International Baccalaureate

IB Americas
Transdisciplinary learning

Category 3

Columbus, Mississippi
April 2015
English

Cathi Bremner & Robin Long
Teacher Training Workshop

This workbook is intended for use by a participant at an IB-approved workshop. It contains several types of material: material that was created and published by the IB, material that was prepared by the workshop leader and third-party copyright material.

Following the workshop, participants who wish to provide information or non-commercial in-school training to teachers in their school may use the IB-copyright material (including student work) and material identified as the work of the workshop leader unless this is specifically prohibited.

The IB is committed to fostering academic honesty and respecting others’ intellectual property. To this end, the organization must comply with international copyright laws and therefore has obtained permission to reproduce and/or translate any materials used in this publication for which a third party owns the intellectual property. Acknowledgments are included where appropriate. Workshop participants may not use any of the material in this workbook that is identified as being the intellectual property of a third party for any purpose unless expressly stated. In all other cases permission must be sought from the copyright holder before making use of such material.

Permission must be sought from the IB by emailing copyright@ibo.org for any use of IB material which is different from that described above or those uses permitted under the rules and policy for use of IB intellectual property (http://www.ibo.org/copyright/intellectualproperty.cfm).

Permission granted to any supplier or publisher to exhibit at an IB-approved workshop does not imply endorsement by the IB.
The IB mission statement

The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.
Workbook contents

From common core to curriculum ........................................ 5
GRASPS .......................................................................... 17
How to recognize an authentic summative assessment .......... 18
Transdisciplinary Theme descriptors ................................ 19
Lost At Sea Ranking Chart .............................................. 20
Sample verbs for scaffolding .......................................... 21
CONNECTIONS ORGANIZER EXPLAINED ..................... 22
PLANNING FOR TRANSDISCIPLINARY LEARNING ............ 23
From Concepts to UOI ................................................. 26
RELATED CONCEPTS .................................................. 27
ATL's in the PYP & MYP .............................................. 29
From Common Core Standards to Curriculum:
Five Big Ideas

by
J
c
y McTighe and Grant Wiggins

In this article, we explore five big ideas about the Common Core State Standards and their translation into a curriculum. As with most big ideas, these Standards are in some ways obvious but may also be counter-intuitive and prone to misunderstanding. We highlight potential misconceptions in working with the Standards, and offer recommendations for designing a coherent curriculum and assessment system for realizing their promise.

Big Idea # 1 – The Common Core Standards have new emphases and require a careful reading.
In our travels around the country since the Common Core Standards were released, we sometimes hear comments such as, “Oh, here we go again;” “Same old wine in a new bottle;” or “We already do all of this.” Such reactions are not surprising given the fact that we have been here before. A focus on Standards is not new. However, it is a misconception to assume that these Standards merely require minor tweaks to our curriculum and instructional practices. In fact, the authors of the Mathematics Standards anticipated this reaction and caution against it: “These Standards are not intended to be new names for old ways of doing business.” (p 5) Merely trying to retrofit the Standards to typical teaching and testing practices will undermine the effort.

A related misconception in working with the Common Core is evident when teachers turn immediately to the grade level Standards listed for their grade or course to plan their teaching. Such an action is reasonable; after all, isn’t that what they are supposed to teach? While understandable, we advise against zeroing in on the grade-level Standards before a careful examination of the goals and structure of the overall documents.

To invoke a construction analogy: Think of the grade level standards as building materials. As a construction supervisor, we wouldn’t simply drop off materials and tools at a worksite and have the workers “go at it.” Instead, we would begin with a blueprint – an overall vision of the desired building to guide its construction. Without an overall end in mind, teachers can create wonderful individual rooms that won’t necessarily fit together within and across floors or achieve the intended results.
The Common Core Standards have been developed with long-term outcomes in mind (e.g., College and Career Anchor Standards in English Language Arts), and their components are intended to work together (e.g., Content and Practice Standards in mathematics). This point is highlighted in a recently released publication, *Publishers’ Criteria for the Common Core State Standards for Mathematics* (July 2012):

“ ‘The Standards’ refers to all elements of the design – the wording of domain headings, cluster headings, and individual statements; the text of the grade level introductions and high school category descriptions; the placement of the standards for mathematical practice at each grade level. The pieces are designed to fit together, and the standards document fits them together, presenting a coherent whole where the connections within grades and the flows of ideas across grades...”

It is imperative that educators understand the intent and structure of the Standards in order to work with them most effectively. Accordingly, we recommend that schools set the expectation and schedule the time for staff to read and discuss the Standards, beginning with the “front matter,” not the grade-level Standards. We also recommend that staff reading and discussion be guided by an essential question: *What are the new distinctions in these Standards and what do they mean for our practice?* Since the Standards are complex texts and demand a “close” reading, we recommend that staff carefully examine the table of contents and the organizational structure; the headers (e.g., Design Considerations; What is Not Covered, etc.), the components (e.g., Anchor Standards and Foundational Skills for ELA; Standards for Mathematical Practice), and the Appendices (ELA).

Following a thorough reading of these introductory sections, discuss the changing instructional emphases called for by the Standards and their implications. For example, the ELA Standards demand a greater balance between reading informational and literary texts, and stress the use of text-based evidence to support argumentation in writing and speaking. The Mathematics Standards accentuate the focus on a smaller set of conceptually larger ideas that spiral across the grades (as opposed to simply “covering” numerous skills) with an emphasis on meaningful application using the Practices.

We cannot overemphasize the value of taking the time to collaboratively examine the Standards in this way. Failure to understand the Standards and adjust practices accordingly will likely result in “same old, same old” teaching with only superficial connections to the grade level Standards. In that case, their promise to enhance student performance will not be realized.
Big Idea # 2 – Standards are not curriculum.
A Standard is an outcome, not a claim about how to achieve an outcome (i.e. a curriculum). Thus, the Introduction to the Common Core State Standards (CCSS) for Mathematics states: “These Standards do not dictate curriculum or teaching methods” (p 5). A similar reminder is found in the ELA Standards: “The Standards define what all students are expected to know and be able to do, not how teachers should teach. For instance, the use of play with young children is not specified by the Standards, but it is welcome as a valuable activity in its own right and as a way to help students meet the expectations in this document… The Standards must therefore be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document.” (p 6)

Indeed, these statements highlight the intent of any set of Standards; i.e., they focus on outcomes, not curriculum or instruction. The implication is clear – educators must translate the Standards into an engaging and effective curriculum. So, what is the proper relationship between the Standards and curriculum? Consider another analogy with home building and renovation: The standards are like the building code. Architects and builders must attend to them but they are not the purpose of the design. The house to be built or renovated is designed to meet the needs of the client in a functional and pleasing manner – while also meeting the building code along the way.

Similarly, while curriculum and instruction must address established Standards, we always want to keep the long-term educational ends in mind – the development of important capabilities in the learner as a result of engaging and effective work. In other words, a curriculum works with the Standards to frame optimal learning experiences. To shift analogies, the Standards are more like the ingredients in a recipe than the final meal; they are more like the rules of the game rather than a strategy for succeeding at the game.

So then, what is a curriculum? In research for our initial book, Understanding by Design® (Wiggins and McTighe, 1998), we uncovered 83 different definitions or connotations for the word, curriculum, in the educational literature! Such a variety of meanings confer an unhelpful ambiguity on the challenge of moving from Standards to curriculum. Worse, most definitions focus on inputs, not outputs – what will be “covered” rather than a plan for what learners should be able to accomplish with learned content. This is a core misunderstanding
in our field. Marching through a list of topics or skills cannot be a “guaranteed and viable” way to ever yield the sophisticated outcomes that the Standards envision.

The ELA Standards underscore this idea clearly by framing everything around “anchor standards,” all of which highlight complex abilities and performances that students should master for college and workplace readiness. The Mathematics Standards’ emphasis on the need to weave the Content and Practice Standards together in a curriculum makes the same point.

**Big Idea # 3 – Standards need to be “unpacked.”**

As suggested above, the first step in translating the Common Core Standards into engaging and outcome-focused curriculum involves a careful reading of the documents in order to insure clarity about the end results and an understanding of how the pieces fit together. This idea is not new. Over the years, we have suggested various ways of unpacking standards in conjunction with our work with the *Understanding by Design* framework®. (See, for example, Wiggins and McTighe 2011, 2012).

When working with the Common Core, we recommend that educators “unpack” them into four broad categories – 1) Long term Transfer Goals, 2) Overarching Understandings, 3) Overarching Essential Questions, and 4) a set of recurring Cornerstone Tasks.

The first category, Transfer Goals, identifies the effective *uses* of content understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able to *do* when they confront new challenges – both in and outside of school. They reflect the ultimate goals, the reason we teach specific knowledge and skills. Unlike earlier generations of standards where transfer goals were implicit at best, the Common Core Standards have made them more overt. Indeed, the College and Career Anchor Standards in ELA specify long-term transfer goals, while the Mathematics Standards strongly suggest a goal such as, *Students will be able to use the mathematics they know to solve “messy,” never-seen-before problems using effective mathematical reasoning.*

The second and third unpacking categories – overarching Understandings and Essential Questions – are like two sides of a coin. The Understandings state what skilled performers will need in order to effectively transfer their learning to new situations, while explorations of the Essential Questions engage learners in making meaning and deepening their understandings.
Here are examples for Mathematics and English Language Arts, respectively:

<table>
<thead>
<tr>
<th>Overarching Understandings</th>
<th>Overarching Essential Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Modelining</td>
<td>• How can we best model this (real world phenomena)?</td>
</tr>
<tr>
<td>• Mathematicians create models to interpret and predict the behavior of real world phenomena.</td>
<td>• What are the limits of this model?</td>
</tr>
<tr>
<td>• Mathematical models have limits and sometimes they distort or misrepresent.</td>
<td>• How reliable are its predictions?</td>
</tr>
<tr>
<td>Determining Central Ideas in Text</td>
<td>• What is this text really about? (e.g. theme, main idea, moral)</td>
</tr>
<tr>
<td>• Writers don’t always say things directly or literally; sometimes they convey their ideas indirectly (e.g., metaphor, satire, irony).</td>
<td>• How do you “read between the lines?”</td>
</tr>
</tbody>
</table>

The term *overarching* conveys the idea that these understandings and questions are not limited to a single grade or topic. On the contrary, it is expected that they be addressed across the grades with application to varied topics, problems, texts and contexts.

The fourth category, Cornerstone Tasks, are curriculum-embedded tasks that are intended to engage students in applying their knowledge and skills in an authentic and relevant context. Like a cornerstone anchors a building, these tasks are meant to anchor the curriculum around the most important performances that we want learners to be able to do (on their own) with acquired content knowledge and skills. Since these tasks are set in realistic contexts, they offer the natural vehicle for integrating the so-called 21st century skills (e.g., creativity, technology use, teamwork) with subject area content knowledge and skills. They honor the intent of the Standards, within and across subject areas, instead of emphasizing only the content measured more narrowly on external accountability tests. These rich tasks can be used as meaningful learning experiences as well as for formative and summative purposes.

Cornerstone tasks are designed to recur across the grades, progressing from simpler to more sophisticated; from those that are heavily scaffolded toward ones requiring autonomous performance. Accordingly, they enable both educators and learners to track performance and document the fact that students are getting progressively better at using content.
knowledge and skills in worthy performances. Like the game in athletics or the play in theater, teachers teach toward these tasks without apology.

The four categories that we recommend are initially unpacked at the “macro,” or program, level to establish the equivalent of a curriculum blueprint. More specific course and grade level curriculum maps are then derived from backward from them, just as rooms in a building are constructed using the architect’s blueprint as a guide. Practically speaking, this macro level work is best undertaken at the state, regional or district levels by teams of content experts and experienced teachers. Currently two states, Massachusetts and Pennsylvania, have assembled teams of content experts to unpack their Common Core state standards in this very manner, and the Next Generation Arts Standards, presently in development, are using this same construct to frame the Standards from the start!

While we strongly advocate this type of unpacking and have witnessed its benefits, we have also seen the process become way too narrow and granular when applied at the “micro” level. Thus, we concur with the important cautionary note offered by the Kansas Department of Education about a misapplication of Standards unpacking:

“‘Unpacking’ often results in a checklist of discrete skills and a fostering of skill-and-drill instruction that can fragment and isolate student learning in such a way that conceptual understanding, higher order thinking, cohesion, and synergy are made more difficult. Too often, the process of ‘unpacking’ is engaged in an attempt to isolate the specific foundational or prerequisite skills necessary to be successful with the ideas conveyed by the overall standard and is a common precursor to test preparation and reductive teaching. Although this process may be important work in some instances and can certainly be enlightening, it also poses substantial problems if those completing the work never take the time to examine the synergy that can be created when those foundational or prerequisite skills are reassembled into a cohesive whole. Metaphorically speaking, ‘unpacking’ often leads educators to concentrate on the trees at the expense of the forest.”

**Big Idea # 4 – A coherent curriculum is mapped backwards from desired performances.**

The key to avoiding an overly-discrete and fragmented curriculum is to design backward from complex performances that require content. A return to the linguistic roots of “curriculum” reveals the wisdom in this outcome-focused view. The Latin meaning of the term is a “course to be run.” This original connotation helpfully suggests that we should think of a curriculum as the pathway toward a destination. As mentioned above, our
conception is that curriculum should be framed and developed in terms of worthy *outputs*; i.e., desired performances by the learner, not simply as a listing of content *inputs*.

This is not a new idea. Ralph Tyler made this very point more than 60 years ago (Tyler, 1949). He proposed a curriculum development method involving a matrix of content and process components that would guide teachers in meshing these two elements into effective performance-based learning. As Tyler points out, the “purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about… Hence it is clear that a statement of objectives in terms of content headings… is not a satisfactory basis for guiding the further development of the curriculum.” Indeed, the Mathematics Standards recommend just such an approach:

“The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.” (p 8)

Thus, the first question for curriculum writers is not: *What will we teach and when should we teach it?* Rather the initial question for curriculum development must be goal focused: *Having learned key content, what will students be able to do with it?*

Our long-standing contention applies unequivocally to the Common Core Standards as well as to other Standards: The ultimate aim of a curriculum is independent transfer; i.e., for students to be able to employ their learning, autonomously and thoughtfully, to varied complex situations, inside and outside of school. Lacking the capacity to independently apply their learning, a student will be neither college nor workplace ready.

The ELA Standards make this point plainly in their characterization of the capacities of the literate individual:

“They demonstrate independence. Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information… Students adapt their communication in relation to audience, task, purpose, and discipline. Likewise, students are able independently to discern a speaker’s key points, request clarification, and ask relevant questions... Without prompting, they demonstrate command of standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials.” (p. 7)
These points underscore a potential misunderstanding resulting from a superficial reading of the Standards documents (especially in Mathematics). One could simply parcel out lists of discrete grade-level standards and topics along a calendar while completely ignoring the long-term goal of transfer. A curriculum envisioned and enacted as a set of maps of content and skill coverage will simply not, by itself, develop a student’s increasingly autonomous capacity to use learned content effectively to address complex tasks and problems. Such traditional scope-and-sequencing of curriculum reinforces a “coverage” mentality and reveals a misconception; i.e., that teaching bits of content in a logical and specified order will somehow add up to the desired achievements called for in the Standards.

A related misconception is evident when teachers assume that the Standards prescribe the instructional sequence and pacing. Not so! To assume that the layout of the documents imply an instructional chronology is as flawed as thinking that since a dictionary is helpfully organized from A to Z, that vocabulary should therefore be taught in alphabetical order. While the grade-level Standards are certainly not arbitrary and reflect natural long-term “learning progressions,” a rigid sequence within each grade level was never intended. The authors of the Common Core Mathematics Standards explicitly call attention to this misconception and warn against it:

“For example, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B.” (p. 5)

The implications of these points are critical not only for curriculum mapping but for the very nature of instructional practice. Consider this advice from a non-academic source – the United States Soccer Coaches Federation. In Best Practices for Coaching Soccer in The U.S., the Federation recommends a change in the soccer “curriculum” of practice:

“When conducting training sessions, there needs to be a greater reliance on game oriented training that is player centered and enables players to explore and arrive at solutions while they play. This is in contrast to the ‘coach centered’ training that has been the mainstay of coaching methodology over the years. ‘Game centered training’ implies that the primary training environment is the game as opposed to training players in ‘drill’ type environments. This is not to say that there is not a time for a more ‘direct’ approach to coaching. At times, players need more guidance and direction as they are developing. However, if the goal is to develop creative players who have the abilities to solve problems, and interpret game situations by themselves, a ‘guided discovery’ approach needs to be employed.” (pp. 62-64)
We propose that this recommendation applies equally to teachers of academics as to coaches of soccer. In other words, if we want students to be able to apply their learning via autonomous performance, we need to design our curriculum backward from that goal. Metaphorically speaking, then, educators need to ask, what is the “game” we expect students to be able to play with skill and flexibility? In other words, we need clarity and consensus about the point of content learning – independent transfer. Then, we can build the curriculum pathway backward with those worthy performances in mind.

To design a school curriculum backward from the goal of autonomous transfer requires a deliberate and transparent plan for helping the student rely less and less on teacher hand-holding and scaffolds. After all, transfer is about independent performance in context. You can only be said to have fully understood and applied your learning if you can do it without someone telling you what to do. In the real world, no teacher is there to direct and remind you about which lesson to plug in here or what strategy fits there; transfer is about intelligently and effectively drawing from your repertoire, independently, to handle new situations on your own. Accordingly, we should see an increase, by design, in problem- and project-based learning, small-group inquiries, Socratic Seminars, and independent studies as learners progress through the curriculum across the grades.

Our point here is straightforward: if a curriculum simply marches through lists of content knowledge and skills without attending to the concomitant goal of cultivating independent performance, high-schoolers will remain as dependent on teacher directions and step-by-step guidance as 4th graders currently are. The resulting graduates will be unprepared for the demands of college and the workplace.

**Big Idea #5 – The Standards come to life through the assessments.**

A prevalent misconception about standards in general is that they simply specify learning goals to be achieved. A more complete and accurate conception, in line with the colloquial meaning of the term, recognizes that standards also refer to the desired _qualities_ of student work and the degree of _rigor_ that must be assessed and achieved.

Think about what we mean when we talk about “high standards” in athletics, music or business: we refer to the quality of outcomes, not the inputs. We ask if work is up to
standard, not whether we “covered” such standards as teachers. In this sense, the standards are at their core a set of criteria for building and testing local assessment. They tell where we must look and what we must look for to determine if student work is up to standard. Such information is crucial to guide local assessments and insure that these are validly anchored against national standards.

Ironically (and unfortunately), this important point is not made in the main body of the ELA Common Core Standards but in Appendices B and C. These Appendices are arguably the most important sections of the ELA Standards because there the authors describe the degree of text difficulty that students must be able to handle, the features that need to be evident in student writing, and the kinds of performance tasks that will provide the needed evidence. Accompanying samples of scored work illustrate the qualities of performance that must be attained to meet the Standards.

This performance-based conception of Standards lies at the heart of what is needed to translate the Common Core into a robust curriculum and assessment system. The curriculum and related instruction must be designed backward from an analysis of standards-based assessments; i.e., worthy performance tasks anchored by rigorous rubrics and annotated work samples. We predict that the alternative – a curriculum mapped in a typical scope and sequence based on grade-level content specifications – will encourage a curriculum of disconnected “coverage” and make it more likely that people will simply retrofit the new language to the old way of doing business.

Thus, our proposal reflects the essence of backward design: Conceptualize and construct the curriculum back from sophisticated “cornerstone” tasks, reflecting the performances that the Common Core Standards demand of graduates. Indeed, the whole point of Anchor Standards in ELA and the Practices in Mathematics is to establish the genres of performance (e.g., argumentation in writing and speaking, and solving problems set in real-world contexts) that must recur across the grades in order to develop the capacities needed for success in higher education and the workplace.

Our recommendation to construct curriculum around assessments may lead to a related misunderstanding; i.e., that we need to assess each grade-level Standard in isolation, one by one.
We think that this view is due in part to the layout of grade-level Standards and to the look and feel of traditional standardized tests, in which very discrete objectives are the subject of most test items. This confuses means and ends; it conflates the “drill” with the “game.” The authors of the Common Core E/LA Standards wisely anticipated this misconception and they caution against it: “While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often, several standards can be addressed by a single rich task.” (p 5)

In sum, moving from Standards to curriculum requires careful reading and thoughtful interpretation to avoid the predictable misunderstandings noted above, while building the curriculum backward from worthy tasks offers the pathway to the performances envisioned by the Common Core.

References
Kansas State Department of Education. (2011) “A Cautionary Note about Unpacking, Unwrapping, and/or Deconstructing the Kansas Common Core Standards.” Available at www.ksde.org/kscommoncore


United States Soccer Federation. *Best Practices for Coaching Soccer in The United States.* Available at [www.USSOCCER.com](http://www.USSOCCER.com)


**About the Authors**

Jay McTighe is an educational writer and consultant.
E-mail: jaymctighe@verizon.net  Website: [http://www.jaymctighe.com](http://www.jaymctighe.com)

Grant Wiggins is an educational writer and consultant and President of Authentic Education.
E-mail: mailto:gwiggins@authenticeducation.org
Website: [http://www.authenticeducation.org/](http://www.authenticeducation.org/)
“GRASPS”

When developing summative assessment tasks, consider using the acronym “GRASPS” from *Understanding by Design* (Wiggins & McTighe)

**G**: Goal...What is the "enduring or transferable conceptual understanding" that you want for your students. **Be sure to include language from the Central Idea within your summative assessment!**

**R**: Role...What is the role your students will take?

**A**: Audience...Who is the desired reader/viewer/listener of their work/project?

**S**: Situation/Scenario...What is the situation or scenario in which the communicator (student) and the audience are working? (Try to make it an authentic, "real-world" task).

**P**: Performance/Product...What will the students create?

**S**: Standards...What are the criteria for success? (You should try to involve students when developing criteria).
How to recognize an authentic performance task:  
(Adapted from Elizabeth Cohen)

Look over at least one of your summative assessments.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does it allow for more than one answer or more than one way to solve problems?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Is it intrinsically interesting and gratifying?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Does it allow each student to contribute according to his/her own aptitudes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Does it require multiple skills and behaviors?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Does it take them beyond what they already know?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Does it have students apply what was learned to a new situation rather than memorization or regurgitation of facts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Is it connected to the central idea (or use language directly from the central idea)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Does it involve a task as well as an evaluative tool?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Does it allow for development of the learner profile, attitudes, and transdisciplinary skills?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Does it allow for conceptual understanding?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Does it allow for transfer of knowledge?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Elizabeth Cohen's “Designing Groupwork for the Heterogeneous Classroom”, Teachers College, Columbia University, New York, 1994.
### PYP Transdisciplinary Themes (See Page 12 Making the PYP Happen)

<table>
<thead>
<tr>
<th>Who We Are</th>
<th>Where We Are in Place &amp; Time</th>
<th>How We Express Ourselves</th>
<th>How the World Works</th>
<th>How We Organize Ourselves</th>
<th>Sharing the Planet</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The nature of the self</td>
<td>- Orientation in place and time</td>
<td>- The ways in which we discover and express ideas, feelings, nature, culture, beliefs and values</td>
<td>- The natural world and its laws</td>
<td>- Rights and responsibilities in the struggle to share finite resources with other people and other living things</td>
<td>- Rights and responsibilities in the struggle to share finite resources with other people and other living things</td>
</tr>
<tr>
<td>- Beliefs and values</td>
<td>- Personal histories</td>
<td>- The ways in which we reflect on, extend, and enjoy our creativity</td>
<td>- The interaction between the natural world (physical and biological) and human societies</td>
<td>- Communities and the relationships within and between them</td>
<td>- Communities and the relationships within and between them</td>
</tr>
<tr>
<td>- Personal, physical, mental, social, and spiritual health</td>
<td>- Homes and Journeys</td>
<td>- Our appreciation of the aesthetic</td>
<td>- How humans use their understanding of scientific principles</td>
<td>- Access to equal opportunities</td>
<td>- Access to equal opportunities</td>
</tr>
<tr>
<td>- Human relationships including families, friends, communities, and cultures</td>
<td>- Discoveries, Explorations, and Migrations of humankind</td>
<td>- The impact of scientific and technological advances on society and on the environment</td>
<td>- Societal decision-making</td>
<td>- Peace &amp; Conflict Resolution</td>
<td>- Peace &amp; Conflict Resolution</td>
</tr>
<tr>
<td>- Rights and Responsibilities</td>
<td>- The relationship between and the interconnectedness of individuals and civilizations</td>
<td></td>
<td>- Economic activities and their impact on humankind and the environment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Lost at Sea Ranking Chart

<table>
<thead>
<tr>
<th>Items</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sextant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A shaving mirror</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A quantity of mosquito netting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 25 liter container of water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A case of army rations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maps of the Atlantic Ocean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A floating seat cushion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 10 liter can of oil/petrol mixture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A small transistor radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 square feet of opaque plastic sheeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A can of shark repellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One bottle of 160 proof rum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 feet of nylon rope</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 boxes of chocolate bars</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An ocean fishing kit &amp; pole</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lost at Sea
### Sample verbs for SCAFFOLDING levels 2 and 3 Generalizations/Central Ideas

**H. Lynn Erickson**
c.2008

<table>
<thead>
<tr>
<th>achieve</th>
<th>attend</th>
<th>conserve</th>
<th>develop</th>
<th>engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>accelerate</td>
<td>balance</td>
<td>consolidate</td>
<td>devise</td>
<td>enhance</td>
</tr>
<tr>
<td>accomplish</td>
<td>bring</td>
<td>construct</td>
<td>direct</td>
<td>enlist</td>
</tr>
<tr>
<td>acquire</td>
<td>build</td>
<td>contribute</td>
<td>discover</td>
<td>ensure</td>
</tr>
<tr>
<td>activate</td>
<td>calculate</td>
<td>convert</td>
<td>display</td>
<td>equip</td>
</tr>
<tr>
<td>adapt</td>
<td>challenge</td>
<td>convey</td>
<td>document</td>
<td>establish</td>
</tr>
<tr>
<td>address</td>
<td>chart</td>
<td>cooperate</td>
<td>draft</td>
<td>estimate</td>
</tr>
<tr>
<td>adjust</td>
<td>check</td>
<td>coordinate</td>
<td>dramatize</td>
<td>evaluate</td>
</tr>
<tr>
<td>administer</td>
<td>classify</td>
<td>respond</td>
<td>draw</td>
<td>examine</td>
</tr>
<tr>
<td>advance</td>
<td>collect</td>
<td>create</td>
<td>drive</td>
<td>execute</td>
</tr>
<tr>
<td>allocate</td>
<td>command</td>
<td>cultivate</td>
<td>earn</td>
<td>expand</td>
</tr>
<tr>
<td>anticipate</td>
<td>communicate</td>
<td>deal</td>
<td>edit</td>
<td>expedite</td>
</tr>
<tr>
<td>approve</td>
<td>compile</td>
<td>decide</td>
<td>elaborate</td>
<td>experiment</td>
</tr>
<tr>
<td>arrange</td>
<td>compute</td>
<td>define</td>
<td>eliminate</td>
<td>explain</td>
</tr>
<tr>
<td>ascertain</td>
<td>conceive</td>
<td>delegate</td>
<td>empathize</td>
<td>express</td>
</tr>
<tr>
<td>assemble</td>
<td>conduct</td>
<td>deliver</td>
<td>employ</td>
<td>facilitate</td>
</tr>
<tr>
<td>assess</td>
<td>assimilate</td>
<td>demonstrate</td>
<td>enact</td>
<td>fashion</td>
</tr>
<tr>
<td>assign</td>
<td>assist</td>
<td>design</td>
<td>encourage</td>
<td>finance</td>
</tr>
<tr>
<td>assimilate</td>
<td>assure</td>
<td>detect</td>
<td>enforce</td>
<td>fix</td>
</tr>
<tr>
<td>assist</td>
<td>assure</td>
<td>determine</td>
<td>follow</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forecast</th>
<th>Institute</th>
<th>Minimize</th>
<th>.Record</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forge</td>
<td>Inspect</td>
<td>Model</td>
<td>Recruit</td>
<td>Shift</td>
</tr>
<tr>
<td>Form</td>
<td>Insure/ensure</td>
<td>Monitor</td>
<td>Rectify</td>
<td>Show</td>
</tr>
<tr>
<td>Formulate</td>
<td>Integrate</td>
<td>Motivate</td>
<td>Redesign</td>
<td>Simplify</td>
</tr>
<tr>
<td>Gain</td>
<td>Interpret</td>
<td>Move</td>
<td>Re-evaluate</td>
<td>Solidify</td>
</tr>
<tr>
<td>Gather</td>
<td>Introduce</td>
<td>Navigate</td>
<td>Re-evaluate</td>
<td>Solve</td>
</tr>
<tr>
<td>Give</td>
<td>Invent</td>
<td>Negotiate</td>
<td>Refer</td>
<td>Sort</td>
</tr>
<tr>
<td>Generate</td>
<td>Judge</td>
<td>Nominate</td>
<td>Refine</td>
<td>Spearhead</td>
</tr>
<tr>
<td>Govern</td>
<td>Justify</td>
<td>Observe</td>
<td>Regulate</td>
<td>Stimulate</td>
</tr>
<tr>
<td>Guide</td>
<td>Keep</td>
<td>Obtain</td>
<td>Relax</td>
<td>Streamline</td>
</tr>
<tr>
<td>Handle</td>
<td>Kindle</td>
<td>Offer</td>
<td>Remember</td>
<td>Strengthen</td>
</tr>
<tr>
<td>Help</td>
<td>Launch</td>
<td>Optimize</td>
<td>Render</td>
<td>Structure</td>
</tr>
<tr>
<td>Hypothesize</td>
<td>Learn</td>
<td>Orchestra</td>
<td>Reorganize</td>
<td>Symbolize</td>
</tr>
<tr>
<td>Identify</td>
<td>Lead</td>
<td>Order</td>
<td>Repair</td>
<td>Talk</td>
</tr>
<tr>
<td>Illustrate</td>
<td>Lift</td>
<td>Organize</td>
<td>Restart</td>
<td>Teach</td>
</tr>
<tr>
<td>Imagine</td>
<td>Origin</td>
<td>Overcome</td>
<td>Repeat</td>
<td>Tell</td>
</tr>
<tr>
<td>Implement</td>
<td>Oversee</td>
<td>Overcome</td>
<td>Resolve</td>
<td>Trace</td>
</tr>
<tr>
<td>Improve on</td>
<td>Paint</td>
<td>Oversee</td>
<td>Respond</td>
<td>Transform</td>
</tr>
<tr>
<td>Improve</td>
<td>Participant</td>
<td>Perceive</td>
<td>Retrieve</td>
<td>Uncover</td>
</tr>
<tr>
<td>Improvise</td>
<td>Plan</td>
<td>Perfect</td>
<td>Revitalize</td>
<td>Unify</td>
</tr>
<tr>
<td>Increase</td>
<td>Perform</td>
<td>Persuade</td>
<td>Revitalize</td>
<td>Utilize</td>
</tr>
<tr>
<td>Inform</td>
<td>Perfect</td>
<td>Photograph</td>
<td>Revitalize</td>
<td>Validate</td>
</tr>
<tr>
<td>Initiate</td>
<td>Perform</td>
<td>Pilot</td>
<td>Revitalize</td>
<td>Verify</td>
</tr>
<tr>
<td>Innovate</td>
<td>Perfect</td>
<td>Pioneer</td>
<td>Revitalize</td>
<td>Widen</td>
</tr>
<tr>
<td>Inspect</td>
<td>Perfect</td>
<td>Plane</td>
<td>Revitalize</td>
<td>Withdraw</td>
</tr>
<tr>
<td>Inspire</td>
<td>Perfect</td>
<td>Place</td>
<td>Revitalize</td>
<td>Work</td>
</tr>
<tr>
<td>Install</td>
<td>Perfect</td>
<td>Place</td>
<td>Revitalize</td>
<td>Write</td>
</tr>
</tbody>
</table>
You can’t build a great building on a weak foundation. You must have a solid foundation if you’re going to have a strong superstructure. Gordon B. Hinckley  
Developed by R. Long and J. Ramseyer 2014
How do we plan for transdisciplinary learning?

Is it possible to identify a particular body of knowledge for PYP schools?

Due to the particular difficulties faced by schools implementing a programme of international education, it is immensely important that the PYP curriculum model includes an outline of a coherent, flexible and interpretive written curriculum that frames a body of knowledge which supports the IB, its mission statement and its learner profile. This decision is driven by the belief that there are areas of knowledge that, while important for any student, are especially significant in schools that aim to promote international-mindedness on the part of their students.

The importance of the traditional subject areas is acknowledged: language; mathematics; social studies; science; personal, social and physical education; and the arts; and indeed these are specified as components of the PYP curriculum model. The knowledge, concepts and skills that constitute the essence of each of these subject areas, as reflected in the PYP, can be found in the annex at the back of this document.

In addition, overall expectations for each subject, within each age range, are specified in detailed scope and sequence documents. These are available to schools as exemplar material. While some schools may adopt these scope and sequences, other PYP schools may choose to use locally or nationally determined subject-based syllabuses. In the PYP, information and communication technology (ICT) is not identified as a particular subject area, but is recognized as a tool that facilitates learning throughout the curriculum.

However, it is also recognized that educating students in a set of isolated subject areas, while necessary, is not sufficient. Of equal importance is the need to acquire skills in context, and to explore content that is relevant to students, and transcends the boundaries of the traditional subjects. “To be truly educated, a student must also make connections across the disciplines, discover ways to integrate the separate subjects, and ultimately relate what they learn to life” (Boyer 1995). Ernest Boyer proposed that students explore a set of themes that represents shared human experiences such as “response to the aesthetic” and “membership in groups”. He referred to these as “core commonalities”.

Through the units of inquiry, the essential elements are synthesized into a meaningful whole, a coherent approach to teaching and learning. Teachers and students generate questions and inquiries that have a conceptual base and are relevant to the central idea of the unit. Classroom experiences are planned as a direct response to these questions and inquiries. The classroom becomes a centre of structured inquiry through which students acquire and practise skills, and build new knowledge. They do so in a climate that fosters positive attitudes, and offers opportunities for responsible action. Assessment of student learning focuses on the quality of the students’ understanding of the central idea and the breadth and depth of their responses to the lines of inquiry.

It is important to note that the programme of inquiry does not necessarily constitute a school’s whole programme. Well-planned inquiries provide an ideal context for learning both within and outside the programme of inquiry. It is also recognized that the subject areas have an integrity and essence of their own. Teaching about and through the subject areas is advocated when it enhances the transdisciplinary learning defined in the PYP, but not when the integration results in teaching and learning that is contrived and superficial.
What do we want to learn? The written curriculum

In developing an individual unit of inquiry, organized around a central idea, the following are proposed as useful criteria. Each unit should be:

- **Engaging**: Of interest to the students, and involving them actively in their own learning.
- **Relevant**: Linked to the students' prior knowledge and experience, and current circumstances, and therefore placing learning in a context connected to the lives of the students.
- **Challenging**: Extending the prior knowledge and experience of the students to increase their competencies and understanding.
- **Significant**: Contributing to an understanding of the transdisciplinary nature of the theme, and therefore to an understanding of commonality of human experiences.

It is necessary to achieve a balance between the programme of inquiry and any additional single-subject teaching. Consequently, the planning teams, usually consisting of the teachers at each year level, need to plan the units of inquiry together with the remainder of the curriculum for the year. The relationship between the subject areas and the units of inquiry will change from one unit to another. In teasing out this relationship, it is worth considering the distinctions that Michael Halliday (1980) made about language learning: that students learn language, learn about language, and learn through language. These distinctions are worth reflecting upon for all subject areas.

It would be a useful exercise for each planning team to assess the dynamic relationship between the programme of inquiry and single-subject teaching, from one unit to the other, to ensure that the programme of inquiry remains the definitive experience from the students' standpoint (see figure 6).

![Organization of time during a unit of inquiry](image-url)

**Transdisciplinary theme:** How we organize ourselves

**Unit title:** The marketplace

**Length of unit:** 4 weeks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Stand-alone teaching time</th>
<th>Unit of inquiry teaching time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSPE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 6
The role of the transdisciplinary skills

Both the subject areas defined by the PYP—language, mathematics, science, social studies, arts, and personal, social and physical education—and the transdisciplinary themes provide focuses for students’ inquiry. These inquiries allow students to acquire and apply a set of transdisciplinary skills: social skills, communication skills, thinking skills, research skills, and self-management skills. These skills are relevant to all learning, formal and informal, in the school, and in events experienced beyond its boundaries. Students also develop skills and strategies drawn from the subject areas, but aligned with the five transdisciplinary skills. For example, becoming literate and numerate enhances students’ communication skills. The acquisition of literacy and numeracy, in their broadest sense, is essential as these skills provide students with the tools of inquiry. However, the acquisition of knowledge, concepts and skills of the subject areas should not be limited to stand-alone teaching opportunities but also needs to be an integral part of the units of inquiry.

This core—the five essential elements of the PYP that support transdisciplinary learning in the programme—would be supported by knowledge, concepts and skills derived from the PYP subject areas (figure 2).

From The Primary Years Program a Model of Transdisciplinary Learning
February 2010
### Transdisciplinary Theme:

<table>
<thead>
<tr>
<th>Descriptors:</th>
</tr>
</thead>
</table>

### Concept Map

<table>
<thead>
<tr>
<th>Related Concepts</th>
<th>Subject Area</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>FORM:</strong> WHAT IS IT LIKE?</th>
<th><strong>FUNCTION:</strong> HOW DOES IT WORK?</th>
<th><strong>CAUSATION:</strong> WHY IS IT LIKE IT IS?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CHANGE:</strong> HOW IS IT CHANGING?</th>
<th><strong>TOPIC:</strong></th>
<th><strong>CONNECTION:</strong> HOW IS IT CONNECTED TO OTHER THINGS?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PERSPECTIVE:</strong> WHAT ARE THE POINTS OF VIEW?</th>
<th><strong>RESPONSIBILITY:</strong> WHAT IS OUR RESPONSIBILITY?</th>
<th><strong>REFLECTION:</strong> HOW DO WE KNOW?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

---
PSPE STRANDS

Identity: An understanding of our own beliefs, values, attitudes, experiences and feelings and how they shape us; the impact of cultural influences; the recognition of strengths, limitations and challenges as well as the ability to cope successfully with situations of change and adversity; how the learner’s concept of self and feelings of self-worth affect his or her approach to learning and how he or she interacts with others.

   Related concepts: autonomy, character, diversity, ethnicity, fulfillment, gender, heritage, image, initiative, perseverance, resilience, self-regulation, sexuality, spirituality, trust.

Active living: An understanding of the factors that contribute to developing and maintaining a balanced, healthy lifestyle; the importance of regular physical activity; the body’s response to exercise; the importance of developing basic motor skills; understanding and developing the body’s potential for movement and expression; the importance of nutrition; understanding the causes and possible prevention of ill health; the promotion of safety; rights and the responsibilities we have to ourselves and others to promote well-being; making informed choices and evaluating consequences, and taking action for healthy living now and in the future.

   Related concepts: aesthetics, biomechanics, body control, body form, challenge, competition, energy, flexibility, flow, growth, goal setting, improvement, leisure, mastery, overload, physiology, power, rest, spatial awareness, strength and endurance, stress.

Interactions: An understanding of how an individual interacts with other people, other living things and the wider world; behaviours, rights and responsibilities of individuals in their relationships with others, communities, society and the world around them; the awareness and understanding of similarities and differences; an appreciation of the environment and an understanding of, and commitment to, humankind’s responsibility as custodians of the Earth for future generations.

   Related concepts: belonging, citizenship, community, conflict, conformity, control, culture, discrimination, fair play, interdependence, justice, leadership, peace, preservation, reparation, safety, stereotype, team work.

SOCIAL STUDIES STRANDS

Human systems and economic activities. The study of how and why people construct organizations and systems; the ways in which people connect locally and globally; the distribution of power and authority.

   Related concepts: communications, conflict, cooperation, education, employment, freedom, governments, justice, legislation, production, transportation, truth.

Social organization and culture: The study of people, communities, cultures and societies; the ways in which individuals, groups and societies interact with each other.

   Related concepts: artifacts, authority, citizenship, communication, conflict, diversity, family, identity, networks, prejudice, religion, rights, roles, traditions.

Continuity and change through time: The study of the relationships between people and events through time; the past, its influences on the present and its implications for the future; people who have shaped the future through their actions.

   Related concepts: chronology, civilizations, conflict, discovery, exploration, history, innovation, migration, progress, revolution.

Human and natural environments: The study of the distinctive features that give a place its identity; how people adapt to and alter their environment; how people experience and represent place; the impact of natural disasters on people and the built environment.

   Related concepts: amenities, borders (natural, social and political), dependence, geography, impact, landscape, locality, ownership, population, regions, settlements.

Resources and the environment: The interaction between people and the environment; the study of how humans allocate and manage resources; the positive and negative effects of this management; the impact of scientific and technological developments on the environment.

   Related concepts: conservation, consumption, distribution, ecology, energy, interdependence, pollution, poverty, sustainability, wealth.
SCIENCE STRANDS

Living things: The study of the characteristics, systems and behaviours of humans and other animals, and of plants; the interactions and relationships between and among them, and with their environment.

Related concepts: adaptation, animals, biodiversity, biology, classification, conservation, ecosystems, evolution, genetics, growth, habitat, homeostasis, organism, plants, systems (digestive, nervous, reproductive, respiratory).

Earth and space: The study of planet Earth and its position in the universe, particularly its relationship with the sun; the natural phenomena and systems that shape the planet and the distinctive features that identify it; the infinite and finite resources of the planet.

Related concepts: atmosphere, climate, erosion, evidence, geography, geology, gravity, renewable and non-renewable energy sources, resources, seasons, space, sustainability, systems (solar, water cycle, weather), tectonic plate movement, theory of origin.

Materials and matter: The study of the properties, behaviours and uses of materials, both natural and human-made; the origins of human-made materials and how they are manipulated to suit a purpose.

Related concepts: changes of state, chemical and physical changes, conduction and convection, density, gases, liquids, properties and uses of materials, solids, structures, sustainability.

Forces and energy: The study of energy, its origins, storage and transfer, and the work it can do; the study of forces; the application of scientific understanding through inventions and machines.

Related concepts: conservation of energy, efficiency, equilibrium, forms of energy (electricity, heat, kinetic, light, potential, sound), magnetism, mechanics, physics, pollution, power, technological advances, transformation of energy.
Approaches to Learning (ATL) in the Primary and Middle Years Programs

Through ATL in IB programs, students develop skills that have relevance across the curriculum that help them “learn how to learn”. ATL skills can be learned and taught, improved with practice and developed incrementally. They provide a solid foundation for learning independently and with others. ATL skills help students prepare for, and demonstrate learning through, meaningful assessment. They provide a common language that students and teachers can use to reflect on, and articulate on, the process of learning. IB programs identify five ATL skill categories, expanded into developmentally appropriate skill clusters.

<table>
<thead>
<tr>
<th>PYP ATL Skill Categories</th>
<th>MYP ATL Skill Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>The search for understanding is central to the beliefs and practices of the PYP. However, the emphasis on the development of conceptual understanding does not preclude a recognition of the importance of developing skills. The construction of meaning and, therefore, of understanding is complemented by the students acquiring and applying a range of skills. These skills are best developed in the context of authentic situations such as those offered through the PYP units of inquiry.</td>
<td>The MYP extends IB approaches to learning (ATL) skills categories into 10 developmentally appropriate clusters. This framework provides common ground from which schools can develop their own ATL planning based on MYP units, student needs, and local circumstances and requirements. ATL skills are often interconnected. Individual skills and skills clusters frequently overlap and may be relevant to more than one skill category. Some of the key questions to be answered by students with respect to ATL skills include the following.</td>
</tr>
<tr>
<td>While it is important for all teachers to foster and support the development of skills by providing opportunities embedded in authentic learning experiences, it is particularly relevant for teachers of the younger students to interpret this expectation in ways that are appropriate for their group of learners.</td>
<td>• What are my present skills in this area and what evidence do I have of my development?</td>
</tr>
<tr>
<td>When learning about and through the subject areas, students acquire the particular skills that define the discipline of those subjects. For example, in language the students become literate, and in mathematics they become numerate. The acquisition of literacy and numeracy, in its broadest sense, is essential, as these skills provide students with the tools of inquiry. Nonetheless, the PYP position is that, in order to conduct purposeful inquiry and in order to be well prepared for lifelong learning, students need to master a whole range of skills beyond those normally referred to as basic. These include skills, relevant to all the subject areas and also transcending them, needed to support fully the complexities of the lives of the students.</td>
<td>• What skills can I improve?</td>
</tr>
<tr>
<td>• What new skills can I learn?</td>
<td></td>
</tr>
</tbody>
</table>

When specific ATL skills become an explicit focus for teaching and learning, students can begin to take responsibility for their own development. Over time, students can identify themselves and their competence in any learning strategy using terms like the following.

- Novice/beginning—students are introduced to the skill, and can watch others performing it (observation)
- Learner/developing—students copy others who use the skill and use the skill with scaffolding and guidance (emulation)
- Practitioner/using—students employ the skill confidently and effectively (demonstration)
- Expert/sharing—students can show others how to use the skill and accurately assess how effectively the skill is used (self-regulation)

A concept-driven curriculum that uses ATL skills effectively enables all students to become stronger, more self-regulated learners.

## COMMUNICATION SKILLS

**Listening:** Listening to directions; listening to others; listening to information.

**Speaking:** Speaking clearly; giving oral reports to small and large groups; expressing ideas clearly and logically; stating opinions.

**Reading:** Reading a variety of sources for information and pleasure; comprehending what has been read; making inferences and drawing conclusions.

**Writing:** Recording information and observations; taking notes and paraphrasing; writing summaries; writing reports; keeping a journal or record.

**Viewing:** Interpreting and analyzing visuals and multimedia; understanding the ways in which images and language interact to convey ideas, values and beliefs; making informed choices about personal viewing experiences.

**Presenting:** Constructing visuals and multimedia for a range of purposes and audiences; communicating information and ideas through a variety of visual media; using appropriate technology for effective presentation and representation.

**Non-verbal communication:** Recognizing the meaning of visual and kinesthetic communication; recognizing and creating signs; interpreting and utilizing symbols.

## COMMUNICATION SKILLS

### I. Communication:

**How can students communicate through interaction?**

Exchanging thoughts, messages and information effectively through interaction

- Give and receive meaningful feedback
- Use intercultural understanding to interpret communication
- Use a variety of speaking techniques to communicate with a variety of audiences
- Use appropriate forms of writing for different purposes and audiences
- Use a variety of media to communicate with a range of audiences
- Interpret and use effectively modes of non-verbal communication
- Negotiate ideas and knowledge with peers and teachers
- Participate in, and contribute to, digital social media networks
- Collaborate with peers and experts using a variety of digital environments and media
- Share ideas with multiple audiences using a variety of digital environments and media

**How can students demonstrate communication through language?**

Reading, writing and using language to gather and communicate information

- Read critically and for comprehension
- Read a variety of sources for information and for pleasure
- Make inferences and draw conclusions
- Use and interpret a range of discipline-specific terms and symbols
- Write for different purposes
- Understand and use mathematical notation
- Paraphrase accurately and concisely
- Preview and skim texts to build understanding
- Take effective notes in class
- Make effective summary notes for studying
- Use a variety of organizers for academic writing tasks
- Find information for disciplinary and interdisciplinary inquiries, using a variety of media
- Organize and depict information logically
- Structure information in summaries, essays and reports

---

### SOCIAL SKILLS

**Accepting responsibility:** Taking on and completing tasks in an appropriate manner; being willing to assume a share of the responsibility.

**Respecting others:** Listening sensitively to others; making decisions based on fairness and equality; recognizing that others’ beliefs, viewpoints, religions and ideas may differ from one’s own; stating one’s opinion without hurting others.

**Cooperating:** Working cooperatively in a group; being courteous to others; sharing materials; taking turns.

**Resolving conflict:** Listening carefully to others; compromising; reacting reasonably to the situation; accepting responsibility appropriately; being fair.

**Group decision-making:** Listening to others; discussing ideas; asking questions; working towards and obtaining consensus.

**Adopting a variety of group roles:** Understanding what behavior is appropriate in a given situation and acting accordingly; being a leader in some circumstances, a follower in others.

### RESEARCH SKILLS

**Formulating questions:** Identifying something one wants or needs to know and asking compelling and relevant questions that can be researched.

**Observing:** Using all the senses to notice relevant details.

**Planning:** Developing a course of action; writing an outline; devising ways of finding out necessary information.

**Collecting data:** Gathering information from a variety of first- and second-hand sources such as maps, surveys, direct observation, books, films, people, museums and ICT.

**Recording data:** Describing and recording observations by drawing, note taking, making charts, tallying, writing statements.

**Organizing data:** Sorting and categorizing information; arranging into understandable forms such as narrative descriptions, tables, timelines, graphs and diagrams.

**Interpreting data:** Drawing conclusions from relationships and patterns that emerge from organized data.

**Presenting research findings:** Effectively communicating what has been learned; choosing appropriate media.

### II. Collaboration: How can students collaborate?

**Working effectively with others**

- Use social media networks appropriately to build and develop relationships
- Practice empathy
- Delegate and share responsibility for decision-making
- Help others to succeed
- Take responsibility for one’s own actions
- Manage and resolve conflict, and work collaboratively in teams
- Build consensus
- Make fair and equitable decisions
- Listen actively to other perspectives and ideas
- Negotiate effectively
- Encourage others to contribute
- Exercise leadership and take on a variety of roles within teams
- Give and receive meaningful feedback
- Advocate for one’s own rights and needs

### VI. Information literacy: How can students demonstrate information literacy?

**Finding, interpreting, judging and creating information**

- Collect, record and verify data
- Access information to be informed and inform others
- Make connections between various sources of information
- Understand the benefits and limitations of personal sensory learning preferences when accessing, processing and recalling information
- Use memory techniques to develop long-term memory
- Present information in a variety of formats and platforms
- Collect and analyze data to identify solutions and make informed decisions
- Process data and report results
- Evaluate and select information sources and digital tools
- Understand and use technology systems
- Use critical-literacy skills to analyze and interpret media communications
- Understand and implement intellectual property rights
- Create references and citations, use footnotes/endnotes and construct a bibliography according to recognized conventions
- Identify primary and secondary sources

### VII. Media literacy: How can students demonstrate media literacy?

**Interacting with media to use and create ideas and information**

- Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media (including digital...
### SELF-MANAGEMENT SKILLS

| Gross motor skills: Exhibiting skills in which groups of large muscles are used and the factor of strength is primary. |
| Fine motor skills: Exhibiting skills in which precision in delicate muscle systems is required. |
| Spatial awareness: Displaying a sensitivity to the position of objects in relation to oneself or each other. |
| Organization: Planning and carrying out activities effectively. |
| Time management: Using time effectively and appropriately. |
| Safety: Engaging in personal behavior that avoids placing oneself or others in danger or at risk. |
| Healthy lifestyle: Making informed choices to achieve a balance in nutrition, rest, relaxation and exercise; practicing appropriate hygiene and self-care. |
| Codes of behavior: Knowing and applying appropriate rules or operating procedures of groups of people. |
| Informed choices: Selecting an appropriate course of action or behavior based on fact or opinion. |

### III. Organization: How can students demonstrate organization skills?

#### Managing time and tasks effectively
- Plan short- and long-term assignments; meet deadlines
- Create plans to prepare for summative assessments (examinations and performances)
- Keep and use a weekly planner for assignments
- Set goals that are challenging and realistic
- Plan strategies and take action to achieve personal and academic goals
- Bring necessary equipment and supplies to class
- Keep an organized and logical system of information files/notebooks
- Use appropriate strategies for organizing complex information
- Understand and use sensory learning preferences (learning styles)
- Select and use technology effectively and productively

### IV. Affective: How can students manage their own state of mind?

#### Managing state of mind
- Mindfulness
  - Practice focus and concentration
  - Practice strategies to develop mental focus
  - Practice strategies to overcome distractions
  - Practice being aware of body–mind connections
- Perseverance
  - Demonstrate persistence and perseverance
  - Practice delaying gratification
- Emotional management
  - Practice strategies to overcome impulsiveness and anger
  - Practice strategies to prevent and eliminate bullying
  - Practice strategies to reduce stress and anxiety
- Self-motivation
  - Practice analyzing and attributing causes for failure
  - Practice managing self-talk
  - Practice positive thinking
- Resilience
  - Practice “bouncing back” after adversity, mistakes and failures

V. Reflection: How can students be reflective?

(Re)considering the process of learning; choosing and using ATL skills

- Develop new skills, techniques and strategies for effective learning
- Identify strengths and weaknesses of personal learning strategies
  - (self-assessment)
- Demonstrate flexibility in the selection and use of learning strategies
- Try new ATL skills and evaluate their effectiveness
- Consider content
  - What did I learn about today?
  - What don’t I yet understand?
  - What questions do I have now?
- Consider ATL skills development
  - What can I already do?
  - How can I share my skills to help peers who need more practice?
  - What will I work on next?
- Consider personal learning strategies
  - What can I do to become a more efficient and effective learner?
  - How can I become more flexible in my choice of learning strategies?
  - What factors are important for helping me learn well?
- Focus on the process of creating by imitating the work of others
- Consider ethical, cultural and environmental implications
- Keep a journal to record reflections

VIII. Critical thinking: How can students think critically?

Analyzing and evaluating issues and ideas

- Practice observing carefully in order to recognize problems
- Gather and organize relevant information to formulate an argument
- Recognize unstated assumptions and bias
- Interpret data
- Evaluate evidence and arguments
- Recognize and evaluate propositions
- Draw reasonable conclusions and generalizations
- Test generalizations and conclusions
- Revise understanding based on new information and evidence
- Evaluate and manage risk
- Formulate factual, topical, conceptual and debatable questions
- Consider ideas from multiple perspectives
- Develop contrary or opposing arguments
- Analyze complex concepts and projects into their constituent parts

Acquisition of knowledge: Gaining specific facts, ideas, vocabulary; remembering in a similar form.

Comprehension: Grasping meaning from material learned; communicating and interpreting learning.

Application: Making use of previously acquired knowledge in practical or new ways.

Analysis: Taking knowledge or ideas apart; separating into component parts; seeing relationships; finding unique characteristics.

Synthesis: Combining parts to create wholes; creating, designing, developing and innovating.

Evaluation: Making judgments or decisions based on chosen criteria; standards and conditions.

Dialectical thought: Thinking about two or more different points of view at the same time; understanding those points of view; being able to construct an argument for each point of view based on knowledge of the other(s); realizing that other people can also take one’s own point of view.
Metacognition: Analyzing one’s own and others’ thought processes; thinking about how one thinks and how one learns.

<table>
<thead>
<tr>
<th>and synthesize them to create new understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Propose and evaluate a variety of solutions</td>
</tr>
<tr>
<td>• Identify obstacles and challenges</td>
</tr>
<tr>
<td>• Use models and simulations to explore complex systems and issues</td>
</tr>
<tr>
<td>• Identify trends and forecast possibilities</td>
</tr>
<tr>
<td>• Troubleshoot systems and applications</td>
</tr>
</tbody>
</table>

IX. Creative thinking: How can students be creative?

Generating novel ideas and considering new perspectives

- Use brainstorming and visual diagrams to generate new ideas and inquiries
- Consider multiple alternatives, including those that might be unlikely or impossible
- Create novel solutions to authentic problems
- Make unexpected or unusual connections between objects and/or ideas
- Design improvements to existing machines, media and technologies
- Design new machines, media and technologies
- Make guesses, ask “what if” questions and generate testable hypotheses
- Apply existing knowledge to generate new ideas, products or processes
- Create original works and ideas; use existing works and ideas in new ways
- Practice flexible thinking—develop multiple opposing, contradictory and complementary arguments
- Practice visible thinking strategies and techniques
- Generate metaphors and analogies

X. Transfer: How can students transfer skills and knowledge across disciplines and subject groups?

Using skills and knowledge in multiple contexts

- Use effective learning strategies in subject groups and disciplines
- Apply skills and knowledge in unfamiliar situations
- Inquire in different contexts to gain a different perspective
- Compare conceptual understanding across multiple subject groups and disciplines
- Make connections between subject groups and disciplines
- Combine knowledge, understanding and skills to create products or solutions
- Transfer current knowledge to learning of new technologies
- Change the context of an inquiry to gain different perspectives