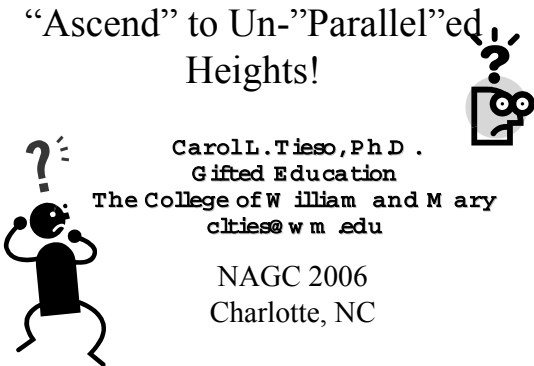


**“Ascend” to Un-”Parallel”ed Heights!**


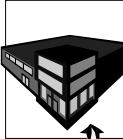




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NAGC 2006  
Charlotte, NC











1

**The Parallel Curriculum Model**

CORE CURRICULUM	CURRICULUM OF CONNECTIONS	CURRICULUM OF PRACTICE	CURRICULUM OF IDENTITY
			
↑			
<b>KEY CURRICULUM COMPONENTS</b>			
↑			


2

**What are the components of a comprehensive curriculum unit, lesson, or task?**

 Content	 Grouping Strategies
 Assessment	 Products
 Introduction	 Resources
 Teaching Strategies	 Extension Activities
 Learning Activities	 Modification Strategies (Ascending Levels of Intellectual Demand) ↗

3


**The Teaching Strategies Continuum**



Direct		Indirect
<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Drill and recitation</li> <li>• Direct instruction</li> <li>• Strategy-based instruction</li> <li>• Coaching</li> <li>• Concept attainment</li> <li>• Synectics</li> <li>• Demonstration</li> <li>• Socratic Questioning</li> <li>• Visualization</li> </ul>	↓	<ul style="list-style-type: none"> <li>• Role playing</li> <li>• Cooperative learning</li> <li>• Jurisprudence</li> <li>• Simulation</li> <li>• Inquiry-based instruction</li> <li>• Problem-based learning</li> <li>• Shadowing experiences</li> <li>• Mentorships</li> <li>• Independent study</li> <li>• Independent investigations</li> </ul>

4


**Ascending Levels of Demand**



Ascending levels of intellectual demand is the process that escalates one or more facets of the curriculum in order to match a learner’s profile and provide appropriate challenge and pacing. Prior knowledge and opportunities, existing scheme, and cognitive abilities are major attributes of a learner’s profile. Teachers reconfigure one or more curriculum components in order to ensure that students are working in their zone of optimal development.


5

**Why Provide Ascending Levels of Intellectual Demand?**



- To honor differences among students.
- To address varying levels of prior knowledge, varying opportunities, and cognitive abilities
- To ensure optimal levels of academic achievement
- To support continuous learning
- To ensure intrinsic motivation
- To provide appropriate levels of challenge

6




### Guiding Questions that Support the Ascending Levels of Intellectual Demand

- What are the powerful differences among my students’ levels of prior knowledge, cognitive ability, and rates of learning?
- Which students requires greater or lesser degrees of depth, abstraction, and sophistication with regard to this unit, lesson, or task?
- How might I design lessons and activities that provide varied levels of scaffolding, support, and challenge?
- Which content, teaching or learning activities, resources or products support varying levels of prior knowledge and cognitive ability within this unit, lesson, or task?
- How might I assess students’ growth when many of them possess varying levels of abstraction and prior knowledge?

7


### Ascending Levels of Intellectual Demand Take Into Consideration Students’ .....

- Cognitive abilities
- Prior knowledge
- Schema
- Opportunities to learn
- Learning rate
- Developmental differences
- Levels of abstraction



8

### Ascending Levels of Intellectual Demand




- Vary the depth
- Adjust the abstraction
- Change the complexity
- Make contexts and examples more or less novel or familiar
- Adjust the pace
- Use more/less advanced materials and text
- Provide more/less scaffolding
- Provide frequent/intermittent feedback
- Provide/let students infer related strategies
- Infer concepts from applications and problem solving
- Provide more/fewer examples
- Be more/less explicit/inductive
- Provide simpler/more complex problems and applications
- Vary the sophistication level
- Provide lengthier/briefer texts
- Provide more/less text support
- Require more/less independence or collaboration
- Require more/less evidence
- Ask for/provide analogies
- Teach to concepts before/after examples
- Teach principles before/after examples or concepts

9

### What’s Your Criteria?


1. Nature of the Objective
2. Number of Students Needing Differentiation
3. Time for Teaching/Planning
4. Availability of Resources
5. Instructional Repertoire
6. Parental Support
7. Student Behavior
8. The Power of the Strategy to Enhance Learning



10

### Ways in Which Individuals Can Differ


- ⇄ Prior Knowledge or Skill Expertise
- ⇄ Learning Rate
- ⇄ Cognitive Ability
- ⇄ Learning Style Preference
- ⇄ Motivation, Attitudes, and Effort
- ⇄ Interest, Strength, or Talent



11

### Examples: Ascending Levels of Intellectual Demand

**Typical**  
Students were given different spelling lists, each containing a different number of words to memorize and spell for the Friday post-test. The decision to give some students a smaller list and some students a longer list of the same pattern words was based on the Monday morning pretest containing 20 pattern words.



12

## Examples: Ascending Levels of Intellectual Demand

### Exemplary

Students were assigned to small, flexible groups based upon preassessment data that revealed critical differences in students' prior knowledge. One group of students was provided with a **demonstration** about the two processes, asked to work as a small group to come to consensus about their observations, and make a list of everyday examples of these two processes at work. Another group, with greater prior knowledge than the first, was asked to watch the same **demonstration**, come to consensus in a small group discussion about their observations and conclusions and to compare their findings to the weather outside. The third group demonstrated a thorough understanding of the two processes. They were given topographical maps and related weather information, and were asked to draw conclusions about why it rains in some parts of the United States more than in other parts. The teacher roved to each of the small groups and used **Socratic questioning** and **feedback** to advance students' thinking.



13

## Designing Ascending Levels of Intellectual Demand with Core Curriculum



- Identify differences in students' prior knowledge and opportunities to learn.
- Consider the use of alternative learning goals, content, teaching methods, learning activities, resources or products.
- Consider teaching more abstract concepts and principles, using more unfamiliar or sophisticated examples, decreasing your scaffolding, increasing students' use of analytic thinking skills or providing more challenging resources.
- Develop grouping strategies to support the ascending levels of intellectual demand.

14



## Core:ALID

Framework	Core Curriculum
<ul style="list-style-type: none"> <li>• Provide modifications to address readiness to learn, learning rate, and/or level of expertise</li> <li>• Offer adaptations to: learning goals, teaching methods, learning activities, grouping strategies, resources, and extension activities</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Content:</b> Ask students to apply learning to an unfamiliar context</li> <li>• <b>Teaching and learning:</b> Adjust the pace of teaching and learning; provides more or less scaffolding/support</li> <li>• <b>Products:</b> Ask students for products that are more open-ended, require greater depth or level of abstraction, as well as increasing levels of professional quality</li> <li>• <b>Resources:</b> Require more advanced resources (human and non-human) or resources that require a greater degree of inference</li> <li>• <b>Assessment/Self-Monitoring:</b> Ask students to respond to concept-based questions at the highest levels of complexity. Ask students for increasing levels of independent reflection about the quality of their own work</li> </ul>

15

## Data Representation and Graphs

1. A new elementary school is being constructed next to our school. It will house approximately 600 children, kindergarten through grade 5. The cost of the school is going to be \$3 million, of which 10 percent is set aside for the construction of a playground. Your job is to survey your classmates to find out the most popular type of playground equipment in this school, conduct some research into the costs of that equipment, and report your results to the school board at the next meeting.
2. You have been asked to join a task force on playground injuries. Your job is to analyze the situation in your school and to prepare a complete report to the principal. Your work should include results from around the US, your own survey results, and a summary of research on school injuries. Remember, you are not trying to persuade the principal to act; you are giving him/her a detailed analysis of the current situation of the frequency and seriousness of playground injuries.
3. You have been asked by Ronald McDonald to assess the popularity of the different types of Happy Meals (hamburger, cheeseburger, chicken nuggets) among children ages 3-8. You must write 3 research questions, develop a survey to ask your questions and have at least 10 people answer your survey. Then, figure out the mean, median, or mode; graph your results in a bar, line, or pictograph; and write a 1-page summary of what you learned.

16

## Data Representation and Graphs

4. You have been asked by the president of the Malls of America to design the new mega-mall being planned for your community. Your job is to survey the shoppers in your area to find out what two clothing stores (Dillard's, Nordstrom's, Macy's, Lord & Taylor's) they would like to have as well as other specialty stores (Disney Store, Learning Company). Design a survey, field test it, provide descriptive statistics (mean, median, mode, range), and write a 1-2 page summary to support your decision.
5. You have been appointed by the President of the United States to lead an investigation into school violence. Your job is to survey the students, teachers, and parents of your school to assess their feelings and concerns on the issue. Design and field test a survey and present your findings using graphs and descriptive statistics. Describe the central tendency and variability in your survey results.
6. The Walt Disney corporation has asked you to be the lead investigator on a study to determine the favorite Disney movie of all time. Design a survey (5-7 questions), choose an appropriate sample (parents, students, teachers, and school staff), and research the results (find out the names of all the Disney movies from *Snow White* to *Tarzan*). The Disney corporation will expect a colorful and educational presentation (poster, graphs, pictograms, video, oral presentation with graphs and pictures).

17

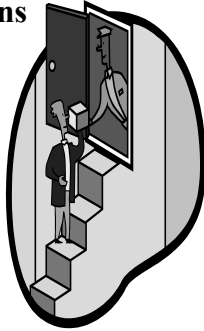
## Data Representation and Graphs

7. The Six Flags corporation wants to build an amusement park in your area. They are concerned that some of the people who live nearby would not want one to be built in their neighborhood. Your job is to survey your neighbors and find out how strongly they feel about having an amusement park in their neighborhood. The company suggests you use a 5-point scale for your survey which asks for "Strongly disagree, disagree, not sure, agree, strongly agree." You will present your findings to the board of directors of the Six Flags corporation at their next meeting.
8. Your new principal has decided that a good way to get to know all the 4<sup>th</sup> and 5<sup>th</sup> graders would be to bake each of them a birthday cake for their birthday. She decided that the best way to find out how many cakes she'll need to make is to ask each 4<sup>th</sup> and 5<sup>th</sup> grade class to graph the total number of birthdays by month. Your job is to write a research question to find out which month is the most popular for birthdays. Then, draw a frequency chart and graph your results. Calculate the mode for your data and write at least 2 paragraphs that describe how you gathered the data and what results you found.
9. You have been appointed by the President of the United States to lead an investigation into school violence. Your job is to survey the students, teachers, and parents of your school to assess their feelings and concerns on the issue. Design and field test a survey and present your findings using graphs and descriptive statistics. Describe the central tendency and variability in your survey results.

18

### Designing Ascending Levels of Intellectual Demand in the Curriculum of Connections

- Apply understandings, concepts, or principles in contexts that are markedly dissimilar.
- Analyze diverse perspectives on an issue or problem.
- Search for legitimate and useful connections among seemingly disparate elements.
- Look for patterns of interaction among multiple areas of connection.
- Look at broad swaths through an unfamiliar perspective.



19



### Connections: ALID

Core Curriculum	Curriculum of Connections
<ul style="list-style-type: none"> <li>• <b>Content:</b> Asks students to apply learning to an unfamiliar context</li> <li>• <b>Teaching and learning:</b> Adjusts the pace of teaching and learning; provides more or less scaffolding/support</li> <li>• <b>Products:</b> Asks students for products that are more open-ended, require greater depth or level of abstraction, as well as increasing levels of professional quality</li> <li>• <b>Resources:</b> Requires more advanced resources (human and non-human) or resources that require a greater degree of inference</li> <li>• <b>Assessment/Self-Monitoring:</b> Asks students for increasing levels of independent reflection about the quality of their own work</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Content:</b> Vary the complexity of the content connections</li> <li>• <b>Teaching and learning:</b> Increase the need for analysis and interpretation on the part of the student. Decrease the scaffolding and support</li> <li>• <b>Products:</b> Ask students to develop real world uses and applications for their newly discovered connections. Ask students to design questioning strategies to reveal these connections</li> <li>• <b>Resources:</b> Escalate the level of resources materials used by the students</li> <li>• <b>Assessment:</b> Assess for core knowledge before offering a connection parallel. Ask students to respond to concept-based and connective questions at the highest levels of complexity. Ask student for increasing levels of reflection about the connections across topics</li> </ul>

20

### Egyptology

- Discuss the ethical argument in favor and opposed to dealing in antiquities.
- Who owns relics? Conduct a formal debate with regard to this statement: The explorers who found Titanic own its relics.
- Create an original product that illustrates the similarities and differences between the ancient Egyptian and modern-day American cultures.

Dorothy Moore (2004)

### Designing Ascending Levels of Intellectual Demand in the Curriculum of Practice



- Encourage students to explore research questions in more depth and at increasing levels of sophistication.
- Provide opportunities for students to explore their own questions with less scaffolding and support
- Ask students for increasing levels of analysis in their work.
- Encourage students to compare their own work with exemplars in the field. Invite self-evaluation in order to support students' increasing levels of expertise with respect to product quality.
- Escalate the use of primary course material. Arrange for students to learn about and use state-of-the art tools and equipment.

22



### Practice: ALID Curriculum of Practice

Core Curriculum	Curriculum of Practice
<ul style="list-style-type: none"> <li>• <b>Content:</b> Asks students to apply learning to an unfamiliar context</li> <li>• <b>Teaching and learning:</b> Adjusts the pace of teaching and learning; provides more or less scaffolding/support</li> <li>• <b>Products:</b> Asks students for products that are more open-ended, require greater depth or level of abstraction, as well as increasing levels of professional quality</li> <li>• <b>Resources:</b> Requires more advanced resources (human and non-human) or resources that require a greater degree of inference</li> <li>• <b>Assessment/Self-Monitoring:</b> Asks students for increasing levels of independent reflection about the quality of their own work</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Content:</b> Provide opportunities for students to select and develop their own inquiries</li> <li>• <b>Allow students to probe more deeply or extend the investigation of a problem or question</b></li> <li>• <b>Teaching and Learning:</b> Change the levels of scaffolding and feedback; encourage independent research; escalate the level of analysis for the investigation; network with mentors in the field</li> <li>• <b>Products:</b> Ask students for products that are more open-ended, require greater depth or level of abstraction, as well as increasing levels of professional quality</li> <li>• <b>Resources:</b> Escalate the use of primary sources and raw data; use sophisticated, state-of-the-art equipment and tools</li> <li>• <b>Assessment/Self-Monitoring:</b> Ask students for increasing levels of independent reflection about the quality of his/her own work; ask students to create his/her own scales or rubrics to assess the quality of a product or performance</li> </ul>

23



### Identity: ALID

- **Content:** Increase the depth of students' knowledge about various career fields and options; learn in-depth information about the lives of adults with common interests and strengths; vary the levels of support for intrapersonal skill development; provide more sophisticated content in interest-based disciplines areas
- **Assessment:** Respond to learner's level of proficiency on a novice-expert continuum
- **Assessment/Self-Monitoring:** Ask a student for increasing levels of independent reflection about the quality of his/her own work and emerging learner profile; ask a student to create his/her own scales or rubrics to assess the quality of a product or performance
- **Teaching and Learning:** Provide content-rich, sophisticated explorations, mentoring, service, co-curricular, and internship opportunities in the community; **Encourage independent explorations, study, and investigations**
- **Products:** Allow students to develop in-class and enrichment products that reflect their communication and content strengths;
- **Resources:** Find adult, community, and professional organizations; support travel, camps, museums, guilds, community professionals, professionals and organizations with national reputations, and on-line mentors

24


Identity:ALID	
Core Curriculum	Curriculum of Identity
<ul style="list-style-type: none"> <li><b>Content:</b> Asks students to apply learning to an unfamiliar context</li> <li><b>Teaching and learning:</b> Adjusts the pace of teaching and learning; provides more or less scaffolding/support</li> <li><b>Products:</b> Asks students for products that are more open-ended, require greater depth or level of abstraction, as well as increasing levels of professional quality</li> <li><b>Resources:</b> Requires more advanced resources (human and non-human) or resources that require a greater degree of inference</li> <li><b>Assessment/Self-Monitoring:</b> Asks students for increasing levels of independent reflection about the quality of their own work</li> </ul>	<ul style="list-style-type: none"> <li><b>Content:</b> Increase the depth of students' knowledge about various career fields and options; learn in-depth information about the lives of adults with common interests and strengths; vary the levels of support for intrapersonal skill development; provide more sophisticated content in interest-based disciplines areas</li> <li><b>Teaching and Learning:</b> Provide content-rich, sophisticated explorations, mentoring, service, co-curricular, and internship opportunities in the community. Encourage independent explorations, study, and investigations</li> <li><b>Products:</b> Allow students to develop in-class and enrichment products that reflect their communication and content strengths; <b>Resources:</b> Find adult, community, and professional organizations; support travel, camps, museums, guilds, community professionals, professionals and organizations with national reputations, and on-line mentors</li> <li><b>Assessment:</b> Respond to learner's level of proficiency on a novice-expert continuum</li> <li><b>Assessment/Self-Monitoring:</b> Ask a student for increasing levels of independent reflection about the quality of his/her own work and emerging learner profile; ask a student to create his/her own scales or rubrics to assess the quality of a product or performance</li> </ul>

Talent Development: History			
Has no response; dislikes	Asks questions	Likes to look at historical things	Chooses projects with an historical slant
1	2	3	4
Chooses classes about history	Seeks out friends who love history	Thinks about being an historian	Makes plans for professional growth
5	6	7	8
Enjoys finding unanswered historical questions	Affinity	Collaborative research	Self-actualization
9	10	11	12

Forwarding Talent Development in History	
1 Find an entrée through the student's current interests	7 Engage the support of local resources
2 Read books, etc. about historical people and events	8 Locate shadowing and internship experiences
3 Investigate local and historical sites	9 Locate a mentor; help the students become involved as a member in related organizations
4 Enlist the support of the library media specialist to get additional resources	10 Support student's intense work; locate resources; solicit professionals to give the student feedback
5 Provide extension activities on projects that the student enjoys	11 Locate grants and fellowships
6 Discuss the discipline with the student; explore course offerings; select appropriate courses	12 Nurture the student's research; encourage publishing


Selecting a Preassessment Technique

- What is the most powerful difference you expect to see among students?
- How might you identify these potential differences in your students?



### Preassessment Techniques

- K-W-L Charts
- Journals
- Parent Letters
- Lists, Surveys
- Products
- Performances
- Conferences
- Concept Maps



### Things Take Time: Start Small

- One unit in one content area
- One lesson in one unit
- One student in one lesson in one unit

