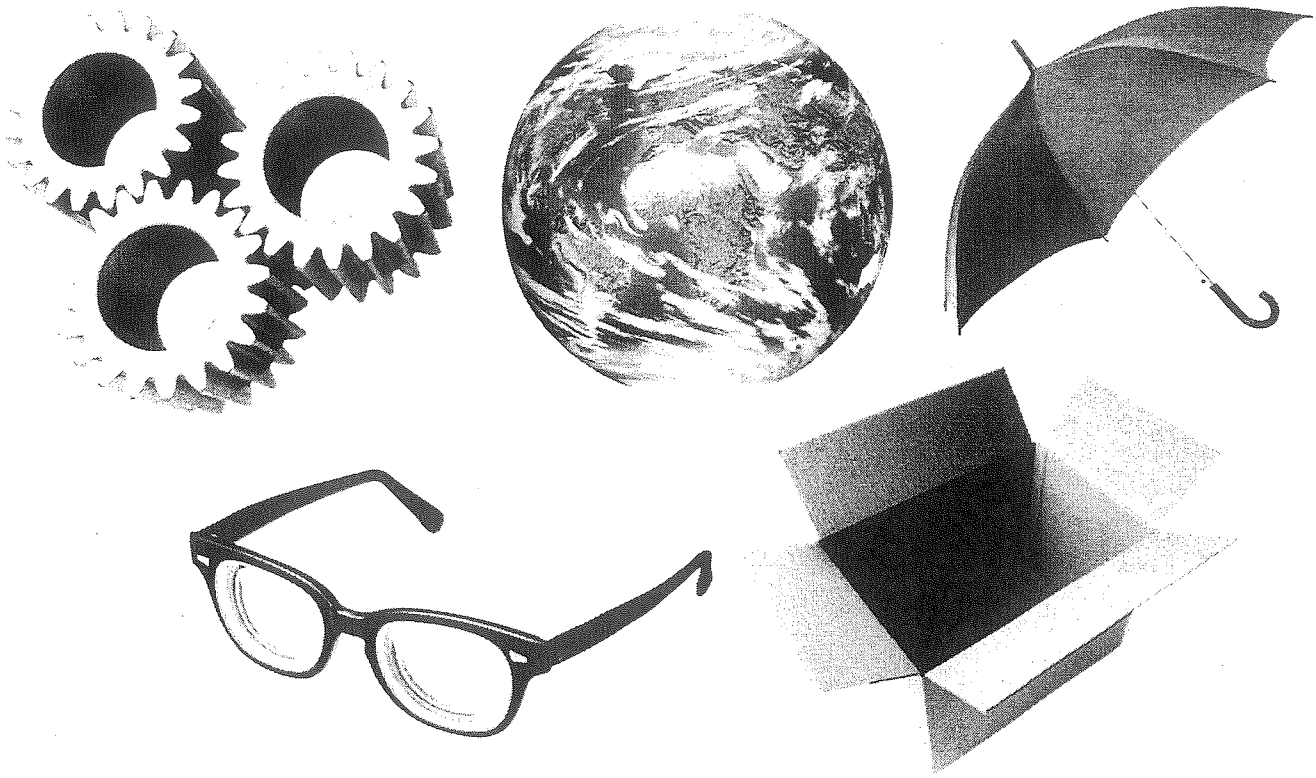

Practical Magic with the New Curriculum

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Thinking Inside the Box

Sharon Vatsky

As the conversation in the field of education turns more and more to creativity, teachers are imploring their students to "think outside the box." Recent studies, however, suggest that this plea may actually yield the opposite result.

What is this "box" that we should be getting out of? According to neurologist Kenneth Heilman, author of *Creativity and the Brain* (Psychology Press, 2005), creativity involves coming up with something new, as well as shutting down the brain's habitual response and letting go of conventional solutions.

Creativity involves coming up with something new, as well as letting go of conventional solutions.

Looking Around Inside the Box

When trying to solve a problem, most of us begin with familiar solutions. However, if the answer doesn't come, our brains begin searching for alternatives. We search for connections in both familiar and more distant areas, pulling thoughts together into a single new idea that enters consciousness. This is the "aha" moment of insight. Now the brain must evaluate the idea it has just generated. Creativity requires this constant shifting between both convergent and divergent thinking—of looking around both "inside the box" and venturing out of it.

Synthesis in History

In her book, *Creativity from Constraints* (Springer Publishing, 2006), Patricia D. Stokes argues that being completely free and without constraints actually hinders problem solving and creativity. History is filled with examples of breakthroughs that are not the result of abandoning the box, but rather finding a unique synthesis of "in the box" and "out of the box" thinking. Pablo Picasso and Georges Braque worked together for eight years to find the new way of representing the world that came to be known as Cubism. Claude Monet limited his subject matter in order to focus on changing light and atmospheric effects, and Piet Mondrian continued to reduce his options until his work contained only the most distilled elements.

The Box as Fertile Ground

Although the "box" can imply constraint, other boxes are considered fertile areas for ideas and exploration. The "black box theater" is nearly synonymous with experimentation and suggests a space that is flexible, versatile, and easy to change. Galleries are sometimes referred to as "white boxes"—clean, open spaces that are perfect for exhibiting all kinds of art. And, of course, there are those "toolboxes" that educators fill with useful teaching strategies and methodologies. All boxes are clearly not created equal.

In her book, *The Creative Habit: Learn It and Use It for Life: A Practical Guide* (Simon and Schuster, 2003), acclaimed choreographer Twyla Tharp describes her way of utilizing "the box." She begins every new dance with a literal cardboard box. She writes the name of the project on the outside of the box and proceeds to fill it up with every item that went into creating that work, including clippings, videos, notes, and photos. She states:

. . . a box is like soil to me. It's basic, earthy, elemental. It's home. It's what I can always go back to when I need to regroup and keep my bearings. Knowing that the box is always there gives me the freedom to venture out, be bold, dare to fall flat on my face. Before you can think out of the box, you have to start with a box.

Continued on page 44.

UNIVERSAL THEMES AND GENERALIZATIONS

THEMES

1. Change
2. Conflict
3. Exploration
4. Force or Influence
5. Order vs Chaos
6. Patterns
7. Power
8. Structure
9. Systems
10. Relationships

THEMES AND GENERALIZATIONS

1. Change

- Change generates additional change
- Change can be either positive or negative
- Change is inevitable
- Change is necessary for growth
- Change can be evolutionary or revolutionary

2. Conflict

- Conflict is composed of opposing forces
- Conflict may be natural or human made
- Conflict may be intentional or unintentional
- Conflict may allow for synthesis and change

3. Exploration

- Exploration requires recognizing purpose and responding to it
- Exploration confronts "the unknown"
- Exploration may result in "new findings" or the confirmation of "old findings"

4. Force

- Force attracts, hold or repels
- Force influences or changes
- Force and inertia are co-dependent
- Force may be countered with equal or greater force

5. Order vs Chaos

- Order may be natural or constructed
- Order may allow for prediction
- Order is a form of communication
- Order may have repeated patterns
- Order and chaos are reciprocals
- Order leads to chaos and chaos leads to order

6. Patterns

- Patterns have segments that are repeated
- Patterns allow for prediction
- Patters have an internal order
- Patterns are enablers

7. Power

- Power is the ability to influence
- Power may be used or abused
- Power is always present in some form
- Power may take many forms (chemical, electrical, political, mechanical)

8. Structure

- Structure have parts that interrelate
- Parts of structures support and are supported by other parts
- Smaller structures may be combined to form larger structures
- A structure is no stronger than its weakest component parts

9. Systems

- Systems have parts that work to complete a task
- Systems are composed of sub-systems
- Part of systems are interdependent upon one another and form symbiotic relationships
- A system may be influenced by other systems
- Systems interact
- Systems follow rules

10. Relationships

- Everything is related in some way
- All relationships are purposeful
- Relationships change over time

Adapted from: Curriculum Guide for the Education of Gifted High School Students, Texas Association for the Gifted and Talented, 1991

* Lynn Erickson and Lois Lanning

Table 3.1 Macro-Concept Examples

Power	Change/ Continuity	Action/ Reaction	Form/ Function	Shifts/ Transformations
Interdependence	Value	Identity	Sustainability	Design
Interactions	Perspective	Paradox	System	Order
Force	Aesthetics	Transition	Relationships	Empathy
Communication	Communication	Structure	Creativity	Space

macro-concepts could serve as a suitable lens, or focus, for the study. Potential lenses could be: Humanity/Inhumanity, Courage, or Oppression.

Micro-concepts are more tied to the different disciplines and are more specific than macro-concepts. Some have limited transfer across subject areas (e.g., *line* in art; or *line* in mathematics); but other micro-concepts are identified clearly with a particular discipline (e.g., *habitat* in science; or *revolution* in history). Table 3.2 provides examples of micro-concepts for a number of different disciplines.

Generalizations can be crafted with macro-concepts for greater transferability across disciplines:

"Interdependent systems rely on parts working together efficiently."

"Change occurs over time."

Some educators believe that the broader the generalization and the greater the transfer—the better the idea. Not necessarily. Crafting macro-ideas will address *breadth* (great transferability across situations), but will fail to provide *disciplinary depth* of understanding. So within a

Table 3.2 Disciplinary Micro-Concepts (Examples)

Science	Mathematics	Physical Education	Social Studies
Cells	Angles	Endurance	Migration
Osmosis	Quadratics	Flexibility/Agility	Population
Organelles	Geometric Figures	Fitness	Spatial Relationships
Natural Resources	Estimation	Strategy	Landforms
Ecosystem	Multiplication	Follow-through	Scarcity
Adaptation	Slope	Teamwork	Resources

* From Transitioning to Concept-Based Curriculum...

Use as related concepts - under the universal themes.

MICRO CONCEPT

Carol Tomlinson 2002

A COMPARISON OF DISCIPLINE-BASED CONCEPTS WITH INTERDISCIPLINARY MACROCONCEPTS

Social Studies Concepts	*Science Concepts*	*Art Concepts*	*Music Concepts*
transportation	evaporation	shadow	scales
government	circulation	light	notation
tributary	fertilization	perspective	rhythm
war	temperature	depth	beat
battle	gravity	hue	percussion
treaty	magnetism	tint	woodwind
commerce	energy	composition	harmony
leader	work	texture	echo
services	matter	line	jazz
goods	homeostasis	dimensionality	timbre
resources	sound	symmetry	resonance
culture	waves	portrait	range
immigration	resonance	media	baritone
poverty	plasticity	abstract	projection
navy	scientific	method	gradiant
explorer	evidence	aesthetic	mood
delta	migration	landscape	pitch
caste	tropism	realism	volume
migration	movement	influence	melody
longitude	pressure	balance	conductor
Language Arts	*Health and Physical Education Concepts*	*Interdisciplinary Macroconcepts*	*Math Concepts*
vowel	touchdown	multiplication	form
stereotype	goal	sum	function
claim	heatstroke	integer	systems
persuasion	dribble	prime number	structure

(Continued)

(Continued)

Language Arts	*Health and Physical Education Concepts*	*Interdisciplinary Macroconcepts*	*Math Concepts*
hero	drug	ratio	change
conflict	linesman	angles	communities
folktale	cancer	mode	constancy
resolution	fluid	denominations	symbolism
poetry	sprint	symbols	relationships
alliteration	fullback	ray	properties
symbols	sunscreen	perimeter	measurement
syllable	referee	correlation	classes
noun	offense	standard	deviation patterns
preposition	antioxidant	central	tendency
personification	warm-up	order of operations	cycles
skim	point guard	graph	variables
point of view	protein	pie chart	factors
cause and effect	emergency	random	criticism
archetype	accident	symmetry	movement
main idea	conditioning	chaos	perspective

Adapted from *The Parallel Curriculum* (Tomlinson, et al., 2002) Figure 5.5.

COMPONENT JIGSAW

Read

Read your assigned section(s) in *The Parallel Curriculum.* As you read, highlight key points and jot down any questions you have. Be sure you can do the following.

- Provide a definition of the component(s) in your own words.
- Share what the component(s) would look like in your own or another discipline.
- Explain why the component(s) should be included in unit plans. Consider: Is the component "nice to have" or is it imperative? What would happen if the component were not included?

Discuss

Share your thoughts, questions, and examples with others assigned to the same section(s). Be sure you are all in agreement about the component's role in curriculum design.

Main Topics I Teach	Concepts: Macro and Micro

Curriculum Outline

Unit Title:

Unit Focus Statement:
What's the "big umbrella", enduring understanding?

Concepts:
Universal themes, macro and micro concepts, etc.

An Inquiry Into:
What are the content and knowledge areas you will investigate?

Guiding Questions:
What are key questions you will ask to get to the content?

Summative Task:
What task will the student complete to show their understanding of the unit focus statement? Think about how they will apply skills they learned during the unit.

Formative Tasks:
How are you checking student progress during the unit?

Core Competency Focus:
Overarching Skills (K-12)

- ☐ Critical Thinking _____
- ☐ Creative Thinking _____
- ☐ Communication _____
- ☐ Positive Personal and Cultural Identity _____
- ☐ Personal Awareness and Responsibility _____
- ☐ Social Responsibility _____

Curriculum Content Summary		
	English Language Arts: **Science:** **Socials:** **Math:** **Art:**	**Career Education:** **Physical and Health Education:** **Applied Skills:** **French:**

BIG IDEAS *(By subject and grade)*	**CURRICULAR COMPETENCIES** *(By subject and grade)*	**CONTENT** *(By subject and grade)*

Resources:

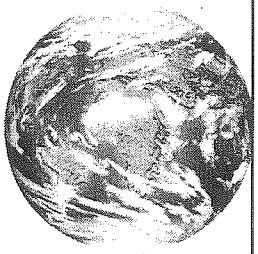
Reflection:

STEP ONE:
Playing with the big ideas

CONCEPTS

You have a set of concepts at your table. Spread them out on the table.

We have provided you with big ideas from the grade 4/5 curriculum as a place to start.



Sort the big ideas into 5-6 groups, with 1-2 concepts next to each group as organizers.

To form a group, look for common elements between ideas.

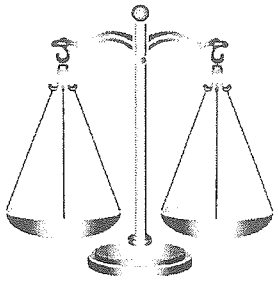
Don't worry about *specific subjects* at this time, only the big ideas.

STEP TWO:
Balancing Subjects

CONTENT

Now, look at each group of ideas and see if you have a balance of **subjects.**

Units should be transdisciplinary and try to hit as many subjects as possible.



We are looking for deep, broad units, rather than separate subject units.

Subject labels are on the BIG IDEA cards at the bottom.

If you need to move big ideas around to different groups to be more balanced, do that now.

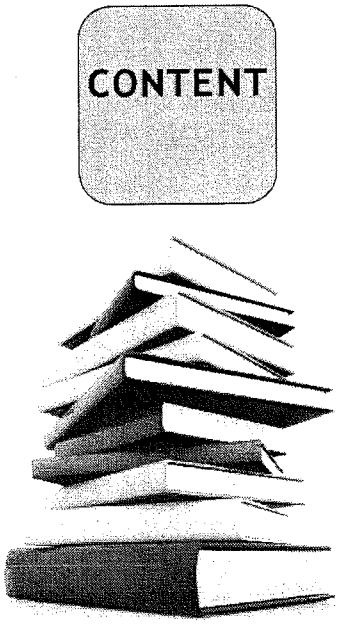
STEP THREE:
Add in the CONTENT (Learning Outcomes)

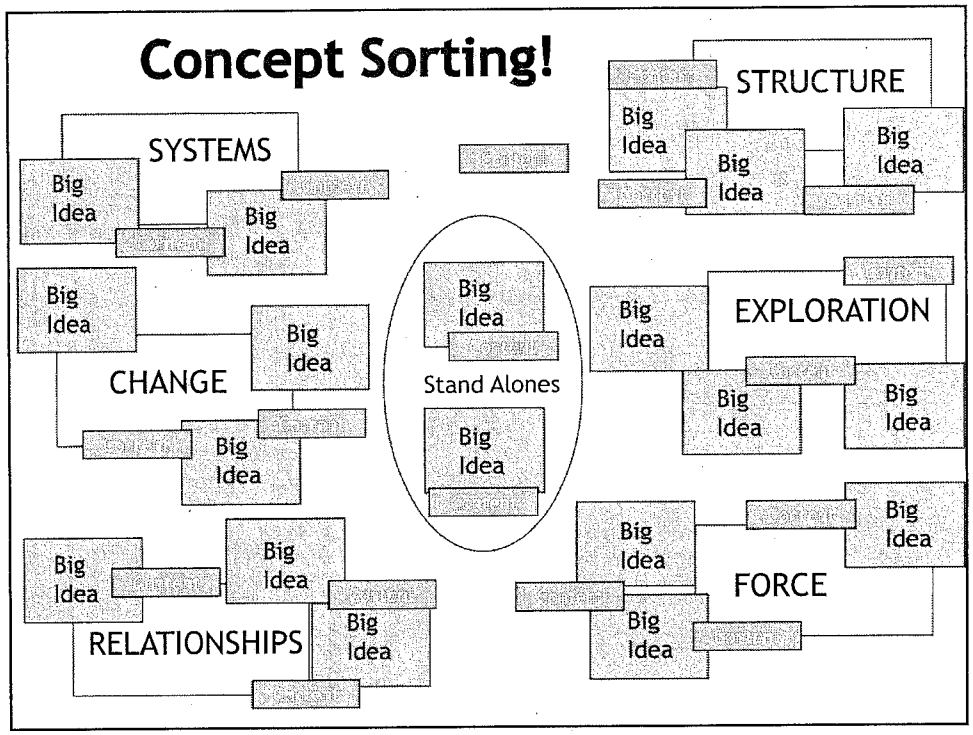
We have provided you with cards, in a different colour, with the key **CONTENT** in grades 4 and 5.

Keeping in mind subject balance, sort them so they are in each of the groups.

Some content, like language arts, is very general and can apply to every unit. Thus, it is often not necessary to have sorting cards for those. You can figure them out later. **Start with socials and science.**

Remember, some items are stand alone topics. But if they can be related in some way to a CONCEPT from a group, then place them there.





STEP FOUR: EXPLORE A UNIT FURTHER

Choose grouping you created to work with now.

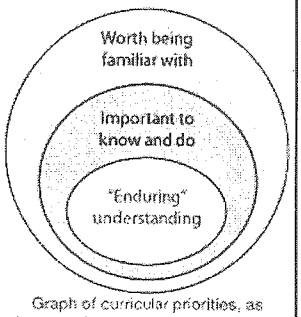
Try to write a unit focus statement (enduring understanding) as a group that would allow you to look at these ideas.

Start with the CONCEPT.

Think about any other CONCEPTS that are related.

Think about big world understandings you would want to give to the students.

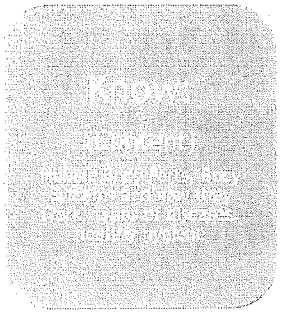
Ask yourself - so what?



Graph of curricular priorities, as discussed in Understanding by Design

KUD Unit Example

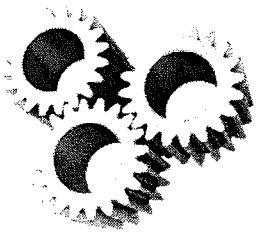
Unit Focus Statement: Our personal choices play a role in how the interconnected system of the human body works.



systems

STEP FIVE: SUMMATIVE TASK & SKILLS

SKILLS



What **TASK** could you do to show an understanding of the unit focus statement (enduring understanding) you wrote?

Do you have any tasks you have done in the past that will work?

What **SKILLS** will they need from the curricular and core competencies in order to do the task?

So now what?

- Know you can't do all units at once. One at a time. As long as you have a general idea of where you are going.
- Some curriculum just has to be stand alone. Try to find a way to connect it to your CONCEPT choice, even if it doesn't fit with your enduring understanding for a larger unit.
- Keep it visible in the classroom as a guide for you and students.
- As you build your unit, get out the curriculum documents again and feel free to add or subtract.

Enduring Understandings:

* Is it written as a statement or phrase, rather than as a question
* Is it worth knowing? Engaging? Relevant? Significant?
* Is it true for everyone? Does it apply to all humans?
* Is it value laden?
* Does it allow for students to study themselves and other cultures/perspectives?
* Does it have a degree of complexity that is age appropriate?
* Does it have a degree of ambiguity?

Curriculum Discussion Resources:

Websites

BC Curriculum:
https://curriculum.gov.bc.ca/

BC Curriculum Tools (with tutorial videos):
https://curriculum.gov.bc.ca/tools

Jay McTighe and Associates (Author of *Understanding By Design*)
http://jaymctighe.com/

Grant Wiggins and Authentic Education (Author of *Understanding By Design*)
https://www.authenticeducation.org/whoweare/grant.lasso

Center for Curriculum Redesign
http://curriculumredesign.org/

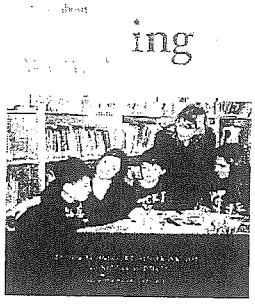
International Baccalaureate Organization
http://www.ibo.org/

What is the Primary Years Programme, IBO
http://www.ibo.org/programmes/primary-years-programme/

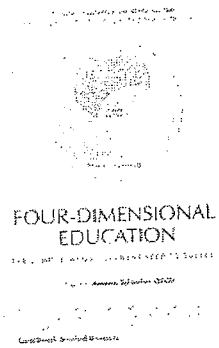
School Arts Magazine November 2014
http://www.schoolartsdigital.com/i/395437-nov-2014

Books

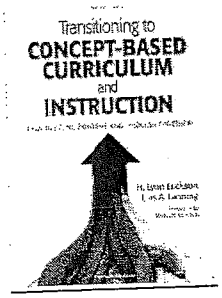
It's All About Thinking: Creating Pathways for All Learners in the Middle Years By Leyton Schnellert, Linda Watson, and Nicole Widdess



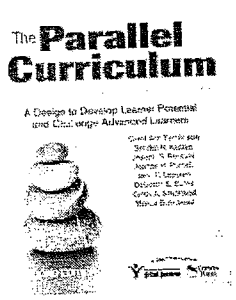
Four-Dimensional Education By Charles Fadel & The Center for Curriculum Redesign

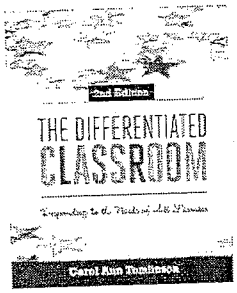


Transitioning to Concept-Based Curriculum and Instruction (at the DLRC)
By Lynn Erickson and Lois Lanning



The Parallel Curriculum & ***The Differentiated Classroom***
By Carol Tomlinson





Other

Experiential SEL tool kit (Social Emotional Learning) (13 kits at the DLRC)