



Developing Differentiated Units of Work



Unleashing Gifted Potential | 10 April 2011

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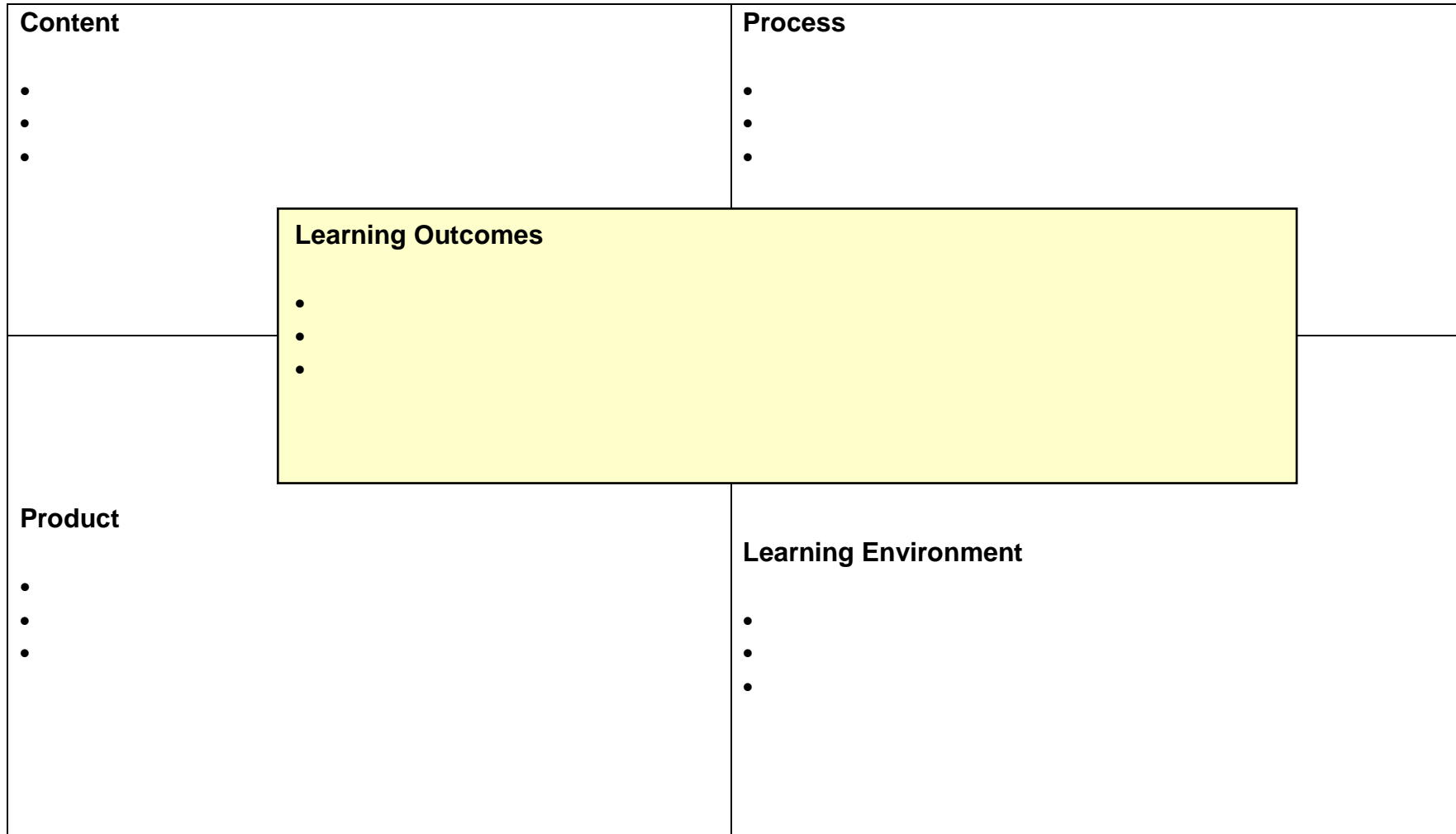
Fostering Excellence Among Learners



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What Does Differentiated Learning Look Like In A Classroom?





How do you Differentiate Learning and Teaching?

Questions to foster your reflection

Element	Questions
Learning Outcomes	<ul style="list-style-type: none"> ➤ Are the outcomes modified to meet diverse needs of students? ➤ Do the differentiated content, processes and product emerge from the differentiated learning outcomes?
Content	<ul style="list-style-type: none"> ➤ Has the content been selected for abstractness, complexity and variety? ➤ Does the content promote conceptual understanding? ➤ Does the content encourage students to focus on enduring understandings/"big ideas"? ➤ Does the pacing of instruction allow more advanced students to move more quickly to allow more time to apply understandings?
Process	<ul style="list-style-type: none"> ➤ Do the learning activities emphasise higher order thinking processes such as application, analysis, evaluation and synthesis? ➤ Do students transform and synthesise rather than merely summarise? ➤ Are students given the opportunity to pursue extended projects and in-depth investigations? ➤ Are students encouraged to take a metacognitive (blue hat) approach to learning – a step back to understand the purpose and process? Are they encouraged to see the "big picture" and the details? Do they defer judgment?
Product	<ul style="list-style-type: none"> ➤ Do proposed student products reflect and address real problems? ➤ Are they directed towards a real audience with an identified purpose and, if not, can this be stimulated? ➤ Do assessment procedures take into account risk taking and recognize relative difficulties for grappling with new ideas? ➤ Are students required to monitor, evaluate and reflect on products in terms of original goals?
Learning Environment	<ul style="list-style-type: none"> ➤ Are there opportunities for choice and negotiation? For example: Can students choose to go on a tangent from a set topic so they will be more motivated? ➤ Are student groupings flexible? ➤ Is there a sense of community in the classroom where students can freely express ideas and value each other's opinions? ➤ Are students encouraged to take risks in exploring ideas and directions?

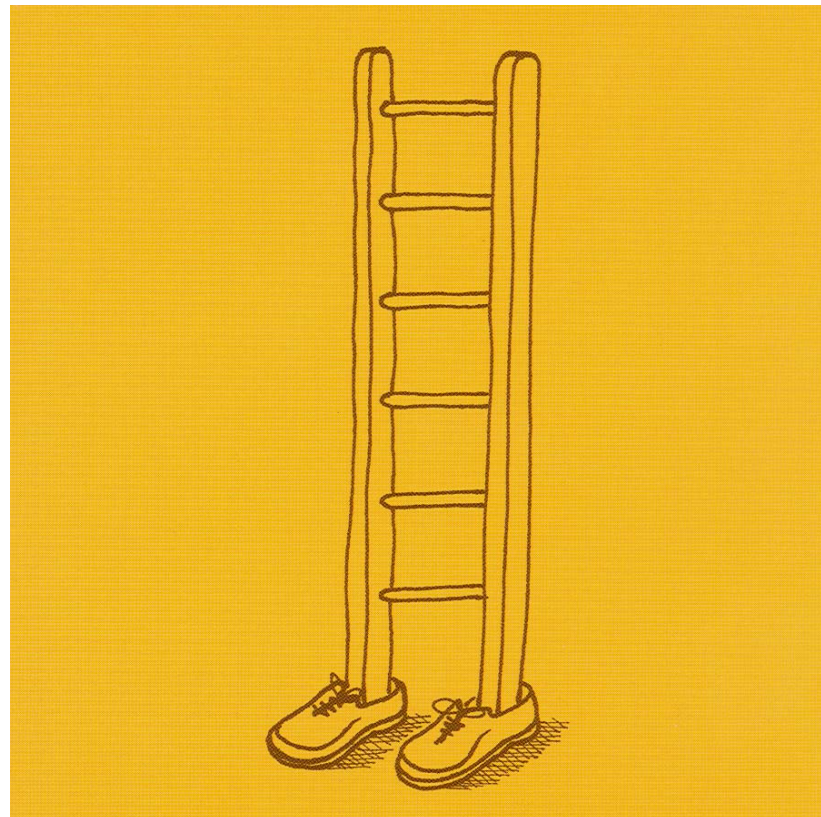
Elements of a Differentiated Classroom



	ELEMENTS	CHARACTERISTICS
1	Learning differences	Learning differences are acknowledged: <ul style="list-style-type: none"> • Interests • Learning styles • Readiness
2	Pacing	The pace of learning is modified within the classroom to meet the learning differences
3	Curriculum	The curriculum is grounded in factual, procedural and conceptual knowledge: <ul style="list-style-type: none"> • Know: Factual knowledge • Able to do: Procedural knowledge • Understand: Conceptual knowledge
4	Content modification	The content is modified to increase complexity of depth and breadth
5	Tiered activities	Tiered assignments and activities respond to learning needs and differences
6	21st century skills	Learners develop 21 st century skills: <ul style="list-style-type: none"> • Higher order thinking skills • Creative thinking • Critical reasoning • Self-regulation
7	Active learning	The classroom environment respects active learning: <ul style="list-style-type: none"> • Allows challenge through discussion with intellectual peers • Encourages learners to make meaning • Encourages questioning among students • Provides many problem-solving activities
8	Flexible grouping	Flexible grouping is used to achieve optimal learning
9	Self-reflection	The learning activities foster self-reflection (metacognition)
10	Learning environment	The learning environment is challenging and choice-filled for all students
11	Developing expertise	The learners are encouraged to think like experts in a field
12	Autonomy	Students developing learning autonomy



Learning Outcomes Differentiation





Bloom's Taxonomy: Useful Verbs for Differentiating Learning Outcomes

Higher Level Cognitive Processes:

6. Create	5. Evaluate	4. Analyse
add to, assemble, compose, combine, conceive, consolidate, construct, create, design, develop, devise, formulate, hypothesise, imagine, integrate, invent, manage, organise, plan, prepare, propose, produce, put together, rearrange, refine, set up, synthesise, transform, write	appraise, argue, assess, attack, choose, conclude, consider, critique, debate, decide, defend, determine, estimate, evaluate, forecast, indicate, judge, justify, most appropriate, prioritise, rate, recommend, score, select, value, verify, weigh	analyse, ascertain, assume, calculate, categorise, classify, compare, contrast, critique, deduce, determine, differentiate, discriminate, distinguish, examine, experiment, infer, investigate, point out, question, relate, separate, solve, support, why

Lower Level Cognitive Processes:

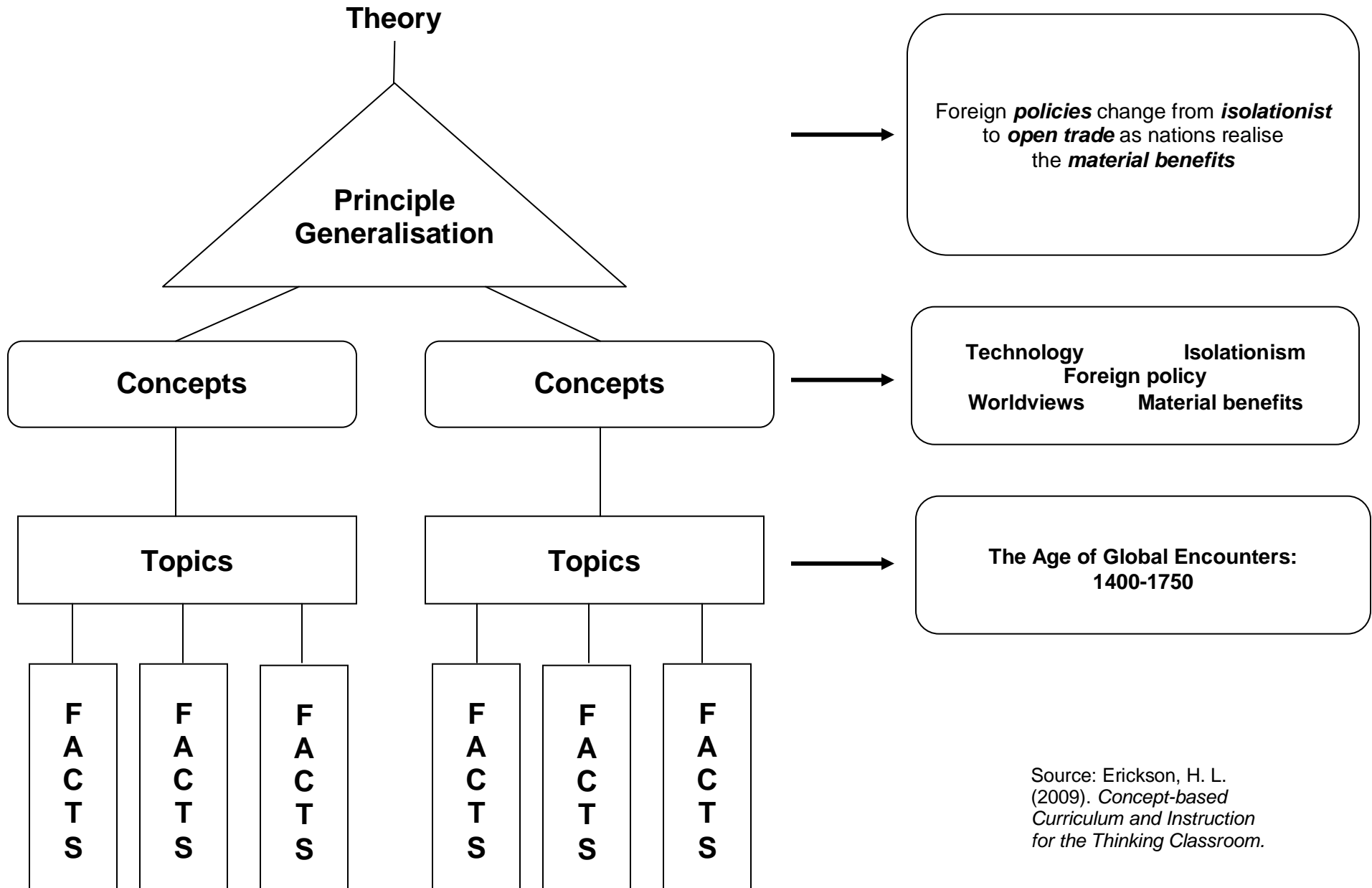
3. Apply	2. Understand	1. Remember
apply, classify, construct, covert, demonstrate, display, dramatise, illustrate, interpret, incorporate, implement, make, manipulate, model, operate, practise, present, report, reformat, research, sequence, show, sketch, solve, use	describe, distinguish, explain, express, generalise, give, identify, indicate, locate, paraphrase, predict, restate, sort, translate, what	arrange, cite, define, discover, duplicate, label, list, match, memorise, name, order, recall, recite, recognise, relate, repeat, reproduce, tell, who, which, where



Content Differentiation

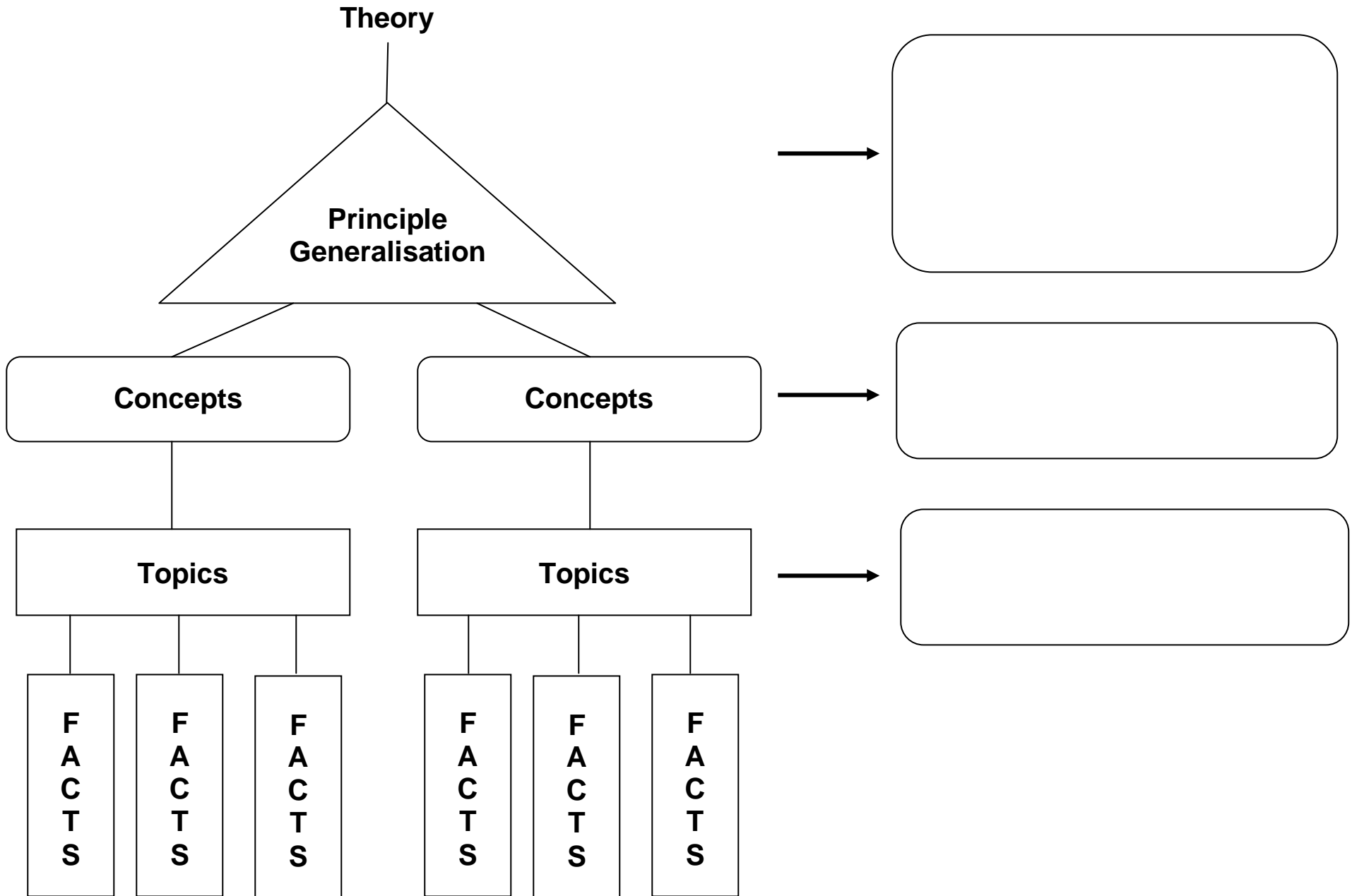


Structure of Knowledge



Source: Erickson, H. L. (2009). *Concept-based Curriculum and Instruction for the Thinking Classroom*.

Structure of Knowledge





Enduring Understandings (Generalisations / “Big Ideas”)	Guiding Questions F actual, C onceptual, P rovocative
1. Limited natural resources lead to interdependence of populations.	a) What are natural resources? F b) How can natural resources be shared among populations? C c) Who should have the responsibility to provide water for everyone? Locally? Nationally? Globally? P
2.	
3.	
4.	
5.	

The Power of a Conceptual Lens



Activity

1. Think of two specific topics from the curriculum you teach.
2. Choose potential lenses from the list in Figure 2 for each topic. Notice how the lens changes the focus for thinking about the topic. Which lens do you find most engaging (or challenging) for your topic?

Thinking reflectively (metacognitively), are you aware of how the lens invites you to bring your personal intellect to the study? Does the engagement of your personal intellect increase your motivation and interest in this study?

Topics	Potential Conceptual Lenses
A. _____	_____

B. _____	_____

Example:

Topic
Holocaust

Potential Conceptual Lenses
 Humanity
 Inhumanity
 Conflict
 Violence
 Survival



Sample Conceptual Lenses

Conflict	Complexity
Beliefs/Values	Paradox
Interdependence	Interactions
Freedom	Transformations
Identity	Patterns
Relationships	Origins
Change	Revolution
Perspective	Reform
Power	Influence
System	Balance
Design	Innovation
Heroes	Genius
Force	Creativity

Source: Erickson, L. H. (2009). *Concept-based Curriculum and Instruction*

Using Conceptual Lens and Enduring Understandings for Guiding Questions



Enduring Understandings (Generalisations / “Big Ideas”)	Guiding Questions Factual, Conceptual, Provocative
<p>1. Human beings have the capacity to be both humane and inhumane to the extreme.</p> <p>Topic: <i>Holocaust</i></p> <p>Conceptual Lens (dual): <i>Humanity/Inhumanity</i></p>	<p>Factual Questions:</p> <ul style="list-style-type: none"> a) Why was the Holocaust a significant event in world history? b) What beliefs did Hitler hold that drove his actions? c) Why is Hitler’s persecution of the Jewish people considered inhumane? <p>Conceptual Questions:</p> <ul style="list-style-type: none"> a) What examples of inhumanity can you cite from our world today? b) What acts of humanity can you cite from our present-day world? c) How are beliefs, values, and perspectives related to views of humanity and inhumanity? <p>Provocative Question: Can one be inhumane and civilized at the same time?</p>
<p>2. _____ _____</p> <p>Topic: _____</p> <p>Conceptual Lens: _____</p>	<p>Factual Question:</p> <p>Conceptual Question:</p> <p>Provocative Question:</p>



Process Differentiation





Critical and Creative Thinking Skills		Reflective Thinking Skills (Metacognition)	Conceptual Thinking Skills	Enabling Skills
<p>Analytical thinking skills Comparing & contrasting Categorising Criteria setting Ranking and prioritising Seeing relationships Making analogies Determining cause and effect Predicting Analysing Inferring Deductive thinking Evaluating</p> <p>Critical thinking skills Identifying points of view Identifying value statements Determining bias Identifying fact and opinion Determining the accuracy of presented information Determining the strength of an argument Detecting inconsistencies in an argument Recognising assumptions Recognising fallacies Identifying exaggeration Identifying ambiguity</p> <p>Organisation thinking skills Formulating questions Semantic mapping Interpreting data Developing hypotheses Generalising Problem solving Decision making Moral reasoning</p>	<p>Creative thinking skills Deferring judgment Considering alternatives Problem finding Creative problem solving SCAMPER modification techniques Transforming Visualising Listing attributes Brainstorming Random input Synectics Guided imagery Fluency Flexibility Originality Elaboration</p>	<p>Setting goals Planning Monitoring Evaluating Reflecting</p>	<p>Conceptual understanding Integration of thinking Transfer of knowledge across time or situation Includes aspects of critical, creative and reflective (metacognitive) thinking</p>	<p>Study skills Note taking skills Reading skills Memory enhancing strategies Examination techniques Writing for different purposes (e.g., essay writing, technical report writing) Organisational skills Time management skills Stress management skills Social interaction skills</p>
		<p>21st Century Skills:</p> <ul style="list-style-type: none"> • Creativity and innovation • Communication and collaboration • Information, media and ICT literacy • Life and career skills such as flexibility, initiative, productivity, independence, leadership and responsibility 		

Williams Model



	Teacher Strategy	Explanation	Learning Activities
1	Paradox	Situations opposed to common sense; self-contradictory statements or observations that may contain an inherent truth.	
2	Attribute Listing	Identification of inherent properties or qualities by examining them in a new light.	
3	Analogy	Comparisons of very unlike things; forced associations or connections.	
4	Discrepancy	Focus on gaps and missing links in knowledge, often deliberately set up for the students to discover themselves.	
5	Provocative Question	Any inquiry of students to incite exploration and curiosity.	
6	Examples of change	Two ways to do this: [1] Show dynamics of how something has changed; or [2] Make one's own modifications, alterations, substitutions.	
7	Examples of habit	Examine examples that demonstrate rigidity and inflexibility.	
8	Organised random search	Knowledge of a known structure allows the development of random new solutions.	
9	Skills of search	Research on something done before; trial and error on new ways.	
10	Tolerance for ambiguity	Posing of a "what if" or "what would happen if" open-ended scenarios that challenge thinking within problem situations.	



Williams Model

	Teacher Strategy	Explanation	Learning Activities
11	Intuitive Expression	Placing oneself in the shoes of another person, situation, problem, setting and exploring with all one's senses how one would feel and what one would do.	
12	Adjustment to development	Examine what happens when one makes mistakes or fails – how one adjusts and ultimately succeeds; examine failures for growth.	
13	Study creative development	Analyse traits of creative people, creative processes, or creative product.	
14	Evaluate situations	Analyse implications, or consequences, extrapolate from ideas or actions.	
15	Creative reading skills	Generate new ideas by reading, rather than just reading for meaning.	
16	Creative listening skills	Generate new ideas by training students' aural skills to make connections and to listen for inference and ideas as well as for information.	
17	Creative writing skills	Generate new ideas in writing.	
18	Visualisation	Express ideas in 3D, nontraditional or visual forms.	



Maker Model Modifications

Content Modifications		
Abstraction	Going beyond the facts, examining underlying ideas, symbolism, and meanings of the content.	
Complexity	Posing challenging questions or situations that force the learner to deal with content intricacies; greater breadth or depth.	
Variety	Sampling different types of related content, often from other disciplines or subject areas. Exposure to new ideas or content.	
Study of People	Relating content to people, the human situation and human problems.	
Methods of Inquiry	Relating content to the methods and procedures used by people in a field or subject area.	
Process Modifications		
Higher-order thinking skills	Utilising higher-level thinking skills (analysis, synthesis and evaluation) for regular content processing.	
Open-ended processing	Utilising divergent thinking skills (such as paradox, analogy, tolerance for ambiguity, intuitive expression) for regular content processing.	
Discovery	Requiring students to progress through a series of steps of inquiry to draw own conclusions, answers and generalisations.	
Freedom of choice	Providing opportunities for self-directed, independent study.	
Product Modifications		
Real world problems	Learners investigate the kinds of questions and problems investigated by professionals; 'real-life' problems.	
Real audiences	Student products are developed for the expected evaluation by professionals or experts in that field or discipline.	
Transformations	Students are encouraged to suggest practical uses for what has been learned. Uses may be in non-traditional media.	

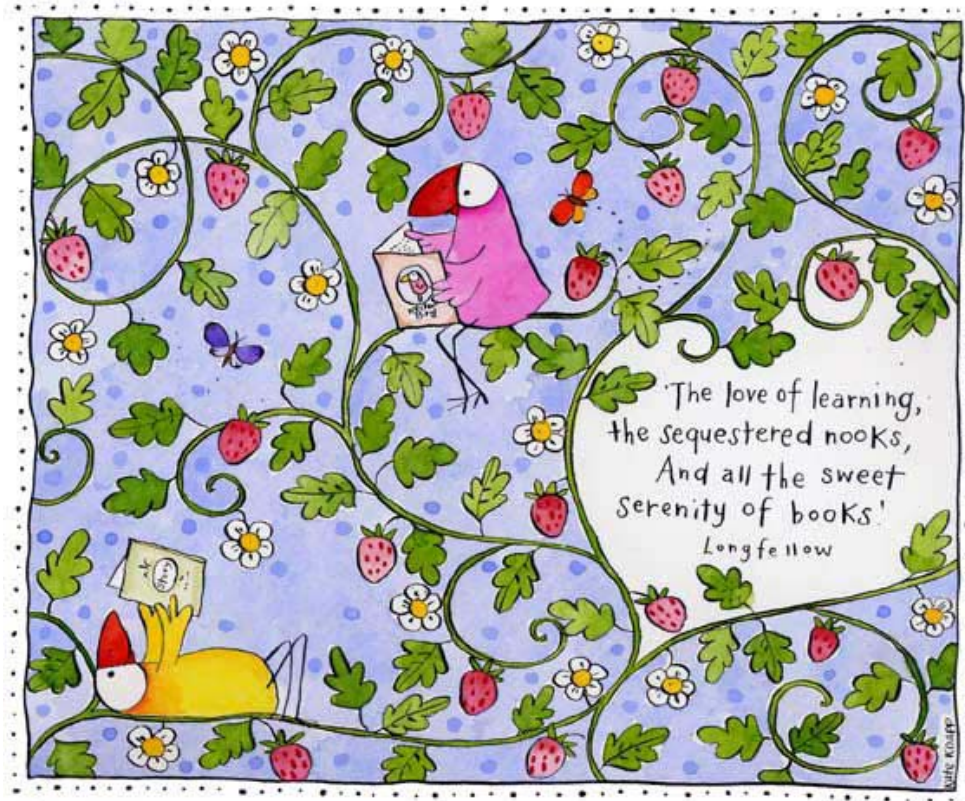


Metacognition: Self-Regulated Learning

Elements	Explanation	Questions	Student Responses
Planning	<p>Identifying goal and the steps needed to reach the goal</p> <p>Allocating time to accomplish the goal</p>	<p>What is your goal and what steps will you take to reach the goal?</p> <p>What should you do first? Second? Third?</p> <p>What do you already know that can help you?</p> <p>What obstacles must be overcome?</p> <p>What will the solution look like?</p> <p>How much time will you allocate to accomplish your goal?</p>	
Monitoring	<p>Identified goal</p> <p>Domain and strategy knowledge about task</p> <p>Processes/strategies</p> <p>Motivation to adjust performance</p>	<p>What have you accomplished by the end of Week 1 of the project? What is your next step?</p> <p>What do you still need to know, understand and do about the task/project?</p> <p>Have you made any mistakes? Did you recover from an error? How did you do that?</p> <p>How do you continue to motivate yourself to remain on task?</p>	



Differentiating Products





Differentiated Products

The students may choose from a **combination** of the following products or **invent** product/s of their own:

Auditory	Audiotape recording, choral reading, class discussion, commentary, conference presentation, debate, description/show and tell, discussion, documentary, “how to” talk, informative speech, mock interview, newscast, oral report, oral book report, persuasive speech, panel discussion, radio show, reading to the class, roundtable group lecture, seminar, speech, trial
Visual	Advertisement, blueprint, book jacket, bullet chart, bulletin board, brochure, cartoon, carving, coat of arms, collage, comic strip, commercial, concept costume, cube, 3-D model, diorama, drawing, film, flowchart, graph, illustration, map, multimedia project, mosaic, mural, origami, painting, photograph, photo journalism, pointillism, pictorial essay, plaque, poster, pop-up book, sculpture, self-portrait, stained glass, storyboard, story map, tessellation, tree chart, Venn diagram, wall hanging, wallpaper pattern, web
Performance	Comedy sketch, court trial simulation, dance, demonstration, dramatization, experiment, magic show, monologue, musical performance, peepshow, play, puppet show, reenactment skit, simulation, synchronized movement, treasure hunt
Written	Advertisement, book, book review, biography, business letter, classified advertisement, creative writing, critique, diary, editorial, eulogy, essay, explanation, fact file, fractal, journal, hypothesis, literary analysis, logic puzzle, newspaper, persuasive essay, magazine article, motto, musical composition, mystery, newsletter, opinion poll, poem, personal letter, paper, play, puppet show, reflection, report, research, riddle, satire, story, scrapbook, script, song, science fiction story, Sudoku, synthesis of research, theory, travelogue
Multi-categorical (products that require the use of two or more of the above product types)	animation, broadcast, computer program, exhibit, fabric, game, game show, geometric model, geodesics, illuminated manuscript, illusion, Internet search engine, invention, kit, law, multimedia slide show, matrix, museum display, musical instrument, oral history, ornament, podcast, prototype, scavenger hunt, silk-screen print, television show, terrarium, time capsule, video, Web site, woodworking

Adapted from Karnes, F., & Stephens, K. R. (2000). *Student Product Development and Evaluation*. Wacko, TX: Prufrock Press.

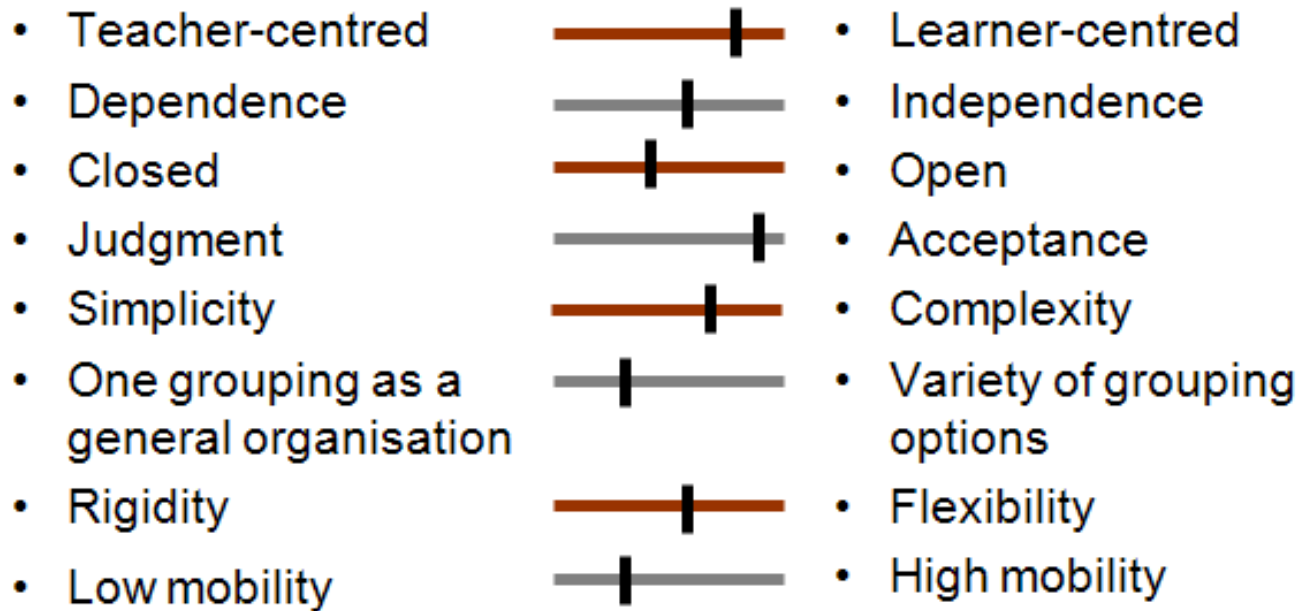


Learning Environment Differentiation





Learning Environment Differentiation - Strategies



Learning Continuum



Learner-centred Differentiation: Framework and Template



Learner-centred Curriculum Differentiation – A Practical Framework

