Synergistic Thinking
and Conceptual Understanding
in the IB Programmes
Let’s Think About...

Why does the IB value its concept-based, three-dimensional curriculum & instruction model?

How is knowledge structured & how can we use this structure to raise all students up academically?
Why are macro-concepts (Key/Significant Concepts), and micro-concepts (Disciplinary Concepts) powerful tools for ensuring synergistic thinking to help develop the intellect?

What does conceptual teaching and learning “look like?”
Social Change
Forces Impacting Education

- Expanding role of technology
- Changing job demands
- Increasing global interdependence
- Rapid growth of knowledge
- Environmental concerns
Information without Intellect is Meaningless

Critical, Creative, Reflective

Curious, Playful

Metacognitive

The IB Learner Profile:
- Thinker
- Open-minded
- Risk-Taker
- Communicator
- Reflective

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Traditional Curriculum Design has been more “topic-based” rather than “concept-based.”

There are two major problems with topic-based models—

1. They fail to engage and develop the personal intellect at a deep level.
2. They are inefficient—instant information is now a keystroke away. So how should we use our class time?
Two Dimensional Curriculum Design

versus

Three Dimensional Curriculum Design

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Two-dimensional *versus* Three-dimensional

**Coverage-centered**
“inch deep, mile wide”

**Intellectually shallow**
- lacks a conceptual focus to create a factual/conceptual brain synergy

**Idea-centered**
-facts provide a foundation to understand conceptual, transferable ideas.

**Intellectual depth**
-a “conceptual lens,” or focus, requires mental processing on the factual and conceptual levels—producing intellectual depth in thinking and understanding.

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Two-dimensional versus Three-dimensional

Fails to allow for transfer - facts do not transfer locked in time, place, or situation.

Fails to meet the intellectual demands of the 21\textsuperscript{st} century

Concepts and generalizations transfer - allows the brain to make connections and see patterns.

Develops the intellect to handle a world of increasing complexity and accelerating change.

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Think of

**KNOW**

*Factual Knowledge*
which is locked in time, place or situation

**UNDERSTAND**

*Conceptual Understanding* which transfers through time, across cultures, and across situations

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The IB Model for Curriculum & Instruction is a concept-based, three-dimensional model.

It is idea-centered, intellectually engaging by design, and fosters collaboration, social learning, and meaning-making.
The Structure of Knowledge
Families cooperate to get things done.

• Families are alike and different.

- Families • Cooperation
- Alike/Different

My Family

Generalization = Central Ideas or Lines of Inquiry in PYP

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Migration leads to cultural diffusion resulting in social/economic change.

- Migration
- Cultural diffusion
- Needs
- Change

Early European Migration

Early European settlers migrated west. Early European settlers looked for new opportunities.

Generalizations = Significant Concept Statements and supporting ideas in formative unit work.
High School History Generalization:

Forces of imperialism, nationalism, militarism, or geo-political alliances, taken to the extreme, can generate international conflicts.
Velocity can be mathematically represented by the slope of a line.

The slope of a graph at a particular point indicates the instantaneous rate of change.

- Slope
- Derivative
- Graph
- Line
- Velocity

Measurement of Distance and Speed
A **concept** is an organizing idea; a mental construct...

- Timeless
- Universal
- Abstract (to different degrees)
- Represented by 1 or 2 words
- Examples share common attributes

Intelligence?
Transportation?
Examples of Subject Area Concepts

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<td>Equilibrium</td>
<td></td>
<td></td>
<td>Protagonist</td>
<td>Genre</td>
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Which are “macro-concepts” (Key Concepts)?
Which are “micro-concepts”? (Discipline aligned)?
MAcro-concepts give us breadth

MIcro-concepts give us depth
GENERALIZATION=

Central Idea

Significant Concept Statement

Two or more concepts in a relationship...

CONCEPTUAL IDEAS THAT TRANSFER
DEVELOP “DEEP UNDERSTANDING”

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The student understands that...

1. Japan’s Nuclear Disaster

2.

3.
Possible Concepts for Line 2 - Japan’s Nuclear Disaster

Environmental System

Natural Disaster

Living Things

Populations

Economy

Global Impact

Change

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The Power of a Conceptual Lens:

Using Key and Significant Concepts to Focus Unit Work & to Foster Synergistic Thinking
Conceptual Lens?

The Global Economy
Interdependence

The Global Economy
The Global Economy
Power/Influence

The Global Economy
Conceptual lens

Possible Topics:
- Developing Nations
- The European Union
- Global Trade

Topic: __________________________
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Looking at a topic through a “conceptual lens” engages the personal intellect and emotions of the student...

> creates deeper level of understanding,

> retains the factual information because it has relevance, and

> shows a greater love of learning.
To develop the intellect and increase motivation for learning, curriculum and instruction must create a “synergy” between the lower (factual) and higher (conceptual) levels of thinking.

SO THIS IS WHAT SYNERGISTIC THINKING FEELS LIKE!

FACTUAL

CONCEPTUAL

INTEGRATED THINKING

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It is the Conceptual Mind that ....

- creates connections to prior experience and finds relevance
- synergistically works with factual level of knowledge to develop the intellect
- creates deeper understanding at the factual and conceptual levels
- recognizes the transferability of knowledge
- becomes the springboard for inspiration and action
To make continuous progress in improving education, we must maintain a dynamic balance...

between challenge and comfort
...as we strive to inspire young people

to think deeply

to question openly

to risk personally

to care for others

to act globally

to value humanity & the environment