Primary Years Programme

The learning community

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IB mission statement

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

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

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

IB learner profile

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

As IB learners we strive to be:

INQUIRERS
We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.

KNOWLEDGEABLE
We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.

THINKERS
We use critical and creative thinking skills to analyse and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.

COMMUNICATORS
We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.

PRINCIPLED
We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.

OPEN-MINDED
We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.

CARING
We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.

RISK-TAKERS
We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.

BALANCED
We understand the importance of balancing different aspects of our lives—intellectual, physical, and emotional—to achieve well-being for ourselves and others. We recognize our interdependence with other people and with the world in which we live.

REFLECTIVE
We thoughtfully consider the world and our own ideas and experience. We work to understand our strengths and weaknesses in order to support our learning and personal development.

The IB learner profile represents 10 attributes valued by IB World Schools. We believe these attributes, and others like them, can help individuals and groups become responsible members of local, national and global communities.

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Contents

A PYP learning community

Summary

- The learning community recognizes that education is a social endeavour benefiting all its members individually and collectively.
- An inclusive learning community:
  - lives peacefully together by engaging with other ways of knowing, being and doing
  - prioritizes people and their relationships
  - assumes shared responsibility for learning, health and well-being.
- Everyone in the learning community is supported to exercise agency, sees themselves as contributors to its strength and success, and takes action to affect change.

A shared commitment

The IB connects a worldwide community of learners who celebrate a common humanity and share a belief that education can help to build a better and more peaceful world. Schools offering the Primary Years Programme (PYP) bring a shared commitment to the IB's mission through the learning community.

Education is a social or collective endeavour and a benefit to the community as a whole, as well as to the individuals within it. Everyone in the learning community has agency; they see themselves as contributors to its ongoing strength and success, and take action to bring about change.

To foster international-mindedness, the learning community extends to the whole IB community and views the world as the broadest context for learning. It is inclusive of everyone involved in the life of the school: students and their families, all school staff members and other important adults in the students' lives. By situating learning within local and global communities, outcomes are considered from individual and collective perspectives, highlighting the interdependence of everyone and everything.

The learning community:

- lives peacefully together
- prioritizes people and their relationships
- assumes shared responsibility for learning, health and well-being of people and the planet
- promotes diversity, equity, inclusion, justice and belonging.

The learner profile provides many opportunities to explore attributes that underpin these aims, supporting everyone to be principled, caring and reflective community members.

Living peacefully together

The learning community recognizes the critical importance of learning to live peacefully together—to have the capacity to relate to others and communicate effectively within and beyond the school community. Linguistic and cultural diversity play a fundamental role in the development of personal and group identities, in establishing a sense of belonging and in enabling global engagement (Singh, Qi 2013). Students use their full linguistic repertoires, including home and family languages, and additional languages, to engage with their communities and the wider world. They participate in a range of learning experiences to explore, critically reflect upon and engage with their own perspectives and positionalities, building understanding of cultural, social and historical contexts and experiences. The learning community

understands that knowledge is created within cultural contexts, and supports opportunities for students to engage with different ways of knowing and being.

The PYP transdisciplinary themes, originally informed by the commonalities of human experience (Boyer 1995) and the global education lens of Tye and Kniep (1991), provide the basis for all members of the learning community to inquire into what it means to live in balance with human and natural worlds for the well-being of people and the planet. The learner profile also provides opportunities for members of the learning community to develop and demonstrate the attributes that contribute to a better and more peaceful world.

Prioritizing people and their relationships

Establishing partnerships among all stakeholders, and recognizing what each member independently and collectively brings to the community, is the first step in building relationships. Through these partnerships, members of the community come together to develop and to support a shared vision, mission, beliefs and values. They demonstrate attributes of the learner profile, such as caring, principled and communicator, to strengthen these relationships.

Successful collaboration exists with mutual trust and respect for the diverse roles and perspectives the community brings together. Structures are in place to facilitate focused and in-depth conversations about learning and teaching, and decisions are made in the best interests of the learning community. All relationships are dynamic and support the well-being of the learning community as a whole.

In an effective learning community, members form mutually rewarding and productive relationships. Therefore, it is important that schools create opportunities for the following relationships to flourish.

Students and teachers

Teachers value students for who they are—their personal and cultural identities, linguistic repertoires, and their prior experiences and learning. The interactions between teachers and students, in particular, have a subjective and relational quality because the curriculum and associated learning engagements are a lived experience (Giles 2011). These lived experiences support teachers to know their students well—their strengths, interests, perspectives, needs and aspirations—in order to respond to their needs. Teachers encourage students to reflect on their learning, sharing timely, specific and well-considered feedback to help them set goals for future learning.

Students and teachers who have established strong, trusting relationships work in partnership. Students value their teachers as facilitators and activators of learning, and collaborate with them to identify and

pursue learning goals. Students participate in planning and decisions that affect them, and feel supported and confident to take initiative and action as part of their learning.

Students and peers

Students establish relationships with their peers. Through peer relationships, they develop and practise many of the skills they will use throughout their lives. They support each other by providing feedback. They learn how to interact socially, build and maintain friendships, learn collaboratively and take collective action.

Teachers and colleagues

Teachers actively contribute to the learning of students and colleagues through collaborative practice. They take time to plan, assess and learn together—inquiring into the effectiveness of their teaching, and reflecting on its impact on learning. They ensure their professional dialogue is open and honest so that learning and teaching becomes visible in the learning environment.

Strong collegial relationships are developed through mutual trust and respect, focusing on professionalism, open communication and a support network. Teachers may consider the following practices to develop collegial relationships.

- Induction for new teachers
- Regular staff meetings
- Co-teaching opportunities
- Professional learning communities
- Action research teams
- Inclusive learning support teams
- Peer mentoring and peer coaching
- Professional development programmes
- Study groups
- Use of digital technology to facilitate communication and collaboration

School, parents and legal guardians

Partnerships with parents and legal guardians benefit the students and value the perspectives they bring to the learning community. They add richness to the community by being actively involved in the life of the

school to share decisions, exchange ideas, build on experiences and provide support. The partnerships between home and school provide the foundation to support students' learning, growth, health and well-being and agency.

The following are some ways that parents and legal guardians and schools can interact.

- Focus groups and working groups
- Parent councils
- Parent volunteers
- Parent evenings and parent-led events
- Student-led conferences and reports
- Learning celebrations
- School-based presentations and displays
- Student learning diaries and portfolios
- Home–school communication journals
- Mentoring for the exhibition
- Informal discussions

Sharing responsibility for learning, health and well-being

All members of the learning community are open to new ideas and committed to seeking a broad range of views and opinions, encouraging open discussion and practising transparent decision-making processes. They demonstrate agency through collective ownership, responsibility and accountability for learning and teaching. Schools are transformed into dynamic learning communities where learners consider their rights and responsibilities to promote well-being and take action for healthy living now and in the future.

A commitment to collaboration

Collaboration demonstrates a commitment to the common goal of supporting and reflecting on transdisciplinary learning experiences and improving student outcomes. A collaborative approach involves sustained dialogue and reflection among and between all members of the learning community. This approach helps all members of the learning community to grow as learners and as professionals to improve student outcomes, health and well-being.

Collaboration is apparent at a school-wide level, as well as in day-to-day and moment-to-moment learning and teaching. The learning community collaborates in policy development, resource planning and allocation, learning space design, and culture-building. The organization of a collaborative approach may vary in response to the local context and the needs of the learning community, and will always be based on a commitment to the mission of the IB and the PYP philosophy and pedagogy. Schools extend their collaborative practice to local networks and the wider global IB community through participation in professional learning and development, and encouraging teachers to become active members of the IB educator network.

A commitment to inclusion

Teachers extend learning for all students by creating an affirmative and responsive environment that considers student identities, and embraces learner diversity and variability from a strength-based perspective.

Taking shared responsibility for learning begins by establishing inclusive support structures that value diversity and build equity, justice and a sense of belonging for all members. Members are accountable for increasing access to, and engagement in, learning for all students, regardless of their background or ability. They do so by identifying and removing barriers to learning relating to perspectives, school organization, policies or physical aspects of the learning spaces, environments and resources. The learning community

develops an inclusion policy that clearly communicates and supports its commitment and actively embraces authentic inclusive practices.

Inclusive support structures take into consideration:

- the context, strengths and needs of the learning community
- coordinated and clearly communicated admissions and referral policies
- confidentiality
- a deeper understanding and appreciation of learner variability
- learning opportunities and support for all students
- the impact of labelling learners
- agency and self-efficacy
- the complexity of perspectives and experiences
- the importance of belonging and self-worth
- transition and integration in the learning community.

A commitment to health and well-being

Health and well-being are fundamental to quality relationships and effective interactions with others. Members of the learning community sustain school cultures by demonstrating the learner profile attribute of caring. They have a commitment to physical, social and emotional well-being, look for ways to build safe and healthy environments, and nurture resilient , adaptable and active learners.

Every school offering the PYP is unique and influenced by its context—for example, location, culture and communities. Therefore, every school community will address health and well-being differently. The learning community may consider the elements outlined in figure LC01.

Figure LC01

School-wide approach to promoting health and well-being

Develop a shared understanding of health and well-being among all the learning community	Promote the importance of agency—voice, choice and ownership
Support everyone to flourish as learners	Develop resilience within the learning community to embrace challenges and change

Promote a safe and caring culture throughout the community, including online	Ensure strategies are in place to support transitions from class-to-class and school-to-school
Develop safe learning spaces that contribute to a sense of physical, social and emotional well-being	Engage staff in professional learning that promotes health and well-being for everyone
Offer a well-planned and consistent physical and health education programme	Develop the community's understanding of the causes and prevention of ill health and ways to nurture positive mental health and well-being
Promote physical activity both within and outside the school	Early identification of and intervention for students experiencing social, emotional, behavioural and psychological barriers to learning
Support students' participation in extracurricular and community-based activities	Recognize the need for strong nurturing relationships
Foster positive home–school relationships	

The attributes of the learner profile support the learning community in exploring and expressing different aspects of health and well-being for everyone. Working together, members of the PYP community are supportive, reflect a broad spectrum of society, integrated, and inspire lifelong learning to build a better and more peaceful world.

Further reading

The PYP stance on student grouping

One of the IB approaches to teaching states:

> Teaching is inclusive and values diversity. It affirms students' identities, and aims to create learning opportunities that enable every student to develop and pursue appropriate personal goals.
>
> (IBO 2019)

Schools that value diversity create a learning environment where students of varied languages, backgrounds, abilities, interests and perspectives engage with each other in constructing meaning. Learning as a member of a group, while supporting the learning of others, is a value embedded in the PYP. Social interactions and collaboration are both developmentally important for young learners (Piaget 1928; Vygotsky 1978) and for transdisciplinary learning, where openness to multiple, diverse and divergent perspectives supports meaning-making (Augsburg 2014).

A PYP classroom that is committed to inclusivity and diversity is a dynamic learning environment, socially, cognitively and linguistically. Students move between individual work and group work, as well as among fluid and diverse groupings, in response to their needs and the needs of the inquiries—both transdisciplinary and subject-specific. They have opportunities for collective and individual language development through translanguaging. Such an environment optimizes student learning and minimizes the impact on student self-concept and motivation associated with ability grouping/streaming/setting—a practice not supported in the PYP. Streaming or setting generally refers to a homogeneous or fixed learning environment where students are permanently assigned to a track based on their ability or achievement levels (Chmielewski 2014). Research on ability-based grouping demonstrates that such practice negatively impacts academic achievement (Clarke and Clarke 2008; Nunes et al. 2009) and self-concept of students of all abilities (Precke and Brüll 2008; Chmielewski et al. 2013). Furthermore, fixed-grouping strategy runs the risk of seeing student learning as static, moving neither upward or downward when new understandings in neuroscience show that brain networks are variable and not fixed (Rose, Rouhani and Fischer 2013).

The PYP perspective on inclusivity and variability shows a commitment to learning where all students are equally valued and supported to the fullest extent possible. In the PYP, one student's learning is not at the expense of another's. Both Fischer (2009) and Immordino-Yang and Damasio (2007) are clear about the significance of the emotional context on motivation to learn, and even on establishing neurological learning pathways. Teachers honour the unique contribution each student brings to the learning environment by committing to diverse and frequent grouping and regrouping techniques—mixed-ability and ability-based, large and small, academic, interest and social—that are fit for purpose. This form of grouping is also known as within-class grouping, which aims to create a heterogeneous (mixed) learning environment and has a positive effect on students' academic achievement (Steenbergen-Hu et al. 2016). Furthermore, through these diverse collaboration opportunities, students develop their learner profile attributes, skills and sub-skills such as being an initiator, collaborator, facilitator, researcher, communicator, a leader and more.

Within-class grouping offers opportunities for students to interact with a wide range of peers as they move from one group to another and take on different roles to complement the background and skills of those in each group. The teacher's role is to facilitate and monitor these groupings. They provide the necessary scaffolds and prompts to ensure that students build on individual and collective strengths to maximize learning for all. Another advantage is the temporary nature of groups, where students are assessed regularly for growth and regrouped based on their unique learning profiles and development trajectory.

Grouping and regrouping

When deciding on grouping strategies, teachers and students consider the intent of the grouping. Exploring a full range of strategies over time offers students opportunities to socialize and to learn in authentic ways. This is important because learner cognitive ability is variable and not fixed (Rose, Rouhani, Fischer 2013). Students and teachers may choose to group by interest, levels of prior knowledge, demonstrated strength, content, process, product, friendships or student choice. Furthermore, students can be simultaneously grouped by academic ability and by interest. For example, a student might be in one group based on their readiness to explore a specific mathematic concept and in another based on their interest towards a transdisciplinary line of inquiry.

For example, in a typical school day, a student may participate in one group based on interest (in certain questions or actions), another on academic ability (to explore a specific mathematic concept) and a third based on friendships (with open-ended activity in the makerspace).

Involving students in the group composition decision and subsequent development of success criteria is important to removing barriers to learning and participation by all students. Similarly, collaboration among teaching team members and specialist teachers—to consider how best to meet the needs of individual students—ensures that commitment to inclusion and diversity is the responsibility of the entire learning community.

Pair and small-group learning: Teachers and students collaboratively decide pair partnerships. Success in this grouping strategy requires that it is carried out on a regular basis over the year to support the development of communication, self-management and social skills. As students become more self-regulated learners, teachers have increased capacity to observe students and to gain insight about their interests, strengths and needs for further learning.

Literacy and numeracy learning: Whenever possible, the IB advocates language and mathematics learning within the programme of inquiry and in authentic ways. However, there are times when subject-specific skills learning and practice are necessary. Where appropriate, a refined version of the skills-based grouping may take place within the class on a temporary basis; students are regrouped as the content of the learning changes. For example, students might be in one group for geometry but a completely different group for mathematical operations. Teachers regularly monitor, document and measure students' academic growth and regroup accordingly.

Between-class learning: The between-class grouping approach is generally defined as grouping by ability where each class within the same grade serves a different ability group of students (Steenbergen-Hu et al. 2016). A refined version of this grouping approach can be meaningful in PYP schools where there is team teaching. For example, a year level consisting of three classes is inquiring into the central idea "The local environment and natural resources shape the design of buildings and structures". After an initial exploration period that allows the teachers and students to establish prior knowledge and interests, the teachers might decide to set up provocations with varying degrees of challenge in three separate classes and group students between classes to take each investigation further.

Individual learning: Students also have opportunities to work individually, to follow their own interests and inquiries, and to work in a manner that suits them best.

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International-mindedness

Summary

- International-mindedness is a view of the world in which people see themselves connected to the human and natural worlds, assuming a sense of responsibility towards the health and well-being of people and the planet.
- The learner profile and approaches to learning provide the dispositions and foundational skills for the development and demonstration of international-mindedness.
- The learning community envisions, creates, articulates, and models a culture of international-mindedness.
- An internationally minded learner takes action for positive change.

Defining international-mindedness

International-mindedness is central to the IB mission and is a foundational principle to its educational philosophy; it is at the heart of the IB continuum of international education.

International-mindedness is a view of the world in which people see themselves connected to human and natural worlds, assuming a sense of responsibility towards the health and well-being of people and the planet. It is an awareness of the interrelatedness of all peoples and a recognition of the complexity of these. Internationally minded people appreciate and value the diversity of peoples, cultures and societies in the world. They make efforts to learn more about others and to develop empathy and solidarity towards them to achieve mutual understanding and respect (Oxfam 2105; UNESCO 2015).

Primary Years Programme (PYP) learners and their learning communities have a range of perspectives, values and beliefs. The concept of international-mindedness builds on these diverse and divergent perspectives to generate a sense of common good and shared guardianship of the planet.

Developing international-mindedness

Education for international-mindedness begins by creating a culture in the school that values the world as the broadest context for learning. To build an internationally minded school culture, schools may consider:

- focusing student inquiries on fostering relationships with ourselves and others in human and natural worlds
- creating opportunities for meaningful cultural engagement and action in the local and global communities
- embracing multilingualism to enhance intercultural dialogue and global engagement.

Figure IM01

International-mindedness

The learner profile attributes and the approaches to learning provide the foundational skills and dispositions for the development of international-mindedness. An internationally minded learner:

- is a responsive and compassionate communicator
- is open-minded and knowledgeable, critically engaging with diverse and divergent insights and world views
- is a caring and principled thinker who takes accountability and responsibility for the ethical dimensions of taking action
- uses their curiosity, observation and questioning skills to inquire deeply in and with the world
- reflects critically and reflexively when engaging with opportunities and challenges
- takes action for positive changes (for example, to promote intercultural understanding, foster caring interactions and relationships, embrace a sense of relational entanglement and respect towards each other and the planet)
- communicates in various contexts connecting to head, heart and hands.

(Barratt Hacking et al. 2017; Barratt Hacking and Taylor 2020; Boix Mansilla and Jackson 2011; Oxfam 2015; Singh and Qi 2013; UNESCO 2015).

Fostering the development of international-mindedness

The development and demonstration of international-mindedness is complex, contextual and nuanced. While there are many ways to explore and engage with international-mindedness, a 2017 IB-commissioned research project examining how IB World Schools conceptualize and implement international-mindedness identified promising practices.

The study found that IB schools demonstrate international-mindedness based on two interrelated concepts:

- "reaching out", to consider how we interact with others
- "reaching in", to understand ourselves in relation to others.

More importantly, schools in the study considered international-mindedness as a journey rather than an end point. This journey is a constant process of defining, learning, acting, reflecting and redefining. Similar to the programme of inquiry in the PYP, the process of developing international-mindedness is seen as being more important than the product.

Figure IM02

Fostering international-mindedness

The role of school and the learning community

The journeys of IB World Schools include several practices that schools may consider within their own context when fostering the development of international-mindedness (Barratt Hacking et al. 2017). Schools are encouraged to modify and expand on these practices based on their own context.

Creating a culture of international-mindedness

The formal leadership team plays a significant role in visioning, creating, articulating and modelling a culture of international-mindedness. This includes:

- ensuring that international-mindedness is embedded in the school ethos through mission statements and policies (inclusion, admissions, assessment, language and academic integrity)
- encouraging participation in school decision-making by all members of the learning community
- providing opportunities for the learning community to model, develop and demonstrate aspects of international-mindedness.

The informal leadership team facilitates the adoption of an internationally minded culture by creating a learning environment that:

- conveys diversity through the use and display of languages, images and books
- challenges assumptions through inquiries that honour diversity (for example, writers from diverse cultures, a range of experts from divergent fields, public figures and representatives from local and global communities)
- reinforces desired values, dispositions and behaviours in class and in the playground
- provides ongoing opportunities to represent cultural, linguistic, social, economic and ecological diversity.

Providing professional development

Having a focus on international-mindedness in staff professional development, as well as induction, is a significant aspect of a school's work on international-mindedness. Staff benefit from opportunities to:

- explore what international-mindedness is
- reflect on what it means to them, personally, collectively and contextually
- share ideas to support students' development of international-mindedness.

Making provisions for language learning

PYP schools actively encourage language learning, both for its communication and cognitive benefits and for its direct links to international-mindedness. Language itself is valued by the community as a window into culture—through learning and understanding how a language works, learners gain insight into their own and other cultures, as well as ways of thinking.

The IB encourages multilingualism as a means to supporting students' self-awareness, perceptions, abilities and actions that are necessary for developing positive interpersonal relationships as well as affirming cultural identity. Designing environments where students speak and translanguage through their home and family languages, as well as additional languages, demonstrates a commitment to international-mindedness. It sends the message to the learning community that language is crucial to deepening understanding of one's own and others' cultures, and alternative and multiple, diverse and divergent perspectives.

Infusing international-mindedness within the PYP framework

International-mindedness and the learner profile are key components of the PYP curriculum framework, which focuses on knowledge, conceptual understandings, skills, dispositions and action.

Inquiring into the balance between human and natural worlds, ideas and questions that emerge through discussions and conversations can contribute to the development and demonstration of international-mindedness. Student-led inquiry—where students generate questions based on their own curiosities, backgrounds, histories and stories—may also provide rich opportunities for intercultural understanding to develop. Schools provide opportunities for local and global engagement by:

- allotting time for sustained inquiry into a wide range of locally and globally significant issues and ideas
- exploring global concerns, including the environment, peace and conflicts, rights and responsibilities, migration and displacement, and governance across a variety of geographical and cultural dimensions

- critically and reflexively considering equality, equity and power dynamics in inquiry, action and reflection—recognizing the factors that influence the challenges faced by different groups (for example, women, youth, marginalized peoples)
- considering deeper forms of sustainability in inquiry, action, reflection and reflexivity—recognizing that the living hold the earth and its resources in trust for future generations.

Inquiries offer students opportunities to share their knowledge, conceptual understandings and perspectives with peers and teachers, acknowledging and engaging with bias. Sharing dialogues and stories with people who are different from oneself, and hearing others' perspectives, are essential to exploring international-mindedness. Cultural similarities and differences and lived experiences, shared through the inquiry process, can broaden and enhance knowledge, understandings and perspectives.

Expanding intercultural understanding to extra-curricular activities

Events and learning experiences connected to the arts, physical and social activities, language, literature and heritage, can provide meaningful ways to develop friendships and make connections between students:

- from diverse cultures and backgrounds
- with different perspectives and world views.

These collaborative activities that are personal and involve a degree of learner agency are important in developing the attributes of the learner profile and international-mindedness.

Deeper, more critically reflective and personally involved approaches may involve the learning community:

- going out into the wider community to engage with another school that is different from their own
- taking appropriate action to support particular groups within the local community
- sharing cultural and community festivals.

Schools often take trips and excursions to provide students with the opportunities to learn about themselves and others. Sharing and contributing in reciprocal ways in different settings or cultures enhances intercultural understanding. First-hand experience through language and cultural exchanges is also an invaluable and effective means to learn about similarities and differences.

Inviting local and global speakers and visitors to share with the learning community can have a powerful impact on learners. Using both in-person visits and digital engagements, students can interact reciprocally with guest speakers, responding to alternative perspectives as part of the inquiry process and activities.

Acknowledging and celebrating diversity

Schools recognize diversity by creating a safe school environment where members of the community feel secure, respected and trusted to voice their differences. For example, posting signs or notices and displaying student learning in different languages not only promotes a sense of acceptance of difference but also sends the message that diversity enriches learning.

Teachers play an important role in acknowledging diversity through modelling internationally minded values and dispositions. For example, teachers:

- encourage and support students to explore diverse, multiple and divergent perspectives
- share their own experiences, interests and points of view with students
- use artefacts, quotes or pictures to represent ideas in different ways
- are prepared to respond to, and discuss, complex issues such as identity and belonging or peace and conflict
- encourage safe and respectful dialogues
- create opportunities for role play
- encourage independent and collective thinking

- create expectations of language and behaviour that support belonging for everyone
- show respect and kindness to all community members.

Through teachers' actions, students learn both explicitly and implicitly that differences and diversity are the norms, which creates a feeling of respect, tolerance and acceptance.

Engaging with, and building relationships in, the school community

Involving and including parents and legal guardians in learning and teaching in an inclusive way is an expression of international-mindedness. This two-way process raises school and teachers' awareness to home cultures and expectations. This reciprocal process with the student, the learning community and the family supports everyone to have a voice in school decision-making.

Supporting students, families, teachers and staff in transition through thoughtful induction programmes is both critical to helping them establish a sense of belonging and to developing international-mindedness among all community members.

Local engagement, through a collaborative and constructive relationship with the school's local community, is another important expression of international-mindedness.

Towards international-mindedness—the role of the students

Developing international-mindedness begins with being open-minded towards the people in the immediate, wider and local communities. Many attributes of the learner profile can support the development of international-mindedness, including being balanced, principled and caring. Through the development of these attributes, students learn to be:

- tolerant and respectful—understanding that other people, with their differences, can also be right
- empathetic—understanding and sharing the feelings of others.

Figure IM03

Engaging with international-mindedness

Being open-minded is a requisite to intercultural understanding. When students are open-minded, they demonstrate the ability to: • be aware of their own feelings and attitudes towards others • listen and engage with multiple, diverse and divergent perspectives • value peers and teachers for who they are • let go of their own assumptions or biases • be aware that body language and other non-verbal forms of communicationcan also send messages of inclusion or exclusion	They also develop the capacity to resolve conflict and to build relationships through caring for, and sharing with, others. For example: • including others in games and social activities • engaging with different students in the playground and in inquiry groups • being sensitive to the needs of others when expressing their point of view • respecting or engaging positively with others' diversity of languages, life experience, beliefs and variability of learning	Students further demonstrate international-mindedness through principled actions. For example: • helping new students feel at home in the learning community • translating for a peer who is at the early stages of developing language skills • taking responsibility for their own actions • sharing own cultural histories, traditions and stories in classroom discussions and assemblies • supporting students who have been treated unfairly

• seek opinions from diverse peer groups • show awareness of the need to communicate in culturally appropriate ways • seek to engage with the languages of others with interest.	• resolving conflict through dialogue or circle practices • using multimodal communication strategies to engage as many people as possible.	• modelling appropriate behaviours when injustices are encountered.

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PYP leadership

Leadership and leaders

Summary

- Effective Primary Years Programme (PYP) leadership acknowledges the agency of all members of the learning community to take on formal and informal leadership roles to advance the school mission.
- To create the culture and conditions necessary for all to take on leadership roles, leaders lead by establishing a shared purpose, encouraging shared responsibilities and building leadership capacity in the learning community.

A large body of research consistently affirms the following two claims about leadership (Leithwood et al. 2008).

1. School leadership is second only to classroom teaching as an influence on student learning.
2. Almost all successful leaders draw on the same repertoire of basic leadership practices.

At the core, effective leaders are individuals who provide direction and exercise influence to achieve a shared vision and aspirations of the school. Effective school leaders acknowledge the agency of all members of the learning community and they motivate, challenge and encourage others in the learning community to take on formal and informal leadership roles to advance the school mission.

Perceptions of effective leadership vary across cultures. Leaders contextualize to fit the culture, context or condition of a school. This creates a shared culture that respects and celebrates diversity, and values it as essential for intercultural and meaningful learning. There are a few basic leadership practices that successful leaders from around the world (Leithwood and Riehl 2003) draw on that PYP schools can adopt and adapt.

- Leaders lead by working with others to create a shared sense of purpose and direction rather than imposing goals on the learning community.
- Leaders view their role as consisting of multiple responsibilities that may be shared by various members of the learning community.
- Leaders work through and with others by establishing the culture and conditions that enable members of the learning community to work towards international-mindedness.

Formal and informal leaders exist in PYP schools. Both types of leaders are necessary for the ongoing development and implementation of the PYP framework. Leadership capacity within the learning community sustains the IB programmes.

Formal leadership: The pedagogical leadership team

The pedagogical leadership team are formal leaders who are pivotal in shaping and strengthening the learning community. They support the ongoing development of the PYP by identifying the positions that constitute the leadership team and defining the responsibilities of each member. The team draws from the programme standards, practices and requirements, as well as their school's action plan, to inform decisions for continuous school improvement.

The pedagogical leadership team includes members such as the PYP coordinator, the principal/head of school/director, assistant head. Each school decides how shared leadership works best in their own context.

The pedagogical leadership team structure is transparent and communicated throughout the learning community. This alleviates misunderstandings and clarifies responsibilities and channels of communication.

Informal leadership

Teacher leaders initiate and promote practices for continuous school improvement in their classrooms and in their collaborative planning teams. They model agency, self-efficacy, sense of self-worth and the ability to influence. They inquire into their practice, seeking answers through professional development and reading, and action research.

Ensuring student voice: Student leadership

To develop student agency, all members of the community believe in and commit to students' capacity to lead. In *Student leadership, participation and democracy*, Frost and Roberts (2011) suggest that if leadership activities include influencing and inspiring others, taking the initiative, offering support/service, holding others to account, modelling learning behaviour and valuing/encouraging helpful behaviour, then it is reasonable to expect that all members of an educational community, including students, make a contribution.

Establishing a shared purpose

Leaders build shared understandings and agreements to support programme implementation and ongoing development. Central to this work is establishing shared ownership of the school community's beliefs, values, motivations, skills, knowledge and the conditions in which the learning community operates (Deal and Peterson, 2016). In all IB schools, these beliefs and values are embodied in the IB standards and practices. Leaders in PYP schools:

- share the purpose of the IB's mission
- successfully integrate the IB philosophy with the school's unique context
- develop a learning environment sustained by effective structures, organizational practice and resources
- foster a dynamic school culture centred on an inclusive learning community
- positively affect local and global communities
- create student learning experiences of the highest quality possible.

Learning communities build shared understandings and agreements for quality learning and teaching, and for the well-being of their members. In PYP schools, these understandings and agreements encourage critical and creative thinking through continual inquiry, action and reflection, which places students at the heart of learning. A clear purpose and shared understandings lead to the outcome of an IB education. PYP schools support children to:

- become internationally minded individuals
- develop the attributes of the IB learner profile
- develop knowledge, conceptual understandings and approaches to learning.

The leadership team plays an important role in aligning purpose to actions. It:

- allocates and distributes necessary resources to support the implementation of the PYP
- fosters a dynamic and inclusive culture that promotes agency and values diversity
- supports ongoing professional development, constructive conversations, planning and reflection
- understands the concepts, values and practices of the programme to ensure its continuous development
- has presence, visibility and participates in programme implementation and review
- develops open, trusting, respectful, collaborative relationships
- encourages collaboration among members of the learning community
- engages with multiple, diverse and divergent perspectives in its community.

The leadership team evaluates its actions towards achieving the shared purpose using the guidance in the IB standards and practices, internal and external data, feedback from students and parents, and from IB visits to inform and identify actions for improving learning and teaching, and well-being.

Sharing leadership responsibilities

It is commonly believed that the responsibilities faced by modern school leaders are practically impossible to meet by one person (Danielson 2007). This requires seeing leadership through the lens of multiple responsibilities that can be shared between the leadership team and the learning community (Danielson 2007). The best way to create shared ownership of responsibilities is to ensure every member has choice and voice. The formal leadership team supports the decisions of the learning community and are behind them in challenging situations.

The PYP coordinator

The principal/head of school and the PYP coordinator collaborate to guide and to support the implementation of the PYP. They create an effective working balance of responsibilities and clearly communicate their respective responsibilities to the learning community.

All IB World Schools offering the PYP appoint a coordinator. The coordinator plays a pivotal role in a PYP school to ensure the fidelity of programme implementation. Depending on the size of the school, the coordinator may have shared responsibility for teaching or other roles. It is, therefore, important that the school provides adequate time, resources and IB professional learning opportunities to support the role of the PYP coordinator.

Together with other members of the school's pedagogical leadership team, the PYP coordinator takes action on the shared purpose by supporting and promoting excellence in curriculum design and programme implementation across all year levels. The coordinator works collaboratively with each teaching team to ensure that:

- goals and expectations are clearly documented and communicated
- pedagogical aspects of the programmes are discussed, understood and put into practice
- PYP guidance and updates are disseminated and discussed
- the programme of inquiry is collaboratively planned and taught
- the teaching team has adequate time for collaborative planning and reflection
- professional development and learning are embedded into the culture of the school
- the environment is collegiate and supportive
- there is timely, specific and well-considered feedback to members of the teaching team.

The PYP coordinator contributes to continuous programme improvement by connecting the learning community with the IB global community of educators to support innovative practices.

The governing body

To achieve the shared purpose, the leadership team informs the governing body, such as the board or the school district, about the process of becoming an IB World School and secures its commitment to create the conditions for successful implementation of the PYP.

The governing body uses its knowledge of the IB standards and practices to inform its decisions. It supports inclusive practice by ensuring that all students, regardless of learning variability, have the opportunity to participate in the PYP.

The learning community

To strengthen the understanding of the shared values of the PYP within the learning community, leaders facilitate common understanding by:

- developing and implementing two-way communication strategies that strengthen the learning community's understandings of the PYP, and are open to feedback from stakeholders; these might include open evenings, workshops, or face-to-face meetings, formal or informal
- modelling inquiry during meetings or workshops in order to better understand the programme and to promote its understanding by others

- modelling, promoting and celebrating the IB learner profile
- building relationships among stakeholders that contribute to school and programme improvement by encouraging feedback and collaboration among the learning community
- collaborating with school stakeholders to achieve goals that promote the culture and values of the learning community
- being alert to opportunities for school improvement and working towards solutions in overcoming obstacles
- removing barriers to ensure the inclusion of diverse voices.

With this understanding, members of the community can take action to support the shared purpose. This may include:

- acting as an expert or resource to support student inquiry
- organizing events
- sharing their own background to enrich intercultural understanding
- contributing to networks of relationships.

Nurturing capacity through and with others

Learning communities systematically seek to examine practices, implement and reflect on new ways of learning and teaching. Innovation occurs through inquiring, reflecting, learning, adjusting and inquiring again. A culture of continuous improvement is open and collaborative; it encourages and fosters different ways of thinking and involves developing the school and leadership capacity to support that goal. A school that is committed to continuous school improvement uses solid evidence derived from a range of sources to identify priorities for future development.

Developing the school

Members of a PYP learning community are open to new ideas, commit to capacity-building, seek a broad range of views, opinions and discussions, and follow transparent decision-making processes. They demonstrate agency through collective ownership, responsibility and accountability for learning and teaching, and transform schools into dynamic, diverse, inclusive and equitable learning communities.

Cultivating the environment

Examples of what leaders can do to create a positive environment include:

- pursuing positive interactions with the goals of fostering shared understandings
- garnering resources and support to establish collaborative and productive inter-organizational relationships
- involving members of the community in shaping the organization by including their voice in significant decisions
- building collaborative processes for curriculum development and participation in instructional decision-making
- strengthening the community through using the language of the learner profile, honouring and nurturing family languages or celebrating international-mindedness in the school
- experimenting and piloting new ideas.

Prioritizing people and their relationships

Leaders operate through a series of dynamic, integrated and overlapping influences. A key approach to influencing others is to develop mutually rewarding and productive relationships with them (Duignan 2012), as well as creating an opportunity for members of the community to develop relationships with each other.

Trusting, productive and rewarding relationships, regardless of at which level or with whom, begin with being present. Genuine presence fosters quality and authentic relationships, and it is an effective way to bring out the very best in oneself as well as in others. It is also by being present that members of a learning community understand the shared vision and can work together to advance it (Duignan 2012).

Leaders who value relationships, create opportunities—as well as encourage members of the learning community—to collaborate and to engage with each other beyond their daily routines and responsibilities. Members of the community establish meaningful and inspiring relationships when they interact formally and informally.

Developing formal and informal leadership capacity

Effective leadership aims to create school sustainability by fostering leadership capacity within the learning community to engage in continuous improvement (Fullan 2005). School cultures with a strong emphasis on continuous improvement are more likely to implement and consider innovative practices to support that goal (Deal, Peterson 2016).

Sustainable leadership is best supported by long-term succession planning involving a "distributed leadership" model, whereby "deeper and wider pools of leadership talent" are developed within the school (Hargreaves and Fink 2005). There are multiple ways leaders can build leadership capacity, including the development of leadership capabilities.

IB leadership capabilities

In an IB World School, where members of their learning community are from diverse backgrounds, leaders take into consideration how cultural and organizational factors influence their leadership practices. IB leaders are encouraged to be adaptive, and globally and locally engaged to embrace diversity and its inherent contradictions. For example, divergent expectations between local, state and national curriculums, and the PYP framework, may emerge. Leaders draw on a range of capabilities to manage these challenges, as well as leveraging them to enrich their learning communities.

Effective leaders, both formal and informal, understand that what works in one environment or context might not work in another.

The IB has identified seven leadership intelligences that embody the attributes of the learner profile (Richards et al. IB unpublished work). These capabilities shape and nurture the conditions that facilitate quality learning and teaching in diverse settings.

Figure LS01

IB leadership capabilities

Strategic capability

IB leaders are forward thinking, see the bigger picture, recognize emerging trends and translate strategy into action while aligning people and the organization behind a set of shared values and vision.

Cultural capability

IB leaders continually interact with people, institutions and ideas from different cultural backgrounds and traditions to their own. They harness the human potential within diverse school communities and create a shared culture that not only respects and celebrates cultural diversity but also sees it as essential for intercultural learning.

Pedagogical capability

IB leaders develop a school culture that fosters and values professional development. They recognize that they need to build individual and institutional knowledge and understanding so that schools continue to grow as places where knowledge and meaning are discovered and constructed.

Entrepreneurial capability

IB leaders anticipate change and respond in creative, analytical and practical ways. They demonstrate the ability to innovate, develop, communicate, promote and evaluate new ideas and practices, take intellectual risks and support others in these endeavours.

Relational capability
IB leaders influence individuals, groups and systems to achieve a goal or set of goals. They understand stakeholders and support them to achieve their optimum. IB leaders support members of the learning community to learn together to achieve better outcomes for students.

Reflective capability
IB leaders use thinking strategies when engaging with the different experiences they face. The emphasis the IB programmes place on critical thinking, multiple perspectives and constructivist and social-constructivist views of knowledge creation requires leaders to be comfortable in creating an organizational culture that places critical reflection at its core.

Heuristic intelligence (insight) capability
IB leaders develop shortcuts or make logical leaps of the mind to form an inference of what is the best explanation and solution. They self-reflect and are adaptable to new settings. Underpinning heuristic capability is the need to make quick decisions and rapid judgments with the big picture in mind.

Developing teacher leadership capacity

Developing leadership capacity can avoid the stresses and strains often evident when there is a change in school leadership or in the faculty. The school considers:

- capacity-planning based on an understanding of where the school is with its PYP implementation
- sharing responsibility for capacity-building beyond the principal or the coordinator
- sharing understandings of leadership capacity with others
- transparency in framing and establishing leadership standards, capabilities and expectations
- providing opportunities for teachers to become IB workshop leaders, school evaluators or to take on other roles in the IB Educator Network (IBEN)
- how and when teachers are engaged in decision-making processes.

On a day-to-day basis, the development of teacher leadership capacity is supported by:

- considering a range of formal and informal roles within the pedagogical leadership team
- linking teachers' professional learning to programme implementation
- regularly setting aside structured in-service days to develop and reflect on the programme
- planning for a variety of interactions across the learning community to support shared understandings and dialogue among its members
- co-planning teacher attendance at upcoming IB and non-IB professional development workshops, conferences and network events
- providing timely, specific and well-considered feedback to improve learning and teaching
- encouraging teachers to see themselves as researchers, and supporting their inquiries into pedagogy.

A culture of continuous improvement and innovation is open and collaborative; it encourages the practice of "teacher as researcher". When challenges and opportunities are identified, learning teams use their action research skills to generate possible solutions and approaches, experiment and pilot new ideas, and share the data and outcomes of their research with other members of the learning community.

Professional development balances the needs of individuals and the learning community. Professional development might:

- relate to the school's action plan
- involve small groups of teachers and leaders deciding to conduct literature research on current thinking in an area of identified need or interest
- include action research by individuals or a group of teachers
- be personalized
- draw on the expertise of staff or the wider network of IB teachers.

Developing student leadership capacity

Learning communities engage and support students as leaders by ensuring they have voice, choice and ownership in both their learning and in an environment that sustains it. The learner profile provides the ideal vehicle to develop and extend student leadership, and offers opportunities for students to develop the skill sets related to effective leadership—for example, acting with integrity and honesty, and taking responsibility for their own actions and the consequences that accompany them.

Student voice is evident when:

- students' questions, emotions and behaviours guide learning and teaching
- students identify issues and opportunities, and suggest ideas for action
- students are included in decision-making processes
- students' perspectives are given weight in decisions that impact them.

Student choice is evident when:

- students co-construct with peers and teachers a range of different learning activities and assessment options
- students' ideas and suggestions are recognized and built into the school culture
- student perspectives for action are honoured
- students have opportunities to make decisions about learning independently or in groups.

Student ownership is evident when:

- students define their learning goals with support from teachers
- students reflect on their learning
- students' ideas are supported through action. (Wheatley 2006)

Research

Research demonstrates that school cultures with a strong emphasis on continuous improvement are more likely to implement and consider innovative practices to support that goal (Deal, Peterson 2016). Establishing a culture of continuous school improvement requires that leaders enable the school to function as a professional learning community that both supports and sustains the performance of all key members of the learning community (Leithwood, Riehl 2003), including teachers, parents and students.

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A collaborative approach to transdisciplinary learning

Summary

- PYP schools commit to and support collaboration to improve the transdisciplinary learning experiences and student outcomes.
- Teachers collaborate within and beyond year-level teams, the school and the learning community about learning that takes place both inside and outside of the programme of inquiry.
- Students demonstrate agency, and their capacity to take action for their own learning, by collaborating with teachers and peers.
- Collaborative teaching practices between year-level and subject-specialist teachers come in different forms, and include co-constructed, supported and stand-alone learning experiences.

Demonstrating a commitment to transdisciplinary learning

Collaboration demonstrates a commitment to the common goal of supporting and reflecting on a transdisciplinary learning experience and improving student outcomes. Teachers are continually inquiring into and reflecting on learning and teaching as they collaborate with each other and with their students (Claxton, Chambers, Powell, Lucas 2011). A collaborative approach involving sustained dialogue and reflection helps teachers to grow as professionals. They reach deeper levels of understanding together as they inquire, reflect on and make decisions about the process of learning.

This collaborative approach is apparent at a school-wide level as well as in day-to-day and moment-to-moment learning and teaching. The learning community collaborates in policy development, resource planning and allocation, learning space design and culture-building. Collaboration may vary in response to the local context and the needs of the learning community, and will always be based on a commitment to the mission of the IB and the Primary Years Programme (PYP) pedagogy.

Once learning communities reach broad understandings about the curriculum, they go on to:

- design the transdisciplinary programme of inquiry
- support each other by providing feedback on teaching practice
- create and moderate assessment
- reflect on the success of the units and the programme.

Collaborative learning teams also establish systematic and ongoing professional learning and mentoring programmes that build vibrant professional learning communities. They support new teachers to establish inquiry-based learning and teaching practice. Schools extend their collaborative practice to local networks and the wider global IB community through participation in professional development and encouraging teachers to become active members of the IB educator network.

A collaborative approach puts students at the centre and aims to ensure a holistic, transdisciplinary and coherent learning experience for them. Collaboration starts by developing a shared understanding of what students know and can do.

Students are valued participants of the collaborative learning teams. They demonstrate agency and their capacity to take action for their own learning by collaborating with teachers and other students.

Collaboration—a "distinguishing" feature of transdisciplinary learning

The PYP is committed to transdisciplinary learning as an organizing principle of the curriculum. It has relevance across the subjects and transcends the confines of the subjects to connect to authentic contexts in human and natural worlds.

Transdisciplinary learning cannot happen without collaboration across disciplines. The key aim of collaboration is to:

> fuse knowledge from a number of different disciplines and engage with stakeholders in the process of generating knowledge.
>
> Wickson et al 2006

To achieve this aim, collaboration is intentional and continual. Collaboration supports the learning community in understanding how the expertise and perspectives of individuals contributes to the fusion of knowledge and new discoveries.

Through sustained collaboration, members of the learning community develop:

- openness towards other perspectives
- engagement with ideas different to one's own
- respect for the contribution of other subjects to the inquiry
- appreciation for rigour in debate and discussion
- appreciation for collective interpretation and reinterpretation of knowledge.

Supporting transdisciplinary learning requires time and a commitment to collaboration. This includes students, classroom teachers, subject-specific teachers, librarians, media-specialist teachers, inclusion specialists, and so on. Teachers and students learn from each other as they share knowledge, perspectives and experiences; discuss how to design, plan, facilitate and assess learning and teaching; and consider how to transfer knowledge. Teachers co-learn with students when inquiries take them beyond subject boundaries, exploring a potentially infinite number of opportunities to address the transdisciplinary themes.

Collaboration that supports transdisciplinary learning also engages the learning community in ongoing reflection. Through reflection, educators consider the impact of their personal, professional and societal

frames of reference. These considerations are central to transdisciplinary learning and are only possible through collaboration.

Effective collaboration

Providing a meaningful PYP transdisciplinary learning experience requires collaboration before, during and after an inquiry from all members of the school community to:

- establish a clear purpose
- identify shared values and understandings around the benefits of collaboration
- consider how to organize planning meetings
- have access to the people and materials that inform and support the process
- agree on ways to document, communicate and share the ongoing process of planning and reflection.

Making time for collaboration

Finding time for collaboration requires creative thinking on the part of schools. The following examples provide a starting point, although local and national regulations governing each school will influence decisions of this nature.

- Schedule early release or late start days so that teams can plan together; build these into the yearly and/or weekly calendar.
- Build in time for planning together during orientation days.
- Build in shorter school days by making these up with a longer school year.
- Allocate extra budget for substitute teachers to release teams for collaborative planning and reflection.
- Organize staff retreats away from school for collaborative planning and reflection.
- Alternate the focus of staff meetings; professional development, collaborative planning and other needs.
- Release some teachers during assemblies.
- Members of the leadership team (principal, PYP coordinator and so on) covers classes so teachers can meet to plan and reflect together.
- Support face-to-face planning with technology (shared online collaboration spaces; digital meeting platforms to enable broader participation).

Supporting ongoing and effective collaboration

The following questions provide a starting point for schools to consider ways to support ongoing and effective collaboration.

Does collaborative planning and reflection:

- take place regularly and systematically?
- include all teachers, including librarians, IT/ media and inclusion specialists, on a consistent basis?
- respect student agency, include student voice and consider student well-being?
- make room for meaningful dialogues?
- provide a safe space for debating ideas?
- consider all participants' perspectives and experience?
- provide opportunities to reflect on prior experience and future goals?

- address vertical and horizontal articulation of subject knowledge, skills, concepts and attributes of the learner profile?
- ensure that all teachers have an overview of students' prior knowledge and learning experiences?
- respect teacher agency and consider teacher well-being?

The collaborative planning process

Whole-school involvement in developing the programme of inquiry is professional development for all. It can strengthen each teacher's understanding of underlying educational theories and is an opportunity to share experiences, ideas, processes and imaginings to transcend subjects. Through collaboration, teachers develop:

- the capacity to look beyond their own disciplinary boundaries
- the capacity for self-reflection
- the ability to reflect on knowledge integration processes
- the ability to take on new ideas.

Members of the pedagogical leadership team support collaboration by creating opportunities for teachers to develop mutual trust and collegiality (Augsburg 2014). They ensure that teachers:

- collaborate throughout planning, implementation and reflection
- collaborate to connect subject-specific knowledge and approaches to learning
- share responsibilities for helping students make connections across, between and beyond subjects for transdisciplinary learning
- review the programme of inquiry for vertical and horizontal articulation
- collaborate to integrate national, regional and state curriculums in ways that promote understanding of the transdisciplinary themes.

Collaborative planning process for learning and teaching (PDF)

Collaboration between year-level and subject-specialist teachers

Some PYP schools have year-level teachers with full responsibility for their students and responsibility for all subjects. In schools with a single class per year level, teachers from different year levels plan together.

In schools with more than one class per year level, teachers working with a particular year level form a team to plan inside and outside of the programme of inquiry with input from the students. Through such collaboration, teachers offer and present different perspectives and ideas that enrich the learning and teaching experience. Some schools, including those with mixed-aged settings, may plan the programme of inquiry over a two-year cycle.

Note: A four- or six-unit requirement per year still applies to a two-year cycle.

Some PYP schools have year-level teachers, subject-specific teachers (for example, arts, personal, social and physical education, music, additional languages, mathematics) and support teachers. In these schools, everyone views themselves as a PYP teacher contributing to, and planning for, student well-being, transdisciplinary learning experiences and the overall outcomes of the programme, and all use the planning process and document learning to share during collaborative reflections.

Collaborative teaching practices can come in different forms. Figures CP01–03 provide some examples. Schools are encouraged to adapt collaborative practices from these examples or from other examples that work in their contexts. The following practices apply to all teachers—year-level teachers, learning support teachers or subject-specialist teachers.

Figure CP01

Co-constructed learning experiences

Collaborative practice	Co-constructed learning experiences
Ways of working	Year-level and subject-specific teachers collaboratively plan and independently deliver learning experiences inside and outside of the programme of inquiry. Learning experiences occur in parallel in homeroom and in subject-specific settings during the duration of an inquiry. Students construct new knowledge by integrating their learning experiences gained from multiple, diverse and divergent perspectives. All teachers reflect on the units during the collaborative planning and reflecting process.
Scenarios	**Scenario 1** In a unit of inquiry under the transdisciplinary theme "How we express ourselves", with the central idea "Throughout history, people have interacted with each other and communicated using arts", students explore with the year-level teacher how images interact with text in literature and, with the arts specialist teacher, how forms of art as communication have changed over place and time. **Scenario 2** An investigation to develop the conceptual understanding that "Patterns repeat and grow" in mathematics is co-constructed between the year-level or mathematics specialist teacher and the visual arts and PE specialist teachers. Strong connections are made by applying the mathematics patterns and sequences presented in visual arts and through dance and gymnastics movements.

Figure CP02

Supported learning experiences

Collaborative practice	Supported learning experiences
Ways of working	The year-level or subject-specific teacher(s) takes a leading role in delivering learning experiences inside and outside a collaboratively planned unit of inquiry. This support could occur before, during or after the unit of inquiry on which the teachers had collectively decided. The support could be related to assisting the acquisition of a skill or providing further opportunities for skills practice or application, or for student action.
Scenarios	**Scenario 1** Under the theme "How the world works", with the central idea of "The values and beliefs of a culture are expressed through its languages", the language specialist teacher leads an inquiry into the languages and cultures of the learning community; the year-level teacher supports this throughout the year by providing students with opportunities to use their home and family languages in investigations, inviting parents to read stories in their own language(s) to the class, or encouraging students to use their own language(s) in small- and large-group settings. **Scenario 2** Under the theme "Sharing the planet", with the central idea of "Over time, living things may need to adapt in order to survive", the year-level teacher leads an inquiry into the rights and responsibilitiesof coexistence—now and in the future. The year-level teacher calls on the science specialist teacher to provide a scientific lesson on the impact of environmental changes on biodiversity and ecosystem functioning. **Scenario 3** In a unit of inquiry, a librarian supports students to acquire research skills or annotation skills. An IT specialist teacher assists students in using different forms of media for communicating research findings

Figure CP03

Stand-alone learning experiences

Collaborative practice	Stand-alone learning experiences
Ways of working	A language or mathematics specialist teacher, a support/enrichment teacher or a bilingual teacher co-teaches alongside the classroom teacher—or in a separate setting—to support acquisition or mastery of a specific skill or subject knowledge directly or indirectly related to a

Collaborative practice	Stand-alone learning experiences
	unit of inquiry. Teachers ensure that these stand-alone learning experiences are authentic, relevant to the programme of inquiry and reflect the core elements of the IB learner profile, conceptual understandings and approaches to learning.
Scenarios	**Scenario 1** A mathematics specialist teacher supports students to understand basic multiplication and division facts. **Scenario 2** A year-level teacher supports students in the acquisition of grapheme–phoneme correspondences. **Scenario 3** A physical education specialist supports students to develop a wide range of movement skills by using a variety of equipment and a range of play experiences. **Scenario 4** A music specialist teacher supports students' understanding of the elements of music: beat, rhythm, pitch, tempo, dynamics and tone colour.

TSM: Collaborative planning in action

Collaboration within and beyond the learning community

Students, as agents of their own learning, are fully engaged throughout the unit of inquiry. They define their learning goals, lines of inquiries and success criteria with teachers. They collaborate with teachers to modify learning as new information or interests emerge. They reflect on their learning individually and collaboratively with peers and teachers throughout the inquiry.

When learning is connected to authentic contexts, students see the relevance of their learning beyond the school. There are valuable experts and resources within and beyond the learning community that can be used to support and enhance learning. For example, the following community members might be able to help with learning inside and outside of the programme of inquiry.

- Other students who have a particular passion or interest
- Colleagues working in a different section of the school
- Parents and extended family members
- Experts and professionals in various fields within the local and global community

Collaboration with members outside the learning community is key to providing students with an authentic learning experience and in helping students making connections from their learning to the real world.

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Creating learning environments

Summary

- A learning environment encompasses multiple learning spaces—built and natural, outdoor and indoor, formal and informal.
- Students actively participate in the design and co-construction of learning spaces including the learning opportunities that occur within those spaces.
- Learning spaces are flexible, inviting, and engaging.
- A learning environment promotes collaboration, a shared sense of purpose and belonging, and respects the agency of learners.
- Learning environments are safe and inclusive, offer multiple ways to learn and interact and support inquiry-based transdisciplinary learning.

Contexts for learning

A learning environment is the context in which learning happens. Learning occurs in environments that are designed to promote collaboration and a shared sense of purpose and belonging. An environment respects the agency of "rich and powerful learners" (Edwards, Gandini and Forman 2012), inspires creativity and innovation, and recognizes experimentation and failure as an integral part of the learning process. The child impacts the environment (Bronfenbrenner 1979) and is, in turn, impacted by the environment. Every action in the environment brings about a reaction, and it is through this reciprocal process that learning occurs. For example, while the ground does not "teach" a child, they learn about the breakability of a glass object when they drop it on the ground and see and hear the glass crack.

Students also define their identity in learning environments (Edwards, Gandini and Forman 2012). They do so by being active members of the learning community, providing inputs in decisions that affect them and making choices about materials and other learning opportunities to make sense of the world. It is important that consideration of learning environments includes all members of the learning community, together with the components that can improve outcomes for learning and for life. This includes pedagogy, safety, social and emotional well-being, as well as the virtual and physical spaces where learning occurs.

Characteristics of learning environments

Safe and inclusive learning environments recognize and reflect diverse and divergent ways of knowing, being and thinking. Primary Years Programme (PYP) schools take a broad view of learning; the curriculum is the entire learning experience that the school offers. Learning may occur anywhere and anytime, in real and in virtual spaces, both inside and outside the programme of inquiry.

Engaging learning environments inspire the imagination and creativity of learners, and encourage the process of inquiry, action and reflection. These environments provide opportunities for emerging inquiries; students may take their learning in new and unexpected directions, developing and demonstrating the attributes of the IB learner profile.

Learning environments include multiple learning spaces. They can be built and natural; physical and virtual; indoors and outdoors; and formal and informal. Beyond spaces, environments also include the relationships among and between the people and other living things, the materials, the agreements and the schedule. Students learn through formal and informal experiences, through involvement in everyday learning and school events.

Learning spaces are flexible, allowing for planned and spontaneous opportunities for quiet, independent learning, interactive group learning and spaces for students to make and create. Flexible learning spaces take into account students as individuals and are responsive to diverse needs, backgrounds, languages, abilities and interests. Students who are involved in designing their learning spaces feel greater ownership and influence over their learning. Learning spaces can be designed with different combinations of resources that interact to support learning and teaching.

Digital connectivity plays a key role in the learning environment as it broadens learning beyond the local community. Technology offers unlimited opportunities for students to enter worlds far removed from their own, to explore challenges and opportunities from many perspectives and to collaborate with people worldwide on projects of shared interest. Through these connections students learn what it means to be a participant in a global community. They learn to use technologies in ways that are socially and ethically responsible and that contribute to the global learning community.

Connecting pedagogy and design

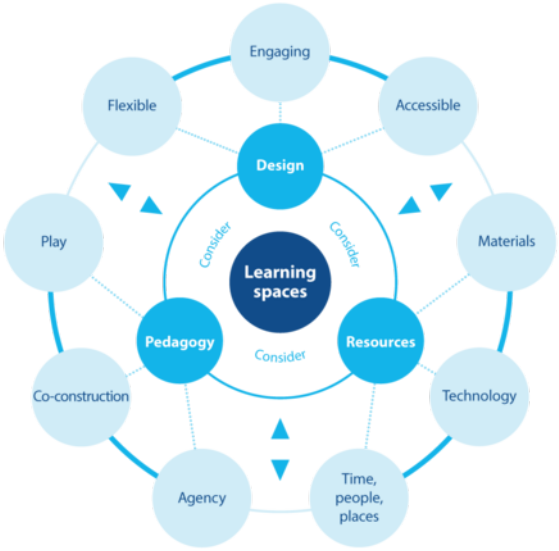
PYP learning spaces affect and reflect values and beliefs about learning. They play a role in shaping the culture of the learning community by facilitating certain ways of acting and interacting. They support a constructivist and social-constructivist (Vygotsky 1978) approach to learning and teaching. They are multifunctional, emphasizing personalization of learning, promoting independence and engagement.

The learning community consider the connections between pedagogy and design, and how spaces are best used by members of the learning community to meet the stated goals.

Figure LE01 helps guide community decisions regarding learning spaces. This may be used to facilitate the conversation in the design of new spaces or modification of current learning spaces involving teachers, administrators, business managers, architects and students. The figure may also be used by teachers and students in considering how they can optimize the design of their learning spaces.

Figure LE01

Designing learning spaces



Pedagogy

Learning spaces that align with the PYP pedagogy support the development of approaches to learning and enhance connections between, across and beyond subjects within and outside of the transdisciplinary programme of inquiry. They support investigation and research, and provide opportunities to revisit earlier

inquiries to build understanding. They also invite critical, creative and reflexive thinking, and represent diverse and divergent cultures, language profiles and contexts.

Play supports the acquisition of social, cognitive and physical skills. Learning spaces are designed with play in mind. Through play, students experience and practise the skills of conflict resolution, cooperation, sharing and problem-solving (Steinhagen, Iltus 2004).

For learners in the early years, learning spaces also offer opportunities for symbolic exploration and expression, with teachers adapting space and materials to support young students' evolving needs, developing interests and theories.

Teachers co-construct learning spaces with students, providing voice, choice and a sense of ownership. This supports well-being, a sense of familiarity and belonging, and pleasure in inhabiting those spaces, for teachers and students alike.

The entire learning community shares responsibility for caring for the learning spaces. Regular reflection considers how spaces are kept dynamic, purposeful and responsive to learning.

Design

Learning spaces need to be flexible, both pedagogically and physically, in ways that reflect the nuances of different knowledge areas, cognitive and social skills development, as well as personalizing learning (Blackmore, Bateman, Loughlin, O'Mara and Aranda 2011). The design also fosters encounters and encourages relationship building and communication.

Design considerations

Learning spaces are designed to be accessible to all members of the learning community. These indoor and outdoor spaces support learning and well-being by identifying areas for socializing, reflecting, and for planned and incidental learning. Learning spaces are designed so that materials for student use are stored, organized and labelled for easy access. There is intentionality in how and where resources, furniture and materials are placed and presented, and how they are modified and adapted. When thinking about the learning environment and the spaces within it, teachers consider whether it:

- respects and reflects students' individual and group identities—backgrounds, interests, needs
- encourages student voice and choice
- supports inquiry—students as inquirers/researchers
- supports the development of approaches to learning and the learner profile
- promotes independence and self-motivation
- connects strongly with communities and the natural world
- fosters a sense of belonging, safety and ownership.

Flexible learning spaces

Flexible learning spaces support varied learning experiences and provide opportunities for individual learning and collaboration. Within spaces, there are zones for different activities: collaborative group work, small group learning with adults, reading, creative learning, experiments and testing, and dramatic play. They enable a balance of experiences to facilitate the approaches to learning and promote choice, decision-making and independence.

Flexibility is also supported with furniture that can be arranged in different ways, for example, movable storage units, varied seating options and multipurpose pieces.

Inviting learning spaces

Learning spaces welcome the learning community. They reflect the culture of the school, the kinds of learning and thinking that are valued and celebrated, and help to foster the development of the learner profile attributes. The general ambience and aesthetics of all spaces require consideration.

Engaging learning spaces

The arrangements of displays and materials invite engagement, meaning-making, exploration and reflection. In a PYP classroom, materials are varied and open-ended, with learners using their creativity to manipulate and use the materials.

Displays in classrooms and shared spaces make student learning visible. In a classroom that values the learning process, displays of learning in progress are equally as visible as the final product. What is on display—and how it is displayed—inspires, invites and informs. Students co-create displays to share their ideas and thinking with other members of the learning community. The documentation and presentation of learning allows students to see the processes others use to demonstrate their understanding, thereby inviting discussion, reflection and feedback to enhance learning.

Connected learning spaces

The learning community ensures relevance and connection between the classroom and the lives/family life of the students. Displays reflect the multilingual nature of the learning community and help build intercultural understanding (Callaghan 2013). They also reflect the lives of the students outside of the classroom so they see learning as an integrated experience between school, home and the learning and wider communities.

Figure LE02 provides examples of some of the design elements discussed.

Figure LE02

Design elements

Considerations and ideas for displays		
Feedback process is made visible	Photos of student engagement in learning	Images and artefacts to generate curiosity and questions
Questions—teacher- and student-generated questions linked to units of inquiry and other learning	Connections to previous learning —from both this year and previous years	Books—fiction and non-fiction—linked to units of inquiry and of general interest
Photographs connected to students' identities, families and localities	Evidence of current and ongoing learning—written, visual	Class-generated learning
Signage and descriptions that explain what is happening in pictures, for experiments set up, for artefacts, and so on	Agreements for learning	Learning goals and success criteria for learning
Evidence of connections to the learner profile co-created with students	Links to single subjects	Transdisciplinary themes and subjects represented

Space design for early years learners

Young learners learn through sustained time for play and discovery. PYP early years spaces, both indoor and outdoor, need to provide opportunities to explore and play independently and in groups. Educators are also participants in the learning environment and can offer support through scaffolding or questioning, or coaching learners in the use of tools or materials. Through observation and documentation that is reflected on, educators can ensure the learning spaces reflect and support the changing interests and needs of their learners.

To develop a sense of ownership both indoors and outdoors, routines, rituals and shared understandings are developed to support being and learning together. These routines and rituals should be responsive to the changing needs of learners. Learning spaces reflect young students' social–cultural worlds where family, identity and languages are represented through the use of pictures, artefacts and displays.

At this age, students rely on sensory input to make sense of the world. Materials and resources for young students invite play so that they have multiple opportunities to manipulate objects, build and test theories to construct meaning both indoors and outdoors.

Library/multimedia centres

PYP libraries are increasingly flexible multimodal spaces. They provide people, places, resources and services that aid and extend learning and teaching. As libraries evolve to meet the needs of their learners, they develop different combinations of real and virtual resources. Libraries consider universal design principles to ensure that knowledge is accessible for all learners.

The outdoors

The outdoors extends the range of learning experiences. The possibilities depend on the size of the outdoor area, noise level, access for movement, and the degree of connection to the natural world.

Time spent outside is viewed as an important time for authentic inquiry, learning and play, social interaction, movement and relaxation. Consideration is given to different stimuli the outdoors provides and the availability, arrangement and rearrangement of materials. Observations in the outdoors, such as seasonal changes or local bird migration patterns, can be integrated indoors for further inquiry and meaning-making.

Outdoor spaces also have the potential for extending inquiry, risk-taking and supporting well-being through socializing, negotiating and communicating in both planned and incidental learning activities.

In urban environments, natural outdoor environments may be “by design”. Schools consider factors such as time, resource and usage policy in the design process so that students experience a balance of indoor and outdoor environments.

Resources

Adequate resourcing complements learning space design. Effective pedagogy and design are influenced by thoughtful use of resources: time, people and places, materials and technology.

Time

Extended blocks of time deepen student inquiry and collaboration. Teachers consider multiple opportunities for students to revisit, practise and reflect on their learning, and build in time for cognitive and social skills development. Time is provided to share, reflect on and celebrate learning, and for students to take action when and where appropriate. In allocating time, the learning community considers whether the schedule supports thoughtful and sustained engagement with the inquiry, resources and materials, and collaboration with peers and teachers.

People and places

People and places play an important role as local and global resources for learning inside and outside of the programme of inquiry.

Inviting experts—such as parents, historians, artists, scientists, and others in the community—to speak about areas of relevance connects students to learning in authentic ways. Visiting places in the community connects inquiry to local contexts and can spark new investigations. Peer-to-peer collaboration and feedback enhance student understanding. Pairing younger students with older students enables friendships to form across the year levels and provides students with leadership opportunities and role models.

Materials

Obtaining materials to support and enhance learning requires planning. Resources can be created from the environment and made by the teacher or student. The reusing, repurposing and recycling of materials as a sustainable practice is a shared responsibility of the learning community. Considerations for material sourcing include:

- the open-ended nature of materials to invite exploration and encourage innovation
- a variety of materials in terms of form, texture and size to appeal to all senses
- authenticity of the materials
- the connection between materials and the programme of inquiry.

Technology

Digital and non-digital technology literacies are considered when designing learning spaces as they extend when, where and how learning and teaching takes place. Effective design provides space for students to safely learn about technology and through technology. Adequate access to digital technologies and the internet is increasingly important to support student inquiries as they develop in the classroom or other learning spaces.

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Technology in the PYP

Summary
• Technology includes both digital and non-digital tools and resources that facilitate and expand learning possibilities. • Schools provide students with multiple, authentic and purposeful opportunities to learn technology, learn about technology and learn through technology. • The learning community supports students to be responsible and ethical digital citizens.

Technology integration and implementation

Technology brings change to our world and our schools, and evolves our ways of thinking and doing. Technological change brings new environments to navigate, new skill sets to learn, new tools to innovate, and new opportunities to connect learning communities worldwide.

Similar to language, technology has the power to bring the learning community closer together and overcome boundaries. It is a means to investigate ideas, communicate findings, connect people and innovate solutions. Purposeful technology integration and implementation in authentic contexts can excite, invite, support and extend learning in multiple ways.

Integration is about pedagogy and ways of thinking, and is practised most often by teachers and students. Implementation is about the tools, infrastructure and other resources used to support learning and teaching. For more ideas on integration and implementation, see *Learning, teaching and leading with technologies* (IBO 2021). Effective integration and implementation of technology considers:

- the shared understanding about the value of technology in learning and teaching
- the agency of all members in technology decisions
- its accessibility to all learners
- its adaptability across contexts—cultural, physical and educational
- its support of intercultural understanding, global engagement and multilingualism
- its enhancement in the collection, creation, design and analysis of significant content.

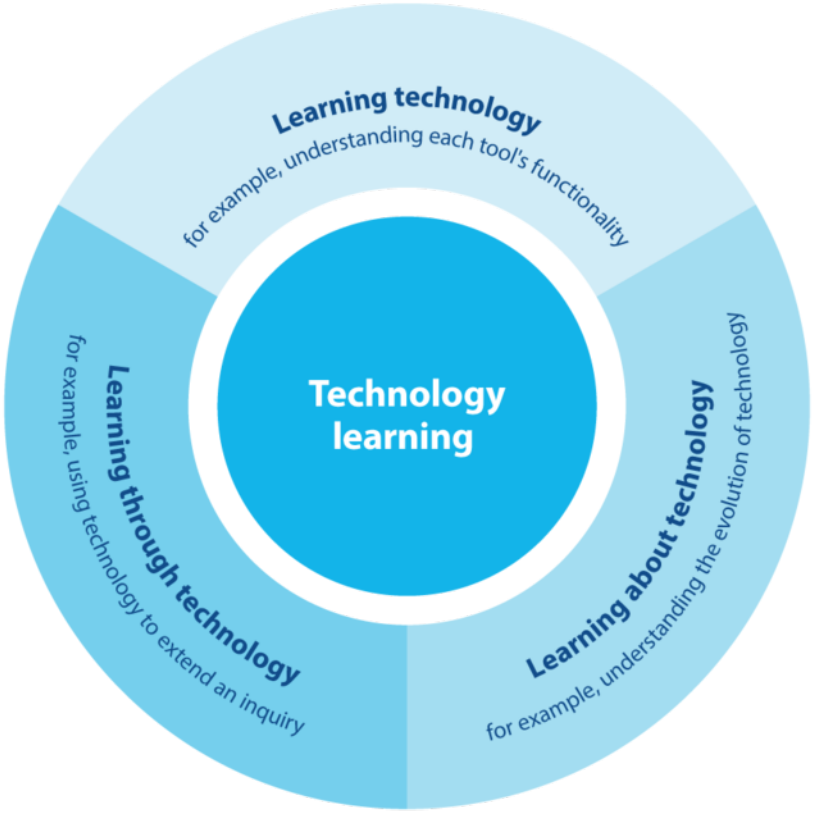
Technology learning

Building on the IB's technology guidance, the Primary Years Programme (PYP) focus of technology aims to support students in developing:

- literacy
- competency
- confidence.

Figure TE01

Technology learning and teaching



PYP technology learning and teaching immerses students in the interplay between learning technology, learning about technology and learning through technology.

Viewed broadly, as a tool or resource, technology facilitates and expands learning possibilities. It refers to devices such as a pencil, a laptop, a tablet, a camera, as well as resources such as a book, a website, a game, an interactive story. As a concept, it incorporates coding, communication, information, design and innovation. As a learning extension, it supports the development of critical, creative and transfer thinking, in addition to systems and computational thinking.

Technology learning and teaching in the PYP is best supported, strengthened and extended within the transdisciplinary programme of inquiry where students can apply technology in purposeful and authentic contexts. Seamless integration of technology enhances student agency, enabling students to learn in any context—formally and informally, through individual and social learning, and in any time and place (Looi et al. 2010). Therefore, all members of the learning community are technology teachers responsible for both the learning and teaching of technology, as well as its integration.

Technology, learner profile and approaches to learning

Children are often avid users of technology. However, this does not signify that they understand the implications of technology use on societies or environments. Learning communities support students in becoming responsible digital citizens, who make informed, ethical choices while acting with integrity. In a globally connected digital world, students are responsible for their actions, value the rights of others, exercise academic integrity, and practise safe and legal behaviours. Effective integration and

implementation of technology aids the development of the attributes of the learner profile and approaches to learning.

Technology and young learners

Technologies, including digital, virtual, physical and analogue technologies, offer rich opportunities for learning. Early learning communities support young learners' understanding and use of technology by making appropriate technological devices available in order to appeal to their natural curiosity. Such devices could include an old digital camera, a radio, a voice recorder or colouring applications. The aim for young learners is not so much about mastering technology, but about using technology to extend their investigations through touching, seeing and hearing. During this exploration process, students develop thinking skills and learn to make connections in subsequent play activities.

Digital technologies offer new contexts for learners to engage, explore and communicate—aiding their cognitive, social and emotional development—when the content available is carefully curated and use is actively supported by a caring adult.

Technology in learning and teaching

Technology in an inquiry-based programme

Technology plays a key role in an inquiry-based programme that aims to support the development of international-mindedness and attributes of the learner profile. Schools offering the PYP create opportunities for students to develop explicit knowledge and skills relating to technology, apply technology to facilitate and extend learning, and adapt it in new ways to create solutions to challenges and opportunities. These include:

- understanding the functionalities of different technological tools/resources
- operating technological tools/resources
- using technology to communicate, solve problems and create new opportunities
- understanding and applying social and ethical protocols surrounding the use of technology.

Technology poses unique opportunities for the learning community to co-construct knowledge and develop conceptual understandings with members and experts within and outside the school community.

Learning technology

Technological tools have intended functionalities. For example, cameras are for picture-taking. Developing general capability in technology involves learning and understanding the functionality of available technological tools and resources. Supporting students in developing technology capability enables them to make use of traditional and digital technologies to effectively engage with opportunities and challenges, and find creative solutions in school and beyond. The table below provides examples of technology-related capabilities that schools may choose to focus on, modify or add to—based on their contexts.

Skill categories	Sub-skills
Managing and operating technology	Understand: • functionality of a range of hardware or software • components, commands and safety operating procedures, and so on • how to store, save and share digital information.
Understanding and applying social and ethical technology use	Be aware of: • ownership rights of all manually and digitally created information, and cite sources accordingly • online security protocols and apply them in all learning contexts • the legitimacy of online resources • the distinctions between different types of information.
Researching with technology	Learn how to: • formulate and plan how technology could be used to investigate and deepen inquiries

Skill categories	Sub-skills
	• gather and record data using a variety of primary and secondary digital resources • use various technology tools to document learning, create charts, surveys and presentations, and so on.

Explicit demonstration of technology and its functions are most effective within the programme of inquiry or subject-specific inquiry, as in the following example.

Learning example 1
As part of a mathematics investigation, students collect data. They use tally sheets and make pictographs. The teacher takes this opportunity to introduce them to software applications with graphic functionality on a tablet. Students then explore the applications on their own to determine how to enter and represent their data. They collaborate with each other about how they might display this data in multiple ways (pie chart, bar graph, and so on). Analysing the results presented in graphical formats, students discuss similarities and differences in the way their data is represented.
Technology learning: managing and operating with technology, literacy, design **Approaches to learning:** research, communication skills **Learner profile:** inquirer, thinker, caring

Learning about technology

As a concept, technology helps learners inquire into the world. Just as learning about biology helps students understand how the human body functions, exploring the evolution of existing technologies helps to make sense of how things work. For example, "electricity" is a technology with which people found ways to advance society by creating generators and light bulbs. This reinforces the definition of technology as a concept and acknowledges that technologies change as well as emerge.

There are multiple opportunities for students to learn about technology concepts, both digital and non-digital, for example, through robotics, machining and coding, or non-digital advancements in the sciences, individuals and societies, arts and physical, social and personal education (PSPE), such as papers, sports equipment, telescopes, textiles and transport.

Technology literacy

Technology literacy is achievable irrespective of the tools available and is demonstrated through ways of thinking when exploring the transdisciplinary themes or subject-specific inquiries. What technology may be depends on school context. For example, protractors and rulers may be more appropriate for learning about measurement than digital measuring tools; colouring pencils for early learners to colour with may be more appropriate to support fine motor development than a colouring application on a tablet.

Members of the learning community actively choose and use multiple technologies in the classroom. This supports a key aspect of technology literacy: the capability to discern appropriate technologies based on the desired outcomes of the learning activity or inquiry (Davies 2011).

Multiliteracies

Technology supports the IB position on language, literacy and multiliteracies, that develop students' ability to engage with multiple texts in multiple modes.

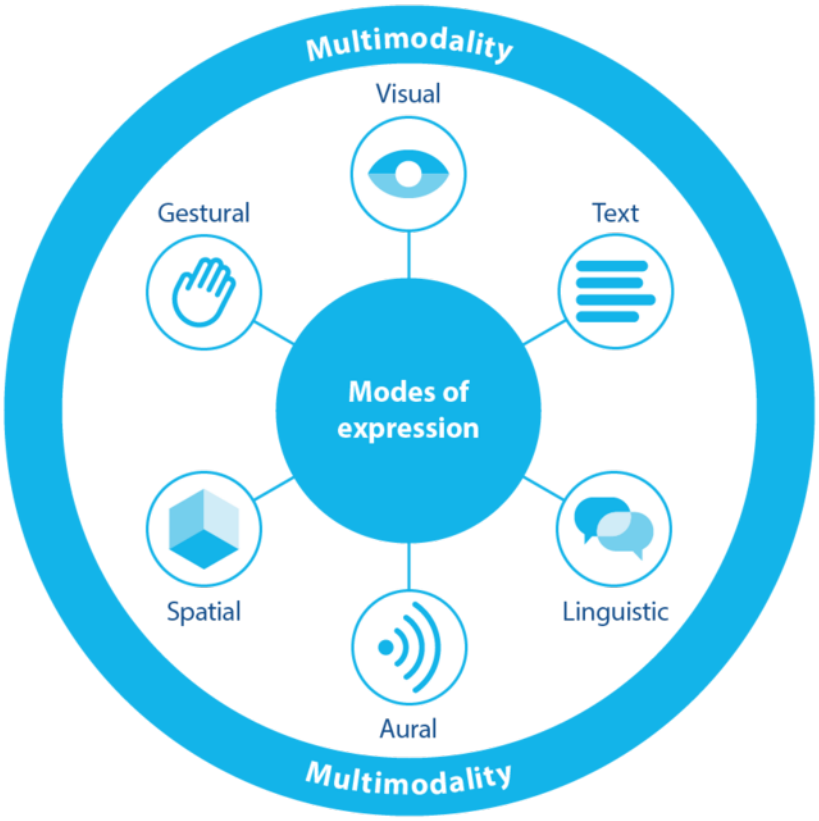
Examples of multiliteracies include:

- **digital literacy:** knowing and using a range of digital devices, including networking, as well as computing devices such as tablets, laptops, smartphones, and so on

- **media literacy:** knowing how to access, analyse, evaluate and create media
- **information literacy:** collecting, exploring and using information, data and evidence
- **critical literacy:** critical thinking through digital technologies, questioning and comparing what aids, extends and hinders learning
- **design literacy:** knowing that the world has been designed to aid and extend. For example, maintaining the focus on play by structuring early learning spaces with technological design choices that aid or extend children's play.

Figure TE02

Multimodality



Multimodality

Technology literacy also encourages multimodality. This is the ability to understand and communicate effectively using universal design "modes" of expression, including visual, textual, linguistic, spatial, aural and gestural. With technology, today's classrooms are considered multimodal. Teachers and students call upon many modes of expression (prints, images, sounds, gestures and animated images) in the process of learning and teaching to make meaning of, and communicate, content (Ryan et al. 2010). See learning example 2.

Learning example 2
A class of 8–9-year-olds inquires into the central idea: "People adapt their lives to natural cycles and patterns". The students decide to investigate monsoons and their influence on families in their town, which had experienced serious flooding in the previous year.

Learning example 2
One group of students is interested in how and whether monsoons could be predicted. These students decide to look at weather patterns, and connect the monsoons to the difference in temperature over the land and sea. They collect temperature data and graph the difference over several weeks using Excel spreadsheets. Another group is interested in learning about weather changes over the years from people who have lived in the area for a long time. They decide to visit elderly people in the community centre and interview them about weather changes overtime, and how those changes affect the way they live. They record these interviews using an audio recorder. A third group decides to learn from an expert—a meteorologist—about how monsoons work. The students request an interview with a professor in a nearby university through email and conduct the interview using video conferencing. After the conversation, the professor also shares video footage of the damage left by past monsoons with the students. The final group wishes to learn about the possibilities of lessening the damage from flooding. These students find a parent who is involved in planning engineered solutions. Learning and collaborating with this parent, they take pictures of the local rivers, use them to draw a flow chart of their local river to suggest places where flooding could be controlled. They also find a parent who does relief work to learn about safety tips for families during a monsoon. At the end of the inquiry, students from all four groups work collaboratively to consolidate their learning by creating a joint presentation that includes: • a timeline of facts represented graphically (visual) • short recordings of the stories from the elderly (audio) • short clips of past monsoon damage (video) • a poster of safety tips for families (print). Through this inquiry, students learn about multiple technologies and their functionalities when the opportunities arise. They also exercise their agency to discern and select which form of technology is most appropriate to aid their learning.
Technology learning: operations, multiliteracies, multimodality **Approaches to learning:** thinking, research, communication, social skills **Learner profile:** inquirer, thinker, knowledgeable, caring, reflective, risk-taker

Computational thinking

Technology literacy also includes an understanding of the fundamental concepts of computational thinking. This is a term coined by Wing (2006) and adapted here for early and primary learners. It refers to the thought processes involved in formulating a problem and expressing its solution in precise steps that a person or a machine can effectively carry out. For example, exploring coding to determine how to move a robot in different directions. The steps involved in computational thinking are quite similar to those involved in solving a mathematic challenge (Sedlacek 2016).

- State a problem clearly.
- Break the problem down into a number of well-defined smaller problems.
- Devise a step-by-step solution to solve each of the smaller problems.

(Adapted from Lee et al. 2014.)

Supporting young learners' development of computational thinking skills begins with algorithmic thinking —the ability to follow a series of ordered steps to solve a problem. For early learners, teachers and parents might consider introducing students to algorithmic thinking using tangible objects, which students could manipulate by following symbols or sounds or basic coding principles (Futschek and Moschitz 2011). For primary years learners with a slightly more developed algorithmic skill, the learning community might consider suitable programming environments.

By applying computational thinking, learners "become not merely tool users but tool builders" (Barr and Stephenson 2011). They also innovate as they use critical and creative thinking skills to combine, adapt to and develop new technologies, as needed, to identify solutions and to create real and virtual artefacts.

Learning example 3
Students aged 11 and 12 in a state school are required to complete a course in computer coding. The specialist teacher collaborates with the year 6 team to identify a mathematics central idea to consolidate students' understanding of "shape and space" through the context of programming Lego robots. "People use geometric concepts to interact with the world." The inquiry focuses on computational thinking: how to change descriptions of shape, position and direction into mathematical symbols and then "translate" the algorithm into coding. Individually, students devise criteria for moving the robot in circles, squares, rectangles and triangles of different sizes. In teams, students work through a design process to meet the criteria in innovative ways.
Technology learning: computational thinking, design thinking **Approaches to learning:** thinking, research, communication, social skills **Learner profile:** inquisitive thinker, knowledgeable thinker

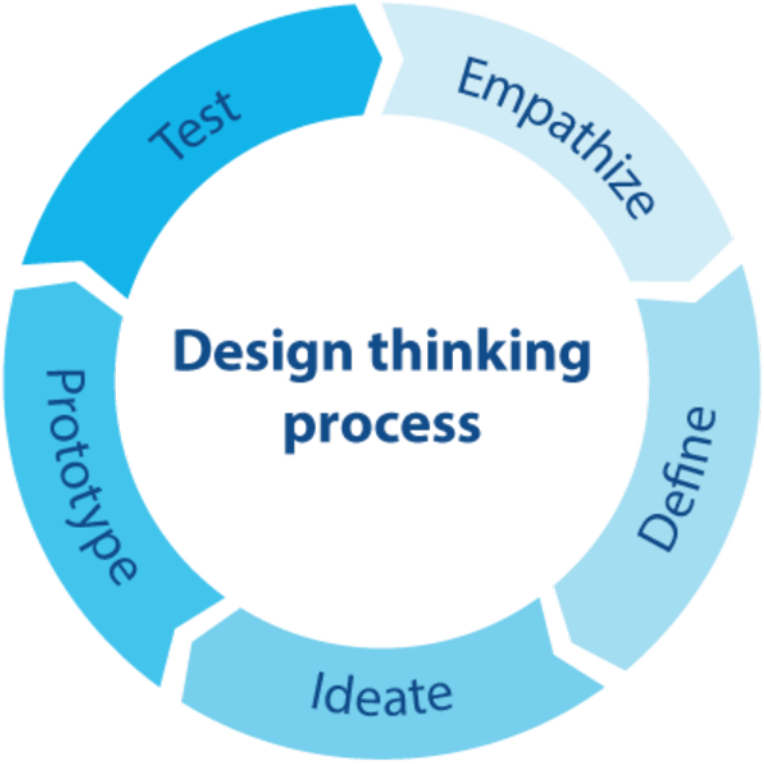
Design

Design involves ideating and creating products or artefacts relating to an inquiry. Design thinking, an approach integral to the design process (Koh et al. 2015) moves students beyond following directions and replicating a given procedure to applying their knowledge and skills to find creative and innovative solutions to address opportunities and challenges. Characteristic of constructivist learning, the process of design encourages students to explore and to be open to new ideas (Scheer et al. 2012). Through the process, students build metacognitive skills (Koh et al. 2015).

Figure TE03 shows the steps involved in a design thinking process (Institute of Design at Stanford University).

Figure TE03

Design thinking process



The design thinking process develops the skills to construct a solution based on:

- analysis of information and evidence
- logical and critical reasoning
- collaboration to negotiate solutions
- self-organization to internalize understanding.

These skills support student agency as they develop confidence to find workable solutions to issues through design. Because the design process encourages independent and group thinking, it builds trust and reciprocity between students and teachers.

There are multiple ways the learning community might consider creating a design spaces. Makerspaces, junk yards, design corners and robotics rooms can be incorporated into the curriculum to connect "real-world" experiences with conceptual learning. In these spaces, members of the learning community make available digital and non-digital tools, an array of purpose-made materials and open-ended materials for prototyping. Sample materials include the following.

Sample materials
Bottle caps, boxes, buttons, pipe cleaners, popsicle sticks, wires, hand and power tools, electric circuits, consumable art supplies, solar panels, batteries, toy motors, and so on.

Inquiring designers ask questions and analyse the opportunity or challenge to determine parameters and the criteria for success. They reflect, collaborate and develop those ideas and act to create products, processes or systems. Design decisions are supported by research, investigation and collaboration.

Students reflect upon their final solution against the original description of the problem and the indicators for success.

Returning to "Learning example 2", students may decide to extend their learning using the design thinking process to minimize damage to people's homes from monsoon flooding.

Learning example 4
A kindergarten class listens to a story entitled *In the Night Kitchen* by Maurice Sendak. The students are fascinated by the creative solution of the main character, Mickey, to get milk for the bakers. They discuss Mickey's approach in depth and the teacher wonders out loud if there are other approaches Mickey could use to solve the bakers' problem. Students take on the teacher's challenge and begin to consider alternative solutions using the design thinking process to prototype their solutions.
Technology learning: technology literacy, design thinking process **Approaches to learning:** thinking skills, social skills **Learner profile:** communicator, reflective thinker, risk-taker

Technology in a global society

Technology can transform, enrich or cause harm to cultures and environments. By supporting students in their understanding of the evolution of existing technologies, and the rights and responsibilities of being a digital citizen, students are better able to make informed and ethical choices about the technologies they use.

Evolution of technology

Through learning about the evolution of technology, learners develop systems-thinking capacity. While less applicable to early learners, supporting primary years learners to understand the complexity of systems, both natural and technological, prepares them to solve tomorrow's challenges.

Systems can be static or dynamic, simple or complex. Exploring the concept of systems enhances students' understanding of connection and causation—everything is connected to a single system or multiple systems. A solution or an action carried out in one community may create problems for another or for the environment—some problems may be on a small or personal scale, while others may be far-reaching. For example, exploring the evolution of the automobile, students will come to understand its contribution to commerce as well as its detrimental effect on the environment.

By learning about the systemic impact of technology, learners:

- develop an appreciation of the impact of technological innovations for personal and community well-being, cultures and environments
- appreciate past, present and emerging technology within cultural, social, historical, aesthetic and environmental contexts
- develop respect for others' viewpoints and appreciate alternative solutions to problems
- act with integrity and honesty, and take responsibility for their own actions.

The PYP transdisciplinary themes provide a powerful basis from which students can develop their systems-thinking skills. These themes support learning about non-digital advancements in the sciences, individuals and societies, arts and physical, social and personal education (PSPE) not as a set of stand-alone events but as interconnected ones.

The basics of digital citizenship

Technology offers unprecedented opportunities to connect schools and learning communities locally and globally. These opportunities also come with responsibilities. Digital citizenship refers to the norms of appropriate and responsible behaviours when engaging with technology (Ribble 2011).

To support learners in becoming digital citizens of character and integrity, the learning community works collaboratively with parents and students to define and implement a shared understanding of appropriate digital practices, including:

- codes of conduct
- policies
- rights and responsibilities
- health and well-being
- protection.

By learning about these elements of digital citizenship, students not only become responsible users of technology but they can recognize inappropriate technological behaviours that might impact themselves or others.

Learning through technology

Through technology as a tool, resource and infrastructure, students understand information and find solutions to seize opportunities and address challenges that transcend subjects to which the opportunities/challenges are related. It is "through" these digital and traditional devices that students explore and extend their questions and inquiries. Technology offers boundless opportunities to seamlessly integrate subjects, extend inquiries beyond the confines of the school, and communicate and share newly constructed knowledge and understandings in innovative ways.

Approaches to learning

Through technology, students have unlimited opportunities to develop and practise the approaches to learning. For example, communication skills include the sub-skills of:

- participating in, and contributing to, digital social media networks
- collaborating with peers and experts using a variety of digital environments and media
- sharing ideas with multiple audiences using a variety of digital environments and media.

The following sample technology sub-skills are relevant to all learners which schools may choose to focus on, modify or add to—based on their contexts.

Examples of technology sub-skills	
Investigating	To carry out a purposeful inquiry or research to test existing understanding, discover new information and create new understanding. Through investigation, students access digital resources, critically evaluate a variety of primary and secondary sources, make connections and synthesize findings to apply knowledge to authentic contexts.
Ideating	A process through which students are provided with an opportunity to innovate and test boundaries. Students construct meaning, apply critical thinking and original ideas to authentic situations, and share ideas through a variety of media for self-expression, problem-posing and problem-solving, and reflection.
Communicating through multiliteracies	The exchange of information with various audiences using a range of media and formats, including physical, digital and virtual. Effective communicators contribute to cross-cultural understanding, make informed choices when deciding on tools to articulate meaning, and provide relevant, significant feedback to others.
Collaborating in online spaces	The process through which students validate and negotiate ideas, and reach a deeper understanding and a global perspective. This is the active participation of creating and sharing knowledge through digital media and online spaces.

Examples of technology sub-skills	
Organizing	The ability to structure or arrange connected items. Students understand that technology can be used to inform, adapt, manage and problem-solve during their creative, communicative, collaborative and investigative processes. Students make connections, transfer existing knowledge and independently explore new technologies.

Inside and outside the programme of inquiry

Technology, particularly digital technology, affords myriad opportunities for networking, sharing of initiatives and partnerships, to learn, to connect and to transcend subject knowledge. Digital media gives users the opportunity to interact, not only with peers and adults but also with content, in order to further their understandings. Text, images, videos and audio files are not only consumed and shared, but are also integrated and re-purposed (Palfrey and Gasser 2013) to create new knowledge and conceptual understandings.

Through technology, students learn about multiple perspectives, the origins of a concept or even experience a concept through modelling, simulation or visualization technology—all forms of experiential learning (Kolb 1984). For example, students can experience the effect of a 6.5 Richter-scale earthquake through simulation at a local museum.

Learning example 5
A year 5 class explores the central idea: "Digital media transforms the ways in which people access information and communicate". From the perspective of social studies, learners look at the history of how people accessed information prior to, and after, the invention of digital technologies. From the perspective of mathematics, they consider the rise in individual computer ownership and graph the data by global region. They also inquire into the meaning of "digital" and why the numbers describing the power of computers are related to the binary numeral system. Through the computer science lens, they look at network maps and nodes, and how these have changed in the students' lifetime. In language, they analyse text from social media posts, emails and blogs, and consider how meaning can be misunderstood. Well-being and issues of cyber-bullying are also researched and reflected on. Finally, they apply the concept of multimodality to share what they find by making connections among various aspects of technology and media to determine their impacts on how people access information and connect with each other today.
Technology learning: technology literacy, multiliteracies, multimodality, design **Approaches to learning:** research, creative thinking, communication **Learner profile:** knowledgeable, reflective thinker

Developing conceptual understanding through technology

Through technology, students have the opportunity to develop conceptual understandings. In technology, there are clusters of ideas relating to the seven specified PYP concepts and the six PYP transdisciplinary themes. Figure TE04 provides examples of specified and additional concepts, and gives suggested questions that may be adapted to guide inquiries. There are many other possibilities for additional concepts and these may also be sourced from national/state curriculums.

In the following questions, "technology" may refer to digital applications, but it could equally include technology relating to medicine, transport, food and textile production, electricity, and so on.

Figure TE04

Concepts in technology

	Examples of additional concepts	Sample learning considerations
Form	Materials, coding, product, components	• How can I describe and classify the characteristics of different materials? • What can we learn from a tool's component? • Why are there different symbols and words in coding? • How can I break this big problem into bits I can understand?
Function	Inventions, algorithm, coding, logic	• What is this mathematical rule telling me to do? • Can I "read" this coding and work out what the robot will do? • Can I "debug" this coding so that it does what I want it to do?
Change	Development, systems	• How has this particular technology developed since it was invented? • What are the changes as a result of this technology innovation? • How has this technology changed social or environmental systems?
Connection	Systems, communities, communication	• How has this technology met the needs of a community? • What systems were important in the development of this technology? • What systems will my design solution affect? • How can I plan multimodal communications to meet a range of audiences?
Causation	Development, innovation, process, needs, opportunity, challenges, consequences	• What provoked the development of this technology? • What needs did an innovation meet? • What were the immediate benefits or consequences of the solution?
Perspective	Safety, consequences, communication	• What are the safety issues with this technology, and what are the consequences if it is not used properly? • What were the different points of view of designers? • Did the prototype meet the initial design brief? • How did our team communicate through the product development?
Responsibility	Safety, ethics, sustainability	• How does this technology affect the health and well-being of a community? • What was my responsibility as a designer?

	Examples of additional concepts	Sample learning considerations
		• Did I consider issues of culture, health, well-being and the environment when I used this technology? • How do we interpret "caring" and "principled" when collaborating with others who are not in the same place or who may not have access to the same information? • What does responsible digital citizenship look like when we step outside our boundary?

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Glossary

Glossary term	Definition
Action	The act of engaging individually and/or collectively with personal, local, and global challenges and opportunities.
Action plan	An organized plan detailing steps for continuous school improvement.
Action research	An inquiry carried out to inform improvement and refinement of learning and teaching.
Additional language	A language offered in addition to the language of instruction.
Advocacy	Supporting and committing to action for positive change for oneself and others.
Affective skills	Skills of behaviour and emotional management underpinning attitudinal factors such as resilience, perseverance, and self-motivation, which often have a key role to play in educational achievement.
Agency	A philosophical, sociological, and psychological idea that acknowledges humans as active participants in their own lives with the capacity to initiate intentional action.
Agent of change	A person who acts on behalf of themselves and/or others in connection with action for positive change.
Approaches to learning	A range of skills that help students guide, support, and structure learning.
Artefact	An object made, used, or altered by humans, artefacts can be material and non-material. Physical artefacts include examples such as objects, tools, texts, paintings, technologies, specimens, models, and records. Non-material artefacts include examples such as language, song, oral stories, and traditions.
Artistic elements	Constituent features or characteristics of the chosen discipline. Examples could include line, shape, space, form, colour, texture, rhythm, movement, contrast, emphasis, balance, harmony, variety, unity, pattern, and proportion.
Artistic practices	The way an artist goes about doing their work. It can include influences, ideas, materials, tools, and skills.
Artistic principles	How the artist uses or organizes the elements of their artistic discipline to create an artwork. Common examples include rhythm, contrast, and proportion.
Artwork	A piece of created or performed art which can be oral, written, musical or multimodal.
Assessment	The monitoring, documenting, measuring, and reporting on learning. Assessment involves reflection and feedback that occur at all stages of learning and teaching.
Assessment capable practitioner	A practitioner's ability to collaborate with others using data and evidence to inform learning and teaching.

Glossary term	Definition
Assessment capable student	A student's ability to collaborate with others to set learning goals, monitor progress and adjust learning.
Authentic	Meaningful learning that reflects the lived experiences of the student. Authentic may refer to interactions, situations, circumstances, or contexts.
Autonomy	The freedom to decide for oneself and pursue a chosen course of action.
Backwards by design	A method of designing educational curriculum that involves setting goals and designing assessments to meet these goals before planning learning experiences.
Bias	A tendency, preference or inclination that influences people to lean towards certain behaviours and actions. Bias manifests in various forms and is rooted in experiences and influenced by context.
Capacity	The actual or potential ability to achieve something, either individually or collectively. Capacity is connected to agency and self-efficacy.
Central idea	A broad, overarching conceptual statement written in a neutral voice, which invites inquiry and reflects one or more of the transdisciplinary themes.
Challenging	Learning and teaching that encourages critical and creative thinking, and extends beyond current understanding and capabilities.
Cognitive skills	Skills that include all the information-processing and thinking skills.
Collaboration	The act of purposefully achieving a common goal together through shared understandings and active participation.
Computational thinking	The cognitive processes involved in formulating problems and expressing their solutions in precise step-by-step instructions. These can then be effectively carried out by humans and machines. This includes activities such as coding where one might explore how to program a robot to move in different directions.
Concepts	Concepts are fundamental, abstract ideas (often encapsulated in one word) which support the development of conceptual understanding. They can vary in terms of their level of abstraction and/or universality, can be used at different levels of generality and complexity, and serve different purposes in the learning environment.
Conceptual understanding(s)	Understanding that connects factual, procedural and metacognitive knowledge. It results from a process in which one consciously organizes connections between prior and new knowledge into networks, then further develops or reconfigures those networks. This is a non-linear, ongoing process throughout which understandings evolve and misconceptions are identified and dispelled.
Constructivist	Constructivist theories recognize that knowledge is actively constructed by students, who actively build upon their existing knowledge to form connections and create new meanings.
Content	The knowledge and conceptual understandings identified and included in the curriculum.
Context	A situation, setting or group of conditions in which something exists or happens. Context may exist across multiple scales from personal, local and global to planetary.

Glossary term	Definition
Critical literacy	The skills to critically question, challenge, evaluate, and compose texts, understanding that they are created with specific purposes and represent particular perspectives, values, and attitudes about the world.
Critical reflexivity	The process of actively exploring, reflecting upon, and challenging individual or collective positions, knowledges, and frames of reference that are constructed within cultural, societal and historical contexts and experiences. This process facilitates the potential repositioning of past and present responses and actions, informing future stances, responses, and actions.
Cross-linguistic connections	Applying knowledge from one language to make sense of another language, by being aware of similarities and differences between the languages a student encounters.
Curriculum	A comprehensive, broad, balanced, and coherent plan for learning that encompasses the entire educational experience in a school.
Data and evidence	Information gathered through qualitative or quantitative methods, at specific points in time, to measure learning and accurately assess progress and achievement against agreed-upon learning goals and success criteria.
Debatable question	A question that does not have a definite answer and which can include multiple points of view.
Discrete movement	A set of skills characterised by a clear, definite, and identifiable beginning and end. These skills involve simple, well-defined movements such as kicking a ball or throwing or a somersault.
Discursive interaction	Extended exchange of ideas, opinions, and information between individuals and groups, involving active communication and collaborative meaning-making.
Divergent perspectives	Different perspectives that tend to directly engage with worldviews, frames of reference, knowledges, and contexts. (Also refer to diverse perspectives and multiple perspectives.)
Diverse perspectives	A range of varied perspectives that tend to offer inclusion. (Also refer to divergent perspectives and multiple perspectives.)
Diversity	The presence of differences and uniqueness. Valuing diversity involves recognition and acceptance of these differences.
Documenting	The compilation of evidence to inform learning and teaching.
Early years	The early years apply to ages 3-6. These years represent the foundational period for developing positive social, emotional, cognitive, and physical outcomes. These are critical for future success due to the rapid rate of brain development during this time.
Elements of inquiry	A framework for categorising transferable skills that develop and are supported through inquiry-based learning and teaching. These elements are applicable to any inquiry process, cycle or model and are interconnected, meaning they overlap and influence one other. They are not exhaustive and can be added to over time.
Engaging	Learning and teaching that involves being reflective and responsive to both personal and collective interests.
Equity and social justice perspectives	Perspectives that promote fairness and rights across society.

Glossary term	Definition
Exhibition	A culminating and consolidating learning experience or inquiry project where students, supported by a mentor, demonstrate their understanding of a self-selected issue or opportunity, sharing their individual and peer-collaborated investigation and learning.
Exploratory question	A question that supports students to discover more. These are often used at the beginning of an inquiry and are usually broad in scope.
Feedback	Information provided by either teachers or peers, in response to a student's learning. It is intended to be used as a basis for improvement.
Feedforward	Information provided by either teachers or peers that offers guidance and next steps to improve a student's learning.
Fluency marker	The fillers, connectives and the intonation used to navigate pauses, organize thoughts coherently, and express ideas with ease in the target language.
Forwards by design	A method for considering what other learning can occur in social constructivist learning settings, beyond prescribed learning.
Framework	The PYP framework provides a structured approach to organize the various components of a curriculum and their interrelationships.
Global education and learning	Both an academic field and an umbrella term that describes learning focused on understanding the world and humanity's place within the world, it recognizes a shared common humanity, and acknowledges shared rights and responsibilities. It involves critical reflection, meaningful action, and fostering care for the guardianship of planet and its people. This encompasses various issue-based educations including development education, human rights education, global citizenship education, peace education, education for sustainability, and intercultural education.
Growth description	General cognitive and social characteristics observed in students at a certain point in their development.
Holistic	An all-encompassing educational experience that considers the intellectual, physical, social, and emotional aspects of students' learning and development.
Home and family language	The language learned first, known best, most used, or a combination of these. As language learning occurs within a context, students may have a "home" language and/or a "family" language that differs from the language of instruction in their current school.
Human and natural worlds	An intuitive understanding of the deep entanglement between humans and nature, recognizing their intrinsic interconnectedness and interdependence.
Hypothesis	A tentative proposal, explanation or statement that describes an informed prediction that can be tested.
Identity	The state of being oneself; the qualities, beliefs, and values that define a person.
Identity text	Student-produced works that express their cultural identities, featuring self-selected content, shared with an audience, and highlighting positive self-statements.
Inclusion	An ongoing process that seeks to increase access to learning and promote engagement for all students, by identifying and removing barriers to their participation.

Glossary term	Definition
Inclusive education	Increasing access to, and involvement in, learning and teaching for all students. An inclusive school is one that removes barriers to learning and fosters a sense of belonging, involving everyone in the school community.
Indicator	A description of a student's use of a skill at a particular point in time.
Innovation	Introducing new ideas generated through examination of existing practices and proposing alternative approaches to achieve improvement.
Inquirers	Individuals who actively construct meaning by interacting with and interpreting the world around them.
Inquiry	A perspective on learning that emphasizes the active construction of meaning.
Intentional observation	A deliberate and purposeful observation to seek more information and make connections.
Intercultural understanding	Involves developing and demonstrating mutual respect and understanding for one's own culture and those of others, acknowledging our shared humanity, diversity, differences, interconnections and interrelatedness.
Internationally minded	Characterized by an awareness of oneself and others, a sense of belonging to broader communities, and a common humanity. It involves engagement in local and global issues, and taking action for positive change. Developing and demonstrating the attributes of the IB learner profile provides an important foundation for international-mindedness.
Intonation	The way the voice rises and falls in oral communication.
Iterative strategy	A process where strategies are adjusted based on what was learned in the previous iteration.
Key question	The main or starting question that can be explored further through additional questions.
Knowledge	Information, facts, or principles gained through learning.
Language feature	A distinctive aspect or characteristic of a language, including grammar rules, vocabulary, pronunciation, and cultural nuances.
Language patterns	Recurring and systematic ways in which words, phrases, and sentences are organized. Patterns vary across different languages.
Language variation	The differences that exist within a language, for example variations in pronunciation, vocabulary, grammar, and cultural expressions. These reflect the diversity of language use across different geographic locations, social groups, or communities.
Learning community	Everyone involved in the life of the school, locally, and globally.
Learning environment	The context in which learning happens, including the school culture and ethos, as well as the organization and utilization of resources and learning spaces, both indoors and outdoors.
Learning goal	A statement that describes what students know, understand, and be able to do at the end of a specific time frame or learning experience.
Learning spaces	Physical or virtual areas within a learning environment.
Lines of inquiry	Statements or phrases that define the scope of a unit of inquiry.
Linguistic repertoire	The complete range of linguistic resources such as words, sounds, structures, styles, genres, registers, and their respective norms, available to individuals

Glossary term	Definition
	across all their languages or dialects, regardless of proficiency to create and convey meaning in different contexts.
Literacies	Multiple modes of communication and meaning-making, including linguistic, visual, audio, gestural, spatial and digital.
Livelihood	A way of life (including life occupations and daily activities) that provides the necessities for living within social and ecological systems.
Manipulative movement	Movements that involve the body and an object, combining gross-motor skills (such as throwing and kicking) and fine-motor skills (such as writing and building with bricks).
Material	Refers to physical objects, resources, and spaces, contrasting with non-material intangible elements, and is collectively used to describe items, evidence, and experiences in human and natural contexts.
Mathematical modelling	The process of using mathematics to address open-ended, authentic situations to determine reasonable solutions.
Measuring	Ascertaining "point-in-time" data to assess progress and achievement.
Metacognition	To be aware of, reflect on and understand one's own thought processes. Metacognition is thinking about thinking.
Metacognitive skills	The abilities students can use to monitor the effectiveness of their learning strategies and processes, to better understand and evaluate their learning.
Metalinguistic awareness	An understanding of the way language works, its rules, and codes.
Metaphorical framing	The use of figure of speech to convey ideas and to influence opinions and decisions.
Modality	The modes of communication and meaning-making, including spoken, written, visual, gestural, and aural modes. These modes are often combined to create multimodal text, which can take the form of live, visual, print, or digital text presentations.
Monitoring	The process of gathering data through various strategies, including observation, questioning, discussion, and reflection.
Movement challenge	A task that requires individuals or groups to analyse, interpret, explain, and evaluate a movement in order to successfully complete or replicate it.
Multilingualism	Linguistic competence in two or more languages at any stage of acquisition or proficiency, reflecting the dynamic interplay between languages and the social behaviours associated with language.
Multiliteracies	The ability to read, interpret, and create oral, print, and multimodal texts in multiple modes, enabling students to understand, use, and critically evaluate these texts within their social context.
Multimodality	The ability to understand and communicate through multiple modes of expression, such as visual, textual, linguistic, and spatial (Jewitt et al., 2000).
Multiple perspectives	Many types of perspectives that tend to offer balance. (Also refer to divergent perspectives and diverse perspectives.)
Non-material	Refers to abstract or non-physical aspects such as ideas and ways of thinking, and includes things such as beliefs, values, rules, norms, morals, language, and ways of organizing society.

Glossary term	Definition
Non-verbal behaviour	Elements of communication that are not spoken or written, for example, gestures or facial expressions.
Observable effects	These are measurable changes or phenomena that can be directly perceived through our senses (sight, sound, touch) or detected using scientific tools and instruments, providing evidence for scientific investigations.
Outcome	In the PYP, outcome refers to the overall impact of an IB education, encompassing the totality of experiences that enable PYP students to develop and demonstrate the attributes of the learner profile and international-mindedness.
Pedagogy	The art and science of teaching as a professional practice.
Persistent observation	A repeated, sustained or ongoing observation to inform, describe and make connections.
Perspective	The way people make sense of the world based on their individual perceptions and interpretations, which are influenced by their experiences, beliefs, values, and attitudes.
Phatic expression	A linguistic expression or communication that focuses on social bonding rather than conveying meaningful information. These are typically used to maintain social interactions, establish connections, and express politeness such as greetings, small talk, and expressions of politeness.
Phenomenon	An observable behaviour, action, pattern, or event that could be natural or human. Natural phenomena occur or manifest without human input. This includes examples such as weather and climate patterns, geological transformations, gravity, natural disasters, animal migration, and biological processes. Human phenomena occur or manifest through human input. Evolving over time, they influence the lives and development of societies. This includes examples such as cultural practices, communication patterns, institutional systems and structures, and social norms.
Place	Dynamic and linked through space and time; a place is both objective and subjective and includes the key aspects of location, locale, and a sense of place. Location (geographic and biogeographic) is characterized by its distinct features, diversity, and dynamics. Locale, the unique qualities and boundaries of a place, is defined by descriptors, distances, contexts (social, cultural, historical), and human activity in relation to the physical space. Examples include crossroads, farms, monuments, rural or urban neighbourhoods, dams, or archaeological sites. Sense of place is concerned with individual or collective perceptions, experiences and meanings, reflecting a subject's point of view. (Also refer to space and time.)
Play	Play describes a range of student-initiated activities that involve freedom and choice.
Point of view	An individual's or group's particular stance, opinion, way of thinking, perspective, or consideration of something.
Portfolio	A comprehensive collection of student learning.
Positionality	The process of engaging and re-engaging with one's personal stance or positioning as both a consumer and producer of knowledge, in relation to

Glossary term	Definition
	overlapping cultural, social, historical and political contexts and relations of power. Personal frames of reference are shaped by layered identities which influence one's knowledge, perspectives, biases, assumptions, and worldviews, thereby affecting how individuals understand and engage with the world.
Principled action	Taking action or deciding not to take action that in ways that are informed, responsible, responsive, and ethical.
Problem-solving	The systematic use of a wide range of methods and stages to address problems in authentic situations. The stages typically include understanding the problem, devising a plan and strategy, implementing it, and reflecting on the solution.
Programme of inquiry	An overview of the transdisciplinary themes and units of inquiry across year levels.
Progressions of learning	The sequencing of learning across developmental stages.
Protocol	A set of rules, routines, or steps to be followed consistently when carrying out an activity.
Provocation	An intentionally designed learning experience or stimulus that generates or prompts self-reflective curiosities, interests, and questions.
Reflection	A cognitive act that considers past experiences in order to improve, modify, and plan for the future.
Register	Adapting language to suit a particular context audience or purpose, involving variations in vocabulary tone and style. Examples include speaking to a sibling vs speaking to a teacher, writing a postcard vs writing a report, and formal vs informal situations.
Relevant	Meaningful learning and teaching that makes connections to prior knowledge and experiences.
Reliability	A repeated measure with consistent outcomes, results, or theories.
Researchable question	An open-ended question that suggests multiple directions and possibilities for inquiry.
Role determination	Deciding on or being given a role to play.
Scaffolding	Using various teaching strategies and tools to support a student's progression, in ways that are temporary, appropriate, and responsive.
Self-assessment	The review and evaluation of one's own learning to inform adjustments and improvements for future learning.
Self-efficacy	Refers to a person's beliefs and confidence in their ability to act, succeed, and achieve valued goals.
Self-regulated students	Students who demonstrate the ability to manage themselves to achieve their own goals.
Significant	The understanding that is contextually and universally important, having personal, local, and global relevance.
Situate/situated	Arts: The placement or contextualisation of an artwork in a particular environment, location, or cultural context. This includes how it interacts with and is influenced by its surroundings, and how it may be interpreted or perceived in different settings. Social studies: The acknowledgement of an individual or a group placed within cultural, environmental, societal and historical contexts and experiences.

Glossary term	Definition
Skills	The abilities used to guide, support, and structure learning.
Social and ecological systems	Systems that emphasize the interconnectedness of people and nature with focus on the interactions, interrelationships, and dynamics within and between social (human) and ecological (natural) systems.
Social dynamics	The ways in which people interact in groups and influence each other's behaviours.
Social-constructivist	Theories recognizing that knowledge is actively constructed through interactions with others and the environment.
Space	The area within, between, and beyond objects, comprising both physical and metaphysical dimensions. It includes relationships, connections, and interactions. (Also refer to place and time.)
Stakeholder	A person with an interest or investment in something. In the PYP context, this includes students, teachers, staff, families, caregivers, and other significant adults in students' lives.
Stereotype	A cultural generalization or oversimplified belief about a particular group of people based on their race, ethnicity, gender, sexual orientation, religion, or other identity factors. Such generalizations often overlook the individuality and diversity within the group, leading to biased perceptions and discriminatory behaviours.
Student language portrait	A collection of information about a student's language background and experiences.
Subject	A discrete area of knowledge. PYP subjects include language, mathematics, science, social studies, arts, physical, social, and personal education.
Subsidiary questions (or sub questions)	Additional questions that help answer the key or main question.
Success criteria	Specific, measurable descriptions of what quality looks like at the end of a particular time frame or learning experience.
Symbolic language	Language systems composed of symbols, which are objects, signs or gestures that represent or stand in for other objects, ideas, or concepts. Examples include verbal and written words, as well as gestures.
Syntax	The way words and phrases are arranged to make meaningful sentences.
Systems	Sets of interacting or interdependent elements that utilize processes or procedures to work towards a common purpose.
Tactical awareness	The ability to read a situation, understand what is happening, and make an informed decision in response. It includes recognizing the overall landscape, understanding how different elements interact and adapting to changing circumstances.
Tactics	Actions and decisions that are taken during an activity to respond to an immediate situation.
Target language	The language that is the focus of learning and teaching.
Targeted questions	A series of carefully chosen questions to lead to deeper understanding.
Technique	The method a person uses to perform or carry out a skill, activity, practice, or task.

Glossary term	Definition
Text	An artefact that conveys information, ideas, or identity, enabling us to create and access meaning. Text can take various forms, including oral, print, musical, artistic, or multimodal, such as messages, stories, articles, songs, videos, or pictures.
Text feature	The text elements that support the organization and presentation of a text, including headings, hypertext, charts, illustrations, pauses, bolded print, links, boxes, margins and borders, labels, and glossaries. Specific genres often have distinct features associated with them.
Text structure	The organization or arrangement of content within a text which is often influenced by the specific type or genre of text. Examples include a poem or a science presentation. The creator uses various structures to organize ideas, guide the reader or viewer, and convey meaning. Common text structures include pros and cons, chronology, description, lists, problems and solutions.
Theories	Hypotheses and ideas constructed by students to explain phenomena or concepts.
Time	The past, present, and future, as well as the interrelationships between them. It involves understanding change and transformation across different timescales (human and geological). (Also refer to place and space.)
Transdisciplinary learning	An approach that integrates learning and teaching across, between, and beyond traditional subject disciplines.
Translanguaging	Practices where students use the languages they have at their disposal to communicate and make meaning by selecting from and deploying their full linguistic repertoire.
Unit of inquiry	A method for organizing learning that takes place within a transdisciplinary theme, comprising a central idea, concepts, and lines of inquiry.
Validity	The accuracy of a method to measure whether something is fit for its intended purpose.
Visual cues	In communicative contexts, non-verbal cues such as, gesture, posture, body language and facial expressions convey insight into someone's mood or message.

Updates to the publication

This section outlines the updates made to this publication over the past two years. The changes are ordered from the most recent to the oldest updates. Minor spelling and typographical corrections are not listed.

Corrections for April 2025

Throughout the publication

The term "student" has been replaced with "learner" where appropriate.

A community of learners > A PYP learning community

Correction of error in the previous version.

Text in the third and sixth bullet points of the summary was corrected to align with revised content.

"A shared commitment"

Correction of error in the previous version.

Text in the third and fourth bullet points was corrected.

"Living peacefully together"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

"Prioritizing people and their relationships"

Introduction of revised or improved content.

Text in the sections "Students and teachers" and "Teachers and colleagues" was revised to align to new thinking.

"Sharing responsibility for learning, health and well-being"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

A community of learners > Further reading

"The PYP stance on student grouping"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

"Grouping and regrouping"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

International mindedness > International-mindedness

Correction of error in the previous version.

Text in the first bullet point of the summary was corrected to align with revised content.

International-mindedness > Defining international-mindedness

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

International-mindedness > Developing international-mindedness

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

International-mindedness > Fostering the development of international-mindedness

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

"Creating a culture of international-mindedness"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

"Making provisions for language learning"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

"Infusing international-mindedness within the PYP framework"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

International-mindedness > Expanding intercultural understanding to extra-curricular activities

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

International-mindedness > Acknowledging and celebrating diversity

Introduction of revised or improved content.

This section was renamed from "Celebrating diversity" and text revised to align to new thinking.

International-mindedness > Towards international-mindedness—the role of the students

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

Leadership > PYP leadership

"Establishing a shared purpose"

Introduction of revised or improved content.

Text in the fifth bullet point was revised—"contexts" changed to "communities".

Text in the last bullet point was revised—"diverse and divergent" added.

"Sharing leadership responsibilities"

Introduction of revised or improved content.

A seventh bullet point was added to the section "The learning community" to include "removing barriers to ensure the inclusion of diverse voices".

"Nurturing capacity through and with others"

Introduction of revised or improved content.

In the section "Developing the school", "diverse, inclusive and equitable" was added to align with new thinking.

Text in the section "IB leadership capabilities" was revised to align to new thinking.

Text in the section "Cultural capability" was revised to align to new thinking.

In the section "Developing teacher leadership capacity", the eighth bullet point was revised to state "learning" instead of "development" and the eleventh bullet point was revised to add "non-IB".

Collaboration > Collaboration—a "distinguishing" feature of transdisciplinary learning

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

Collaboration > The collaborative planning process

Introduction of revised or improved content.

A link to "Collaborative planning process for learning and teaching" was added.

"Collaboration between year-level and subject-specialist teachers"

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

A link to the TSM *Collaborative planning in action* was added.

Learning environments > Creating learning environments

Introduction of revised or improved content.

Two new bullet points were added to the summary to align with revised text in this section.

Learning environments > Characteristics of learning environments

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

Learning environments > Pedagogy

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

Learning environments > Design

"Design considerations"

Introduction of revised or improved content.

"Indoor and outdoor spaces" was included in the text.

"and the natural world" was added to the sixth bullet point.

Text in the section "Space design for early years learners" was revised to align to new thinking.

Technology in the PYP > Technology and young learners

Introduction of revised or improved content.

Text in this section was revised to align to new thinking.

Technology in the PYP > Technology in learning and teaching

"Learning technology"

Introduction of revised or improved content.

Learning example 1 was revised to align to new thinking.

"Multimodality"

Introduction of revised or improved content.

The central idea in learning example 2 was changed to "People adapt their lives to natural cycles and patterns".

"Computational thinking"

Introduction of revised or improved content.

The central idea in learning example 3 was changed to "People use geometric concepts to interact with the world".

Technology in the PYP > Learning through technology

"Inside and outside the programme of inquiry"

Introduction of revised or improved content.

Learning example 5 was revised to align to new thinking.

"Developing conceptual understanding through technology"

Introduction of revised or improved content.

The title of the section was changed from "Conceptual understandings".

Glossary

Introduction of revised or improved content: some terms and definitions in the glossary have been revised. New terms have been added.

Glossary term	Previous definition	Revised definition
Action	The act of engaging individually and/or collectively with personal, local, and global challenges and opportunities.	[No change]
Action plan	An organized plan detailing steps for continuous school improvement.	[No change]
Action research	Inquiry carried out to inform improvement and refinement of learning and teaching.	[No change]
Additional language	The language offered in addition to the language of instruction in a PYP school.	A language offered in addition to the language of instruction.

Glossary term	Previous definition	Revised definition
Advocacy	Advocacy is supporting and committing to action for positive change for oneself and others.	Supporting and committing to action for positive change for oneself and others.
Affective skills	Affective skills are the skills of behaviour and emotional management underpinning attitudinal factors such as resilience, perseverance and self-motivation, which often have a large role to play in educational achievement.	Skills of behaviour and emotional management underpinning attitudinal factors such as resilience, perseverance, and self-motivation, which often have a key role to play in educational achievement.
Agency	Agency is a philosophical, sociological and psychological idea that acknowledges humans as active participants in their own lives with the capacity to initiate intentional action.	A philosophical, sociological, and psychological idea that acknowledges humans as active participants in their own lives with the capacity to initiate intentional action.
Agent of change	A person who acts on behalf of themselves or others in connection with action for positive change.	A person who acts on behalf of themselves and/or others in connection with action for positive change.
Approaches to learning	Approaches to learning refers to a range of skills that help students guide, support and structure learning.	A range of skills that help students guide, support, and structure learning.
Artefact	[None, new term added]	An object made, used, or altered by humans, artefacts can be material and non-material. Physical artefacts include examples such as objects, tools, texts, paintings, technologies, specimens, models, and records. Non-material artefacts include examples such as language, song, oral stories, and traditions.
Artistic elements	[None, new term added]	Constituent features or characteristics of the chosen discipline. Examples could include line, shape, space, form, colour, texture, rhythm, movement, contrast, emphasis, balance, harmony, variety, unity, pattern, and proportion.
Artistic practices	[None, new term added]	The way an artist goes about doing their work. It can include influences, ideas, materials, tools, and skills.

Glossary term	Previous definition	Revised definition
Artistic principles	[None, new term added]	How the artist uses or organizes the elements of their artistic discipline to create an artwork. Common examples include rhythm, contrast, and proportion.
Artwork	[None, new term added]	A piece of created or performed art which can be oral, written, musical or multimodal.
Assessment	Assessment is the monitoring, documenting, measuring and reporting on learning. Assessment involves reflection and feedback that occur at all stages of learning and teaching.	The monitoring, documenting, measuring, and reporting on learning. Assessment involves reflection and feedback that occur at all stages of learning and teaching.
Assessment capable practitioner	A practitioner's ability to collaborate with others using data and evidence to inform learning and teaching.	[No change]
Assessment capable student	A student's ability to collaborate with others to set learning goals, monitor progress and adjust learning.	[No change]
Authentic	[None, new term added]	Meaningful learning that reflects the lived experiences of the student. Authentic may refer to interactions, situations, circumstances, or contexts.
Autonomy	The freedom to decide for oneself and pursue a chosen course of action.	[No change]
Backwards by design	Backwards design is a method of designing educational curriculum by setting goals and designing assessment to meet these goals before planning learning experiences.	A method of designing educational curriculum that involves setting goals and designing assessments to meet these goals before planning learning experiences.
Bias	[None, new term added]	A tendency, preference or inclination that influences people to lean towards certain behaviours and actions. Bias manifests in various forms and is rooted in experiences and influenced by context.
Capacity	Capacity is the actual or potential ability to achieve something, either individually or collectively. Capacity is connected to agency and self-efficacy.	The actual or potential ability to achieve something, either individually or collectively. Capacity is connected to agency and self-efficacy.

Glossary term	Previous definition	Revised definition
Central idea	A central idea is a conceptual understanding, written as a statement, that invites inquiry and reflects the transdisciplinary theme.	A broad, overarching conceptual statement written in a neutral voice, which invites inquiry and reflects one or more of the transdisciplinary themes.
Challenging	Challenging refers to learning and teaching that encourages critical and creative thinking, and goes beyond current understanding and capabilities.	Learning and teaching that encourages critical and creative thinking, and extends beyond current understanding and capabilities.
Cognitive skills	Cognitive skills include all the information-processing and thinking skills.	Skills that include all the information-processing and thinking skills.
Collaboration	Collaboration is the act of purposefully achieving something together through shared understandings and active participation.	The act of purposefully achieving a common goal together through shared understandings and active participation.
Computational thinking	[None, new term added]	The cognitive processes involved in formulating problems and expressing their solutions in precise step-by-step instructions. These can then be effectively carried out by humans and machines. This includes activities such as coding where one might explore how to program a robot to move in different directions.
Concepts	Concepts are fundamental, abstract ideas (often encapsulated in one word) which support the development of conceptual understanding. They can vary in terms of their level of abstraction and/or universality, can be used at different levels of generality and complexity, and serve different purposes in the learning environment.	[No change]
Conceptual understanding(s)	Conceptual understanding is understanding that connects factual, procedural and metacognitive knowledge. It results from a process in which one consciously organizes connections between prior and new knowledge into networks, then further develops or	Understanding that connects factual, procedural and metacognitive knowledge. It results from a process in which one consciously organizes connections between prior and new knowledge into networks, then further develops or reconfigures those networks. This

Glossary term	Previous definition	Revised definition
	reconfigures those networks. This is a non-linear, ongoing process throughout which understandings evolve and misconceptions are identified and dispelled.	is a non-linear, ongoing process throughout which understandings evolve and misconceptions are identified and dispelled.
Constructivist	Constructivist theories recognize that knowledge is actively constructed by learners. Learners actively build on their existing knowledge to make connections and new meanings.	Constructivist theories recognize that knowledge is actively constructed by students, who actively build upon their existing knowledge to form connections and create new meanings.
Content	Content refers to subject knowledge and conceptual understandings that are identified and included in the curriculum.	The knowledge and conceptual understandings identified and included in the curriculum.
Context	A context is a situation, setting or group of conditions in which something exists or happens.	A situation, setting or group of conditions in which something exists or happens. Context may exist across multiple scales from personal, local and global to planetary.
Critical literacy	The ability to question, challenge, evaluate and compose texts, understanding that they are created for particular purposes and represent certain perspectives, values and attitudes about the world.	The skills to critically question, challenge, evaluate, and compose texts, understanding that they are created with specific purposes and represent particular perspectives, values, and attitudes about the world.
Critical reflexivity	[None, new term added]	The process of actively exploring, reflecting upon, and challenging individual or collective positions, knowledges, and frames of reference that are constructed within cultural, societal and historical contexts and experiences. This process facilitates the potential repositioning of past and present responses and actions, informing future stances, responses, and actions.
Cross-linguistic connections	[None, new term added]	Applying knowledge from one language to make sense of another language, by being aware of similarities and differences between the languages a student encounters.
Curriculum	A curriculum is an overall plan for learning that is broad, balanced	A comprehensive, broad, balanced, and coherent plan for

Glossary term	Previous definition	Revised definition
	and coherent. It describes the entire learning experience in a school.	learning that encompasses the entire educational experience in a school.
Data and evidence	Data and evidence is information gathered qualitatively or quantitatively, at specific points in time, measuring learning to accurately gauge progress and achievement against agreed learning goals and success criteria.	Information gathered through qualitative or quantitative methods, at specific points in time, to measure learning and accurately assess progress and achievement against agreed-upon learning goals and success criteria.
Debatable question	[None, new term added]	A question that does not have a definite answer and which can include multiple points of view.
Discrete movement	[None, new term added]	A set of skills characterised by a clear, definite, and identifiable beginning and end. These skills involve simple, well-defined movements such as kicking a ball or throwing or a somersault.
Discursive interaction	[None, new term added]	Extended exchange of ideas, opinions, and information between individuals and groups, involving active communication and collaborative meaning-making.
Divergent perspectives	[None, new term added]	Different perspectives that tend to directly engage with worldviews, frames of reference, knowledges, and contexts. (Also refer to diverse perspectives and multiple perspectives.)
Diverse perspectives	[None, new term added]	A range of varied perspectives that tend to offer inclusion. (Also refer to divergent perspectives and multiple perspectives.)
Diversity	Diversity refers to difference and uniqueness. Valuing diversity is about acceptance and recognition.	The presence of differences and uniqueness. Valuing diversity involves recognition and acceptance of these differences.
Documenting	Documenting of learning is the compilation of evidence to inform learning and teaching.	The compilation of evidence to inform learning and teaching.
Early years	The early years apply to ages 3–6. These years represent the foundational period for the development of positive social, emotional, cognitive and physical outcomes in future years as a	The early years apply to ages 3–6. These years represent the foundational period for developing positive social, emotional, cognitive, and physical outcomes. These are critical for

Glossary term	Previous definition	Revised definition
	result of the rapid rate of brain development occurring at this time.	future success due to the rapid rate of brain development during this time.
Elements of inquiry	[None, new term added]	A framework for categorising transferable skills that develop and are supported through inquiry-based learning and teaching. These elements are applicable to any inquiry process, cycle or model and are interconnected, meaning they overlap and influence one other. They are not exhaustive and can be added to over time.
Engaging	Engaging means learning and teaching that is reflective and responsive to personal and collective interests.	Learning and teaching that involves being reflective and responsive to both personal and collective interests.
Equity and social justice perspectives	[None, new term added]	Perspectives that promote fairness and rights across society.
Exhibition	The exhibition is a culminating and consolidating learning experience or inquiry project in which students, with the support of a mentor, demonstrate their understanding of an issue or opportunity that they have selected and investigated, both individually and with their peers.	A culminating and consolidating learning experience or inquiry project where students, supported by a mentor, demonstrate their understanding of a self-selected issue or opportunity, sharing their individual and peer-collaborated investigation and learning.
Exploratory question	[None, new term added]	A question that supports students to discover more. These are often used at the beginning of an inquiry and are usually broad in scope.
Feedback	Feedback is information given, from either a teacher or a student, in response to a student's learning, and is to be used as a basis for improvement.	Information provided by either teachers or peers, in response to a student's learning. It is intended to be used as a basis for improvement.
Feedforward	Feedforward is information given, from either a teacher or a student, which offers next steps and guidance for improving a student's learning.	Information provided by either teachers or peers that offers guidance and next steps to improve a student's learning.
Fluency marker	[None, new term added]	The fillers, connectives and the intonation used to navigate pauses, organize thoughts coherently, and express ideas with ease in the target language.

Glossary term	Previous definition	Revised definition
Forwards by design	Forwards design is a method for considering what other learning can occur in social constructivist learning settings outside of prescribed learning.	A method for considering what other learning can occur in social constructivist learning settings, beyond prescribed learning.
Framework	The PYP framework provides a structure for organizing parts of a curriculum and the relationships between them.	The PYP framework provides a structured approach to organize the various components of a curriculum and their interrelationships.
Global education and learning	[None, new term added]	Both an academic field and an umbrella term that describes learning focused on understanding the world and humanity's place within the world, it recognizes a shared common humanity, and acknowledges shared rights and responsibilities. It involves critical reflection, meaningful action, and fostering care for the guardianship of planet and its people. This encompasses various issue-based educations including development education, human rights education, global citizenship education, peace education, education for sustainability, and intercultural education.
Growth description	[None, new term added]	General cognitive and social characteristics observed in students at a certain point in their development.
Holistic	An all-encompassing educational experience that considers the intellectual, physical, social, and emotional aspects of students' learning and development.	[No change]
Home and family language	The language learned first, or known best, or used most, or all of these. As language learning occurs within a context, learners may have a "home" language and/or a "family" language, which is different to the language of instruction in the current school.	The language learned first, known best, most used, or a combination of these. As language learning occurs within a context, students may have a "home" language and/or a "family" language that differs from the language of instruction in their current school.
Human and natural worlds	[None, new term added]	An intuitive understanding of the deep entanglement between humans and nature, recognizing

Glossary term	Previous definition	Revised definition
		their intrinsic interconnectedness and interdependence.
Hypothesis	[None, new term added]	A tentative proposal, explanation or statement that describes an informed prediction that can be tested.
Identity	Identity is the state of being oneself; the qualities, beliefs and values that make a person.	The state of being oneself; the qualities, beliefs, and values that define a person.
Identity text	Texts produced by students that express their cultural identities. They are self-selected, shared with an audience and include positive statements made by students about themselves.	Student-produced works that express their cultural identities, featuring self-selected content, shared with an audience, and highlighting positive self-statements.
Inclusion	Inclusion is an ongoing process that aims to increase access to, and engagement in, learning for all students by identifying and removing barriers.	An ongoing process that seeks to increase access to learning and promote engagement for all students, by identifying and removing barriers to their participation.
Inclusive education	[None, new term added]	Increasing access to, and involvement in, learning and teaching for all students. An inclusive school is one that removes barriers to learning and fosters a sense of belonging, involving everyone in the school community.
Indicator	[None, new term added]	A description of a student's use of a skill at a particular point in time.
Innovation	Innovation is implementing new ideas generated through examining practices and putting forward different ways of doing things with the aim of improvement.	Introducing new ideas generated through examination of existing practices and proposing alternative approaches to achieve improvement.
Inquirers	Inquirers actively construct meaning through interacting with and interpreting the world around them.	Individuals who actively construct meaning by interacting with and interpreting the world around them.
Inquiry	Inquiry is a perspective on learning, emphasizing that meaning is actively constructed.	A perspective on learning that emphasizes the active construction of meaning.
Intentional observation	[None, new term added]	A deliberate and purposeful observation to seek more information and make connections.

Glossary term	Previous definition	Revised definition
Intercultural understanding	Intercultural understanding is about having mutual understanding and respect for one's own and others' cultures. It recognizes our common humanity, diversity and interconnections.	Involves developing and demonstrating mutual respect and understanding for one's own culture and those of others, acknowledging our shared humanity, diversity, differences, interconnections and interrelatedness.
Internationally minded	Being internationally minded is characterized by being aware of oneself and others. It refers to a sense of belonging to broader communities and a common humanity. It involves being engaged with local and global issues and taking action for positive change. Developing and demonstrating the attributes of the IB learner profile provides an important foundation for international-mindedness.	Characterized by an awareness of oneself and others, a sense of belonging to broader communities, and a common humanity. It involves engagement in local and global issues, and taking action for positive change. Developing and demonstrating the attributes of the IB learner profile provides an important foundation for international-mindedness.
Intonation	[None, new term added]	The way the voice rises and falls in oral communication.
Iterative strategy	[None, new term added]	A process where strategies are adjusted based on what was learned in the previous iteration.
Key question	[None, new term added]	The main or starting question that can be explored further through additional questions.
Knowledge	Knowledge is information, facts or principles gained through learning.	Information, facts, or principles gained through learning.
Language feature	[None, new term added]	A distinctive aspect or characteristic of a language, including grammar rules, vocabulary, pronunciation, and cultural nuances.
Language patterns	[None, new term added]	Recurring and systematic ways in which words, phrases, and sentences are organized. Patterns vary across different languages.
Language variation	[None, new term added]	The differences that exist within a language, for example variations in pronunciation, vocabulary, grammar, and cultural expressions. These reflect the diversity of language use across

Glossary term	Previous definition	Revised definition
		different geographic locations, social groups, or communities.
Learning community	The learning community refers to everyone involved in the life of the school, locally and globally.	Everyone involved in the life of the school, locally, and globally.
Learning environment	The learning environment is the context in which learning happens, including the school culture and ethos, and the organization of resources and learning spaces, both indoor and outdoor.	The context in which learning happens, including the school culture and ethos, as well as the organization and utilization of resources and learning spaces, both indoors and outdoors.
Learning goal	A learning goal is a statement which describes what students know, understand and are able to do at the end of a certain time frame or learning experience.	A statement that describes what students know, understand, and be able to do at the end of a specific time frame or learning experience.
Learning spaces	Learning spaces are physical or virtual areas within a learning environment.	Physical or virtual areas within a learning environment.
Lines of inquiry	Lines of inquiry are statements or phrases that define the scope of a unit of inquiry.	Statements or phrases that define the scope of a unit of inquiry.
Linguistic repertoire	[None, new term added]	The complete range of linguistic resources such as words, sounds, structures, styles, genres, registers, and their respective norms, available to individuals across all their languages or dialects, regardless of proficiency to create and convey meaning in different contexts.
Literacies	Literacies refer to multiple modes of communication and meaning-making, including linguistic, visual, audio, gestural, spatial and digital.	Multiple modes of communication and meaning-making, including linguistic, visual, audio, gestural, spatial and digital.
Livelihood	[None, new term added]	A way of life (including life occupations and daily activities) that provides the necessities for living within social and ecological systems.
Manipulative movement	[None, new term added]	Movements that involve the body and an object, combining gross-motor skills (such as throwing and kicking) and fine-motor skills (such as writing and building with bricks).

Glossary term	Previous definition	Revised definition
Material	[None, new term added]	Refers to physical objects, resources, and spaces, contrasting with non-material intangible elements, and is collectively used to describe items, evidence, and experiences in human and natural contexts.
Mathematical modelling	[None, new term added]	The process of using mathematics to address open-ended, authentic situations to determine reasonable solutions.
Measuring	The act of ascertaining "point-in-time" data to determine progress and achievement.	Ascertaining "point-in-time" data to assess progress and achievement.
Metacognition	Metacognition is thinking about thinking. It is the ability to be aware of, reflect on and understand one's own thought processes.	To be aware of, reflect on and understand one's own thought processes. Metacognition is thinking about thinking.
Metacognitive skills	Metacognitive skills are the skills that students can use to monitor the effectiveness of their learning skills and processes, to better understand and evaluate their learning.	The abilities students can use to monitor the effectiveness of their learning strategies and processes, to better understand and evaluate their learning.
Metalinguistic awareness	An awareness of the way language works, its rules and codes.	An understanding of the way language works, its rules, and codes.
Metaphorical framing	[None, new term added]	The use of figure of speech to convey ideas and to influence opinions and decisions.
Modality	[None, new term added]	The modes of communication and meaning-making, including spoken, written, visual, gestural, and aural modes. These modes are often combined to create multimodal text, which can take the form of live, visual, print, or digital text presentations.
Monitoring	The process of gathering data through a variety of strategies, including, but not limited to, observation, questioning, discussion and reflection.	The process of gathering data through various strategies, including observation, questioning, discussion, and reflection.
Movement challenge	[None, new term added]	A task that requires individuals or groups to analyse, interpret, explain, and evaluate a movement

Glossary term	Previous definition	Revised definition
		in order to successfully complete or replicate it.
Multilingualism	The knowledge of two or more languages at any stage of acquisition or proficiency, reflecting the dynamic interplay between languages and the social behaviours associated with language.	Linguistic competence in two or more languages at any stage of acquisition or proficiency, reflecting the dynamic interplay between languages and the social behaviours associated with language.
Multiliteracies	The ability to read, interpret and create oral, print and multimodal texts in multiple modes. Multiliteracies enable students to understand, use and critically evaluate multimodal texts with an understanding of their social context.	The ability to read, interpret, and create oral, print, and multimodal texts in multiple modes, enabling students to understand, use, and critically evaluate these texts within their social context.
Multimodality	The ability to understand and communicate through multiple modes of expression, such as visual, textual, linguistic, and spatial (Jewitt et al., 2000).	[No change]
Multiple perspectives	[None, new term added]	Many types of perspectives that tend to offer balance. (Also refer to divergent perspectives and diverse perspectives.)
Non-material	[None, new term added]	Refers to abstract or non-physical aspects such as ideas and ways of thinking, and includes things such as beliefs, values, rules, norms, morals, language, and ways of organizing society.
Non-verbal behaviour	[None, new term added]	Elements of communication that are not spoken or written, for example, gestures or facial expressions.
Observable effects	[None, new term added]	These are measurable changes or phenomena that can be directly perceived through our senses (sight, sound, touch) or detected using scientific tools and instruments, providing evidence for scientific investigations.
Outcome	Outcome in the PYP refers to the overall impact of an IB education and the totality of experiences for PYP students as they develop and demonstrate the attributes of the	In the PYP, outcome refers to the overall impact of an IB education, encompassing the totality of experiences that enable PYP students to develop and demonstrate the attributes of the

Glossary term	Previous definition	Revised definition
	learner profile and international-mindedness.	learner profile and international-mindedness.
Pedagogy	Pedagogy is the art and science of teaching as a professional practice.	The art and science of teaching as a professional practice.
Persistent observation	[None, new term added]	A repeated, sustained or ongoing observation to inform, describe and make connections.
Perspective	[None, new term added]	The way people make sense of the world based on their individual perceptions and interpretations, which are influenced by their experiences, beliefs, values, and attitudes.
Phatic expression	[None, new term added]	A linguistic expression or communication that focuses on social bonding rather than conveying meaningful information. These are typically used to maintain social interactions, establish connections, and express politeness such as greetings, small talk, and expressions of politeness.
Phenomenon	[None, new term added]	An observable behaviour, action, pattern, or event that could be natural or human. Natural phenomena occur or manifest without human input. This includes examples such as weather and climate patterns, geological transformations, gravity, natural disasters, animal migration, and biological processes. Human phenomena occur or manifest through human input. Evolving over time, they influence the lives and development of societies. This includes examples such as cultural practices, communication patterns, institutional systems and structures, and social norms.
Place	[None, new term added]	Dynamic and linked through space and time; a place is both objective and subjective and includes the key aspects of

Glossary term	Previous definition	Revised definition
		location, locale, and a sense of place. Location (geographic and biogeographic) is characterized by its distinct features, diversity, and dynamics. Locale, the unique qualities and boundaries of a place, is defined by descriptors, distances, contexts (social, cultural, historical), and human activity in relation to the physical space. Examples include crossroads, farms, monuments, rural or urban neighbourhoods, dams, or archaeological sites. Sense of place is concerned with individual or collective perceptions, experiences and meanings, reflecting a subject's point of view. (Also refer to space and time.)
Play	Play describes a range of student-initiated activities that involve freedom and choice.	[No change]
Point of view	[None, new term added]	An individual's or group's particular stance, opinion, way of thinking, perspective, or consideration of something.
Portfolio	A portfolio is a comprehensive collection of student learning.	A comprehensive collection of student learning.
Positionality	[None, new term added]	The process of engaging and re-engaging with one's personal stance or positioning as both a consumer and producer of knowledge, in relation to overlapping cultural, social, historical and political contexts and relations of power. Personal frames of reference are shaped by layered identities which influence one's knowledge, perspectives, biases, assumptions, and worldviews, thereby affecting how individuals understand and engage with the world.
Principled action	Principled action means taking action that is informed, responsible and ethical.	Taking action or deciding not to take action that in ways that are informed, responsible, responsive, and ethical.

Glossary term	Previous definition	Revised definition
Problem-solving	[None, new term added]	The systematic use of a wide range of methods and stages to address problems in authentic situations. The stages typically include understanding the problem, devising a plan and strategy, implementing it, and reflecting on the solution.
Programme of inquiry	The programme of inquiry is an overview of the transdisciplinary themes and units of inquiry across year levels.	An overview of the transdisciplinary themes and units of inquiry across year levels.
Progressions of learning	Progressions of learning refers to the sequencing of learning across developmental stages.	The sequencing of learning across developmental stages.
Protocol	[None, new term added]	A set of rules, routines, or steps to be followed consistently when carrying out an activity.
Provocation	A provocation is an open-ended stimulus to engage student thinking.	An intentionally designed learning experience or stimulus that generates or prompts self-reflective curiosities, interests, and questions.
Reflection	Reflection is a cognitive act that considers past experiences in order to improve, modify and plan for the future.	A cognitive act that considers past experiences in order to improve, modify, and plan for the future.
Register	[None, new term added]	Adapting language to suit a particular context audience or purpose, involving variations in vocabulary tone and style. Examples include speaking to a sibling vs speaking to a teacher, writing a postcard vs writing a report, and formal vs informal situations.
Relevant	Relevant refers to meaningful learning and teaching that makes connections to prior knowledge and experiences.	Meaningful learning and teaching that makes connections to prior knowledge and experiences.
Reliability	[None, new term added]	A repeated measure with consistent outcomes, results, or theories.
Researchable question	[None, new term added]	An open-ended question that suggests multiple directions and possibilities for inquiry.
Role determination	[None, new term added]	Deciding on or being given a role to play.

Glossary term	Previous definition	Revised definition
Scaffolding	Scaffolding is the use of a variety of teaching strategies and tools to support a student's progression in their learning. Scaffolding is temporary, appropriate and responsive.	Using various teaching strategies and tools to support a student's progression, in ways that are temporary, appropriate, and responsive.
Self-assessment	Self-assessment is the review and evaluation of learning in order to make adjustments and improvements for future learning.	The review and evaluation of one's own learning to inform adjustments and improvements for future learning.
Self-efficacy	Self-efficacy refers to a person's beliefs and confidence in their own abilities to act, succeed and to reach valued goals.	Refers to a person's beliefs and confidence in their ability to act, succeed, and achieve valued goals.
Self-regulated students	Self-regulated describes the ability to manage oneself in order to reach one's own goals.	Students who demonstrate the ability to manage themselves to achieve their own goals.
Significant	Significant refers to an understanding that is contextually and universally important and has personal, local and global implications.	The understanding that is contextually and universally important, having personal, local, and global relevance.
Situate/situated	[None, new term added]	Arts: The placement or contextualisation of an artwork in a particular environment, location, or cultural context. This includes how it interacts with and is influenced by its surroundings, and how it may be interpreted or perceived in different settings. Social studies: The acknowledgement of an individual or a group placed within cultural, environmental, societal and historical contexts and experiences.
Skills	Skills describe the abilities we use to guide, support and structure learning.	The abilities used to guide, support, and structure learning.
Social and ecological systems	[None, new term added]	Systems that emphasize the interconnectedness of people and nature with focus on the interactions, interrelationships, and dynamics within and between social (human) and ecological (natural) systems.

Glossary term	Previous definition	Revised definition
Social dynamics	[None, new term added]	The ways in which people interact in groups and influence each other's behaviours.
Social-constructivist	Social-constructivist theories recognize that knowledge is actively constructed through interacting with others and the environment.	Theories recognizing that knowledge is actively constructed through interactions with others and the environment.
Space	[None, new term added]	The area within, between, and beyond objects, comprising both physical and metaphysical dimensions. It includes relationships, connections, and interactions. (Also refer to place and time.)
Stakeholder	A stakeholder is a person with an interest or investment in something. PYP stakeholders include students, teachers, staff, families and caregivers, as well as other significant adults in students' lives.	A person with an interest or investment in something. In the PYP context, this includes students, teachers, staff, families, caregivers, and other significant adults in students' lives.
Stereotype	[None, new term added]	A cultural generalization or oversimplified belief about a particular group of people based on their race, ethnicity, gender, sexual orientation, religion, or other identity factors. Such generalizations often overlook the individuality and diversity within the group, leading to biased perceptions and discriminatory behaviours.
Student language portrait	A collection of information concerning the language background and experiences of a student.	A collection of information about a student's language background and experiences.
Subject	A discrete area of knowledge. PYP subjects include language, mathematics, science, social studies, arts, physical, social, and personal education.	[No change]
Subsidiary questions (or sub questions)	[None, new term added]	Additional questions that help answer the key or main question.
Success criteria	Success criteria describe what quality looks like at the end of a certain time frame or learning	Specific, measurable descriptions of what quality looks like at the end of a particular time frame or learning experience.

Glossary term	Previous definition	Revised definition
	experience. They are specific and measurable.	
Symbolic language	[None, new term added]	Language systems composed of symbols, which are objects, signs or gestures that represent or stand in for other objects, ideas, or concepts. Examples include verbal and written words, as well as gestures.
Syntax	[None, new term added]	The way words and phrases are arranged to make meaningful sentences.
Systems	[None, new term added]	Sets of interacting or interdependent elements that utilize processes or procedures to work towards a common purpose.
Tactical awareness	[None, new term added]	The ability to read a situation, understand what is happening, and make an informed decision in response. It includes recognizing the overall landscape, understanding how different elements interact and adapting to changing circumstances.
Tactics	[None, new term added]	Actions and decisions that are taken during an activity to respond to an immediate situation.
Target language	[None, new term added]	The language that is the focus of learning and teaching.
Targeted questions	[None, new term added]	A series of carefully chosen questions to lead to deeper understanding.
Technique	[None, new term added]	The method a person uses to perform or carry out a skill, activity, practice, or task.
Text	Artifacts through which we access or present information. These might be oral, written, musical, artistic or multimodal, for example, a story, song, message or website.	An artefact that conveys information, ideas, or identity, enabling us to create and access meaning. Text can take various forms, including oral, print, musical, artistic, or multimodal, such as messages, stories, articles, songs, videos, or pictures.
Text feature	[None, new term added]	The text elements that support the organization and presentation of a text, including headings, hypertext, charts, illustrations,

Glossary term	Previous definition	Revised definition
		pauses, bolded print, links, boxes, margins and borders, labels, and glossaries. Specific genres often have distinct features associated with them.
Text structure	[None, new term added]	The organization or arrangement of content within a text which is often influenced by the specific type or genre of text. Examples include a poem or a science presentation. The creator uses various structures to organize ideas, guide the reader or viewer, and convey meaning. Common text structures include pros and cons, chronology, description, lists, problems and solutions.
Theories	Hypotheses and ideas that are constructed by learners in order to explain something.	Hypotheses and ideas constructed by students to explain phenomena or concepts.
Time	[None, new term added]	The past, present, and future, as well as the interrelationships between them. It involves understanding change and transformation across different timescales (human and geological). (Also refer to place and space.)
Transdisciplinary learning	[None, new term added]	An approach that integrates learning and teaching across, between, and beyond traditional subject disciplines.
Translanguaging	A process in which students draw on known languages naturally and flexibly, combining their elements to meet communicative and social needs. Examples in practice might be switching languages mid-sentence or reading a text in one language and talking about it in another.	Practices where students use the languages they have at their disposal to communicate and make meaning by selecting from and deploying their full linguistic repertoire.
Unit of inquiry	A unit of inquiry is a method of organizing the learning that takes place within a transdisciplinary theme.	A method for organizing learning that takes place within a transdisciplinary theme, comprising a central idea, concepts, and lines of inquiry.
Validity	[None, new term added]	The accuracy of a method to measure whether something is fit for its intended purpose.

Glossary term	Previous definition	Revised definition
Visual cues	[None, new term added]	In communicative contexts, non-verbal cues such as, gesture, posture, body language and facial expressions convey insight into someone's mood or message.

Corrections for March 2024

Throughout the publication

Alignment of language with other IB documentation.

The term "key concepts" has been replaced by "specified concepts", the term "related concepts" has been replaced by "additional concepts".

Collaboration > The collaborative planning process

"Collaboration between year-level and subject-specialist teachers"

Correction of error in the previous version.

Caption of Figure CP01: changed from "Supported learning experiences" to "Co-constructed learning experiences".

Caption of Figure CP03 changed from "Supported learning experiences" to "'Stand-alone learning experiences" to match the table.

Learning environments > Creating learning environments

"Connecting pedagogy and design"

Correction of error in the previous version.

Caption of Figure LE01: changed from "Connecting pedagogy and design" to "Designing learning spaces".

Glossary

Introduction of revised or improved content.

The definition of concepts has been changed.

from: "Concepts are powerful, broad and abstract organizing ideas that may be transdisciplinary or subject-based in nature."

to: "Concepts are fundamental, abstract ideas (often encapsulated in one word) which support the development of conceptual understanding. They can vary in terms of their level of abstraction and/or universality, can be used at different levels of generality and complexity, and serve different purposes in the learning environment."

The definition of conceptual understanding has been changed

from: "Conceptual understandings are generalizations that learners develop about the nature or properties of a particular concept or concepts."

to: "Conceptual understanding is understanding that connects factual, procedural and metacognitive knowledge. It results from a process in which one consciously organizes connections between prior and new knowledge into networks, then further develops or reconfigures those networks. This is a non-linear, ongoing process throughout which understandings evolve and misconceptions are identified and dispelled."