INTERNATIONAL BACCALAUREATE ORGANIZATION

Primary Years Programme

Making the PYP happen

Making the PYP happen
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Introduction

This publication describes a curriculum framework and is intended to be of practical help to teachers and administrators. It has been developed over a period of some years by the efforts of many people and, as with all PYP publications, the ideas are to be taken in the spirit in which they are offered—as suggestions from a peer group, faced with the same issues as the reader.

Making the PYP happen is an in-depth guide to all aspects of student learning; it is a guide to curriculum in the traditional sense of a written set of objectives ("What do we want students to learn?") but also to the theory and application of good classroom practice ("How best will they learn?"), including effective and appropriate assessment ("How will we know what they have learned?"). Since the PYP views curriculum as a transdisciplinary whole, these three main components of the curriculum cycle have been used as the primary organizers.

Within each section the generic implications of the main ideas are followed by a reflection of these ideas within the context of each discipline.

In translating the thinking represented in this guide into practice, it is important to use the included set of practical materials with which teachers plan their teaching and assessment, and evaluate their work. This is essential for successful implementation of the programme.

Making the PYP happen is also a response to practical questions raised by school leaders who are often obliged to respond to pressures from many, sometimes conflicting, sources. It seems likely that they might respond to some support themselves, in the form of the best advice that the PYP can offer—a concise, accessible overview of key points linked to practical ideas for action. The PYP recognizes the fact that improvements, and therefore changes, in the classroom only happen in the context of overall school improvement. Given the vital role of the school's leadership in this process, it is clear that the implementation of the PYP curriculum framework will depend to a large extent on the support of the school's leadership. These guidelines represent a combination of research and experience—ideas that have worked in other international schools.

The PYP trusts that this publication will serve its purpose and prove to be a useful resource as we work together to improve the quality of learning for students, teachers, parents and administrators in the international community of learners.

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What are the beliefs and values that drive the PYP?

The PYP aims to synthesize the best research and practice from a range of national systems with the wealth of knowledge and experience in international schools to create a transdisciplinary curriculum which is relevant, challenging and engaging for learners in the 3–12 age range.

The driving force behind the PYP is a deeply held philosophy about the nature and future of international education, a philosophy which is expressed in the statements which follow. The first, the mission statement of the International Baccalaureate Organisation, expresses the IBO's overall purpose as an organization. The second, *Internationalism: the PYP perspective*, sets out the PYP's beliefs and values about internationalism as being defined by the nature of student learning in PYP schools. The PYP defines this learning through a student profile which encompasses the aims of the curriculum. The perspective goes on to identify elements in our schools which are worthy of our consideration as we strive to become ever more international. The third, *Beliefs and values*, from a language, a mathematics, a science and technology and a social studies perspective, forms the vehicle through which the student learning outcomes are explored.

The mission statement of the International Baccalaureate Organisation

Through comprehensive and balanced curricula coupled with challenging assessments, the International Baccalaureate Organisation aims to assist schools in their endeavours to develop the individual talents of young people and teach them to relate the experience of the classroom to the realities of the world outside. Beyond intellectual rigour and high academic standards, strong emphasis is placed on the ideals of international understanding and responsible citizenship, to the end that IB students may become critical and compassionate thinkers, lifelong learners and informed participants in local and world affairs, conscious of the shared humanity that binds all people together while respecting the variety of cultures and attitudes that makes for the richness of life.

Internationalism: the PYP perspective

The PYP believes that the attempt to define the ideal of internationalism in ever clearer terms and the struggle to move closer to that ideal are central to the mission of PYP schools.

Given the complexity and variety of PYP schools and the abstract nature of the concept itself it would be naive to propose any simple definition and expect it to stand up to rigorous examination. Rather, the PYP would suggest that any definition is likely to be compound, reflecting a range of interrelated factors. What these factors might be is suggested later in this perspective.

However, in examining these factors during the years since the inception of the PYP, one aspect of PYP schools emerges, not only as the most significant, but also as the common ground on which PYP schools stand, the essence of what they are about: this is the kind of student who we hope will graduate from PYP schools, the kind of person we would proudly call an internationalist.

The PYP is suggesting then, as central to its definition of an international education, the following student profile (figure 1). In so doing, the PYP is placing the focus of schools where it belongs, on student learning. The PYP is saying that schools should be proud to send out into the adult world students who exemplify the qualities expressed in this profile. The PYP is conscious that this profile is value-laden and, it would say,

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quite rightly so, for this kind of learning is what the PYP values, it is what the PYP stands for and it is the embodiment of what international education is all about.

This profile is central to the work of the PYP. It represents its aims, it drives the curriculum framework which follows and it is central to the process of summative assessment which closes the circle of our work with students. It represents the qualities of internationalism which the PYP hopes will characterize its graduates, the contribution of PYP schools to this complex, challenging world.

What, then, is a PYP school? From the PYP's perspective it is a school which, regardless of location, size or constitution, strives towards developing an international person. What is an international person? From the PYP's perspective it is a person with the attributes and dispositions described in the student profile which has been identified.

PYP student profile	
Students are:	
Inquirers	Their natural curiosity has been nurtured. They have acquired the skills necessary to conduct purposeful, constructive research. They actively enjoy learning and this love of learning will be sustained throughout their lives.
Thinkers	They exercise initiative in applying thinking skills critically and creatively to make sound decisions and to solve complex problems.
Communicators	They receive and express ideas and information confidently in more than one language, including the language of mathematical symbols.
Risk-takers	They approach unfamiliar situations without anxiety and have the confidence and independence of spirit to explore new roles, ideas and strategies. They are courageous and articulate in defending those things in which they believe.
Knowledgeable	They have spent time in our schools exploring themes which have global relevance and importance. In so doing, they have acquired a critical mass of significant knowledge.
Principled	They have a sound grasp of the principles of moral reasoning. They have integrity, honesty and a sense of fairness and justice.
Caring	They show sensitivity towards the needs and feelings of others. They have a sense of personal commitment to action and service.
Open-minded	They respect the views, values and traditions of other individuals and cultures and are accustomed to seeking and considering a range of points of view.
Well-balanced	They understand the importance of physical and mental balance and personal well-being.
Reflective	They give thoughtful consideration to their own learning and analyse their personal strengths and weaknesses in a constructive manner.

Figure 1 PYP student profile

Clearly, success in achieving this profile will depend on more than just curriculum, even given the PYP's inclusive definition of curriculum. It will depend on a multitude of factors (see page 5), each contributing to overall success, each driven by beliefs and values embodied in the profile.

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How international is our school?
Factors for consideration:

The school's culture
and the extent to which it:

accommodates, reflects and celebrates the cultures represented in the school.

The school's climate
and the extent to which it:

offers a safe, secure, stimulating environment to all its learners.

The students
and the extent to which the school:

takes positive advantage of the diversity within the student body to enrich the learning and lives of the whole school community.

The example of adults
and the extent to which:

the adults in the community actively model the profile advocated for the students.

The curriculum
and the extent to which it:

reflects developments in curriculum research from a range of different national and international sources

focuses on key **concepts**, such as connection, perspective and responsibility

explores transdisciplinary themes which have been selected on the basis of their relevance and importance within a body of **knowledge** which has local and global significance

develops essential **skills**, such as the ability to conduct research, communicate effectively, function successfully in different social contexts, manage one's health and life, think critically and creatively

fosters positive **attitudes**, such as tolerance, respect and responsibility

provides opportunities for meaningful **action** and social service.

The resources
and the extent to which they:

offer access to different cultures, perspectives and languages.

The staffing policy
and the extent to which it:

seeks and supports teachers from a representative range of nationalities and cultures.

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The language policy

and the extent to which it:

offers support in the medium of instruction and in the mother tongue of students

provides the opportunity to learn further languages, notably the language of the host country

provides for languages across the curriculum, in recognition of the fact that all teachers are language teachers

is empathetic towards adults in the school's community for whom the school's medium of instruction in not their mother tongue.

The special needs policy

and the extent to which it:

gives access to an international education to all students.

A commitment to reflection

and the extent to which the school:

looks inward, reflecting constantly and honestly on its policies and practices.

A commitment to extension

and the extent to which the school:

looks outward, forging links with other PYP schools and international organizations with which it shares common aims and problems.

In summary, in seeking internationalism in our schools we need to look first at what our students are learning, at the people we are nurturing. In striving to make it happen, and looking for indicators for success, we need to look everywhere, since all aspects of the school, from philosophy through policy to practice, will reflect either the presence or the absence of a sensitivity to the special nature of our schools.

On examining the student profile and the factors of internationalism, the reader may be tempted to point out that these elements would be desirable in national schools and in international schools. Internationalism in education is, thankfully, not the sole property of international schools. It is an ideal towards which all schools should strive but one which carries a greater imperative for PYP schools.

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Language perspective

The PYP recognizes that language, our major means of thinking and communicating, is fundamental to learning, underpinning and permeating the whole curriculum. It is not only learning language but also learning about language and through language and we should nurture an appreciation of the richness of language, including a love of literature. Traditionally language has been treated in a fragmented way, with separation of the strands within language and of language from other areas of the curriculum. The PYP's approach to language seeks to lessen this fragmentation. While the four communication strands of listening, speaking, writing and reading can be observed separately, they are interrelated and interactive, with learning in one supporting learning in another. This is of particular relevance for international schools, where every teacher is a language teacher.

The PYP considers language from the points of view of homeroom teachers, teachers of the language of instruction (often ESL), teachers of other languages (often the host country language) and teachers of mother tongue languages. The student profile identified applies to each student in every language taught, although the means and pace of teaching them may, and will, differ in different contexts.

Language does much more than promote cognitive growth: the PYP believes that mother tongue language development is crucial for maintaining cultural identity and emotional stability and that acquisition of more than one language enriches personal growth and helps facilitate international understanding. International schools have a special responsibility to recognize and support each and every aspect of language development.

Mathematics perspective

Our rapidly changing technological world is placing ever increasing demands on the mathematical skills and understanding of its citizens. As the PYP has considered how it could help students meet these demands, it has become clear that the place of mathematics in the curriculum is as a service discipline, providing a global language through which we make sense of the world around us. Such is the power of mathematics in describing and analysing that it has become a highly effective tool for solving problems.

The PYP wants students to become fluent users of this language and look on mathematics as a way of thinking rather than as a fixed body of knowledge.

Much of the failure of traditional mathematics curriculums to teach the discipline well derives, in the PYP's view, from the attempt to impart a body of knowledge directly to students. It is our conviction that students acquire mathematical understanding by constructing their own meaning, concept by concept, through ever increasing levels of abstraction. Moreover, it is fundamental to the PYP's philosophy that, since it is to be used in context, mathematics needs to be taught in relevant, realistic contexts.

Beyond this, however, the PYP believes that students can appreciate the intrinsic fascination of mathematics and explore the world through its unique perceptions.

Beliefs and values

Science and technology perspective

Science is viewed by the PYP as the exploration of behaviour and the interrelationships among the natural, physical and material worlds using the rational process of scientific inquiry; technology is viewed as the application of the principles of science.

The PYP recognizes the importance of science in an international curriculum as science is universal and cuts across gender, cultural, linguistic and national bias and transcends boundaries.

The inclusion of science and technology within the curriculum leads students to an appreciation and awareness of the world as it is viewed through the eyes of the scientist. It develops an understanding of, and competence in using, the facilities of a rapidly changing scientific and technological world, while gaining a positive image of science and technology and its contribution to the quality of life today.

The science and technology process, by encouraging hands-on experience and inquiry learning, enables the individual to make informed and responsible decisions, not only in science and technology but also in other areas of life.

Social studies perspective

Social studies is viewed by the PYP as the study of people in relation to their past, their environment and their society. Social studies helps students to develop their personal, family, ethnic and cultural identities; to make informed and reasoned decisions about their classroom, the school and the world; and to understand themselves in relation to the past, the environment and society.

Social studies in the international school is international. It teaches tolerance of diversity, social diversity and diversity of gender. It actively values all cultures and peoples. Emphasis is placed on the reduction of prejudice and discrimination within the classroom, the school and the world.

Social studies in the international school goes beyond respecting and valuing people's right to be different. It is grounded in a strong and unequivocal stand for universal human rights, justice and equality. If a difference occurs between the values of a specific culture and universal human rights, social studies in the international school leads students to value the universal, while respecting the perspective of the specific culture.

The pluralistic nature of communities within and among nations, and the relationships between local and global concerns and issues, are addressed through the study of the host society, the students' own cultures and the cultures of peoples not directly represented in the school's community. When social studies in the international school asks: "What history?", "What geography?" and "What social framework?", it leads a diverse student body to a wide understanding of humankind. Social studies examines human diversity and human commonalities, using the perspectives and experiences of the school's families, staff and host society.

Social studies does all this best through a questioning approach in which students create their own knowledge and understanding. Students and teachers exploring, investigating and searching for answers together, develop historical, geographical and social concepts which are important in understanding today's social world.

Social studies is an integrated area of inquiry. The unique perspectives of a number of disciplines contribute to our understanding of human activity. For the purpose of this curriculum these disciplines have been grouped as follows:

History is the study of what we think is important about the human past. Students need to develop an understanding of themselves and their society in relation to the past, its influences on the present and its implications for the future.

Geography is the study of the relationship between people and their created and natural environment. Students need to develop a sense of the physical reality of the world, where they are in it and the variety of human activity.

Society is the study of people and their relationships. It draws on the disciplines of anthropology, economics, ethics, politics, psychology and sociology. students need to develop an understanding of how human values shape social systems.

Figure 2 Beliefs and values

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What is curriculum?

In developing an international curriculum for younger learners, the PYP defines curriculum as broad and inclusive. The PYP takes the position that the school's curriculum includes all those student activities, academic and non-academic, for which the school takes responsibility, since they all have an impact on student learning.

Furthermore, given the PYP's commitment to continuous school improvement, it is obvious that the development of **the written curriculum**, the expression of ideas on paper, is necessary; but, equally obviously, this alone is not sufficient.

The interpretation of these ideas into daily practice, by teachers working in classrooms around the world, matters. The PYP has, therefore, given equal emphasis to methodology, to **the taught curriculum**, to suggestions for examining and improving our practice and to the provision of inservice support.

The third element in the PYP's definition of curriculum—assessing the actual learning which takes place for each student—is often the most frequently neglected. The development of a range of meaningful assessment strategies, the focus on **the learned curriculum**, brings balance to our work and reminds us of its purpose.

The PYP's definition of curriculum, then, emerges as comprising three interrelated components. In keeping with the PYP's commitment to inquiry, these three components are expressed in the form of the following three open-ended questions, each of which compels us to think deeply about our own practice with regard to student learning:

What do we want to learn?
The written curriculum
the identification of student learning
within a curriculum framework

How best will we learn?
The taught curriculum
the theory and application of good classroom practice

How will we know what we have learned?
The learned curriculum
the theory and application of effective assessment

The PYP chooses to use the pronoun "we" in each question, rather than referring directly to the students, for reasons which reflect the PYP's beliefs. While recognizing that the school's primary responsibility is obviously for student learning, the PYP wishes to make clear its position that:

- given that, in a school which is a community of learners, everyone is a learner, we as teachers must continue to learn, both about the content with which we are engaged and about our own practice
- presenting the questions in this form prompts us to present them in a similar way to students, therefore directly engaging them in their own learning.

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In PYP documents the three questions are presented as a cycle:

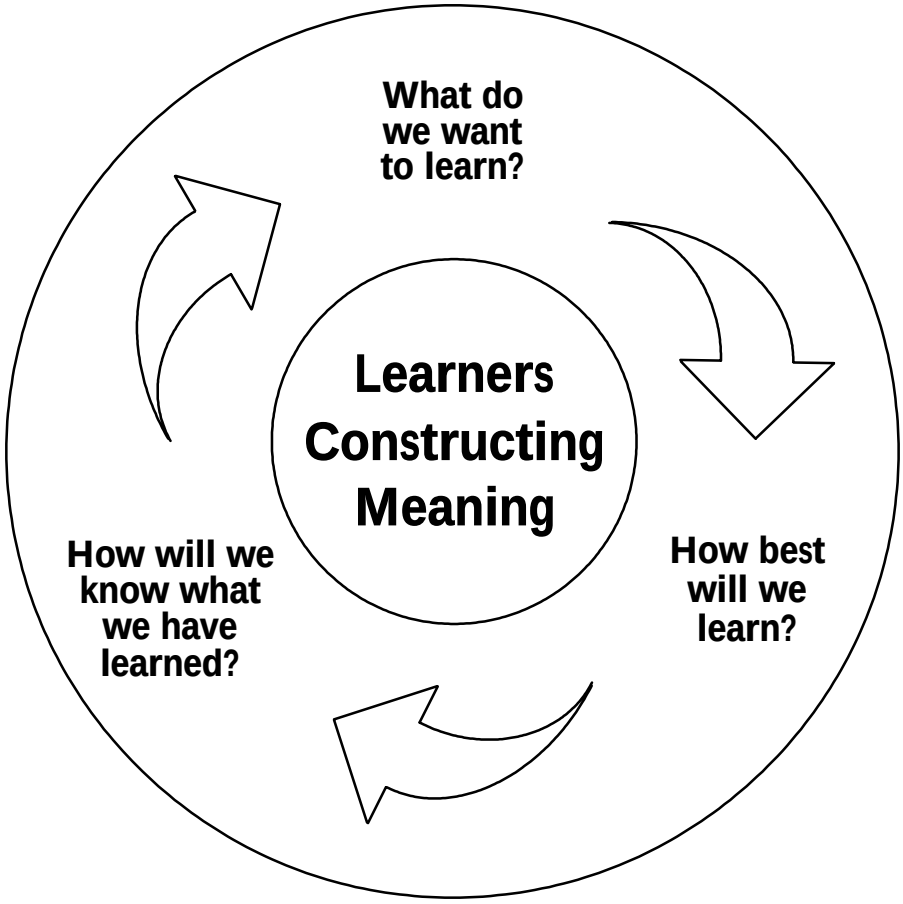

Figure 3 Learners constructing meaning: the PYP definition of curriculum

The words at the centre of this diagram convey the belief that students construct their own meaning. The PYP is convinced by many of the principles of the constructivist approach to explaining learning. Put very simply, the PYP believes that students bring to the learning situation their own prior knowledge and engage with the curriculum through the activities designed by the teacher. In the context of this total learning environment, the students make sense of their experiences or construct meaning. Our responsibility is to identify the students' prior knowledge, provide appropriate experiences, assess their new learning and begin the cycle anew.

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What do we want to learn? The written curriculum

The PYP strives for a balance between the search for understanding, the acquisition of essential knowledge and skills, the development of positive attitudes and the opportunity for positive action.

In terms of achieving this balance, the PYP emphasizes five components of the written curriculum. These are referred to as the essential elements of curriculum and they are as follows:

Essential elements	
Concepts	powerful ideas which have relevance within and across the disciplines and which students must explore and re-explore in order to develop understanding
Knowledge	significant, relevant, subject matter we wish the students to explore and know about
Skills	those things the students need to be able to do to succeed in a changing, challenging world
Attitudes	dispositions which are expressions of fundamental values, beliefs and feelings about learning, the environment, and people
Action	demonstrations of deeper learning in responsible behaviour through positive action and service; a manifestation in practice of the other essential elements

Figure 4 The essential elements of the written curriculum

In the pages which follow, each of these elements is explored more fully so that the reader may gain an insight into the significance of each element, how and why it has been selected and how it will be incorporated into classroom practice.

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Concepts: what do we want the students to understand?

Why include concepts as an essential element?

The decision to structure the PYP curriculum around important concepts or big ideas is driven by these beliefs:

- A good curriculum offers a balance between the acquisition of essential skills and knowledge and the search for meaning. Education is without meaning if students never really understand.
- Education for understanding, with a focus on important ideas, has often been sacrificed to a superficial introduction to isolated facts and skills. The pressure to cover the syllabus and the expansion of the curriculum have resulted in many students leaving school without ever really understanding.
- By starting with the students prior knowledge, and by confronting and extending their early conceptions, we begin to promote real understanding.
- The exploration and re-exploration of concepts lead students towards a sense of the essence of each discipline and an appreciation of ideas which transcend disciplinary barriers. If concepts are approached from a range of perspectives, students can gradually arrive at a deeper understanding.
- Transdisciplinary units structured around concepts provide a context in which students can understand and, at the same time, acquire essential knowledge, skills and attitudes.

In summary then, the driving force at the heart of the PYP curriculum is a set of powerful ideas, or concepts, which we believe have great significance within each discipline and which transcend disciplinary barriers. These concepts provide a structure for the exploration of significant content. In the course of this exploration, students acquire and practise essential skills and reach a deep understanding of the concepts.

Is it possible to identify a set of concepts around which to structure a curriculum?

Several years of research have been carried out involving the analysis of curricular models in use in different national systems and in international schools. This research has focused on, firstly, whether or not there was a consensus on a set of concepts in which each has universal significance, and secondly, the status and role given to concepts in the various curriculum models. The results have led the PYP to conclude that there are clusters of important ideas which can usefully be grouped under a set of overarching concepts, each of which has major significance, regardless of time or place, within and across disciplines.

Having reached these conclusions, the PYP has designed a conceptual framework for the curriculum, structured around a set of ideas or key concepts. It is realized that these are not, in any sense, the only concepts worth exploring. On the contrary, the concepts which have been selected serve more as labels for clusters of interesting ideas. Taken together, they form a powerful set of ideas which drive the teacher/student constructed research projects, the units of inquiry, which lie at the heart of the PYP curriculum.

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Which concepts were chosen and why?

The PYP has constructed a set of eight concepts, each of which, it is felt, is of major significance in the design of a transdisciplinary curriculum. These concepts are:

Form

Function

Causation

Change

Connection

Perspective

Responsibility

Reflection

Each of these key concepts is presented in figure 5 together with:

a definition: a generic explanation, provided so that everyone using the curriculum is working with a common understanding of terms

a rationale: the reasons for the selection of the concept as being important for our work with international school students

examples of related concepts: some of the ideas from the discipline areas which relate to this concept, provided as a springboard for the generation of further research questions

a key concept question: the key question which arises from this concept, presented in the form most useful for driving inquiry.

Each key question is presented here in its most basic, generic form, for example, "What is it like?" When working on a unit with a particular focus, for example, geographical, more specifically discipline-related questions will be framed, for example, "What is this place like?"

In what sense do these concepts drive the curriculum?

The PYP is committed to the principle that structured, purposeful inquiry is a powerful vehicle for real learning, learning which promotes genuine understanding and which challenges the students to engage with important ideas. Hence the PYP maintains a commitment to a concept-driven curriculum.

The PYP has concluded the following:

- Since the PYP is committed to inquiry as a vehicle for learning, the natural way to present the key concepts is in the form of broad open-ended questions.
- Presented in this way, the concepts liberate the thinking of teachers and students, suggesting a range of further questions, each one leading to productive lines of inquiry.

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- When viewed as a set of questions, the concepts form a research tool which is both manageable and open-ended. The concepts are not only **key** in the sense of important. They also provide a key—a way into a body of knowledge through structured inquiry. They place no limits on breadth of knowledge or depths of understanding and therefore provide access to every student, regardless of particular aptitudes.
- These questions should not be interpreted in any restrictive sense, as the only questions, to be used in strict order, or to be given equal weight in every unit. Rather, they represent an approach, a springboard, an introduction to a way of thinking about teaching and learning.

The PYP therefore presents the concepts which are central to the curriculum in the form of key questions. It is these questions, used flexibly by teachers and students when planning an inquiry-based unit, which shape that unit, giving it direction and purpose. It is in this sense that the key questions, and the ideas to which they relate, are said to drive the PYP curriculum.

It is also recognized that these concepts have different applications and interpretations within each discipline. The concepts, with their generic and discipline-specific definitions, are presented in figure 6.

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Form

Definition:
The understanding that everything has a form with recognizable features which can be observed, identified, described and categorized.

Rationale:
This idea was selected because the ability to observe, identify, describe and categorize is fundamental to human learning within and across all disciplines.

Examples of related concepts:
properties, structure, features, categories, patterns

Key question: What is it like?

Function

Definition:
The understanding that everything has a purpose, a role or a way of behaving which can be investigated.

Rationale:
This idea was selected because the ability to analyse function, role, behaviour and the ways in which things work, is fundamental to learning within and across all disciplines.

Examples of related concepts:
behaviour, operations, pattern, role, systems

Key question: How does it work?

Causation

Definition:
The understanding that things do not just happen, that there are causal relationships at work and that actions have consequences.

Rationale:
This idea was selected because of the importance of prompting students to ask “Why?” and of helping them to recognize that actions and events have reasons and consequences. The analysis of causal relationships is significant within and across all disciplines.

Examples of related concepts:
consequences, sequences, patterns, impact

Key question: Why is it like it is?

Change

Definition:
The understanding that change is the process of movement from one state to another. It is universal and inevitable.

Rationale:
This idea was selected, not only because it is such a universal feature of all existence, but also because it has particular relevance to students in international schools for whom change in their own lives is often frequent and inescapable, and who are growing up in a world in which the pace of change is accelerating.

Examples of related concepts:
adaption, modification, cycles, sequences

Key question: How is it changing?

PYP key concepts and related questions

Connection

Definition:
The understanding that we live in a world of interacting systems in which the actions of any individual element affect others.

Rationale:
This idea was selected because of the importance of appreciating that nothing exists in a vacuum but, rather, as an element in a system; that the relationships within and among systems are often complex and that changes in one aspect of a system will have consequences, even though these may not be immediately apparent; that we must consider the impact of our actions on others, whether at the immediate, personal level or at the level of far-reaching decisions affecting environments and communities.

Examples of related concepts:
systems, relationships, networks

Key question: How is it connected to other things?

Perspective

Definition:
The understanding that knowledge is not constructed only from the perspective of a particular discipline, individual or group.

Rationale:
This idea was selected because of the compelling need to develop in our students the disposition towards rejecting simplistic, biased interpretations, towards seeking and considering the points of view of others and towards developing defensible interpretations.

Examples of related concepts:
subjectivity, fact, opinion, bias, prejudice, empathy

Key question: What are the points of view?

Responsibility

Definition:
The understanding that we are not passive observers of events but that we can make and must make choices and that, by doings so, we can make a difference.

Rationale:
This idea was selected because of the need to develop in our students the disposition towards identifying and assuming responsibility and towards taking positive action. This idea is directly linked to the action component of the essential elements in the PYP curriculum, which itself interfaces with the CAS programme of the IBO’s Diploma Programme.

Examples of related concepts:
rights, duty, custodianship, citizenship, values, justice, initiative

Key question: What is our responsibility?

Reflection

Definition:
The understanding that there are different ways of knowing and that it is important to reflect on our own conclusions, both with respect to the methods of reasoning we have employed and the quality and the reliability of the evidence we have considered.

Rationale:
This idea was selected for a series of interrelated reasons. It challenges the students to examine their evidence, methods and conclusions. In doing so, it extends their thinking into the higher order of metacognition, begins to acquaint them with what it means to know in different disciplines and encourages them to be rigorous in examining evidence for potential bias or other inaccuracy. This approach provides experience in the type of thinking demanded of students in such courses of study as the Theory of Knowledge component of the IBO’s Diploma Programme.

Examples of related concepts:
metacognition, reason, evidence, introspection, reliability

Key question: How do we know?

Figure 5 PYP key concepts and related questions

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PYP key concepts **What do we want the students to understand?** **(subject perspectives)**

Concept	Generic perspective	Language perspective	Mathematics perspective	Science and technology perspective	Social studies perspective
What is it like? (Form)	Everything has a form with recognizable features which can be observed, identified, described and categorized.	Every language has a form which makes it unique.	The recognition, categorization and description of patterns and other information.	Most things have a form or shape with an outward or visible manifestation and an internal structure.	Events, people and places have recognizable features which distinguish them in time, space or social order.
How does it work? (Function)	Everything has a purpose, a role or a way of behaving which can be investigated.	Language is used for a variety of purposes depending on the circumstances.	The examination of systems, relationships, mechanics, components and patterns.	The special activities, properties or purposes, natural or endowed, of a creature or thing.	How events or relationships happen among people or the interaction between people and the environment.
Why is it like it is? (Causation)	Things do not just happen. There are causal relationships at work and actions have consequences.	Language has an effect on, and is affected by, everything.	The consideration of the organization, process, application and consequences of actions.	The effect brought about by an intended or unintended action or reaction.	Human actions and events have causes, antecedents and consequences which affect how people interact with each other and with their environment.
How is it changing? (Change)	The process of movement from one state to another. It is universal and inevitable.	Language is not static; it changes constantly.	Looking for evidence of change, analysing change and making predictions.	Change is an inevitable aspect of the physical world as things become different or pass from one form or phase to another. Change can be natural or brought about and accelerated by outside influences.	Understanding the nature of social change (individual, group, cultural, or institutional), and how and why humans, over time and space, effect changes or respond to it.
How is it connected to other things? (Connection)	We live in a world of interacting systems in which the actions of any individual element affect others.	Language is central to life. It is the major connecting system within, between and among all societies.	The examination of systems and strategies to identify different kinds and levels of relationships within and beyond the strands of mathematics.	The natural world is full of interacting systems in which parts and sets depend on each other to form a working whole.	The social world comprises interacting systems in which the actions of individuals or groups affect each other and the environment. Events, people and places are part of an elaborate web of interdependent human systems.
What are the points of view? (Perspective)	What constitutes “knowledge” represents perspectives. Different perspectives lead to different understandings, interpretations and findings. Perspective may be individual, cultural or disciplinary.	Language can be interpreted and meaning expressed in different ways.	In mathematics this means, “What are the different ways of looking at it?” It is about the developing awareness of, and respect for, varied interpretations and the critical evaluation of explanations, strategies and solutions.	Events and findings can be interpreted differently, depending on knowledge, experience and motives. The difference between empirically proven facts and supposition must be emphasized.	There is no one right way of knowing. Perspective is influenced by other people, by our emotions, past experiences, needs and desires as well as by the influences of our culture and the disciplines.
What is our responsibility? (Responsibility)	We are not passive observers of events. We can and must make choices. By doing so we can make a difference.	Language is powerful and can have a profound effect, both positive and negative. Therefore, it must be used responsibly.	Understanding the importance of accuracy and appreciating the obligation to gather, interpret, report and apply data with honesty.	We have a responsibility to the world in which we live. This involves being aware of how scientific knowledge can be used to improve or worsen the quality of life of all living things. Responsibility entails action as well as awareness.	People are not neutral and must consider their individual responsibilities towards their society and towards events and social issues.
How do we know? (Reflection)	There are different ways of knowing. It is important to reflect on our conclusions, in terms of our way of reasoning and the quality and reliability of the evidence we have considered.	Language is the means by which we reflect on our experiences and knowledge.	Being able to communicate how we have come to understand an idea, concept or skill.	We must consciously reflect on, and be able to describe, how we gain our knowledge and develop our attitudes.	Reflecting on the ways of knowing about the past and other places and people involves introspection, empathy and the evaluation of sources for objectivity, omission and bias.

Figure 6 Generic and subject-specific definitions of the key concepts

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Knowledge: what do we want the students to know about?

Why include knowledge as an essential element?

The debate in educational circles on what constitutes essential knowledge will probably be endless. In international schools, the dilemma is particularly acute, especially in certain of the traditional disciplines. "Whose history do we teach?" perhaps sums up the problem.

However, given the PYP commitment to developing a coherent curriculum, the PYP feels it is necessary to offer support to teachers and schools faced with the need to select content.

The PYP position is that students are best served by a coherent programme of study which is commonly agreed on by the school's teachers and administrators. Such a programme:

- provides students with a shared experience and body of knowledge on which to build and reflect
- ensures better continuity of learning, avoiding redundancy and omissions
- provides a focus for collaboration among teachers, both homeroom and specialist
- provides a focus for the work of curriculum coordinators and providers of professional development
- reduces the pressure of coverage on individual teachers (spreading the responsibly across the primary years—and beyond—allows each individual to cover less but in greater depth)
- provides a rationale for the acquisition of resources.

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

Despite, or perhaps because of, the particular difficulties faced by international schools when selecting content, the PYP feels it is immensely important to take on the task of suggesting a coherent, flexible framework of content, a body of knowledge for international schools. This decision is driven by the belief that:

- there are areas of knowledge which, while important for any student, are of special significance in the international school setting
- there are areas of knowledge which, while frequently studied in national schools, take on a whole new significance when approached from the perspective of an international school student. For example, the popular topic of homes changes in its nature when approached from the point of view of students for whom home is an elusive concept, who may have changed homes several times in a few years and whose parents, even siblings, come from different homes.

The PYP recognizes that it would be inappropriate to attempt to define any narrow, fixed body of knowledge as the essential content which every student should know. Accepting this, the task has been approached from a different perspective. Rather than designing a fixed syllabus, the PYP has set out to identify themes (figure 7)—areas of knowledge—which:

- have significance for all students, all cultures
- offer students the opportunity to explore knowledge which is of genuine importance in understanding the human condition
- address the fields of knowledge which form the traditional disciplines but present these in a way which transcends these disciplines, therefore facilitating transdisciplinary planning and teaching
- will be revisited throughout the students' years of schooling, the end result being an articulated curriculum content, from pre-kindergarten to secondary school.

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These themes, as well as the student profile, provide the organizing structure for the school's framework of content, or programme of inquiry.

The PYP would suggest that the themes described are worthy of consideration by all schools and that they will provide a basis for discussion as individuals in a school work together to develop a transdisciplinary programme of inquiry which meets their school's needs.

In selecting individual units, structured around the PYP planner, the following are proposed as useful criteria. Each unit should be:

significant: contributing to an understanding of meaningful, important life experiences and therefore to an understanding of the essence of the overall theme

relevant: linked to the students' prior knowledge and experience and therefore placing learning in a more meaningful context for the students

engaging: having the potential to interest the students and actively engage them in their own learning

challenging: having the potential to extend the prior knowledge and experience of the students.

Schools should also explore the possibilities for links between the units taught at different age bands so that the programme is articulated both vertically and horizontally.

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The PYP programme of inquiry
Organizing themes

1. An inquiry into **Who we are**

An exploration of the nature of the self; of our beliefs and values; of personal, physical, mental, social and spiritual health; of our families, friends, communities and cultures; of our rights and responsibilities; of what it means to be human.

2. An inquiry into **Where we are in place and time**

An exploration of our orientation in place and time; of our personal histories; of history and geography from local and global perspectives; of our homes and journeys; of the discoveries, explorations and migrations of humankind; of the contributions of individuals and civilizations.

3. An inquiry into **How we express ourselves**

An exploration of the ways in which we discover and express our nature, ideas, feelings, beliefs and values through language and the arts.

4. An inquiry into **How the world works**

An exploration of the physical and material world; of natural and human-made phenomena; of the world of science and technology.

5. An inquiry into **How we organize ourselves**

An exploration of human systems and communities; of the world of work, its nature and its value; of employment and unemployment and their impact on us and the world around us.

6. An inquiry into **Sharing the planet**

An exploration of our rights and responsibilities as we strive to share finite resources with other people and with other living things; of communities and of the relationships within and between them.

Figure 7 The organizing themes of the PYP programme of inquiry

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What do we want to know about language?
Programme of inquiry

Metalanguage:

the use of language to learn about language

- language as a system of communication
  - the internal structures (semantics, syntax, pronunciation)
  - the reading process
  - the writing process
- acquisition and development of language
- diversity of functions of language
- variety in and between languages and dialects
- historical, geographical and societal influences on language
- language as a power in society
- language as a means of reflection

Transdisciplinary language:

the language of other disciplines

- the language of the arts
- the language of mathematics
- the language of science
- the language of social studies

Literature:

the body of written work deemed worthy of aesthetic merit

- literature as a means of understanding oneself and others
- variety in literary forms, structure, elements and purposes

Some suggestions for literacy and literature in a PYP language classroom:

Emergent
- picture books
- pattern books
- traditional tales
- big books
- non fiction books
- concept books
- predictable books
- puzzle books
- poetry
- nursery rhymes
- author study
- illustrator study
- storytelling
- making books

Developing
- picture books
- novel stories
- myths and legends
- biographies
- folklore
- fact and fiction
- fairy tales
- fantasy
- poetry
- host country literature
- recount books
- procedural books

Consolidating
- picture books
- media studies
  - Journalism/
  - types of newspapers
  - and reporting/
  - propaganda/bias/
  - advertising/radio/
  - TV/film
- novel studies
- author study/poet study
- extended poems
- genre
  - Fiction/adventure/
  - science fiction/
  - mystery/short stories

Extending
- picture books
- media studies
  - Journalism/propaganda/
  - bias/advertising/
  - radio/TV/internet/film
- genre fiction
  - adventure/mystery/
  - realism/science/
  - historical/short stories
- extended poems
- novel studies
- memoirs

Figure 8 The programme of inquiry: language

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What do we want to know about mathematics? Programme of inquiry

Data handling:	Data handling allows us to make a summary of what we know of the world and to make inferences about what we do not know.
Statistics:	• Data can be recorded, organized, represented and summarized in a variety of ways to highlight similarities and differences. It is important to remember that the chosen format should illustrate the information without bias or distortion.
Probability:	• There are ways to find out if some outcomes are more likely than others. Probability can be expressed qualitatively by using terms such as unlikely, certain or impossible. It can be expressed quantitatively on a numerical scale.
Measurement:	To measure is to attach a number to a quantity using a chosen unit. The degree of approximation, and therefore accuracy, depends on the measuring device and the measurer.
Shape and space:	The regions, paths and boundaries of natural space can be described by shape. Students need to understand the interrelationships of shapes and the effect of changes to shapes in order to interpret, understand and appreciate our two and three dimensional world.
Pattern and function:	The study of mathematical patterns and functions enables us to organize and understand most observations of the world around us.
Pattern:	• There are repetitive features that can be identified.
Function:	• There are generalized rules that describe patterns.
Number:	Numbers are used to determine or define quantities or relationships, to measure, to make comparisons, to find locations and to read codes. We use numbers to interpret information, make decisions and solve problems.
Properties of number:	• Numbers can be used to describe quantities and relationships between and among quantities.
Place value:	• The value attributed to a digit depends on its place within a base system.
Estimation:	• The degree of precision needed in calculating depends on how the result will be used.
Computation:	• The operations of addition, subtraction, multiplication and division are related to one another and are used to obtain numerical information.

Figure 9 The programme of inquiry: mathematics

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What do we want to know about science and technology?
Programme of inquiry

Living things: The study of humans and other animals, plants, and the environment and the interactions between them.

Ourselves
Animals
Plants

Earth and space: The study of the planet earth and its relationship to the universe.

Water
Land
Atmosphere
Space

Materials and matter: The study of the origins, properties and uses of natural and human-made solids, liquids and gases.

Gases
Liquids
Solids

Forces and energy: The study of energy, its origins and transfer, and its effects.

Sound
Movement
Magnetism
Gravity
Electricity
Light
Heat

Related concepts:

- adaptation
- attraction and repulsion
- behaviour
- condensation and evaporation
- day and night
- differences and similarities
- evolution
- feeding
- food chain
- freezing and melting
- growth
- location
- magnetic field
- metamorphosis
- movement
- patterns
- photosynthesis and respiration
- predation
- properties
- reproduction
- scale
- seasons
- sensitivity
- shape
- shape
- speed
- stability
- stars
- state
- structure
- systems
- time
- transformation
- variations
- volume
- waste material

Figure 10 The programme of inquiry: science and technology

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What do we want to know about social studies? Programme of inquiry

History: The study of what we think is important about the human past. Through it we develop an understanding of the past, its influences on the present and its implications for the future.

- **Periods:** The in-depth study of a period of time, a civilization or a culture and its impact on history.
- **Chronology:** The study of a people, an idea or a convention over an extended period of time, showing change and/or continuity; the significant events, people and/or products of that sweep of time.
- **Significant people:** The study of individuals who have had an impact on the present because of their actions or situations; individuals who have become important because of what we can learn about the past from studying them.
- **Personal:** The study of the self and family or the immediate environment.

Geography: The study of the relationship between people and their environment, both natural and built. Through it we develop a sense of place and an understanding of the interactions between the earth's surface and resources.

- **Place:** The study of the distinctive features that give a place its identity; the influence of essential features on humans and our responses to them.
- **The built environment:** The study of how people use place; the kinds of buildings and structures they construct; the relationship between places and patterns of activity arising from the use people make of the settings in which they live and work; how places are linked by movements of people, materials and information; human dependence on the environments they have created.
- **The natural environment:** The study of the ways in which societies with different technologies, economic systems and cultural values have perceived and used the resources of the earth.

Society: The study of people and their relationships in society. Through it we develop an understanding of the ways in which individuals, groups and societies interact with each other and how their values shape our social systems. It incorporates the disciplines of anthropology, economics, ethics, psychology and sociology.

- **Self:** The study of people and their relation to society; identity, needs, roles, rights and responsibilities.
- **Systems:** The study of social arrangements and controls; institutions; economic, political and technological systems and how they function in the local and global society; comparison of systems.
- **Communities:** The study of settlements of people in local and other geographical areas; groups united by common interests, goals or values; their roles within the broader society; problems faced by various communities in developed and developing countries.
- **Cultures:** The study of the traditions, customs, institutions, values and beliefs, expectations, languages and artifacts of one's own and other societies.

Related concepts:

- adaptation
- authority
- chronology
- communication
- conflict
- conservation
- cooperation
- culture
- custodianship
- difference
- distribution
- diversity
- division of labour
- evolution
- exploitation
- fact
- fantasy
- heritage
- institution
- interdependence
- justice
- location
- norms
- opinion
- patterns
- power
- prejudice
- preservation
- revolution
- right
- role
- scarcity
- similarity
- social control
- stereotype
- surplus
- systems
- tradition
- values
- wealth

Figure 11 The programme of inquiry: social studies

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What do we want to know about the arts?
Programme of inquiry

Music: The study and exploration of sound and the expressive use of musical elements through the singing of songs and the playing of instruments. Students develop musical ideas in composition using musical notation. Students will gain an appreciation and awareness of music in all its forms from a range of times, places and cultures.

- **Performing—singing:** Students will sing a repertoire of songs on their own and with others displaying confidence, expression and an awareness of musical elements such as pitch, rhythm etc.
- **Performing—playing instruments:** Students will play increasingly complex musical pieces using a range of instruments demonstrating style, expression, and an understanding of melodic direction, tempo and dynamics. Students will have the opportunity to perform solo and as part of an ensemble for an audience, following directions from a conductor.
- **Creating/composing:** Students will use their imagination and musical experience to organize sounds into various forms including verse, chorus-binary, etc to create compositions that communicate specific ideas or moods. Students will use traditional notation to record their compositions.
- **Listening:** Students will identify and describe various musical elements such as rhythmic patterns, melodic patterns and form. Students will distinguish between a range of instrumental sounds and have the opportunity to respond to different styles of music, and music from different times and cultures.

Drama: The study of dramatic performance and production. Students will work independently and cooperatively in groups drawing stimuli from the environment, and using a range of performance conventions to create effective dramas.

- **Drama for understanding:** Students will use drama to examine concepts taken from the particular unit of inquiry being studied. They will use role play to view a situation from the perspective of another person and to communicate that perspective using language and gesture.
- **Storytelling and playmaking:** Students will explore some of the basic elements of drama, such as role, plot, situation and space, through devising or adapting drama productions.
- **Performance skills:** Students will develop and portray characters and remain in role in a given situation by using voice, body and gesture.
- **Personal and social development:** Students will develop negotiation skills and work independently and cooperatively in small groups.
- **Reflection, evaluation and appreciation:** Students will reflect on their own work, and the work of others in order to enhance performance.
- **Drama in society, cultural perspectives and world theatre:** Students will discuss experiences of performing arts explaining the way a story was communicated, recognizing theatrical conventions from other cultures and periods while identifying those elements of the production that were effective and those that were not.

Visual arts: The study and appreciation of artworks from a range of cultures and media. Students will become keen observers of their environment by identifying principles of art and design in the world around them. They will choose appropriate materials and use previous experience to communicate their ideas effectively. Students will provide and accept constructive criticism of their own artwork and that of others.

Related concepts:

- artifacts
- dramatic tension
- dynamism
- focus
- genres
- improvisation
- information technology
- inspiration
- interpretation
- preparation
- sensitivity
- symbolism
- teacher-in-role

Figure 12 The programme of inquiry: arts

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What do we want to know about personal, social and physical education? Programme of inquiry

Personal education:	Personal education is the study of the growth of the individual in respect to emotions, self-concept and moral values.
Self concept:	• The development of an awareness of one's own feelings and behaviour. Learning strategies for coping with, communicating about, and managing feelings.
Health:	• The development of an awareness of aspects of overall health, including physical growth, nutrition and the control of diseases and substances that affect the body. Positive lifestyle choices in order to promote and maintain health are encouraged.
Safety:	• The development of safe behaviour practices to be used in the home, school and community.
Organization for learning:	• The development of an awareness of strategies by which to become a successful learner, including the adoption of a positive attitude toward responsibilities. The making of independent choices in relation to learning and those with whom one works.
Social education:	Social education is the study of the growing interaction of the individual within his/her family, learning community and society, and the world at large.
Cultural understanding:	• The study and acceptance of cultural, racial, and religious similarities and differences.
Interaction with others:	• The development of an awareness of social norms and values within the family, the school community and society. The understanding of conflict and development of appropriate ways of dealing with it.
Environmental understanding:	• The development of an appreciation for the environment and the need to reflect and act on our responsibilities towards it.
Physical education:	Physical education encompasses all that which contributes to personal lifelong health. It involves the study of the human body and its care and fitness.
Spatial awareness:	• The development of an awareness of the position of objects and/or people in relationship to oneself and to each other.
Movement:	• The development of basic motor skills and the exploration of the body's capacity for movement through manipulative, locomotor and balance exercises.
Adventure challenge:	• The development of problem-solving skills which require cooperative group work and use of body management skills.
Athletics:	• The development of skills linked to the three strands of athletics—running, jumping and throwing.
Dance:	• The development of body movement in relation to others and to music.
Games:	• The development of skills and techniques required in games-related activities.
Gymnastics:	• The development of body control and management through skill-related exercise.
Health-related exercise:	• The development of the awareness of the importance of physical fitness and of maintaining a healthy lifestyle.

Related concepts:

- adaptation
- authority
- conflict
- conservation
- culture
- democracy
- dependability
- diversity
- equity
- exploitation
- friendship
- goals
- growth
- hope
- initiative
- interdependence
- norms
- opinion
- patterns
- power
- prejudice
- pride
- religion
- rights
- stereotype
- tradition
- trust
- values

Figure 13 The programme of inquiry: personal, social and physical education

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Skills: what do we want the students to be able to do?

Why include skills as an essential element?

The search for understanding is central to the beliefs 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, understanding is complemented by the students' acquiring and applying a range of skills. These skills are best developed in the context of meaningful situations such as those offered by the PYP units of inquiry.

The PYP position is that, in order to conduct purposeful inquiry and in order to be well prepared for further education and for life beyond school, students need to master a whole range of skills beyond those normally referred to as basic. These include skills which transcend the indi vidual disciplines.

What skills does the PYP suggest? (See figure 14)

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Transdisciplinary skills

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, view points, 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 behaviour is appropriate in a given situation and acting accordingly; being a leader in some circumstances, a follower in others.

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.

Non-verbal communication
Recognizing the meaning of visual and kinaesthetic communication.

Thinking skills

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 both points of view; being able to construct an argument for either point of view based on knowledge of the other; realizing that others can also take one's own point of view.

Metacognition
Analysing one's own and others' thought processes; thinking about thinking and thinking about how one thinks and how one learns.

Research skills

Formulating questions
Identifying something one wants or needs to know and asking compelling and relevant questions which 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 sources, such as measuring, maps, polls, surveys, direct observation, resource books, films, people and exhibitions.

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 which emerge from organized data.

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

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 behaviour which 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; practising appropriate hygiene and self-care.

Codes of behaviour
Knowing and applying appropriate rules or operating procedures of groups of people.

Informed choices
Selecting an appropriate course of action or behaviour based on fact or opinion.

Figure 14 The transdisciplinary skills

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Attitudes: what do we want the students to feel?

Why include attitudes as an essential element?

While recognizing the importance of concepts, knowledge and skills, the PYP believes that these alone do not make an internationally educated person. It is vital that we also focus on the development of positive attitudes towards people, towards the environment and towards learning.

The PYP does not believe it effective to rely on these attitudes being fostered in an implicit way, as some form of hidden curriculum. It is essential that we address them consciously, professionally and explicitly within the written curriculum, that we design activities which promote positive attitudes and that we consider attitudes when we are designing assessment strategies.

What attitudes does the PYP suggest that schools should encourage?

Attitudes **We want students to develop:**	
Appreciation	appreciating the wonder and beauty of the world and its people
Commitment	being committed to their learning, persevering and showing self-discipline and responsibility
Confidence	feeling confident in their ability as learners, having the courage to take risks, applying what they have learned and making appropriate decisions and choices
Cooperation	cooperating, collaborating and leading or following as the situation demands
Creativity	being creative and imaginative in their thinking and in their approach to problems and dilemmas
Curiosity	being curious about the nature of learning and of the world, its people and cultures
Empathy	imaginatively projecting themselves into another's situation, in order to understand his/her thoughts, reasoning and emotions
Enthusiasm	enjoying learning
Independence	thinking and acting independently, making their own judgements based on reasoned principles and being able to defend their judgements
Integrity	having integrity and a firm sense of fairness and honesty
Respect	respecting themselves, others and the world around them
Tolerance	feeling sensitivity towards differences and diversity in the world and being responsive to the needs of others

Figure 15 Attitudes for students to develop

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Action: how do we want the students to act?

Why include action as an essential element?

The PYP believes that international education must extend beyond intellectual attainment to include not only responsible attitudes but also thoughtful and appropriate action. International schools can and should meet the challenge of offering all learners the opportunity and the power to choose their actions, to act and to reflect on these actions in order to make a difference in and to the world.

The PYP believes that every student, every year, has the right and the duty to be involved in such action. In order to make the action component of the curriculum as powerful as possible in terms of student learning the PYP advocates a cycle of involvement which provides students with opportunities to engage in meaningful action.

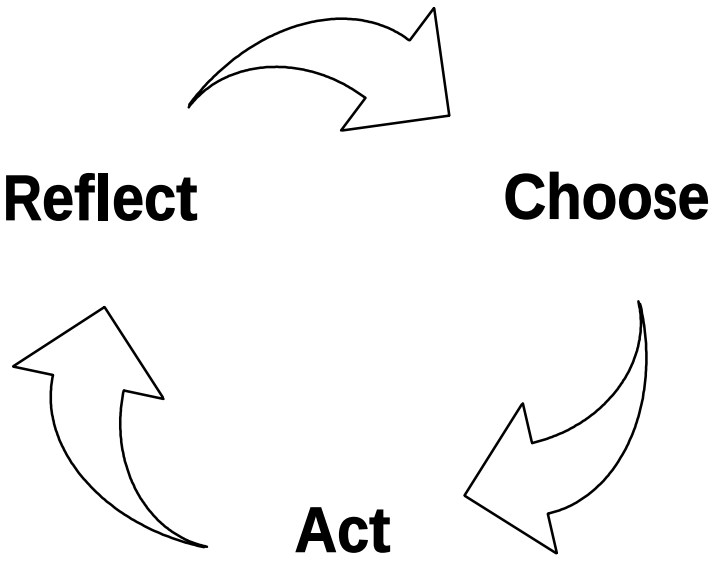

Figure 16 The action cycle

The action component of the PYP involves service in the widest sense of the word: service to fellow-students, to the staff and to the community. Through such service, students are able to grow both socially and personally, developing skills such as cooperation, problem solving, conflict resolution and creative and critical thinking. These actions are, moreover, ways in which the students exhibit their commitment to the attitudes that we seek to engender within the PYP classroom.

Is it possible for students to identify appropriate actions in which to engage?

Effective action does not need to be grandiose. On the contrary, it begins at the most immediate and basic level: in the family, in the classroom, in the hallways and in the playground. Even very young children can have strong feelings about fairness and justice and we, as educators, can facilitate positive expressions of these opinions. The PYP has chosen to do so by identifying responsibility as one of the key concepts driving the curriculum and by including the question, “What is our responsibility?” as a key question.

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The PYP believes not only that it is possible for students to identify appropriate actions but also that we have a responsibility to enable them to choose their actions carefully, to facilitate these actions and to encourage them to reflect on the actions they undertake. This is viewed as an important part of students' active participation in their own learning.

What actions does the PYP suggest that schools should encourage?

The PYP recognizes the problems inherent in advocating action and the importance of presenting a balanced viewpoint. Voluntary action must remain precisely this, if we truly believe in the values we advocate. Furthermore, we must remember that today's complex issues do not often suggest simple or self-evident solutions and that inaction is also a legitimate choice; indeed, sometimes, inaction may be the best choice.

Each school should develop its own action component based on the needs of its students and community. Therefore, the precise actions in which schools may engage will differ.

Guidelines for implementation

Effective action:

- should be voluntary and involve students in exercising their own initiative and in taking responsibility for their actions
- should be based on balanced understandings and not biased stereotypical thinking
- usually begins in a small way and arises from genuine concern and commitment
- is usually, for younger children, grounded in their own concrete experience
- demands appropriate adult support in order to facilitate students' efforts and to provide them with alternatives and choices
- is not always concerned with raising funds.

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Synthesizing the essential elements

Synthesizing through the planner

The PYP presents an analysis of the written curriculum in terms of five essential elements: concepts, knowledge, skills, attitudes and action. For these elements to work in practice and actually to drive the taught curriculum they must be brought together into a meaningful synthesis through planning, teaching and assessment.

The PYP proposes an approach to teaching and learning which centres around the design of transdisciplinary units of inquiry recorded on the PYP planner. Each of these units:

- stands alone as a significant, relevant, challenging learning experience
- contributes to a coherent, school-wide programme of inquiry which is framed in terms of themes of universal importance
- draws together elements of different disciplines into a meaningful whole
- is planned by teams of teachers working in collaboration, guided by a set of questions for teachers (these questions create the structure for the PYP planners, provided for the purpose of collaborative unit design)
- is driven by a set of key questions which are conceptually based
- involves students in a range of learning activities planned in response to the key questions
- builds on the prior knowledge of the students in the context of meaningful research
- is constructed and conducted in such a way as to promote positive attitudes
- requires students to examine their own levels of responsibility and engage in positive action and service.

Through the units of inquiry, then, the essential elements are synthesized into a meaningful whole, a coherent approach to teaching and learning. Teachers and students generate questions which have a conceptual base and are relevant to the context of the unit. Classroom activities are planned as a direct response to these questions. 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 which fosters positive attitudes and offers opportunities for constructive action. Assessment of student learning focuses on the quality of the students' research, the breadth and depth of their responses to the set of questions which is driving the unit.

It is important to note that the programme of inquiry does not necessarily constitute a school's whole programme. The PYP believes that well planned units can provide an ideal context for learning across the disciplines. It also recognizes that disciplines have an integrity and essence of their own which must not be lost. The PYP advocates teaching across the disciplines when it enhances learning but not when the integration results in teaching and learning which is artificial and superficial. Schools must make their own decisions with regard to the level of integration.

Synthesizing through the student profile

The PYP interprets its beliefs and values in the form of a student profile. This profile provides the aims for the curriculum and focuses our attention on the fact that student learning is what schools are about.

The PYP student profile also represents a synthesis of the essential elements. Throughout the primary years the students engage in structured inquiry which synthesizes concepts, knowledge, skills, attitudes and action. In doing so, they develop the attributes and dispositions described in the student profile.

This profile provides powerful goals in all disciplines and, indeed, serves as the aim for the subject-specific sections of the curriculum. Figure 17 expresses the student profile in the context of the disciplines. These subject-specific profiles serve, in the broadest sense, as objectives for the curriculum.

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PYP student profile (subject perspectives)

Students are:	in language	in mathematics	in science and technology	in social studies
Inquirers—Their natural curiosity has been nurtured. They have acquired the skills necessary to conduct purposeful, constructive research. They actively enjoy learning and this love of learning will be sustained throughout their lives.	They use language as the primary medium of inquiry to learn about language and through language.	They are fascinated by the world of patterns, shape and number and use the skills of mathematics to conduct purposeful inquiry.	They have a sense of wonder about the physical and material world and how it works and use the science process to conduct purposeful inquiry.	They inquire into: their own and others' cultural heritages; historical and geographical influences on individuals, groups and social systems; the host society and culture. They retain an enthusiasm for learning about self and others, past and present, and about the social world, recognizing that human understanding of self and the social world, past and present, is changing daily in the light of new ways of thinking, new findings and new technology.
Thinkers—They exercise initiative in applying thinking skills critically and creatively to make sound decisions and solve complex problems.	They use language precisely and skilfully in the context of higher level thinking.	They use mathematics as an analytical tool across the curriculum.	They use the process skills of science to reinforce, change or reflect their existing ideas.	They think creatively and critically about public issues and make informed judgments about the past and about social and environmental problems.
Communicators—They receive and express ideas and information confidently in more than one language, including the language of mathematical symbol.	They are confident users of oral and written language forms, in a variety of situations.	They use the language and symbols of mathematics to receive and express ideas and information confidently, to understand the relationships between meanings and to engage in mathematical discourse at ever increasing levels of abstraction.	They gather, record, organize, interpret and present scientific data in different forms.	They communicate their questions, data findings and conclusions effectively.
Risk-takers—They approach unfamiliar situations without anxiety and have the confidence and independence of spirit to explore new roles, ideas and strategies. They are courageous and articulate in defending those things in which they believe.	They are willing to attempt to read, write or speak in situations where they may not feel totally competent.	They are prepared to try out new approaches, suggest solutions to problems and respond to unfamiliar formats, even when they are not certain that they know the right way.	They are prepared to hypothesize about, and speculate responses to, unfamiliar problems or situations. They are willing to give up or change ideas in the light of evidence.	They use the approaches of the historian, geographer and social scientist to look at, and think about, the social world in creative and novel ways.
Knowledgeable—They have spent time in our schools exploring themes which have global relevance and importance.	They understand the internal structure of language and the various influences on its development. They have experienced a wide range of literature.	They know about a coherent body of interconnected mathematical understandings and the role of mathematics in the development of science, technology and society in general.	They have acquired a body of significant scientific knowledge and an understanding of important concepts.	They have acquired a body of knowledge and developed a depth of understanding about how the social world, its systems and institutions, works, and about the needs, rights and responsibilities of individuals and groups.
Principled—They have a sound grasp of the principles of moral reasoning. They have integrity, honesty and a sense of fairness and justice.	They are aware that language is powerful, that it can have a profound effect, and that it must therefore be used responsibly.	They recognize the responsibility to be accurate and appreciate the obligations to gather, interpret, report and apply data with honesty.	They follow the science process faithfully and communicate results honestly.	They participate actively as responsible members of their class, school, family and community; use the UN Declaration of Human Rights as the basis for their moral reasoning about the social world.
Caring—They show sensitivity towards the needs and feelings of others. They have a sense of personal commitment to action and service.	They show responsible, caring attitudes toward the use of language and they value literature for the insight it gives into the feelings of others.	They recognize and value the power of mathematics as a highly effective tool for understanding and solving problems and to show appreciation of the beauty and fascination of the subject.	They treat their environment with sensitivity and respect. They are conscious of the power of science to sustain or damage the environment and they are developing a sense of responsibility regarding the impact of their actions.	They demonstrate empathy for others. They participate in solving classroom, school, family, local and global social problems.
Open-minded—They respect the views, values and traditions of other individuals and cultures and are accustomed to seeking and considering a range of points of view.	They respect differences and similarities between language and dialects. They are aware of the use of language as an expression of bias and strive to maintain an objective stance.	They have an awareness of, and a respect for, varied interpretations and critically evaluate explanations, strategies and solutions.	They appreciate the tentative nature of ideas and recognize that science is a constantly changing and evolving body of knowledge.	They appreciate the tentative nature of judgments about the human past and human motivation; respect the rights of others to hold views which differ from their own; appreciate the strengths as well as any possible shortcomings of the host culture; are prepared for theories, predictions and speculations to be disproved; and are prepared for unexplained findings.
Well-balanced—They understand the importance of physical and mental balance and personal well-being.	They are aware of the need for an educated person to be an effective communicator. They use literature for learning and leisure.	They understand the importance of being numerate in order to meet the demands of a technological age.	They understand their own bodies and their needs. They make informed decisions based on scientific knowledge so as to ensure their own health and that of others.	They accept uncertainty and ambiguity and understand that not all questions have answers and not all problems have solutions.
Reflective—They give thoughtful consideration to their own learning and analyse their personal strengths and weaknesses in a constructive manner.	They reflect on their own levels of language development in their mother tongue and other languages. They consciously work at improving their language proficiency.	They are accustomed to examining their own mathematical learning and analyse their strengths and weaknesses in a thoughtful, constructive manner. They reflect on their own mathematical conclusions and the processes they have use to arrive at these.	They reflect on their methods and conclusions. They respect and recognize its limitations. They differentiate between fact and opinion/conjecture, evidence and assertion.	They are aware of the need to evaluate sources of evidence. They reflect on their own interpretations and on the methods they have used to reach them. They differentiate between fact and opinions/conjecture, evidence and assertion.

Figure 17 PYP student profile: subject perspectives

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How best will we learn? The taught curriculum

What are the connections between the written curriculum and actual classroom practice—the taught curriculum?

Those familiar with the PYP sometimes ask, "Is it a curriculum or an approach?" The answer is "Both". The PYP defines curriculum as including approach in recognition of the fact that, in practice, the two are inextricably linked.

The PYP has set out to strengthen these links by developing a curriculum in which classroom practice, the taught curriculum, is a direct reflection of the written curriculum. Therefore:

- in the written curriculum the essential elements of learning—concepts, knowledge, skills, attitudes and action—are identified
- it is recognized that these elements are not completely separable—in the course of the learning process they blend and it is suggested that they are synthesized in two main ways:
  - into a student profile, which reflects the essential elements
  - through key questions which, while conceptually based, reflect aspects of other essential elements
- the teacher plans, with input from the students, thematic units designed to address the student profile
- the activities which are planned for the unit are designed to ensure that, in conducting inquiry structured around the key questions, the profile is addressed.

Therefore, the planning focuses on using the written curriculum to suggest key questions around which to structure inquiry. The teaching focuses on facilitating that inquiry in the classroom and beyond. The taught curriculum is the written curriculum in action.

Why is the PYP committed to this type of teaching?

The PYP is committed to structured, purposeful inquiry, which engages students actively in their own learning. The reason is simple. We believe that this is the way in which students learn in the most constructive manner.

Since its inception the PYP has been infused with a spirit of inquiry. The PYP structures its own work by means of questions such as, "What do we want the students to learn?" In seeking to answer that question the PYP has made a commitment to relevance and quality rather than to quantity. The PYP is convinced that coverage is often the enemy of understanding. The PYP wants the curriculum to emphasize the active construction of meaning, so that students' learning will be purposeful.

An extensive study of the literature, when combined with practical experience, has led the PYP to the position it now holds, which is one of commitment to structured, purposeful inquiry, which engages students actively in their own learning, because it is believed that this is the way in which students learn best. The PYP believes that students should be invited to investigate important subject matter by formulating their own questions, looking at the various means available to answer the questions and proceeding with research, experimentation, observation and other means that will lead them to their own responses to the issues. The starting point has to be students' current understanding, and the goal is the active construction of meaning by building connections between students' experience and information and processes derived from the inquiry into new content.

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The PYP suggests that the teacher's role in this process is to create an educational environment which encourages students to take responsibility, to the greatest possible extent, for their own learning. This means that resources must be provided for each student to become involved in self-initiated inquiry. In the PYP classroom, the teacher facilitates the process of students becoming seekers rather than followers by asking carefully thought out, open-ended questions and by encouraging students to ask questions of each other as well as of the teacher. It goes without saying that the teacher must also model and value inquiry. This is the type of teaching to which the PYP is committed.

How do we plan for this kind of learning?

The PYP recognizes that most curriculum guides provide the basis for planning, usually in the form of learning objectives. They provide a document **from** which to plan. The PYP has decided that, in support of teachers who are implementing the curriculum, the link between the written curriculum and the taught curriculum should be strengthened. Therefore, the PYP has developed a document **with** which to plan.

This document, the PYP planner (figures 18 and 19), follows the same principles of learning as every other document the PYP has produced in that it is:

- designed to be used collaboratively
- structured around a set of open-ended questions (see figures 21–24).

Figure 20, referred to as the bubble planner, includes stage by stage guidelines for use.

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Theme: _____ **PYP PLANNER**

Unit title: _____

Focus: _____
Discipline(s) to receive the major emphasis.

Teacher(s): _____ **Level:**_____ **Proposed duration:** _____

School: _____

Stage 1: What is our purpose?
A concise description of the central idea to be addressed and the scope of the inquiry.

a) Central idea:

b) An inquiry into:

Stage 2: What resources will we use?
People, places, audio-visual materials, related literature, music, art, computer software, etc.

Stage 6: To what extent did we achieve our purpose?
To what extent: were the purposes fulfilled; was the unit relevant, engaging, challenging and significant; were the resources adequate; were the concepts, skills and attitudes addressed?

Figure 18 PYP planner

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Stage 3: What do we want to learn?

The key questions which will drive the inquiry.

Form What is it like?			
Function How does it work?			
Causation Why is it like it is?			
Change How is it changing?			
Connection How is it connected to other things?			
Perspective What are the points of view?			
Responsibility What is our responsibility?			
Reflection How do we know?			

Teacher questions

Student questions

Stage 4: How best will we learn?

Teacher- and/or student-designed activities which will address the key questions.

Stage 5: How will we know what we have learned?

The strategies which will be used to assess learning.

Student self-assessment

How will we take action?

How the students will demonstrate their ability to choose, act and reflect.

Figure 18 PYP planner (continued)

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Stage 6: To what extent did we achieve our purpose?
To what extent: were the purposes fulfilled; was the unit relevant, engaging, challenging and significant; were the resources adequate; were the concepts, skills and attitudes addressed?

Theme: _____ **PYP PLANNER**

Unit title:_____

Focus: _____
Discipline(s) to receive the major emphasis.

Teacher(s): _____ **Level:**_____ **Proposed duration:** _____

School: _____

Stage 1: What is our purpose?
A concise description of the central idea to be addressed and the scope of the inquiry.
a) Central idea:

b) An inquiry into:

Stage 2: What resources will we use?
People, places, audio-visual materials, related literature, music, art, computer software, etc.

Figure 19 PYP planner

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Stage 3: What do we want to learn?

The key questions which will drive the inquiry.

Form What is it like?			
Function How does it work?			
Causation Why is it like it is?			
Change How is it changing?			
Connection How is it connected to other things?			
Perspective What are the points of view?			
Responsibility What is our responsibility?			
Reflection How do we know?			

Teacher questions

Student questions

Stage 4: How best will we learn?

Teacher- and/or student-designed activities which will address the key questions.

Stage 5: How will we know what we have learned?

The strategies which will be used to assess learning.

Student self-assessment

How will we take action?

How the students will demonstrate their ability to choose, act and reflect.

Figure 19 PYP planner (continued)

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Theme: _____ **PYP PLANNER**

Unit title: _____

Focus: _____

Discipline(s) to receive the major emphasis.

Teacher(s): _____ **Level:**_____ **Proposed duration:** _____

School: _____

Stage 1: What is our purpose?

A concise description of the central idea to be addressed and the scope of the inquiry.

a) Central idea:

b) An inquiry into:

Stage 1b:

Clarifies the central idea and defines the scope of the inquiry. Itemized components of that central idea extend the inquiry and deepen the understanding of the implications of that idea for a particular group of students. It engages student interest, focuses student research and reflects the school's curriculum.

Stage 1a:

A concise and true statement of a broad understanding or important experiences embedded in the disciplines. It is worth knowing and has enduring value beyond the classroom. It is globally significant and is relevant to the transdisciplinary theme that defines the unit of inquiry. It challenges and extends students' prior knowledge and is complex enough to provoke genuine student inquiry.

Stage 2: What resources will we use?

People, places, audio-visual materials, related literature, music, ar t, computer software, etc.

Stage 2

Having reviewed the available resources, use this space to list the particular people, video tapes, artifacts, local resources, related fiction, computer software, etc on which you will build the unit. This space is not intended for comprehensive lists of conventional resources or bibliographies.

Stage 6: To what extent did we achieve our purpose?

To what extent: were the purposes fulfilled; was the unit relevant, engaging, challenging and significant; were the resources adequate; were the concepts, skills and attitudes addressed?

Stage 6

Review the original purpose of the unit. Record any changes or adjustments of emphasis in the purposes you would make if doing this unit again. Record which concepts, skills and attitudes were well covered. Activities which were particularly productive, and those which were not, should also be noted. An indication should be made of the teacher's overall evaluation of the unit, and any longer term effects or outcomes which resulted. Students are part of this process too. Their evaluation of the activities, the value of the unit and any suggestions or change they made should be recorded here as well.

Figure 20 PYP planner

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Stage 3: What do we want to learn?

The key questions which will drive the inquiry .

Form What is it like?			
Function How does it work?			
Causation Why is it like it is?			
Change How is it changing?			
Connection How is it connected to other things?			
Perspective What are the points of view?			
Responsibility What is our responsibility?			
Reflection How do we know?			

Teacher questions

Stage 3

Using the key questions as a resource, formulate open-ended questions which will guide students towards an understanding of the essence of this unit as described in stage 1, the purpose. Three or four well-formulated questions are all that are required to drive the inquiry.

The key question boxes above should be used to record which kinds of questions have been formulated. It is not necessary to have questions under each key question in each unit. However, it should be possible to formulate questions in all units about connections, perspectives and responsibility.

Student questions

Stage 3b

Introduce the proposed unit to the students and ask them what they would like to find out. Record their questions here. Discuss with them the questions you consider to be important.

Stage 4: How best will we learn?

Teacher and/or student designed activit ies which will address the key questions.

Stage 4

Design a variety of activities which will follow up on the students' questions and the lines of inquiry prompted by the key questions. Activities should also be designed with the student profile in mind as well as specifically relating to the development of understandings implicit in the key questions. Students should, as far as possible, be involved in designing activities and deciding on appropriate strategies for answering the driving questions.

Because assessment is integral, all these activities will be used as either formative or summative assessment instruments by the teacher and/or students. They should be designed with this in mind and clear records should be kept to indicate student progress.

Stage 5: How will we know what we have learned?

The strategies which will be used to assess learning.

Stage 5a:

Teaching and assessing are part of the same learning process. Records allow teachers and students to see progress in the development of understandings, skills and attitudes.

This column should be used in conjunction with the listing of activities in stage 4.

Identify here which activities will be used for formative and summative assessment, and the kinds of strategies and criteria for assessment that will be used in each case.

How will we take action?

How the students will demonstrate their ability to choose, act and reflect .

In this box write the ways in which the unit may lend itself to presenting action choices to the students. Not every unit will necessarily have an action component and in some, the action component will develop spontaneously in the course of the unit.

Figure 20 PYP planner (continued)

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Evaluating a written planner for a unit of inquiry

Criteria for evaluating the quality of the planner at each stage of its development:

Purpose and questions

- Is the purpose clearly stated?
- Do the key questions reflect the purpose?
- Are the questions clear, open-ended and precise?
- Is the plan appropriate to the development level and interests of the students?
- Is there a direct link between the concept-based questions and the activities?
- Does the unit provide opportunities for:
  - exploring significant content
  - understanding major concepts
  - acquiring relevant skills
  - developing desirable attitudes
  - displaying responsible actions?
- Do the questions and activities promote a global perspective?

Activities

- Do the activities reflect a variety of appropriate teaching and learning strategies?
- Will the students be actively engaged?
- Is there room for student initiative?

Assessment

- Do the assessment strategies allow for individual differences?
- Does the assessment follow from the purpose?
- Does the assessment allow students to appreciate their progress?

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Further questions: language

Language: transdisciplinary language—in a social studies unit of inquiry (Islam)

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What language(s) do Islamic peoples use? Is there a written form? What is the language like? Does the language have a different structure from ours? Does it have different vocabulary?	What part does literature play in the developments of a culture? Are there various dialects and accents in Arabic? How important is Arabic as a world language?	What part does language play in cultural identity? What historical influences have shaped the Arabic language? To what extent does language influence thinking styles?	How do forms of Arabic differ in different geographical locations? How has Arabic changed historically?	What are the similarities and differences between Arabic and other languages we know? Do all Islam followers speak the same language? Did the Arabic language exist before the Islamic religion?	How could knowledge of the Arabic language help us understand the Islamic culture? Is non-Islamic writing about Islam biased? Are some languages better than others? Are some languages more important than others? Are some languages easier to learn than others?	How can use of language influence people? How does our use of language influence our view of certain people? Why is it our responsibility not to form stereotypes? How should we treat people who speak different languages from us?	How can literature help us understand a culture? Did we have information from primary sources? Did we only rely on secondary sources? Which is the more valuable source? Why?

Language: metalanguage—names

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is a name? What are the special words used for the names of things? Why do some names have capital letters and others not?	What do names tell us about the things they name? How can the study of place names tell us more about historical events? Why do we name things?	How have the physical features of the earth affected the development of language? How do geomorphological features get their names? How do people get their names? How do places get their names?	What has influenced the development of the language of specific disciplines? When can people's names change? Why do names go in and out of fashion? Why do people's names change when they are married?	What are the origins of names? How are people's names connected to their religion?	Which languages have influenced the development of English? Why do names for the same features differ from culture to culture? How do people's names differ in different cultures? If we pronounce a name differently is it still the same name?	What might be the consequences of careless naming of new discoveries, inventions, etc? Does everyone have the right to a name?	How can the study of names contribute to our knowledge about other disciplines?

Language: literature—picture books

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What kind of picture books are there? What are the parts of a book? What is the balance between picture and text? How are books made? What illustration techniques have been used? What kind of pattern is the book based on? What materials can be used?	How do the pictures and text work together? What are the main elements of a story? Do books play the same role in all cultures? In all families? What do we use books for? Can books be misused?	How do picture books compare with other literary forms? How are books by the same author similar/different? Why did this author choose this story? Why did the illustrator choose this style of illustration?	How have picture books changed historically? How do our preferences/opinions change as we get older? How have the materials used for books changed? How does the role of illustrations change in books for older people?	How do picture books compare with other literary forms? How are books by the same author similar/different? How can reading help our language development? How is this book similar/different to others we have read? How do the pictures help us to understand the text?	How do picture books differ in different cultures? Do books have the same role in all cultures? Why do picture books appeal particularly to younger readers? What influence does the cover have on our thoughts about the book? How do the illustration techniques reflect the culture? Why might some people finds some books objectionable?	Do all children have access to books? How much does a reader have to bring to a book? What is the author's responsibility to avoid bias and stereotyping? What can we learn from this book about human nature and world issues? Should we censor some books? Who should decide which are censored? Why do some people never learn to read?	What kind of messages do authors try to convey to readers? How does discussing a book develop our understanding of it? How does analysing a book develop our understanding of it? How do illustrations add to our understanding? What does this book tell us about ourselves? What does it tell us about others?

Figure 21 Further questions: language

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Further questions: mathematics

Mathematics: shape and space—plane shapes

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
Can you describe these shapes? How are these shapes formed? Can you make this shape from other shapes? Can you make this shape using Logo (a programming language for children)? How many sides does a…have? What does it look like? What shapes can you see through a grocer's window? What do quadrilaterals look like?	What are some differences between the shapes? What are some similarities between the shapes? How do we use these shapes? Which shapes are used in architecture, for storage, for design, etc? Does a…tesselate? Where else have you seen it? What are some differences between the 2D and 3D shapes? What is each shape being used for? What makes a shape a quadrilateral?	Why is a…the best shape to use to…? How did the plane shapes get their names? Why are windows and doors often rectangular? Why would someone make a circular door or window/a triangular door or window? Why are tyres round? Can you make this shape from other shapes? Which containers can be stacked most efficiently? Why? Do all quadrilaterals tessellate?	Can you change a…into a…? Can you use this shape to make a solid shape? What would the world be like without circles? How have the shapes of doors and windows changed over time? What can we make with it? What shapes are cross sections of 3D shapes? Can you sketch the 3D shapes as a 2D shape? Can you explain how the cereal box was made? Can you change one quadrilateral to another?	What is the difference between a…and a…? What shape are the faces of this solid? Can a…also be a…? Which of these shapes is the biggest? What is the difference between a square and a rectangle? What is the difference between a circle and a sphere? Can you tell me how the boxes are similar to the buildings in your neighbourhood? Where can you find these shapes in the world?	What solid shapes have this shape in them? What shapes would a seagull see if it looked down on our school? Our street? Does this shape look the same when viewed from different positions? How does this shape look when you rotate it? Is your friend sitting opposite you seeing the same shape that you are? What happens when you rotate your shape or look at it in the mirror?	When do you think your knowledge about shapes will be useful? How can we use these shapes? How did you describe your shape? Can you draw a real parallelogram?	How can you be sure that this shape is a…? What can you tell me about your shape? Can you tell me about a world of circles? How could you describe a quadrilateral to someone who had never seen one?

Mathematics: pattern and function

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is a pattern? What is this pattern like? How does this repeat?	Can you make sets of three? What if I double each one? What if I keep adding/subtracting? How does it repeat? Which elements change? How can we use it to predict? How many patterns can I make with…?	Why do these calculations produce patterns? What patterns does nature use? Why? What patterns does man use? Why?	Do you get the same results from repeating or must we use another way to solve this? What do you have to do to make the numbers change? Is this true for all patterns? Why is that pattern the way it is? What happens if we add the same number to each of these?	Where do we find pattern in the environment? What is the same/different about those patterns? What other patterns helped you to solve this? How can this pattern be useful to you in another way?	Is this pattern symmetrical? Can we explore this pattern from left to right? Right to left? Does looking at it differently change the pattern? Which way do you like best? Why? Does anyone have a different way of explaining this pattern?	Why should we respect pattern in nature? Why should we use pattern to predict? Have we tried all the possibilities? Have we tested enough? Can you convince the rest of us that this pattern will continue?	How can we see, touch and feel the pattern? How did you know how to continue the pattern?

Mathematics: data handling

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is the information displayed here? What patterns do you see in the display of data?	What does this display of data tell you about…? What is the big idea of this display of data?	Why do you think the data was displayed in this form? Why do you think the data shows this about…?	How has your knowledge about… changed because of this data? How does this collection of data show change in…when you compare it with older/newer data? What implications does this data have regarding the way people think and act about…?	What do you need to know about…in order to read this data? What does this display of data tell you about…? What have you learned before that helps you read and interpret this display of data?	Could you interpret this data in any other way? Could this data be interpreted by someone else in another way? Who might be interested in this display of data?	How do you justify your interpretation of this display of data? Can you convince the rest of us that your interpretation makes sense? Have you included all of the relevant data to make your point?	How did you reach your interpretation? What new information would make you change your mind?

Figure 22 Further questions: mathematics

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Further questions: mathematics

Mathematics: measurement—time

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What language do we use to describe time? What are the days of the week? What are the months of the year? What is an hour? What is a half hour? What are minutes? What are seconds? What is the 24-hour clock? What are time zones?	How can I identify *when*? How can I measure time? How can I record time? What tools measure very small units of time?	Why is time split up? Why are there time zones?	How can we convert from the 24-hour clock to the 12-hour clock?	How do I organize my time? How many minutes of [physical education] do we have each week? How long does our [music] lesson last? What time is it now in my home country?	How can I sequence events? Why are some people always late/early/on time? How do people in other cultures manage and measure time?	Why is it important to put events in correct sequence? When do I have to be on time? How can I manage my own time better?	What is my favourite time of the day? When was I late? Why? Why is it important to measure time accurately?

Mathematics: measurement—area

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is area? How do we describe area? Does everything have area?	When do we want to know the area of something? How do we find the area of a…?	Why is area like it is? Why does this formula work?	What would happen to the area of something if…? What happens when you change from one unit to another?	How is area connected to linear measurement? How is area connected to perimeter? Who uses the idea of area in their work? How can area help us to understand…?	How is area allocated in…? What are other ways of allocating area in…?	How accurate does your measurement of area have to be? Can you convince us that your measurement is correct? Is your answer reasonable?	How does area help us to understand this topic? How does an understanding of area help us to solve problems? How does area help us compare space?

Mathematics: number—two digit subtraction/addition

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What does a two digit subtraction problem look like? How is two digit subtraction like one digit subtraction? Do you see a pattern? What materials can you use to show the operation? What is addition?	How does subtraction work with two digit numbers? How does place value help us with this? What are the component parts of this? How do the component parts explain how it works? What does it mean to add two numbers?	Why does the value in this place have to change? Why do we regroup? Why do we get the same sum when we reverse addends (the numbers in an addition sentence)?	How does the rule for single digit subtraction change? What can happen in the units column? What can happen in the tens column? How does a number change when you add 1?	How is this connected to single digit subtraction? How is this connected to two digit addition? How is this connected to what you know about place value? How much did you spend on [milk/lunch] this week?	How is regrouping done in other bases? How is two digit subtraction the same/different when you work in your head, with paper and pencil, or with a calculator? How else could you solve this subtraction problem? If you add two numbers on a calculator will you always get the same sum?	Can you convince the rest of us that your method of subtraction works? Is your answer reasonable? When will two digit subtraction be useful to you? Why is it so important to check your sum?	How do you know when to regroup? How does your understanding of base 10 help you to regroup? How do you know that your algorithm is effective? How do you know that someone else's algorithm is effective? How can you check the accuracy of your addition?

Figure 22 Further questions: mathematics (continued)

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Further questions: mathematics

Mathematics: number—place value

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is recognizable about a place value system? What is the relationship between a place value system and the number of digits it uses? What are the names of the positions in a 4-digit number? What is a fraction?	How does a place value system help us write numbers? Why would someone want to use a place value system other than base 10? How does the value of the digit 5 depend on what column it is in? How can you write numbers from 1 to 10 with only three symbols?	What prompted people to develop a place value system? Why is place value useful in making estimates? Why do we use base 10? Why are roman numerals different from our numerals? Why do we sometimes round up or down?	How does something change in a place value system? Why does the value of a digit change in a place value system? Why do the digits used in place value systems change as the base changes? What happens if you reach the number that a place value system is based on? How can you change the value of a three digit number by rearranging the digits? How does position change the value when written before or after a symbol of greater value, eg iv or vi?	How are the different places in a place value system related to each other? How are the places in different place value systems related to each other? How does a place value system help us with computation and estimation? How does place value help us with rounding? How is place value related to the metric system? Where do we see roman numerals?	In what different ways can we look at a number in a place value system? In what different ways can a number be expressed? What patterns do you see when a digit is multiplied by 10, 100, 1000? Why do we use a different system of numerals?	How does your understanding of place value help? What difference does an error in place value make in a sum of money, in a measurement, in a…? Why is it important to align digits of equal place value when adding? Why should we learn/use roman numerals?	How do you know the value of a number in a place value system? Can you do computation and estimation without understanding place value? In what situations do you use place value? How would life be different if we only had roman numerals?

Figure 22 Further questions: mathematics (continued)

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Further questions: science and technology

Science and technology: living things

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What does it look like? Where did it come from? Can you hear/smell/touch it? Where is it located? To which group of living things does it belong? Why does it belong to this group? How does it differ from other things in this group? How are its parts arranged? Is it stable?	How is its behaviour similar to other living things? How does it move? How does it grow? How does it reproduce? How does it feed? How does it respire? How does it sense its environment? Why does it choose to live in a particular environment? How does it communicate? To what extent is it sentient? What relationship does it have with other living organisms?	How did its life begin? Which inherited traits were passed down from one generation to another? How does it continue to grow? How does it reproduce? What environmental factors affect it? How is it affected? What factors are necessary for its systems to function? How do its activities produce changes in its environment? How have outside influences endangered it? What caused it to become extinct?	What changes have occurred in its appearance? What different behaviour patterns does it show? What influences will cause it to change its appearance or behaviour? What stage has it reached in its life cycle? What changes take place in its systems? How does it adapt? How is it able to affect its environment?	What does it need to live? What happens if these needs are not fully met? Is it part of a system or cycle? What happens if there are changes in the system or cycle? How does it help other things to exist? What type of partnership exists? How does it react to shortages? How would a surplus of it affect the environment?	What is my point of view? What is it based on? How valid is the evidence? How conclusive is the evidence? What are the ramifications of this point of view? Does my point of view differ from that of others? Are these different points of view supported by evidence?	How should we behave to ensure that it will continue to exist? Why should we ensure its existence? How can we make sure that there will be a balance, not a scarcity or abundance? How will it be affected by changes in environmental conditions? How will it be affected by changes in cultural factors? How can we protect it? How can legislation help effect change? How can we preserve/enhance its quality of life?	What did I already know? How did I know this? Did I conduct my own research? What form did this research take? Were the sources of my information fact or opinion? Could there have been bias or propaganda? Did I check the information? Did I design experiments to find out more information? Were my experiments fair? Have I analysed my findings?

Science and technology: materials and matter

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What does it look like? What is it made of? Where does it come from? Is it natural or man-made? What form is it found in? Can it be identified by touch, taste or smell? Where is it found?	What is it used for? What will happen if it is frozen, heated, bent, etc? What properties does it have? Why is it made of this material? What would happen if it was made of a different material?	How was it formed? Is it in its natural form or has it been changed? How much does its usefulness depend on its properties? Is its shape dictated by its use? What other material has been used to adapt it? How has its dependence on other things affected it?	Which materials have been used? In which ways has it been changed? What were the conditions of the change? What happens as it changes? Can it change back to its original form? Are there different ways to change it? Can some changes be avoided? Can it change its physical state?	What effect does this material have on us? What was it before and what will it become? How can conditions affect it? Where can we find it? How can we make it? What is its relationship to other materials? How does it interact with other materials? Is it dependent on other things? What is its effect on other things? How can we use it?	What is my point of view? What is it based on? How valid is the evidence? How conclusive is the evidence? What are the ramifications of this point of view? Does my point of view differ from those of others? Are these different points of view supported by evidence?	How is it useful to us? How is our use of it affecting the environment? Can we find alternatives? How can we conserve what we have? What long-term environmental problems are caused by its use? How can we reuse or recycle this material?	What did I already know? How did I know this? Did I conduct my own research? What form did this research take? Were the sources of my information fact or opinion? Could there have been bias or propaganda? Did I check the information? Did I design experiments to find out more information? Were my experiments fair? Have I analysed my findings?

Figure 23 Further questions: science and technology

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Further questions: science and technology

Science and technology: earth and space

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is it called? What can we find out using our senses? What group of things does it belong to or is it associated with? Where can we find it? Where did it come from? What parts is it made up from? How are these parts arranged? How was it formed? How does it affect our senses?	Where did it come from? Where do we find it? Is it always in the same place? Is it always the same? Does it move? Are there any patterns? What properties are present?	How did it begin to exist? Why does it behave the way it does? Why are some of its forms different to others? What would happen if it ceased existing? How is its present state a result of man's actions? Why is it different at certain times? What effects does it have on other things?	What changes have occurred in the landscape? What do we know about earth movements? How do weather changes affect the environment? How is the earth affected by its position and movement in the solar system? What changes have occurred?	Why do we need water and air? What effect do weather patterns have on the environment? What effect does the sun have on us and our environment? How does the moon's cycle affect our lives?	What is my point of view? What is it based on? How valid is the evidence? How conclusive is the evidence? What are the ramifications of this point of view? Does my point of view differ from that of others? Are these different points of view supported by evidence?	What types of pollution are there? What causes pollution? How can we conserve our natural resources? What will happen if we continue only to consider man's wants and expectations?	What did I already know? How did I know this? Did I conduct my own research? What form did this research take? Were the sources of my information fact or opinion? Could there have been bias or propaganda? Did I check the information? Did I design experiments to find out more information? Were my experiments fair? Have I analysed my findings?

Science and technology: energy and forces

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is it called? What forms does it take? Where does it come from? How is it produced? How do we know it is there?	How do we use energy? How can it be made? How can it be stored? How can it be transformed from one form to another? What effect does it have? How does it move from place to place?	Can it be controlled or control other things? How can its activities be regulated? How does it influence other things? Is it part of a system?	What is happening to it now? How has it already changed? How may it change in the future? What made it change? How can it change other things?	What effect does it have on other things? Does it need other things to exist? How is it affected by other things? What conditions does it need to be produced? What things does it interact with? What is the effect of the interaction?	What is my point of view? What is it based on? How valid is the evidence? How conclusive is the evidence? What are the ramifications of this point of view? Does my point of view differ from that of others? Are these different points of view supported by evidence?	Why and how should we ensure it continues to be of use? Can we, or should we, manipulate or change it? Do we know enough to predict what effect changes might produce? If we do manipulate it, in what ways could we improve it? Could it be produced in any other way to preserve the quality of the environment? Is there an alternative source? How does it concern me and what could I do to help?	What did I already know? How did I know this? Did I conduct my own research? What form did this research take? Were the sources of my information fact or opinion? Could there have been bias or propaganda? Did I check the information? Did I design experiments to find out more information? Were my experiments fair? Have I analysed my findings?

Figure 23 Further questions: science and technology (continued)

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Further questions: social studies

Social studies: history

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What was it like then?	**How did the people meet their needs for food, clothing and shelter?**	**Why was it like that?**	**What changes were taking place?**	**How are these events connected to each other, to the present, to the future?**	**How did different people interpret this event?**	**How can we preserve the past?**	**How do historians collect information about the past?**
What did the people do? What kinds of work did they do? Did they have any problems? Did anything make life difficult? What did they do in their free time? What did they believe? What did they value? What language(s) did they speak? Did they have a written language? How did they behave towards each other? What were they particularly good at? Were they in contact with people outside their own group? What resources did they have: people, ideas, commodities? Did they use a number system? What was the available technology? Was there conflict?	Who did the work? What were the roles, rights and responsibilities of individuals/groups? How did they keep themselves alive, well and safe? How did they organize their communal life? Who was in charge? Did they have rules of behaviour? How did they deal with those who broke the rules? How did what they believed/valued affect how their group functioned? For what, or in which ways, did they depend on each other? How did scarcity/abundance affect how the society worked? How did their economic system work? How did their systems of transportation/communication work? How was conflict dealt with? In what ways, if any, did conflict shape the culture?	Why did things happen the way they did? What motivated individuals or groups to act the way they did? Did factors such as individual charisma, the ideas of others, emotion, scarcity of resources and power influence the behaviour? If conflict occurred, who was it between? Was conflict inevitable? What caused the conflict? Were there other alternative solutions? How did technology affect what happened? What caused certain cultures to disappear? What caused certain cultures to disappear?	Why did things change the way they did? What motivated individuals or groups to act the way they did? Did factors such as individual charisma, the ideas of others, emotion, scarcity of resources and power change behaviour? How did conflict change the course of events? How was the conflict resolved? Were there other possible alternative solutions? How did technology change what happened? What caused certain cultures to disappear? What kinds of factors caused change in the past?	What, if any, were the outside influences on the society? In what ways were they interdependent? Was the economic system self-sufficient? What access did people have to other cultures? What benefits or disadvantages resulted from contact with other societies? Did the people share resources or territory with other groups? What, if any, connections exist between then and society today? When a connection between two or more peoples existed was it equitable and just? How does scarcity affect connections? What are the implications of the past for the present/future?	If this is an opinion, whose is it? Are there other, differing, opinions? For what reasons might someone disagree with your opinion? What makes some opinions more worthwhile than others? Might this opinion be biased? Is more than one interpretation of what happened or why it happened possible? Why might there be differences between them? What is my point of view? How can we clarify/verify our opinions? How does my opinion differ from that of others? How do we know the difference between reality and fantasy?	Why should we care about the past? Why do people care about old buildings? Are some things from the past more worthy of our care than others? Why do we have museums? What are the problems of preserving the past? How do humans today make it more difficult to preserve the past? Who should pay to preserve the past? Has human responsibility to preserve the past changed over time? Have people always felt the same sense of responsibility to preserve the past? How does history help us to make responsible decisions today?	Did this event really happen? What is the evidence of this fact? Why do people who have had the same experience not always remember the same things? What makes one historical source better than another? How does this book/film portray a past event or period? What did you know already? How did you know that already? Why might there be gaps in this story? What are the problems of getting more information about what happened? What is this artifact? What does it tell us about how people lived?

Figure 24 Further questions: social studies

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Further questions: social studies

Social studies: geography

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is this place like?	**How does location affect how people organize their lives?**	**Why is this place like it is?**	**How is this place changing?**	**How is this place connected to other places?**	**What kinds of things affect people's perceptions of place?**	**How can we act responsibly towards the environment?**	**How can we be sure geographical information is accurate?**
Where do the people live in this place? What is the landscape like? What is the weather/climate like? What natural forces shape the environment: physical, climatic, biological? What advantages does this location have? What disadvantages does it have? Is it lacking any vital resources? How does the environment determine the lifestyle of the people? What kinds of buildings/public systems are there? What are the homes/public buildings like?	How have people modified this place to meet their needs? How have people adapted to living here? How has this place affected how people meet their basic needs? How has scarcity/abundance of resources affected patterns of settlement, migration, exploration? How has the availability of resources affected how people live here? How has the location affected the culture? How has the climate affected the culture? In what ways has conflict shaped the environment, natural and built? How has technology modified the natural environment? How do people interact with the environment?	Why did people settle here? Why do people continue to live where they live? Why do people live the way they do? In what ways does the built environment result from the natural environment? What environmental factors cause migration, settlement, exploration, rise in population? How has the development of technology affected the environment, natural and built? What natural events cause people to relocate? Does scarcity of natural resources cause conflict, growth, resettlement, migration, expansion? In what ways has conflict and its resolution shaped the environment?	Why did people settle here? In what ways does the built environment result from the natural environment? What environmental factors cause migration, settlement, exploration, rise in population? How has the development of technology changed the environment, natural and built? How has technology changed human control of the environment? What natural events cause people to relocate? Does scarcity of natural resources cause conflict, growth, resettlement, migration, expansion? In what ways has conflict and its resolution shaped the environment?	Do people who live in similar natural environments have a lot in common? Do people who live in the same natural environment always have the same culture? How does location affect the connections a society has with other societies? What kinds of locations facilitate and promote contact with other groups? Is the place I live in similar to or different from this place or other places? How? Are there patterns to be found in the movement of peoples, materials and information between this place and others?	What would be the advantages/disadvantages of living in this place? How is this place similar to/different from where I live? How might I spend a day living in that place? What would be the best thing about that day? What would be my greatest problem? Are the changes that are taking place in the environment beneficial to the place or the people there? In whose opinion? Why do people have different points of view about preserving the environment? Can preserving the environment hurt some people? Do some people need to destroy/save the environment to live?	What environmental problems have been caused by humans? How can we act to prevent further damage to the natural environment? Can individual efforts make a difference? How is the way we live now causing environmental damage? How can we make more people aware of the need to act responsibly? Why should we care what is happening in distant parts of the world? Why are so many old buildings preserved?	Did someone tell us about this place? Did we read about this place and people? Did we see a film, TV programme/hear a radio programme? Did we visit the place, meet the people? Did we conduct first-hand research about this place? What stereotypes do we have about this place? How do we know how far away this place is?

Figure 24 Further questions: social studies (continued)

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Further questions: social studies

Social studies: society

Form	Function	Causation	Change	Connection	Perspective	Responsibility	Reflection
What is this society like?	**How is the society structured?**	**Why is this society like it is?**	**How is this society changing?**	**How are social roles connected?**	**Why do people believe different things?**	**How can we be good world citizens?**	**Can we be certain that the information we have about society is unbiased, or if it is biased, in what way is it biased?**
What are the forms of kinship, customs, values, beliefs, expectations, language(s), artifacts of the society? Is the culture common to the whole of the country or are there different cultures within the state? Are the same cultural elements common to other groups living in different states? What does it mean to be a good citizen in this society? What is the political system? What is the economic system? Do people have equal access to resources and opportunities? What is the legal system? Is it just? Do all people have equal rights? Are they respected? Is there evidence of prejudice? What are the social controls of the society? What roles do individuals play in the society? What rights and obligations go with those roles? What technological systems, transportation, production, education, does this society have?	How does the culture influence the perceptions, emotions and actions of individuals? How is power/authority allocated? How does the election system work? How are leaders removed from power? How is conflict resolved? How are resources distributed? How is justice dispensed? How does the network of interdependence between the individual and group in the society work? How do the mechanisms for social control, norms and sanctions, in the society work? Is there specialization and division of labour in the family and in the workplace? How has the development of technology affected this society? Which different roles can an individual play in society? How can the different roles of an individual in a society cause conflict?	What individuals, groups, institutions, systems have shaped the society? Why have the existing political, economic, legal and social systems developed? Has the environment shaped the nature of society? What is the role of technology in shaping the society? What causes new cultures to develop? What societal factors cause growth, conflict, resettlement, migration, resource management? What societal forces cause people to relocate? In what ways has conflict and its resolution shaped the society?	What individuals, groups, institutions, systems have shaped the society? How have the existing political, economic, legal and social systems changed? Has the environment shaped the nature of the society? What is the role of technology in shaping the society? What causes new cultures to develop? What societal factors cause growth, conflict, resettlement, migration, resource management? What societal forces cause people to relocate? In what ways has conflict and its resolution changed the society?	What kinds of beliefs, values and attitudes encourage connections with other peoples? What kinds of values and attitudes discourage or prevent connections with other peoples? How are the beliefs, norms and values of a people today connected with those of their ancestors? What societal factors promote or discourage contact with other societies? How has specialization of work and the division of labour affected the interdependence of groups? How has the development of technology affected the connections between societies?	What influences our opinions? Can I explain the point of view of others even though I do not agree with it myself? Can I give more than one possible explanation for the actions or behaviours of others? Are the changes that are taking place in society beneficial or destructive? How can conflict be resolved? Would I like a change of role? What role would I most like to play in another culture? What might my lifestyle be if I lived in another culture? Why do people in my community not all value the same things? What rights should all children have? Why do they not have them?	What does it mean to be a world citizen? How can I be a responsible member of my family, class, school, society, world? What is my responsibility to those who are less fortunate? What rights should all children have all over the world? How can I help them to secure their rights? What kinds of organizations and societies exist now that are concerned with preserving the past? How can the world be made a more just place for all humans?	How do we know about this society, its nature, its current state? Have we gathered data from primary sources? Have we gathered data from secondary sources? Is there likelihood of bias or propaganda in the sources? Could the data be interpreted in ways other than it is? Have we examined statistics, graphs, charts? How reliable are own opinions and those of others? Have we left out anything?

Figure 24 Further questions: social studies (continued)

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What changes will this mean for the school?

It has been stated that the PYP believes in a particular approach to teaching and learning. However, it is also recognized that many educational innovations (or, more accurately, educational reworkings) suffer from the advocacy of a narrow, exclusive approach. The PYP represents an approach in a broad, inclusive sense, in that it provides a context within which:

- a wide variety of teaching strategies and styles can be accommodated, provided that they are driven by a spirit of inquiry and a clear sense of purpose
- the more substantial innovations of recent years can flourish.

The degree of change required to implement this approach at the school-wide level will, obviously, depend on conditions within the school at the time of implementation. To be realistic, however, teachers must recognize that:

- school-wide adoption of the PYP approach will require change not only in the classroom but throughout the school
- this change is likely to be slow, painful and beset with difficulties (these difficulties are always associated with any change which requires people to examine and modify their current practice)
- engaging in this change process will have a beneficial impact on the whole school, the individual teacher and, most significantly, on the quality of student learning, but the struggle is worth it
- the process of change in teaching practice will require substantial support from all teachers.

What changes will this mean for teachers?

Again, the degree of change will depend on the teacher. For those teachers who have grown weary of imposed change for which they see little point, we would stress that the PYP does not expect teachers to discard years of hard-earned skill and experience in favour of someone else's ideas on good teaching. It is suggested, rather, that teachers engage in reflection on their own practice, both individually and in collaboration with colleagues, with a view to sharing ideas and strengths with the primary aim of improving their teaching to improve student learning. In doing so, they will be modelling the skills and attitudes that have been identified as essential for students.

As an aid to reflection, the PYP has produced a set of generic and subject-specific examples of good practice which it is believed are worthy of consideration by anyone committed to continuous improvement.

Good PYP practice

A PYP classroom can only be fully effective in the context of a PYP school. In schools like these, all constituents are committed to internationalism and learning. Adults and children are encouraged to ask questions, identify problems and seek solutions in the pursuit of continuous improvement towards common goals. A PYP school is infused with a sense of purpose and a spirit of inquiry. Within this setting, each classroom operates as a microcosm of the larger institution.

The classroom is a place of variety and balance. Balance is seen in the attention given both to the pursuit of understanding and to the acquisition of knowledge and essential skills. Variety is there because teachers are resourceful professionals who are in command of a range of teaching and grouping strategies. They select appropriately from this repertoire according to school-wide goals and classroom purpose.

In a PYP classroom, parents are welcomed as partners, with a clear role to play in supporting the school and their own children. They are informed and involved.

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Students are actively engaged in planning and assessing their own learning. They are caring and committed. They recognize that the right to a good education is complemented by a responsibility to give of their best as individuals and to contribute to the learning of the whole class.

A PYP classroom is a lively place, characterized by collaborative and purposeful activity. It is also a reflective place, where thoughtful consideration of issues, problems and successes is valued highly.

Above all, and in summary, a PYP classroom is an intelligent place. It is a place in which the easy option is seldom sought and where the expectations are high. It is an environment in which learning knows no limits.

In creating a PYP classroom, the teacher is faced with the challenge of integrating the various disciplines into a cohesive, meaningful whole while ensuring that the essence of each discipline is retained.

The principal means of bringing about integration is through the transdisciplinary units of inquiry which form the heart of the PYP approach. These units are themselves elements in a school-wide, thematic programme of inquiry which ensures continuity of learning for all students.

How are classroom practices changing?

(See figures 25, 26, 27, 28, 29)

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PYP practices

Planning		Teaching		Assessment	
Decreased emphasis on:	**Increased emphasis on:**	**Decreased emphasis on:**	**Increased emphasis on:**	**Decreased emphasis on:**	**Increased emphasis on:**
planning in isolation from other teachers	planning collaboratively using an agreed, flexible system	over-reliance on a limited set of teaching strategies	using a range and balance of teaching strategies	viewing planning, teaching and assessing as isolated processes	viewing planning, teaching and assessing as interconnected processes
planning disconnected from the curriculum	planning based on agreed student learning outcomes and in the school context of a coherent school-wide programme	over-reliance on one grouping strategy	grouping and regrouping students for a variety of learning situations	over-reliance on one assessment strategy	using a range and balance of assessment strategies
the teacher making all the key decisions	involving students in planning for their own learning and assessment	viewing the teacher as the sole authority	viewing students as thinkers with emerging theories of the world	viewing assessment as the sole prerogative of the teacher	involving students in peer- and self-assessment
planning which ignores students' prior knowledge and experience	planning which builds upon students' prior knowledge and experience	focusing on what students do not know	building on what students know	over-reliance on one strategy of recording and reporting	using a range and balance of recording and reporting strategies
planning a large number of units, which will be covered superficially	planning fewer units, to be explored in depth	over-reliance on one teaching resource from one culture	using multiple resources representing multiple perspectives	seeking student responses solely to identify the right answer	seeking student responses in order to understand their current conceptions
addressing assessment issues at the conclusion of the planning process	addressing assessment issues throughout the planning process	teaching about responsibility and the need for action by others	empowering students to feel responsible and to take action	concluding each unit only by summative testing	involving the students in shared reflection at the end of each unit
planning which presents the curriculum as separate, isolated disciplines	planning which emphasizes the connections between and among disciplines	viewing students as passive recipients	involving students actively in their own learning	assessing for the sole purpose of assigning grades	enabling students to see assessment as a means of describing learning
planning which assumes a single level of language competency	planning which recognizes a variety of levels of language competency	a teacher-directed focus on rigid objectives	pursuing open-ended inquiry and real-life investigations	embarking on new learning before assessing the levels of students' current knowledge and experience	assessing the levels of students' current knowledge and experience before embarking on new learning
planning which assumes a single level of ability	planning which recognizes a range of ability levels	employing teaching strategies suitable only for first language learners	maintaining constant awareness of the needs of second language learners	evaluating units in isolation from other teachers	evaluating collaboratively using an agreed, flexible system
planning units which focus on one culture/place	planning units which explore similarities and differences between cultures/places	employing teaching strategies suitable for one level and type of ability	addressing the needs of students with different levels and types of ability		
planning units which are token to minorities and have internationalism tacked on	planning units which explore broad human experiences from a range of perspectives				
planning units in which exploration of major issues is incidental	planning units which focus directly on major issues				

Figure 25 PYP practices

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Good language practice

What is a PYP language classroom like?

The PYP language classroom is a place where language in all its forms is clearly in evidence. There is a busy hum of discussion. The observer is tempted by the inviting book corner, well stocked with reference books, picture books, story books, poetry books, children's self-made books and books in a variety of languages. Displays include a wide variety of print, including students' writing, author of the month, questions from the current unit of inquiry, posters, charts, calendars, memoranda and instructions. The listening centre is freely accessible, with a range of fiction and non-fiction audio cassettes available. The clearly labelled writing centre is equipped with a range of materials and equipment—a word processor and printer, a typewriter, different types of paper, envelopes, blank forms, card, bookbinding tape and ready-made blank books.

How does a PYP language classroom work?

Students are engrossed in books at tables, in the book corner and in the quiet area outside the classroom; they move purposefully between the classroom and the quiet area as the task demands, switching readily from individual study to group discussion, seeking advice and comment from peers and teacher as needed. Writing is a significant activity in classes of all ages, with younger students comfortably making independent attempts at spelling, and delighting in sending letters, annotating pictures and making books, while older students work at various stages of the writing process, drafting, revising and editing imaginative stories, expressive poetry, science reports, personal journals and reading responses.

The teacher switches flexibly between individual, group and whole class work. The underlying organization and sense of purpose are clear. The teacher moves easily among the students, working with a group to brainstorm pre-writing ideas, sitting for a while longer to help a reluctant writer to begin, pausing to assist with an individual editing question, gathering specific students for a group conferencing session, turning to advise on an appropriate reference source, collecting the whole class for a summarizing session. The teacher models appropriate behavioural and learning attitudes, speaking and listening respectfully, referring to reference sources when appropriate, enthusiastically sharing ideas about a favourite novel, posing questions on the current unit of inquiry, skillfully guiding students' lines of questioning, encouraging divergent thinking, sensitively supporting all individuals to aim for their best.

Language is the medium of inquiry. In an inquiry-based PYP classroom, teacher and students enjoy using language, appreciating it both aesthetically and functionally. Literature is an integral part of the curriculum—a series of books read as an author study, host-country fairy tales as part of a social studies unit, a biography as the base for a science investigation, early years counting stories as reinforcement for mathematics development, comparison of illustration techniques to encourage acquisition of art skills. Books are not only enjoyed, they are also discussed and analysed, compared and contrasted.

Why is a PYP language classroom the way it is?

Language is a key factor in the development of international understanding and, as such, has a major role in a PYP classroom. PYP students will commonly be familiar with two or more languages, the learning of each being interdependent. The PYP classroom values and supports the mother tongue and the language of instruction and also aims to extend the students' access to other languages.

The PYP classroom is flexible enough to cater for a wider than usual range of language and literacy development: because there are so many variables in the students' backgrounds and experience, it is likely that, even in a single age group of students, there will be enormous diversity in their levels of language and literacy development. This is further affected by the fact that students may often be working in their second or third language; but the fundamental objectives of responsible, competent, confident communication are common to each.

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How are language practices changing? (see figure 26)

How is language connected?

Language is a complex web of connections, transcending the artificial separations of schedules and disciplines. The language strands are interdependent, with listening, speaking, reading and writing being taught and learned simultaneously. Language is seen as involving learning language itself, learning about language and learning through language, and is the major connecting element across the curriculum, with students focusing not only on language for its own sake, but also on the languages of science, history, mathematics and other disciplines.

The PYP language classroom extends beyond the classroom walls, with close connections to the central school library/media centre for research, quiet reading and story sessions, and to other classrooms for paired reading activities, shared bookmaking and interviews. The teacher plans in collaboration with other classroom teachers and specialists, ESL and foreign language teachers playing a particularly important role in reinforcing, supporting and extending the classroom work.

Language is also a major connection between home and school and, in the PYP classroom, cooperative activities are common, to optimize development of all the students' languages. Mother tongue development is actively encouraged and supported: bilingual dictionaries are available in the classroom, letters to parents are often translated before being sent home, students are encouraged to use books in their own language for project work and, often, mother tongue classes are part of the programme.

There are connections with the wider community, the host country's language and literature deserving and receiving special status, helping students to adjust to and appreciate the culture of the host country.

The PYP language classroom is also connected to the broader world through technology: students aim for literacy in its broadest sense, researching and communicating not only through printed media but also through global electronic networks, exchanging poetry with a live poets group; collecting first-hand information for a unit on water from peers in Alaska, The Netherlands and Western Australia; connecting directly with NASA to access a vast range of multimedia resources.

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How are language practices changing?	
Decreased emphasis on:	**Increased emphasis on:**
language as isolated strands	integrated language development
language as a separate discipline	language as a transdisciplinary element
skill-drill texts and workbooks	a literature-based approach
decoding only for accuracy	reading for meaning
restricted reading materials	a wide choice of print
reading selected according to decoding level	reading selected according to interest level
teacher-directed reading materials	student-selected reading materials
silent, individual work	appropriate cooperative discussion
a narrow focus on one strategy or mode	teaching a range of strategies
teacher-imposed writing	spontaneous writing
writing primarily for accuracy	writing for meaning
writing only as a product	writing as a process
a dependence on the teacher as the only source of correct spelling	developing a range of independent spelling strategies
the teacher as an infallible expert	the teacher as a facilitator
fragmented scheduling	extended in-depth learning periods
language study as grammar and syntax	nurturing appreciation of the richness of language
literature study as vocabulary, grammar and syntax	literature as a means of understanding and exploring
school classics	world classics
monocultural materials	culturally diverse materials
superficial coverage	in-depth study
print only	multi-media resources
using language for rote learning	using language for creative problem solving and information processing
fixed grouping for teaching	flexible task-responsive grouping
standardized reading and writing assessments	a range of appropriate assessment methods, such as portfolios, conferencing, miscue analysis, writing sample analysis, response journals

Figure 26 PYP practices: language

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Good mathematics practice

What is a PYP mathematics classroom like?

In a PYP classroom mathematics is a vital and engaging part of students' lives. The children in the room are very active, with an underlying sense of organization and cooperation. Teachers and students are asking questions of each other, trying out and demonstrating ideas in small and large groups, using the language of mathematics to describe their thinking, generating data to look for patterns and making conjectures. A wide variety of materials is available to all. These manipulatives are constantly in use. There are lists, tables and charts on display showing written and numerical data about which relevant questions are asked and answered.

The number of mathematics resources available is impressive: colourful and thought-provoking posters and children's work cover the walls; materials, ranging from student collections of keys, foreign money and seashells to store-bought pattern blocks and geoboards, are out on tables; everyday tools, such as measuring jugs, calculators, even cereal boxes, are in use. On the bookshelves are many resource books for the teacher and students, including a wide variety of textbooks, mathematical dictionaries and encyclopedias and children's literature, which focus on mathematical ideas. The computer area is well stocked with innovative software that encourages the application of mathematics skills and problem solving and the general supplies area has a variety of paper for recording mathematical ideas: different sized squared paper, dot paper and much scribble paper. There may even be a video area where high quality video tapes show how mathematics is used outside the classroom. It is clear where things belong and how they are used.

The mathematics classroom does not work on its own. The students visit younger children to help them with their investigations. Students also work with older children to travel about town in small groups on a treasure hunt, asking and answering questions about dates, times, distance, prices and more. Other teachers and parents come to share their interests and expertise. The school nurse and administrators are involved in providing information and participating in surveys. The school's parking lot and local shops are visited when collecting data. The community at large provides innumerable opportunities for budding mathematicians to practise their craft.

How does a PYP mathematics classroom work?

Inquiry-based units of study are the entry points into mathematics learning through which students will experience what it is like to think and act as mathematicians. Students and teachers identify together what they already know which might be relevant to the inquiry, what they want to know, what they need to know to answer their questions and how best they might find that out.

The PYP mathematics teacher is well trained in primary mathematics. Personal knowledge of the subject matter is of primary importance. The teacher's own interest in and development of the discipline is maintained through regular inservice, reading professional journals and, especially, regular contact with colleagues who share the commitment to teaching mathematics through inquiry.

With the curriculum as the guide, the teacher spends time in different ways: walking about while students are working alone, in pairs, in small groups or even as a whole class; asking key questions; challenging the students' thinking—prompting them to take ideas one step further; and jotting down notes to inform the next stages of learning. The teacher might also gather a group of students with a particular interest or problem to provide more specific help through guidance and practising together.

One of the most important aspects of the teacher's role is to encourage appropriate mathematical discussion among the student mathematicians—demonstrating the nature of mathematical discourse and the development of conjectures. Students follow simple, polite rules when talking with each other, building on previously mentioned ideas, supporting others in the various stages of learning and sharing their discoveries in a congenial atmosphere. Students see writing down their ideas as a natural step in the process of communicating important ideas. They record in a variety of ways, including drawing pictures, recording numbers and writing in mathematics journals.

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All in all, an exemplary PYP mathematics programme consists of a very active and busy community of learners, with the teacher constantly finding ways to combine the students' needs and interests, and the goals of the curriculum, in engaging and relevant tasks.

Why is a PYP mathematics classroom the way it is?

Mathematics is a language which is used to describe the natural world. Students of today need to build an understanding of previously made discoveries as well as discover and describe their own mathematical ideas. Traditionally, mathematical knowledge has been disassembled in schools.

Our vastly expanded knowledge base about learning mathematics, however, tells us that, in fact, people assemble, or construct, mathematical knowledge. This requires us to look at mathematics not as a fixed body of knowledge to be transmitted but as a language and a way of thinking. It is our task as teachers to facilitate this process.

How are mathematics practices changing? (See figure 27)

How is mathematics connected?

Mathematics, like language, can largely be seen as a service discipline to other parts of the curriculum—providing tools, symbolic language and ways of thinking to the scientist and social scientist.

Mathematics is also a fascinating discipline in its own right. It is the joy and satisfaction of solving problems and finding patterns that has captured and stimulated the most creative minds throughout the ages.

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How are mathematics practices changing?	
Decreased emphasis on:	**Increased emphasis on:**
treating mathematics as isolated concepts and facts	connecting mathematical concepts and applications
rote practice, memorization and symbol manipulation	manipulatives, to make mathematics meaningful
word problems as problem solving	real-life problem solving
instruction focused on what students do not know	instruction built on what students know
one answer, one method, emphasis on answer	a variety of strategies for possible multiple solutions—emphasis on process
the teacher as the sole authority for right answers	students being encouraged to speculate and pursue hunches
computational mastery before moving on to other topics	a broad range of topics regardless of computational skills
teaching mathematics for its own sake	mathematics as a means to an end
a primary emphasis on pencil and paper computations	the use of calculators and computers
a textbook-driven curriculum	multiple sources and resources for learning
the use of worksheets	students investigating, questioning, discussing and justifying
a chalk and talk lesson format	practical activities, with flexible groupings
assessment for the sole purpose of assigning grades	assessment as an integral part of instruction
short-answer, multiple-choice assessment	a broad range of assessment strategies

Figure 27 PYP practices: mathematics

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Good science and technology practice

What is a PYP science and technology classroom like?

The PYP science and technology classroom provides an environment which stimulates and challenges students' ideas. A variety of objects, materials and students' models is displayed at student height around the room. Display boards show examples of students' work and relevant posters illustrate specific science topics. The class library contains a variety of well illustrated reference books at a wide range of reading levels. On the shelves is an extensive range of equipment for collecting, observing, measuring, recording and presenting data. The students show enthusiasm and work cooperatively in investigating and experimenting.

How does a PYP science and technology classroom work?

In the PYP science and technology classroom, students are engaged in open-ended inquiry through the following.

Formulating questions:

Students identify something they want or need to know about the biological or physical world. They learn that their own questions can be the impetus for inquiry. They recognize that new questions and problems arise all the time as we observe and collect data.

Observing:

Students use all the senses, touching, feeling, listening, tasting and smelling, as well as seeing, to notice relevant details of objects or events, resulting in a widening and deepening understanding of the biological and physical world. They choose and use equipment appropriately, to enhance observation.

Planning:

Students state questions, identify problems, predict, hypothesize and justify. They devise ways of finding out needed information and design experiments and fair tests. They identify ways that findings can be checked and verified.

Collecting data:

Students gather data from a variety of sources. They continually question, re-test and check data, looking for confirmation or ambiguity. They learn to respect evidence which results from their efforts.

Recording data:

Students describe and record observations with precision and relevant detail, by drawing, note taking, making charts, tallying and writing statements.

Organizing data:

Students sort, categorize and order information and arrange it into a variety of suitable forms, such as narrative descriptions, tables, timelines, graphs and diagrams.

Interpreting data:

Students seek for patterns and relationships among scientific phenomena, drawing conclusions and inferences from relationships and patterns which emerge from organized data. They see new possibilities in the data. They modify earlier hypotheses or explanations in the light of new data and respect reason. They test earlier ideas against new evidence and speculate and hypothesize, moving towards the construction of theories about the natural world.

Presenting research findings:

Students effectively communicate the solutions to problems, the answers to questions or the evidence for a conclusion. They choose appropriate media. They are honest, presenting information objectively with supporting evidence.

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Why is a PYP science and technology classroom the way it is?

Traditionally, knowledge has been disassembled in schools. Our vastly expanded knowledge base about learning, however, tells us that, in fact, people assemble, or construct knowledge. It is our task as teachers to facilitate this process.

How are science and technology practices changing? (See figure 28)

How is science and technology connected?

Science and technology is a vehicle for teaching critical thinking skills and a way of exploring the world. Developing ways of investigating and using evidence enables students to interact with the world around them.

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How are science and technology practices changing?	
Decreased emphasis on:	**Increased emphasis on:**
instruction based on grade levels and preparation for the next year level	discovering students' prior or existing beliefs, questions and concerns
the teacher telling students what to understand (the way things are)	student problem solving and experimenting as a means of developing a concept
teacher demonstration and strict adherence to teacher defined activities and direction of process	hands-on activities to ensure that students experience and learn science and technology process skills
the teacher as the sole authority for the correct answer or for disseminating information	challenging students to answer open-ended questions with investigations so that they can abandon/modify their misconceptions by observations, measurements or experimentation
an emphasis on finding pre-set answers	accepting uncertainty and ambiguity
written recording of data only, collecting and recording data as the sole purpose of an activity	discussion, dialogue and elaboration on data gathered, with students proposing explanations and conclusions
instruction on the interpretation of the results of demonstrations	making predictions, suggesting hypotheses
simply learning facts and skills	challenging students to find applications for, and take action on, what they have learned
confining science and/or technology to a set topic	flexibility, so that students have the freedom to follow their interests
confining science and/or technology to set times	providing students with the opportunities to explore a science interest when it arises
the use of science and/or technology textbooks	a wide variety of materials and manipulatives

Figure 28 PYP practices: science and technology

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Good social studies practice

What is a PYP social studies classroom like?

The PYP social studies classroom is an active, bustling place. Students are working at tables, on the floor, in the corner, alone or in groups. Students and teachers are absorbed, planning, organizing, preparing products, reading to each other, sharing work and reflecting. Visitors are often not noticed.

The PYP classroom is the springboard for social studies learning: learning in the school and the community. The classroom furniture, equipment and materials encourage students to work individually, in pairs, in small groups and as a class. Students use the school library/media centre and computers; visit other classes; interview school personnel, members of the community and local experts; and involve themselves in community and student presentations. Field trips within the immediate school environment, to museums, farms, industrial and commercial centres and other sites are part of the PYP social studies classroom.

The class library is the centre of activity. It contains fiction and non-fiction materials with a wide range of reading levels, presents multiple perspectives and stimulates questioning. Fiction, bibliographies, autobiographies, poetry, drama, myths and legends, documentaries on current world problems, specialized magazines and newspapers abound. It has a reference section which includes dictionaries at different reading levels and in the mother tongues of the students, thesauruses, atlases, almanacs and encyclopedias. Reference materials brought in by students are also available. ESL students add materials in their own languages. Everything is clearly labelled and readily accessible.

A notice board details exhibitions to visit, current events and local experts. Globes and maps with different scales and projections are on hand, as are tape recorders, video cameras, paper, markers and a wide variety of other presentational materials.

The teacher's resources for curricular units of inquiry are also readily available. These include textbooks, first-hand accounts, video tapes, pictures, pictorial maps, historical maps, postcards, photographs, plans of buildings, copies of paintings, charts, survey results, diaries, artifacts, copies of newspapers and magazine articles, music tapes, travel brochures, recordings of interviews, computer databases, simulations and other computer software. Student-created social studies product samples are also on display.

How does a PYP social studies classroom work?

Inquiry-based units of study are the entry point into social studies learning. Each unit has a primary focus into one of the disciplines of social studies but inquiry will not be restricted only to that discipline. Students will experience what it is like to think and act like a historian, a geographer or a social scientist. Students and teachers identify together what they want to know, what they already know which might be relevant to the inquiry, what they need to know to answer their questions and how best they might find that out.

Students design interviews, interview, survey, take polls, read fiction and trade books, make timelines, devise and perform socio-dramas, make charts, complete decision-making trees and diagrams, create geographical and concept maps, interpret symbols and keys, measure distance, plot routes, examine artifacts, list sources, evaluate sources, work on computer databases and present patterns and trends.

The PYP teacher, as a knowledgeable member of the learning community, facilitates, structures and guides student inquiry; models the questioning approach; provides students with the time and ambiance to promote inquiry; and builds up a variety of diverse resources. The PYP teacher also ensures that learning materials reflect positive images of diverse groups and does not allow any one cultural or gender perspective to dominate.

Students engage in research, applying and acquiring a variety of thinking and learning skills; using multiple sources; looking at different points of view; applying historical, geographical and societal concepts, skills and attitudes to current issues and problems. Activities are selected which directly and most effectively answer the questions being researched. They allow for a variety of learning styles and language levels. Through these

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activities students apply skills and concepts in new contexts as well as learn new skills and concepts in meaningful contexts.

As embryonic historians, geographers and social scientists, students learn to plan, collect, organize, interpret and present their findings by:

- formulating and asking questions about the past, about places and about society
- drawing information from, and responding to, stories about the past, from geographical and societal sources
- using and analysing evidence from a variety of historical, geographical and societal sources
- sequencing in chronological order
- orientating in relation to place
- identifying roles, rights and responsibilities in society
- assessing the accuracy, validity and possible bias of sources
- distinguishing between fact, opinion and fantasy
- interpreting evidence in order to speculate
- comparing and contrasting different sources
- empathizing with people
- organizing and communicating the results of their inquiries.

Students and teachers develop and define clear criteria with which their final presentation or product will be assessed.

Why is a PYP social studies classroom the way it is?

Students learn best when constructing meaning about questions which are significant and meaningful in their own lives, building on prior knowledge. An inquiry-based social studies programme enhances the likelihood that students will feel they belong to a community of learners. It helps them develop problem-solving skills and become decision makers. As a result, they will later be able to chose between and among political alternatives and make economic choices. They will be able to work in groups to solve local and global problems and make responsible choices about themselves, others and the environment.

In a world which is a complex mix of races, cultures, languages, religious affiliations and social class, students need to recognize that there is no one way of looking at events, situations, issues or problems. When their own school experiences allow them the right to hold positions which may differ from others and reflect that such positions are valid and valued, students will be able to seek and value other people's points of view.

How are social studies practices changing? (See figure 29)

How is social studies connected?

The social world is influenced by science and technology. Scientific questions may need to be answered and scientific concepts understood, in the course of what is primarily a social studies inquiry.

Like social studies, the arts, including literature, are an exploration and illumination of life. These parts of the curriculum value the subjective and introspective as ways of knowing. Students can enhance their understanding of social studies through art, music, dance and reading literature.

Mathematics and language are both server disciplines to social studies. Social studies needs language to define its concepts and mathematics to quantify them. Students in language classes (whether ESL, host country, mother tongue or foreign) learn through appropriate social studies content.

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How are social studies practices changing?	
Decreased emphasis on:	**Increased emphasis on:**
topics chosen by individual teachers, pet topics, topics that have always been done in the grade level	a coherent articulated school-wide programme, based on agreed significant content
teachers planning in isolation	teachers planning in cross-grade and cross-school teams
teacher-led learning	open-ended inquiry and real-life investigations, in which teachers and students are all part of the community of learners
single discipline based units	units of inquiry which lend themselves to intradisciplinary (across the disciplines of social studies) and transdisciplinary (across the areas of the curriculum) investigations
units which focus on western civilisation and the developed world	units which build in local, multicultural, international and global dimensions
a survey approach to topics and knowledge areas	in-depth coverage of units chosen, with an emphasis on "less is more"
a reliance on single sources	the use of multiple sources presenting multiple perspectives
political and military perspectives	social, cultural and gender perspectives
factual information as an end in itself	units of inquiry which focus on students constructing meaning, and expanding and deepening their knowledge of concepts and their understanding of the social world
skills taught and practised in isolation	skills taught, practised and applied in the context of inquiry
checklists of hierarchies of discipline-specific micro skills	the development and application of such macro skills as decision making, problem solving, reflective learning, communicating, thinking critically and creatively and researching
a narrow range of teaching and learning strategies	teaching and learning strategies chosen from a wide range of possibilities with an emphasis on inquiry strategies and the deepening of understanding
activities which result in superficial or tangential social studies learning; activities which are included because they are fun; activities which are included because they are hands on	rigorous activities directly linked to the driving questions of the inquiry
textbooks and worksheets as the predominant resources	using a variety of primary sources and documentation, people, artifacts, field trips, surveys and interviews as well as sources such as literature, video tapes, films and computer resources
end of unit, end of chapter assessment	assessing student understanding early and often as well as at the end
traditional forms of teacher-designed assessment only	a variety of formative and summative assessment approaches, including performance assessment
written assessment measures	a variety of tasks suited to different learning styles
tests or examinations signalling the end of the unit	the end of the units being signalled by reflection by students and teachers
teaching about responsibility and the need for action	empowering students to be responsible and to take action

Figure 29 PYP practices: social studies

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How will we know what we have learned? The learned curriculum

What is the PYP perspective on assessment?

Assessment is integral to all teaching and learning. It is central to the PYP goal of thoughtfully and effectively guiding students through the five essential elements of learning: the understanding of concepts, the acquisition of knowledge, the mastering of skills, the development of attitudes and the decision to take action.

Everyone concerned with assessment, including students, teachers, parents, administrators and board members, must have a clear understanding of the reason for the assessment, what is being assessed, the criteria for success and the method by which the assessment is made.

Both students and teachers should be actively engaged in assessing the students' progress as part of the development of their wider critical thinking and self-evaluation skills. Teachers should also be concerned with evaluating the efficacy of the programme.

The PYP describes the taught curriculum as the written curriculum in action. Using the written curriculum, and in collaboration with colleagues and students, the teacher generates questions which guide structured inquiry in the classroom. Assessment focuses on the quality of student learning during the process of this inquiry and the quality of student learning which is evident in the products of this inquiry. Assessment is, therefore, integral to the taught curriculum. It is the means by which we analyse student learning and the effectiveness of our teaching and acts as a foundation on which to base our future planning and practice. It is central to our goal of guiding the student, from novice to expert, through the learning process.

What is assessment?

Assessment: is the gathering and analysing of information about student performance. It identifies what students know, understand, can do and feel at different stages in the learning process.

Formative assessment: is interwoven with the daily learning and helps teachers and students find out what the students already know in order to plan the next stage in learning. Formative assessment and teaching are directly linked: neither can function effectively or purposefully without the other.

Summative assessment: happens at the end of the teaching and learning process and gives the students opportunities to demonstrate what has been learned.

Evaluation: is the process of making a judgment about student progress or the effectiveness of a programme based on sufficient assessment information.

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What are the purposes of assessment?

The purposes of assessment are to promote student learning, to provide information about student learning and to contribute to the evaluation of the effectiveness of the programme.

Student learning is promoted through:

- assessing the students' prior knowledge and experience brought to the topic or task in order to plan and/or refine the teaching and learning programme or to meet individual or group needs
- building a profile of students' understanding
- engaging students in reflection on their learning and in assessment of the work produced by themselves and by others.

Information about student learning is provided by:

- representative examples of students' work or performance
- compiling statistics based on explicit benchmarks and rubrics
- records of test results.

Programme evaluation uses a variety of student assessments to:

- assess student performance in relation to the general and specific outcomes of the programme
- assess group performance in relation to other classes or groups both internally and externally
- inform others, including students, colleagues and parents.

What is good assessment practice?

Effective assessments:

- are planned for and built in, not bolted on
- identify what is worth knowing and assess it
- have criteria that are known and understood in advance
- allow students to demonstrate the range of their conceptual understandings, their knowledge and their skills
- are made up of tasks that require the synthesis and application of their learning
- focus on big ideas and transdisciplinary skills rather than facts or specialized skills
- are based on real-life experiences and can lead to other problems or questions
- focus on producing a quality product or performance
- highlight a student's strength and expertise rather than what the student does not know
- include collaboration between the student and the teacher or among students
- employ many ways for a student to demonstrate expertise
- take into account different ways of learning and knowing and are sensitive to personal circumstances
- allow students to express different points of view and interpretation
- promote self-evaluation and peer-evaluation
- use scoring that focuses on the essence of the task and not on what is easiest to score

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- produce evidence that can be reported and understood by students, parents, teachers, administrators and board members
- are continuous and cumulative
- are subject to continuous review and improvement.

Assessment informs every stage of the learning and teaching process. In the earliest stages of curriculum planning, assessment requires the teacher to translate the purposes of the unit of inquiry into outcomes of the students' learning. With these purposes and outcomes in mind, activities and resources are selected. Assessment of the students' prior knowledge will help the teacher determine any necessary changes in purposes and outcomes of the students' learning.

Continuous assessment provides insights into students' understanding, knowledge, skills and attitudes. These are necessary to plan further activities which address issues of concern to the teacher and the students. Continuous assessment is also a means of exploring the learning styles and individual differences of the students in order to customize the unit of inquiry. Making modifications to the planning of inquiry in the light of feedback from assessment improves the overall programme.

How do I develop assessments?

In planning for assessment it is important to ask these questions:

- What is the function of the assessment?
- What broad purposes or objectives are being assessed?
- What specific purposes or objectives are being assessed?
- How can I collect evidence?
- What teaching approaches are being used to help the students be successful with the assessment?
- Which assessment activities fit into the flow of the classroom?
- Will the assessment task measure what is intended?
- Is the assessment activity reliable enough to allow sound conclusions to be drawn?
- How will the assessment activity be carried out?
- How will the assessment data be recorded?
- How will the assessment data be analysed?
- How and when will feedback be given?

After the assessment task is complete it is important to ask these further questions:

- Have the tasks provided ample information to allow a judgment to be made about whether the purposes or objectives have been met?
- What does the students' performance reveal about their level of understanding?
- Have any unexpected results occurred?
- What changes should be made in the assessment procedure?
- How should the teaching and learning programme be modified as a result of the assessment?

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How do I collect the data?

Observations: All students are observed often and regularly, with the teacher taking a focus varying from wide angle (for example focusing on the whole class) to close up (for example focusing on one student, or activity), and from non-participant (observing from without) to participant (observing from within).

Performance assessments: The assessment of goal-directed tasks with established criteria. They are meaningful and significant challenges and problems. In these tasks there are numerous approaches to the problem and rarely only one correct response. They are usually multi-modal and require the use of many skills. Audio, video and narrative records are often useful for this kind of assessment.

Process-focused assessments: All students are observed often and regularly and the observations are recorded by noting the typical as well as non-typical behaviours, collecting multiple observations to enhance reliability, and synthesizing evidence from different contexts to increase validity. A system of note taking and record keeping is created that minimizes writing and recording time. Checklists, inventories and narrative descriptions are common methods of collecting observations.

Selected responses: Single occasion, one-dimensional exercises. Tests and quizzes are the most familiar examples of this form of assessment.

Open-ended tasks: Situations in which students are presented with a stimulus and asked to communicate an original response. The answer might be a brief written answer, a drawing, a diagram or a solution. The work, with the assessment criteria attached, could be included in a portfolio.

Portfolios: A purposeful collection of a student's work that is designed to demonstrate successes, growth, higher order thinking, creativity and reflection. Portfolios should not be thought of as a collection of work but rather as an exhibition of an active mind at work.

How do I evaluate these types of assessment?

Rubrics: An established set of criteria used for scoring or rating students' tests, portfolios or performances. The descriptors tell the assessor what characteristics or signs to look for in students' work and then how to rate that work on a predetermined scale. Rubrics can be developed by students as well as by teachers.

Benchmarks: Samples of students' work that serve as concrete standards against which other samples are judged. Generally there is one benchmark for each achievement level in a scoring rubric.

Holistic scoring: This produces a single score, typically based on a four to six point scale. It is based on the overall impression of a sample of work, rated against established criteria.

Analytical scoring: This awards separate scores for different aspects of the work. This yields more information than holistic scoring and is often used for diagnostic purposes or when students need specific feedback on their strengths and weaknesses.

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Understanding the PYP from analysis to synthesis

The preceding sections of this publication present an analysis of the various components of the PYP approach to curriculum. However, in order to understand fully the PYP it is important to see this approach as a synthesis of these components. This synthesis operates at several levels.

A synthesis of the:

essential elements: Teachers and students use powerful concepts to generate key questions with which to conduct inquiry into significant content. In the course of this inquiry students acquire essential knowledge and skills and engage in responsible action. They do so in a climate which fosters positive attitudes. In the course of planning and teaching, the essential elements are synthesized into key questions which drive inquiry, and into the learning outcomes which form the basis for assessment.

written, taught and learned curriculum: Using the written curriculum as the primary resource, teachers and students plan a process of structured inquiry involving a range of classroom activities—the taught curriculum. Assessment, which provides data on the learned curriculum, is integral to these activities and focuses on both the quality of the learning process and that of the learning products.

separate disciplines into a coherent whole: At the heart of the PYP curriculum are the essential elements: concepts, knowledge, skills, attitudes and actions. These elements transcend disciplinary barriers and forge the curriculum into a coherent whole.

school into an international community of learners: The PYP sees students, parents and teachers as partners united by a spirit of inquiry and a commitment to continuous improvement, working towards the common goal of providing every student with an international education of the highest quality.

The word “holistic” is much abused. Nonetheless, the PYP feels it is applicable in describing the PYP curriculum which presents the essential elements as a whole; the written, taught, and learned curriculum as a whole; the disciplines as aspects of a whole; and the school as a whole.

Finally, there is one greater whole in which the PYP firmly believes. The PYP is working towards the movement of our schools into a collaborative international community, in which each authorized school retains its identity and autonomy but shares its strengths and ideas with other authorized schools. The PYP welcomes the movement towards the creation of a system of international education which will better serve our students.

This publication represents the work of many teachers and administrators over an extended period. The PYP trusts that it provides one more piece of the picture, one more step towards creating the system of international education in which we so firmly believe.

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Implementation for administrators

Why inquiry?

> *The essential activity for keeping our paradigm current is persistent questioning. I will use the term inquiry. Inquiry is the engine of vitality and self-renewal.*
>
> **Pascal, 1990**

The PYP is committed to inquiry as the preferred approach to teaching and learning. However, this commitment to inquiry is not confined to classroom practices. The PYP believes that good schools are inquiry-based schools in which all members of the school's community are continually reflecting on their practice in the context of a commitment to continuous personal, professional and institutional improvement. It further believes that:

- the approaches to learning it is advocating are relevant outside the classroom and will have an impact on the culture of the school
- without an understanding of this impact the curriculum cannot achieve its potential
- inquiry, as a means of learning, changing and improving is as valid for the school as a whole as it is for a group of students in the classroom.

The PYP supports the view, well documented in research, that:

- improvements in individual classrooms only take pace in the context of general school improvement
- the adults in a school must model the knowledge, skills, attitudes and actions they advocate for students
- effective schools, like effective classrooms, are places in which purposeful, open-ended inquiry is a feature of the culture
- inquiry enables individuals and groups to clarify their vision and to refocus on **purpose**
- effective schools make a commitment to continuous improvement
- effective schools develop the habit of collaboration while allowing space for people to be individuals, just as the PYP promotes collaboration within the community of PYP schools while allowing space for schools to reflect their own cultures.

Guidelines for Implementation

- Develop the habits of reflective practice, of questioning one's own practice and the practices of the school.
- Encourage a climate of inquiry among staff, students, parents, board members.
- Structure the process of collaborative decision making as an open-ended inquiry.
- Use this process for the development of school policies and products.

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What is my role?

> *There's pride and satisfaction in understanding your function better than anyone else and better than even you thought possible.*
>
> **Block, 1987**

The degree of change required to implement the teaching and learning of the PYP at the school-wide level will depend on conditions in the school at the time of implementation. To be realistic, however, schools must recognize that:

- school-wide adoption of the PYP will require change not only in the classroom but throughout the school
- this change is likely to be slow, painful and beset with difficulties (these difficulties are always associated with any change which requires people to examine and modify their current practice)
- engaging in this change process will have a beneficial impact on the whole school and, most significantly, on the quality of student learning, but the struggle is worth it
- the process of change in teaching practice will require substantial, sustained support from the school for all teachers.

The role of the school's administrators is crucial to the success of a change effort. Without the support of the school's leadership this innovation will almost certainly fail. The PYP does not require that every administrator has to understand the finer points of the curriculum in every area but it is important to understand, and support, the basic principles which represent the essence of the PYP. Every administrator does need to be aware, also, of the kinds of practical support needed for successful implementation.

Guidelines for implementation

- Develop a clear plan with a timeline for implementation.
- Identify and empower curriculum leaders; send them to PYP workshops.
- Provide resources for PYP workshop leaders to address the staff.
- Arrange general sessions about the PYP for all staff.
- Form PYP working groups within the school.
- Model inquiry yourself during meetings or workshops.
- Rearrange the schedule to allow shared planning time.
- Set aside inservice days to work with the PYP curriculum.
- Run a weekend retreat to discuss the PYP curriculum and plan units of inquiry.
- Write articles yourself or encourage others; write a PYP newsletter for the staff.
- Ensure that all PYP publications are removed from your desk and put into the right hands.
- Create a topic bank for storing planners.
- Make sure that the purchase of resources is driven by the curriculum.

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What do I tell the board?

> *Making one's position clear to the governors is ideally an interactive process. The emphasis should be on the head taking charge. The head, in effect, is saying to the government that instructional leadership is his or her number one priority.*
>
> **Fullan, 1992**

The board must be kept informed about the school's involvement in implementing a new curriculum.

Guidelines for implementation

Let the board know that the PYP curriculum:

- is developed by a wide variety of schools (international, national, fee-paying, state-funded); no single national curriculum is being imposed
- develops attitudes and actions alongside the more academic curriculum areas
- includes an emphasis on community service
- provides opportunities to include parents in the learning process
- aims to produce students who will make a difference in a complex, challenging future
- works towards the achievement of student learning outcomes
- is cheaper and more effective than going it alone
- gives the school access to extensive expertise
- facilitates transfer between schools
- develops the conceptual understanding, knowledge, skills and attitudes needed for tomorrow's workplace.

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What do I tell the parents?

> *There is clear evidence from home-school projects that children make better progress when their parents are involved in their education.*
>
> **Bell, 1990**

Experience in a number of schools has shown that, given the right approach, parents are relieved to hear about the PYP and are very supportive of it. Our schools often form a focus for the families we serve. We are accountable to them and their children for the education we offer.

Guidelines for implementation

Let parents know that:

- the PYP provides a shared curriculum for primary schools
- the PYP is working to define a balanced programme of concepts, knowledge, skills, attitudes and actions for children
- through the international profile of student achievement, the PYP will help to facilitate transfer between schools
- the PYP is part of the continuum of international education offered by the International Baccalaureate Organisation (the approach to teaching and learning in the PYP is good preparation for the IBO's Middle Years Programme and the IBO's Diploma Programme)
- the PYP curriculum sets high standards for and has high expectations of the students
- the teachers plan the programme together, providing a more coherent education
- the PYP promotes good teaching practice, both through the written curriculum documents and by sharing ideas among authorized schools
- the PYP curriculum incorporates a range of assessment, recording and reporting strategies, so that parents will receive clear information on their children's progress.

Ways to inform parents

- Provide information about the PYP in parent newsletters.
- Share and display examples of students' work, together with PYP planners.
- Hold parents evenings on the subject of international curriculum.
- Consider modelling PYP teaching principles.
- Distribute the guide for parents, customized for your school's setting.

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Understanding the Primary Years Programme

A Guide for Parents

How is the curriculum developed?

The PYP holds regular meetings to which authorized schools send representatives. These representatives serve on curriculum committees which develop the curriculum for individual disciplines, in the context of a coherent, central framework. The work of these committees is coordinated by a steering committee. Since the early stages of its development the PYP has also worked closely with consultants and teacher trainers from different national systems.

What will my child be learning?

The PYP has designed a transdisciplinary curriculum which draws the individual disciplines together into a coherent whole, while preserving the essence of each subject.

Your child will:

- develop a deep understanding of important concepts
- conduct research into knowledge which has local and global significance
- acquire and practise a range of essential skills
- be encouraged to develop positive attitudes towards learning, the environment and other people
- have the opportunity for involvement in responsible action and social service.

How will I know how my child is doing?

The PYP promotes the use of a range of assessment strategies which are designed to give a clear picture of your child's progress. This progress will be reported to you regularly, both orally and in writing. You are encouraged to play an active role in supporting your child's learning.

How can I support my child's learning?

The PYP sees learning as a partnership between student, parent and school. The degree of parental involvement may vary from school to school but the fundamentals of parental support remain the same.

You can help your child by:

- maintaining regular contact with the school
- sharing books with your child
- supporting your child's mother tongue
- assisting your child with research projects
- attending curriculum information sessions at school and parent/teacher conferences
- providing an appropriate setting and structured routine for doing homework.

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After the PYP, what next?

The IBO sees the PYP curriculum as an excellent preparation, but not a prerequisite, for the IBO's Middle Years Programme (MYP) for 11 to 16 year olds. Both curriculums place a focus on critical thinking, personal responsibility for learning, student inquiry and social service. Similarly the MYP is seen as an ideal foundation, but again not a prerequisite, for the IBO's Diploma Programme for 16 to 19 year olds. The IBO's Diploma Programme is regarded by many as the finest pre-university curriculum available.

Will the PYP help my child fit into another school?

Although no school or curriculum can guarantee a perfect fit when children transfer to a new school, particularly a school in a different country, parents may be reassured by the following points.

Transfer to schools following a national curriculum

- Close attention is paid to a range of national curriculums when developing the PYP curriculum.
- Students transferring from international schools usually have no trouble with the standards of national schools.

Transfer to other schools offering the PYP

- Students in other schools implementing the PYP curriculum will have common learning experiences in terms of conceptual development, skill acquisition, positive attitudes and meaningful action. There will be less uniformity of specific content in certain areas, since schools will naturally wish to reflect the unique nature of their own locations.
- The PYP is working towards agreement on a common set of assessment, recording and reporting strategies which will facilitate the transfer of students.

What shall I do if I still have questions?

Professional educators can sometimes inadvertently explain curriculum issues in ways which are not clear to parents. While we see parents as our partners in the learning process, we recognize that parents are also our clients. You have an obvious right to know about the educational programme in which your child is engaged. If you have any further questions, please ask—you will find your school only too willing to discuss the PYP curriculum with you.

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How can I provide professional development?

> *There is simply not enough opportunity and not enough encouragement for teachers to work together, learn from each other, and improve their expertise as a community.*
>
> **Fullan and Hargreaves, 1992**

The PYP is more than a series of written documents. It is a way of thinking, an approach to teaching and learning, which for some teachers represents a paradigm shift. In order to accommodate this change people need time and support. Some means of providing this support are offered below.

Guidelines for implementation

- Ascertain where teachers are in relation to the change; let them tell you what support they need.
- Use data gathered from the professional appraisal process to inform discussions with teachers.
- Recognize that inservice training can take place within individual schools, with members of staff providing their own inservice training. Individual teachers can share successful lessons and give support to less confident staff by team teaching.
- Send staff to PYP workshops or summer programmes.
- Invite one of the approved PYP trainers into your school.
- Share, with other PYP schools, successful planners, unit banks, videos and books, examples of good PYP practice and expertise, with visits being made to schools which have a reputation for good teaching. Communication and sharing of ideas have been simplified and schools can make use of email and the Internet.
- Provide time when teachers can plan and reflect together. This is the single most effective and lasting form of professional development.

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Where will we find the time?

> *Time, or more properly lack of it, is one of the most difficult problems faced by schools and districts engaged in restructuring.*
>
> **Watts and Castle, 1993**

As any administrator or teacher will confirm, there is never enough time. Set out below are some practical suggestions for finding, making or buying that precious commodity, time.

Guidelines for implementation

Release time

- Release teachers during assemblies.
- Teach a class yourself to enable a teacher to work with a colleague.
- Encourage team-teaching, which may allow one teacher to take a larger group, so releasing a colleague.
- Schedule early release or late start days so that teams can plan together; build these into the calendar or weekly schedule.
- Use college interns, teamed with a qualified teacher, to work with combined classes.
- Design shared units involving teachers, parents and students.
- When planning themes, share the work; let each person prepare one aspect for everybody.

Rescheduled time

- Make sure that the schedule allows for common planning time between members of a grade level team; for example, add minutes on four days, and release students early on the fifth, or start the day later for students, and earlier for teachers.

Better use of time

- Many schools have an orientation week or days at the beginning of a school year. Keep administrative details to a minimum and use the time for planning together.
- View each staff meeting as a professional development opportunity. Handle administrative issues in other ways—memos, daily bulletins, a read-and-pass-on file.
- Reconsider how best to use inservice days. Recognize that the one-off consultant is not always effective in bringing about lasting change and that training days may be better used simply by providing time for teachers to plan together.

Purchased time

- Use more of the budget to release teachers to plan and reflect together; for example, pay substitutes or pay staff for part of their own time.
- Take the whole staff on a weekend retreat away from school and spend the time discussing, planning and reflecting.

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How can I make sure it is happening?

> *While implementing new curriculum is a multi-faceted and gradual process, it does involve some definite steps which should be part of the plan of any principal wishing to enhance the quality of education in his or her school.*
>
> **Hewitt, 1988**

To ensure that using PYP materials has a real impact in classrooms, it is essential to guide the process.

Guidelines for implementation

- Make sure that the PYP planners are used.
- Develop the library/media centre collection around units of inquiry, so that teachers have the resources they need.
- Visit classrooms to see inquiry in action.

Most significantly:

- evaluate what you value: since we value risk taking, critical thinking and the use of a range of teaching and assessment strategies, make them the focus of any job description, professional appraisal or teacher evaluation system, and professional development programme.

The logic of this approach to professional appraisal and development is:

- the school's philosophy should clearly express a set of beliefs and values about student learning
- these beliefs and values can be well expressed through the PYP student profile which serves to drive the curriculum
- these outcomes must be the major shaping force for classroom practice, the taught curriculum
- if these outcomes are to shape practice then they must shape the description of that practice.

The PYP has therefore designed a job description which is a direct reflection of the practices described in this volume.

The job description:

- focuses solely on activities relating to student learning (as other professional duties would be described in a staff working agreement/staff handbook/contract)
- encompasses practices which represent observable activities (the job description forms the basis for a system of professional appraisal or teacher evaluation)
- enables the professional appraisal system to form the basis for a programme of professional development
- enables professional development to be linked, through a series of logical steps, to the school's beliefs and values about student learning, as shown on page 102.

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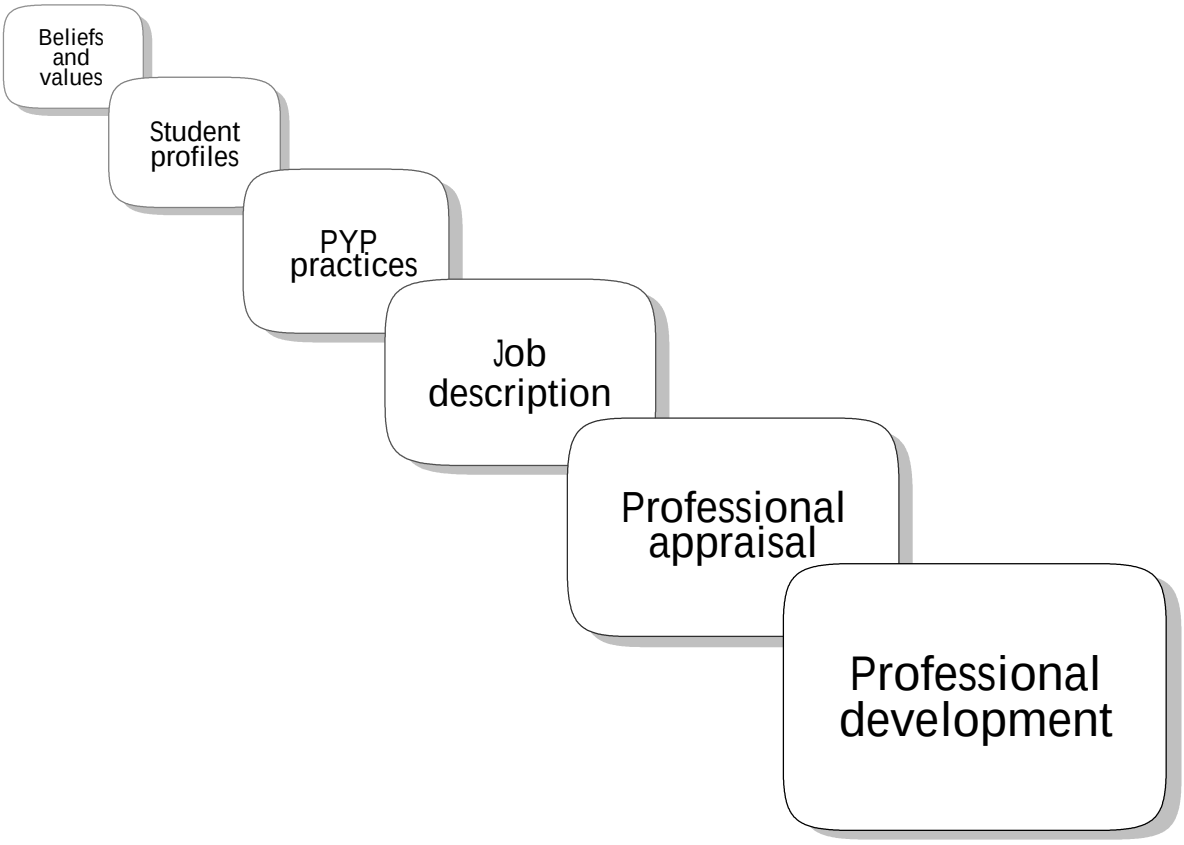

Figure 30 Linking philosophy to professional development

PYP teacher's job description

Our school's beliefs and values are contained in the school's statement of philosophy. The philosophy commits us all to certain learning outcomes for students and, therefore, to the types of teaching which will produce these outcomes.

The fundamental responsibility of every teacher is to embrace the values and beliefs expressed in the philosophy of the PYP and to work constantly to translate them into daily classroom practice. The school's primary purpose is student learning and the job description is therefore structured according to the PYP's three central questions relating to this learning.

However, in an international community of learners such as ours, everyone is a learner. In recognition of this, we have added a final question which focuses on our responsibility for our own learning, and links the job description to the systems of professional appraisal and development.

What do we want to learn?
Planning

The teacher is accountable for:

- planning collaboratively for student learning
- planning, based on agreed student learning outcomes and in the context of a coherent, school-wide programme
- involving students in planning for their own learning and assessment

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- planning which builds on students' previous knowledge and experience
- planning significant units of inquiry, to be explored in depth
- addressing assessment issues throughout the planning process
- planning which emphasizes connections between curriculum areas
- planning which accommodates a range of ability levels.

How best will we learn?
Teaching

The teacher is accountable for:

- using a range and balance of teaching strategies
- grouping strategies using a variety of different learning situations
- viewing students as thinkers with their own emerging theories
- building on what students know
- using a variety of resources representing multiple perspectives
- empowering students to feel responsible and to take action
- involving students actively in their own learning
- pursuing open-ended inquiry and real-life investigations
- maintaining constant awareness of the needs of second language learners
- addressing the needs of students with different levels and types of ability.

How will we know what we have learned?
Assessing

The teacher is accountable for:

- viewing planning, teaching and assessing as interconnected processes
- using a range and balance of assessment strategies
- using a range and balance of recording and reporting strategies
- involving students, parents and colleagues in the assessment process
- involving students in shared reflection during and at the end of each unit
- evaluating the programme collaboratively using agreed flexible systems
- enabling students to see assessment as a means of describing their learning
- assessing the level of students' current experience and understanding before embarking on new learning.

How can we continue to learn?
Professional appraisal and development

The teacher is accountable for:

- active participation in constructive professional appraisal based directly on the points in the job description, therefore continually working to improve learning for students
- actively seeking professional development in any of the above points which are considered by the teacher and/or the school to require development.

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How can I be sure that the students are really learning?

We value what we assess. It is time we began assessing what we value.
Wiggins 1989

The PYP approach to learning demands that a range of assessment, recording and reporting strategies be used. These strategies will provide the school's leadership, staff, students and parents with accurate and accessible data on student learning. A school leader needs to understand the purposes and principles of assessment and provide leadership in the development and implementation of assessment policies.

Guidelines for implementation

- Learn as much as possible about the principles, purposes and practice of effective assessment.
- Reinforce the links between assessment, recording and reporting.
- Review the school's systems of reporting to ensure that they reflect the curriculum.
- Ensure that teachers understand their role in the assessment process, describe this role in the job description and include it in the appraisal process.
- Develop a comprehensive assessment handbook which incorporates philosophy, purpose, principles, practice and policies.
- See "How will we know what we have learned? The learned curriculum", page 87, for further details on assessment.

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