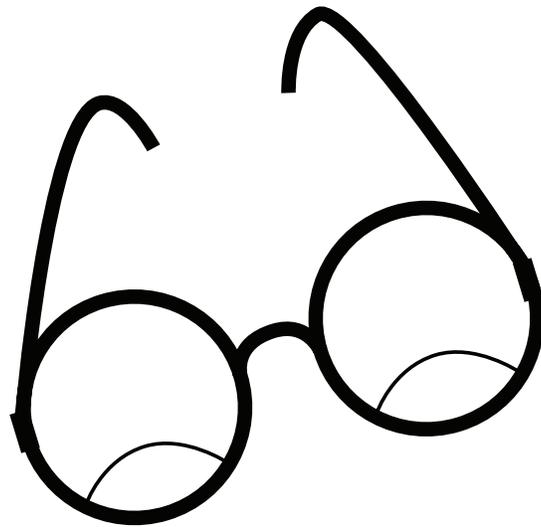


Depth and Complexity Icon Cards



J Taylor Education, 2010



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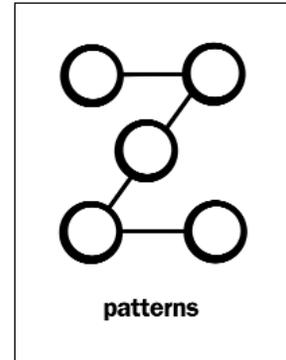
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Depth and Complexity for Differentiating Content

Differentiation refers to differing content, process (or skills) and products of the core curriculum to make that curriculum more responsive to students' individual needs, abilities and interests. Depth and complexity dimensions are a method for differentiating content. These dimensions are represented by a term or prompt, the name of the dimension such as **patterns**, and by a graphic, the matching icon. The dimensions of depth and complexity can be used to facilitate the learning of content at differing levels of sophistication. Application of these dimensions to the content of a lesson or unit of study modify that content to more appropriately challenge gifted and advanced students to develop a deeper, more complex and extensive understanding of subject matter.



Following are two examples of tasks or prompts differentiated using dimensions of depth and complexity:

CORE CURRICULUM TASKS	RELATED DIFFERENTIATED TASKS
<ul style="list-style-type: none"> • Compare and contrast the peoples who came to California during the Gold Rush. 	<ul style="list-style-type: none"> • Compare and contrast the ethical issues related to the peoples who came to California during the Gold Rush to the peoples coming to California today (over time).
<ul style="list-style-type: none"> • Complete these problems based on ratios. 	<ul style="list-style-type: none"> • Determine the relevance of the rules of ratios when problem solving.

Additional explanations and examples of using depth and complexity to differentiate for gifted and advanced students may be found in *The Flip Book: A Quick and Easy Method for Developing Differentiated Learning Experiences*, *Frames: Differentiating the Core Curriculum*, *Systems: A Thematic Interdisciplinary Unit*, and *Independent Study*.

About the Depth and Complexity Icon Cards

The complete set of icons representing these dimensions are shown as a group on the card labeled “Dimensions of Depth and Complexity.”

Individual dimensions of depth and complexity are illustrated on each additional card of the set. On the reverse side of each card are suggested ways to put the dimension into practice in classrooms. Each of the suggestion boxes indicate possible ways to begin and formulate tasks. Teachers will want to make their own lists or add to those on the cards to match the standards of their grade and the needs of their students. Each part of the depth and complexity cards are explained in the following diagram.

Task Starters
Ideas related to a dimension which may be used to develop student tasks or discussion topics. These are loosely organized from simple to more complex.

Related Thinking Skills
Selected thinking skills to pair up with the dimension. Example: Prioritize the rules of historical evidence in order of their importance.

rules

Task Starters

Describe the rules.
Identify the implicit and explicit rules.
How do you evaluate rules' efficiency and validity?
How are rules related to patterns and details?
Compare structural rules and procedural rules.

Related Thinking Skills

- describe (the rules)
- Identify relationships (among rules)
- categorize/classify (rules)
- prioritize (the most important rules)
- differentiate fact from opinion and fact from fantasy and conjecture
- determine relevance
- judge with criteria (the importance of a set of rules)

Rules within the Disciplines—A Sample List

Language Arts	Math	Social Studies	Science
genres grammar, punctuation word usage rules of style poetry proofreading matching writing to purpose	the rules of: problem solving operations computation almost everything in arithmetic, geometry and algebra ratios accuracy	supporting evidence primary documents & sources developing big ideas or generalizations political science/ government/economics cultural mores	scientific method measurement data collection data interpretation systems chemical reactions

RULES ARE:

- standards
- related to structure
- authoritative directions for conduct or procedure
- usual courses of action or behavior
- statements of truth (all or most of the time)
- standards
- methods
- organizational elements

Educator to Educator

List of synonyms and related terms
This is a good place to begin to introduce a dimension to students. For example, “rules” may be noted and charted for several days during any study, such as subtraction with regrouping or as related to the genre of a story being read. As students become familiar with the dimension, select items from “Task Starters” or combine the dimension with a thinking skill to initiate a differentiated task.

...within the Disciplines
A list of content areas and topics of the core curriculum which can be differentiated by applying the dimension. As these are very preliminary lists, each class may wish to develop lists based on their own curriculum.

How to Get Started

The card illustrating the complete set of depth and complexity dimensions provides an approximate order from simple to complex and concrete to abstract. These dimensions do not need to be taught in order, all at the same time, or within a single lesson. A single dimension of depth and complexity may require attention for several days or lessons before moving on to another. Some of the dimensions lend themselves to being explored together, such as **patterns** and **trends**. Sometimes, a single dimension may require understanding of other dimensions in the same category. For example, if students are being asked to place emphasis on the dimension **patterns**, they must also recognize the importance of **details** and **rules**.

Starting Steps, Scenario 1

- Select a dimension that has many obvious examples, such as **patterns**.
- Spend several brief periods (5-10 minutes each) asking students to identify and explain **patterns** they see around them. Display the icon in the classroom so it is readily available for use as a focal point.
- Extend the idea of patterns to subject areas in a casual way. “Who can explain the **pattern** we used in our Math work today?” “What did you notice about the early American songs we heard?”
- Embed the dimension in a lesson or learning experience in order to differentiate it. “Make a chart to show and explain the **patterns** you use every day in getting ready for school.” “Illustrate a **pattern** followed by a character in the story you are reading.”
- While learning and applying other dimensions of depth and complexity, encourage students to recall previously learned dimensions. For example, an understanding of **patterns** helps students comprehend **trends** and **rules**.

Starter Scenario 2 (one to three weeks)

- Start with one subject area, such as Geometry. Display a class **language of the discipline** chart. Students may keep their own chart in notebooks or on index cards. While working through the Geometry unit, add to this chart terms and tools a geometer or geometrician uses.
- Introduce the dimension **details**. Apply to curricular experiences in Geometry.
- Introduce **patterns**. Apply to curricular experiences in Geometry. Help students make the connection between **details** and **patterns** (**patterns** are made up of **details**; we describe a **pattern** by noting its **details**).
- Add the dimension to curricular tasks as appropriate for gifted and advanced students. “Chart the **patterns** related to vertices and angles of polygons.”

Starter Scenario 3

Develop a method appropriate to students’ ages and grade-level standards. Many teachers, either independently or in concert with a grade-level or subject-area group, determine their own method for progressing through the dimensions of depth and complexity. However a class applies depth and complexity, it is important to use the dimensions often and in many different ways so that they are adopted by students for their own use in exploring and learning new subject matter.

How to Extend Depth and Complexity into More Advanced Approaches

Once several dimensions are learned by the class or group, or when all have been employed as single entities, several icons may be combined in task development. Examples:

- Categorize/classify the **patterns over time** of the freezing and thawing of Antarctica.
- Prioritize the importance of the **perspectives** of different scientists on the **ethical issues** related to Antarctica.

Encourage students to create their own learning experiences by adding depth and complexity dimensions to what they are studying.

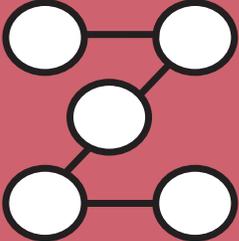
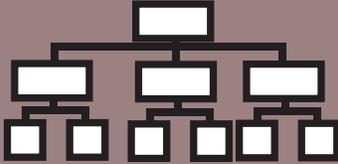
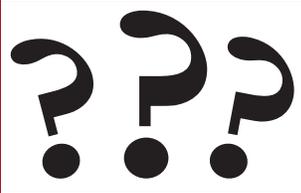
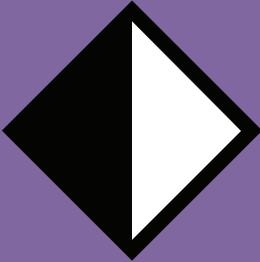
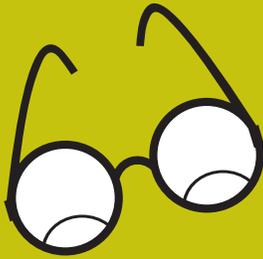
- I will make a chart to show the **patterns** of ice freezing and thawing in Antarctica. I will get information from the video, the *Time* article and my science textbook.

How to Help Students Make Depth and Complexity Their Own

- Provide envelopes to each student. As a dimension of depth and complexity is being learned, students add to their envelopes a miniature icon card (copied or drawn on an index card or other heavy paper).
- Print each icon on an index card, punch a hole in the top corner of the cards, and hang them by a small chart ring. This set of dimensions of depth and complexity can be shared by small groups of students during discussions and learning experiences. Applying a dimension by turning to it or displaying it in some other way reminds students to use it to differentiate the content being studied.
- Display the icon cards in the classroom as each dimension is being learned. Certain cards may be displayed on subject-oriented bulletin boards or areas to indicate what dimensions should be incorporated in the topics involved. For example, the **rules** card and the **patterns** card might be displayed at the math board or center, indicating that students should apply these dimensions to math topics being studied.
- Display a large chart of all of the icons. Affix a red “focus” arrow to the dimension currently in use.
- Draw icons on the outer edge of Post-it notes. Ask students to stick the notes to pages in texts and other materials to indicate where there is evidence of the dimensions shown on the notes. Resources marked in this or some other way help students identify depth and complexity in a variety of materials. The notes can also be used on existing homework and other reproducibles to make the tasks more challenge-appropriate.



Dimensions of Depth & Complexity

Dimensions of Depth and Complexity	 Language of the Discipline	 Details
 Patterns	 Rules	 Trends
 Unanswered Questions	 Ethics	 Big Idea
 Over Time	 Multiple Perspectives	 Across Disciplines

Depth & Complexity Icons/Dimensions and Depth & Complexity Framework
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