In many ways, this is Patterns combined with Over Time]</p>	<p>Identify the factors influencing the direction this is taking.</p> <p>Which is the most important cause in _____?</p> <p>How is this trend connected to/ influenced by _____ trend?</p>	<p>determine cause and effect</p> <p>relate</p> <p>prioritize</p> <p>formulate questions</p> <p>hypothesize</p>	<ul style="list-style-type: none"> • graphs • charts • journals <p>Write a brief explaining to the president the social and political influences that led to the Civil War.</p>
 <p>Unanswered Questions</p>	<ul style="list-style-type: none"> • dilemmas/ ambiguities • discrepancies • as yet unknown • unknowable • incomplete ideas • lacking in explanation 	<p>How certain are we of ____?</p> <p>Where is there still a lack of understanding?</p> <p>How can you explain the discrepancy between your hypothesis and your results?</p> <p>Why is there disagreement about _____?</p> <p>How can you find a resource to explore _____?</p>	<p>recognize fallacies</p> <p>note ambiguities</p> <p>distinguish fact from fiction</p> <p>formulate questions</p> <p>identify missing information</p> <p>generalize</p> <p>hypothesize</p> <p>judge credibility</p>	<ul style="list-style-type: none"> • multiple and varied reliable resources • non-fiction texts • biographies • quality internet sites <p>Using the Big Idea icon as a graphic organizer, describe three factors that make this problem ambiguous.</p> <p>Create a PowerPoint slide deck with five slides exploring the things that still remain unknown about _____.</p>

	<ul style="list-style-type: none"> • structure • order • standards • usual behavior • laws • organization • methods 	<p>How is this structured?</p> <p>Describe the rules of ___?</p> <p>Identify the hidden or unspoken rules that exist.</p> <p>Which is the most important rule do we use in solving ___?</p>	<p>identify relationships among the rules</p> <p>judge the importance of the rules</p>	<ul style="list-style-type: none"> • editorials • essays • laws • theories/theorems <p>Using a Bracket Map, organize the _____ into four classification categories.</p> <p>Match the characters in the story to at least three conflict types.</p>
	<ul style="list-style-type: none"> • controversies • dilemmas • biases • principles • morals • philosophies • values • prejudice/ discrimination • judging/ bias 	<p>What are the most important ethical issues?</p> <p>Is this fair? Right? Just? Prejudiced?</p> <p>Justify why it would/would not be fair to ___?</p>	<p>determine bias</p> <p>test assumptions</p> <p>judge with criteria</p> <p>prioritize most important ethical issues</p>	<ul style="list-style-type: none"> • editorials • essays • journals • non-fiction texts <p>Analyze the benefit in _____ and write a persuasive essay sharing your analysis.</p> <p>How did the previous experience of _____ impact the attitude of _____?</p>
	<ul style="list-style-type: none"> • overarching ideas • broad idea that can be supported with evidence • generalization • universal concept to connect all learning • principles, laws, theories 	<p>What theory or general statement applies?</p> <p>Can you make a generalization about ___?</p> <p>Compare the Big Idea of _____ to the Big Idea of _____.</p> <p>How do you evaluate the importance of the Big Idea?</p>	<p>prove with evidence</p> <p>generalize</p> <p>identify the main idea</p> <p>infer a big idea from supporting evidence</p> <p>categorize/classify big ideas</p>	<ul style="list-style-type: none"> • quotations • text <p>Create a poster displaying your analysis of which era of history can be summed up “purification of government and family.”</p> <p>Share how the idea “matter cannot be created or destroyed” applies to this situation in a photo essay.</p>

	<ul style="list-style-type: none"> • looking at past, present, and future • relationships within a time period • applying something historic to present knowledge • predicting something based on present knowledge • noting change 	<p>How are the ideas related among the past, present, and future?</p> <p>How are these ideas related within or during a particular period of time?</p> <p>How has time affected the information?</p> <p>How and why do things change or remain the same?</p>	<p>relates</p> <p>sequence</p> <p>order</p> <p>determine relevance of knowing this topic over time</p>	<ul style="list-style-type: none"> • time lines • text • primary sources <p>Make a news segment explaining in what way the water cycle is different now than it was one million years ago.</p>
	<ul style="list-style-type: none"> • different points of view • ways of seeing/ reporting • opposing viewpoints/ outlook/ interpretation • often dependent upon time/place • affected by roles/ responsibilities 	<p>What are opposing viewpoints?</p> <p>How do different people and characters see this event or situation?</p>	<p>argue</p> <p>determine bias</p> <p>classify</p>	<ul style="list-style-type: none"> • biographies • myth/ legend/ fable • debates <p>Create a frame summarizing the perspectives of everyone in your group with regard to ____.</p>
	<ul style="list-style-type: none"> • connections across disciplines • touching on many subjects at once • relationships between/ among the disciplines 	<p>How does this study connect across disciplines?</p> <p>What are common elements among ____?</p>	<p>judge</p> <p>draw conclusions</p> <p>interpret</p>	<ul style="list-style-type: none"> • multiple and varied resources • images • discipline-related resources <p>Write a two-paragraph short essay explaining how trends in poetry and art both reflect and inform changing mores in WWI-era Europe.</p>