

Approaches to learning

An integral part of an IB education

Summary

- Approaches to learning (ATL) are grounded in the belief that learning how to learn is fundamental to a student's education.
- Five categories of interrelated skills and associated sub-skills support students of all ages to become self-regulated learners.
- Through a variety of strategies, teachers collaboratively plan for implicit and explicit opportunities to develop ATL both inside and outside the programme of inquiry.

Approaches to learning (ATL) are an integral part of an IB education and complement the learner profile, knowledge, conceptual understanding and inquiry. Formerly known as “transdisciplinary skills” in the Primary Years Programme (PYP), these skills will now be referred to as “approaches to learning”.

These skills are grounded in the belief that learning how to learn is fundamental to a student's education. Five categories of interrelated skills aim to support students of all ages to become self-regulated learners who know how to ask good questions, set effective goals and pursue their aspirations with the determination to achieve them. These skills also help to support students' sense of agency, encouraging them to see their learning as an active and dynamic process (IBO 2017).

Although the ATL are relevant from 3 to 19 years of age, it is particularly important for PYP teachers to interpret these skills in ways that are appropriate for early and primary years learners. All teachers foster and support the development of these skills by providing opportunities embedded in authentic learning experiences.

Subject-specific skills and approaches to learning

When learning about and through the subjects, students acquire skills that best help them to learn those subjects. For example, in language, the students become literate, and in mathematics they become numerate. The acquisition of literacy and numeracy skills, in their broadest sense, is essential, as these skills provide students with the tools to inquire.

Beyond the skills of literacy and numeracy, there is a range of interrelated approaches to learning that are transferable across contexts. These skills support purposeful inquiry and set the foundations for lifelong learning. The development of these skills is frequently identified in education literature as crucial in supporting students to effectively learn and succeed inside and outside of school, (Trilling and Fadel 2009; Wagner 2014). The five interrelated approaches to learning are:



The IB's ATL aim to support student agency and the development of cognitive and metacognitive skills and dispositions so that students view learning as something that they "do for themselves" in a proactive way, rather than as a covert event that happens to them in reaction to

teaching” (Zimmerman 2000: 65). Together, these ATL help students think, research, communicate, socialize and manage themselves effectively.

Embedded within the ATL are digital literacy skills that can be an invaluable resource for information gathering or processing, as well as for critical and creative thinking, communication and collaboration.

By combining ATL and the attributes of the learner profile, PYP students become self-regulated learners. Self-regulated learners are agents of their own learning. They know how to:

- set learning goals
- ask open-ended questions
- generate motivation and perseverance
- reflect on achievement
- try out different learning processes
- self-assess as they learn
- adjust their learning processes where necessary

(Zimmerman and Schunk 2001; de Bruin et al. 2012; Wolters 2011).

The ATL and sub-skills

Although the ATL are presented as distinct categories with associated sub-skills, there are close links and areas of overlap between them. For learning that is connected, it is important that students and teachers recognize these skills as interrelated. For example, the skill to synthesize information or data, and the ability to draw conclusions from the data, are related to thinking and research skills.

Figure ATL02 provides some examples of sub-skills—which schools may choose to focus on, modify or add to—based on their contexts. Working collaboratively during the planning process, teachers are encouraged to determine necessary skills, based on context and need, and document and monitor them as learning goals.

Categories	Sub-skills
Thinking skills	<ul style="list-style-type: none"> • Critical-thinking skills (analysing and evaluating issues and ideas) • Creative-thinking skills (generating novel ideas and considering new perspectives) • Transfer skills (using skills and knowledge in multiple contexts) • Reflection/metacognitive skills ((re)considering the process of learning)
Research skills	<ul style="list-style-type: none"> • Information-literacy skills (formulating and planning, data gathering and recording, synthesizing and interpreting, evaluating and communicating) • Media-literacy skills (interacting with media to use and create ideas and information) • Ethical use of media/information (understanding and applying social and ethical technology)
Communication skills	<ul style="list-style-type: none"> • Exchanging-information skills (listening, interpreting, speaking) • Literacy skills (reading, writing and using language to gather and communicate information) • ICT skills (using technology to gather, investigate and communicate information)
Social skills	<ul style="list-style-type: none"> • Developing positive interpersonal relationships and collaboration skills (using self-control, managing setbacks, supporting peers) • Developing social-emotional intelligence

Self-management skills	<ul style="list-style-type: none"> • Organization skills (managing time and tasks effectively) • States of mind (mindfulness, perseverance, emotional management, self-motivation, resilience)
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Figure ATL02 *The five interrelated skills and sample sub-skills*

Connecting approaches to learning and approaches to teaching

The learning community has an important role in supporting the understanding and development of ATL. In a social-constructivist environment, students co-construct knowledge with peers and teachers, and develop their skills more effectively with guidance and support from teachers and mentors (Toshalis, Nakkula 2012).

Many of the ATL may be apparent in context of a certain natural ability or talent. The IB believes that proficiency in any of these skills can be supported through the deliberate use of techniques and strategies, feedback and challenge (Toshalis, Nakkula 2012).

For example, current research on “creativity” challenges conceptions of creativity as limited to individual psychological traits; it is also learnable and can be achieved in dynamic groups (McWilliam 2009). Functional intelligence, creativity and other skills are malleable and can be developed when students are given opportunities to practise them (Bransford et al. 2005; Mangels et al. 2006).

The changeable nature of intelligence, ability and motivation highlights the need for teachers to personalize learning based on individual needs and students’ development (Toshalis, Nakkula 2012). Through collaboration with students and ongoing assessment, teachers effectively group and regroup students to support the development of the ATL. A classroom that honours student voice, choice and ownership also encourages them to identify peers with whom to practise their skills.

Teachers create opportunities for skill development inside and outside the programme of inquiry, and map them vertically and horizontally across the curriculum. Teachers understand that proficiency in using and applying a skill comes with practice. To achieve this, teachers model the skill and provide

scaffolds when introducing a skill for the first time. They consider the multiple contexts across the units of inquiry in which students can practice and transfer skills. In goal-setting, students and teachers collaborate to identify skills for development or for further practice.

It is important to recognize that all members of the learning community continue to develop the ATL and associated sub-skills throughout their lives. With exposure and experience, learners improve and become better at learning to learn; therefore, skills can be at different levels of proficiency. For example, a research skill looks very different in the early and primary years, in high school, in university and in the workplace. Knowing where students' skill levels are relative to the context, the learning goal or developmental stage can help teachers personalize the opportunity for skills practice and application.

Reflecting on students' existing competencies, and through ongoing documenting and monitoring of students' emergent skills, teachers provide opportunities for students to be exposed to new skills, to further develop existing skills and to apply and transfer skills in various contexts (Berliner 2004).

Developing ATL holistically

Through collaborative planning, teachers also consider the learner profile attributes and identify a connection to the ATL. For example, thinking skills are necessary to become an effective thinker or an inquirer.

Consider a unit of inquiry with the central idea "Government systems address the needs of a variety of communities". The teachers decide to challenge students to choose a community issue that is relevant to them and find out how the government made (or is making) decisions to solve the issue. Students decide to consider a novel solution to the issue that could be administered within the current government system. The inquiry requires the development of critical- and creative-thinking processes. Through the inquiry, students demonstrate the learner profile attributes of "reflective thinker" and "open-minded" in response to the central idea and the ATL that will be developed in the unit of inquiry.

Supporting the development of the approaches to learning holistically also requires that teachers seamlessly integrate them implicitly as part of the classroom culture and explicitly as part of inquiry.

Embedding the ATL implicitly in the classroom culture

Teachers may consider:

- using the language of the ATL
- modelling the ATL
- giving feedback about ATL
- highlighting the use of ATL in children's literature and in the learning spaces
- setting up essential agreements and routines around the ATL.

Establishing the ATL explicitly through an inquiry

Together with students, teachers may consider:

- co-constructing ATL goals
- identifying specific ATL for development in a unit of inquiry
- reflecting on specific ATL from the unit
- personalizing ATL for further support
- designing specific learning engagements to support the development of an ATL
- monitoring the development of ATL.

Fostering the development of ATL

All ATL can be facilitated explicitly or implicitly through a variety of strategies. In supporting students' skills development, teachers are mindful of the difference between opportunities that arise authentically and those that are explicitly planned. While there are times when explicit skills teaching is necessary, teachers aim to support the development of these skills in authentic, integrated and meaningful contexts.

When appropriate, teachers use exemplars to demonstrate what skills look like in different learning contexts; use the language of skills in feedback; share their own experiences using and practising a particular skill; and encourage transfer of skills across contexts and the curriculum.

TSM: [Explicitly teaching thinking skills](#)

These tables are for use with primary years students. For early years guidance on ATL, please refer to the early years.

Figure ATL03 provides some examples of sub-skills—which schools may choose to focus on, modify or add to—based on their contexts.

Categories	What teachers do:
Thinking skills	<ul style="list-style-type: none"> • Model the language of thinking and reinforce the processes of thinking. • Ask open-ended questions. • Provide sufficient thinking time. • Implement and model a range of “visible thinking” techniques. • Explicitly ask students to discuss and reflect on the value and limitations of the resources used through their inquiries. • Provide time for reflection at all stages of learning—before, during and after inquiries. • Promote a range of tools for reflection and ensure that reflection activities are responsive and varied. • Reflect on existing competencies, co-create learning goals.
Research skills	<ul style="list-style-type: none"> • Plan transdisciplinary and subject-specific inquiries in which students can develop, apply and reflect on their research skills. • Provide a range of tools for students to organize their research so that all stages are documented. • Model academic integrity by providing proper citations and references for materials and ideas that are shared with students. • Collaborate with, for example, the librarian and technology specialists support students to build research skills and to learn how to identify reliable sources of information.

<p>Communication skills</p>	<ul style="list-style-type: none"> • Plan opportunities for students to practise and apply these skills in meaningful contexts. • Provide time for students to plan and prepare communication activities. • Encourage students to consider potential challenges and opportunities arising from shared ideas. • Encourage physical cues. • Encourage communication using different languages. • Ask open-ended questions. • Put thinking ahead of knowing. • Have informal conversations. • Encourage students to explore a variety of perspectives and modalities.
<p>Social skills</p>	<ul style="list-style-type: none"> • Provide explicit opportunities for students to practise and develop social skills. • Provide opportunities for students to reflect on their social skills. • Reflect and feedback on different interactions they observe. • Offer students opportunities to see that “other people, with their differences, can also be right”. • Use the language of the learner profile in conversations and discussions, and in the development of essential agreements. • Model the social skills.
<p>Self-management skills</p>	<ul style="list-style-type: none"> • Provide opportunities for students to monitor and manage their learning to make progress. • Involve students in planning.

- Build resilience by ensuring that learning goals co-constructed with students are challenging but achievable.
- Create an atmosphere where students regard learning as a process of gradual improvement.
- Continually reflect on how they are supporting student agency as an intrinsic motivation to success.
- Support students to manage distractions.

Figure ATL03 *How teachers support ATL*

Students have a key role in the development of the approaches to learning, figures ATL04–08 provide some examples of sub-skills—which students may choose to focus on, modify or add to—based on their learning.

Thinking skills	
Sub-skills	What students do:
<p>Critical thinking</p> <p>Analysing and evaluating issues and ideas, and forming decisions</p>	<p>Analysing</p> <ul style="list-style-type: none"> • Observe carefully in order to recognize problems. • Consider meaning of materials. • Take knowledge or ideas apart by separating them into component parts. • Use models and simulations to explore complex systems and issues. <p>Evaluating</p> <ul style="list-style-type: none"> • Organize relevant information to formulate an argument. • Evaluate evidence and arguments, and associated decisions. • Recognize unstated assumptions and biases. • Consider ideas from multiple perspectives. • Synthesize new understandings by finding unique characteristics; seeing relationships and connections. • Test generalizations and conclusions. • Identify obstacles and challenges. <p>Forming decisions</p> <ul style="list-style-type: none"> • Develop contrary or opposing arguments. • Propose and evaluate a variety of solutions. • Revise understandings based on new information and evidence. • Draw conclusions and generalizations.

<p>Creative thinking</p> <p>Generating novel ideas and considering new perspectives</p>	<p>Generating novel ideas</p> <ul style="list-style-type: none"> • Use discussions and diagrams to generate new ideas and inquiries. • Practise “visible thinking” strategies and techniques. • Make unexpected or unusual connections between objects and/or ideas. • Design improvements to existing products, processes, media and technologies. <p>Considering new perspectives</p> <ul style="list-style-type: none"> • Ask “what if” questions and generate testable hypotheses. • Apply existing knowledge to design new products processes, media and technologies. • Consider multiple alternatives, including those that might be unlikely or impossible. • Practise flexible thinking—develop multiple opposing, contradictory and complementary arguments. • Practise “visible thinking” strategies and techniques. • Generate metaphors and analogies.
<p>Information transfer</p> <p>Using skills and knowledge in multiple contexts</p>	<ul style="list-style-type: none"> • Use memory techniques to develop long-term memory. • Inquire in different contexts to gain different perspectives. • Make connections between units of inquiry and between subjects. • Transfer conceptual understandings across transdisciplinary themes and subjects.

	<ul style="list-style-type: none"> • Combine knowledge, conceptual understandings and skills to create products or solutions. • Apply skills and knowledge in unfamiliar situations or outside of school. • Help others develop conceptual understandings and skills.
<p>Reflection and metacognition</p> <p>Using thinking skills to reflect on the process of learning</p>	<ul style="list-style-type: none"> • Identify strengths and areas for improvement. • Consider new skills, techniques and strategies for effective learning. • Record thinking and reflection processes. • Reflect on their learning by asking questions such as: <ul style="list-style-type: none"> • What did I learn today? • What don't I yet understand? • What questions do I have now? • What can I already do? • What will I work on next? • What can I do to become a more effective learner? • What factors are important for helping me learn well? • Have I been a principled and balanced thinker? (for example, considering ethical, cultural and environmental implications).

Figure ATL04 *Thinking skills – what students do*

Research skills	
Sub-skills	What students do:
<p>Information literacy</p> <p>Formulating and planning, data gathering and recording, synthesizing and interpreting, evaluating and communicating</p>	<p>Formulating and planning</p> <ul style="list-style-type: none"> • Ask or design relevant questions of interest that can be researched. • Outline a plan for finding necessary information. • Evaluate and select appropriate information sources and/or digital tools based on the task. <p>Data gathering and recording</p> <ul style="list-style-type: none"> • Gather information from a variety of primary and secondary sources. • Use all senses to find and notice relevant details. • Record observations by drawing, note taking, charting, tallying, writing statements, annotating images. <p>Synthesizing and interpreting</p> <ul style="list-style-type: none"> • Sort and categorize information: arrange information into understandable forms such as narratives, explanatory and procedural writing, tables, timelines, graphs and diagrams. • Use critical literacy skills to analyse and interpret information. <p>Evaluating and communicating</p>

	<ul style="list-style-type: none"> • Draw conclusions from relationships and patterns that emerge from data. • Present information in a variety of formats and platforms. • Understand the significance of academic integrity and intellectual property rights. • Create references and citations, use footnotes/endnotes and construct a bibliography according to recognized conventions.
<p>Media literacy</p> <p>Interacting with media to use and create ideas and information</p>	<ul style="list-style-type: none"> • Locate, organize, analyse, evaluate and synthesize information from a variety of trusted sources, social media and online networks. • Compare, contrast and draw connections among (multi)media resources. • Seek a range of perspectives from multiple and varied media sources. • Demonstrate awareness of media interpretations of events and ideas. • Communicate information and ideas effectively to multiple audiences using a variety of media and modalities.
<p>Ethical use of media/ information</p> <p>Understanding and applying social and ethical technology</p>	<ul style="list-style-type: none"> • Use media ethically to communicate, share and connect with others. • Differentiate reliable from unreliable resources. • Understand the impact of media representations and modes of presentation.

Figure ATL05 *Research skills – what students do*

Communication skills	
Sub-skills	What students do:
<p>Exchanging information</p> <p>Listening, interpreting and speaking</p>	<p>Listening</p> <ul style="list-style-type: none"> • Listen to, and follow the information and directions of others. • Listen actively to other perspectives and ideas. • Ask for clarifications. • Listen actively and respectfully while others speak. <p>Interpreting</p> <ul style="list-style-type: none"> • Interpret visual, audio and oral communication: recognizing and creating signs, interpreting and using symbols and sounds. • Understand the ways in which images and language interact to convey ideas. • Recognize the meaning of kinaesthetic communication (body language). • Be aware of cultural differences when providing and interpreting communication. <p>Speaking</p> <ul style="list-style-type: none"> • Speak and express ideas clearly and logically in small and large groups. • Give and receive meaningful feedback and feedforward. • State opinions clearly, logically and respectfully.

	<ul style="list-style-type: none"> • Discuss and negotiate ideas and knowledge with peers and teachers. • Communicate with peers, experts and members of the learning community using a variety of digital environments and media.
<p>Literacy</p> <p>Reading, writing and using language to gather and communicate information</p>	<p>Reading</p> <ul style="list-style-type: none"> • Read a variety of sources for information and for pleasure. • Read critically and for comprehension. • Make inferences and draw conclusions. • Use and interpret a range of terms and symbols. <p>Writing</p> <ul style="list-style-type: none"> • Use appropriate forms of writing for different purposes and audiences. • Paraphrase accurately and concisely. • Record information and observations by hand and through digital technologies. • Use a variety of scaffolding for writing tasks. • Organize information logically. • Make summary notes. • Communicate using a range of technologies and media. • Understand and use mathematical notation and other symbols. • Responsibly participate in, and contribute to, digital social media networks.
<p>ICT</p>	<ul style="list-style-type: none"> • Understand the impact of media representations and modes of presentation.

Communicating using technology to gather, investigate and share information

- Make informed choices about modes of communication based on audience.
- Communicate information and ideas effectively to multiple audiences using a variety of media and modalities.

Figure ATL06 *Communication skills – what students do*

Social skills	
Sub-skills	What students do:
<p>Interpersonal relationships, social and emotional intelligence</p> <p>Developing positive interpersonal relationships and collaboration</p>	<p>Interpersonal relationships</p> <ul style="list-style-type: none"> • Practise empathy and care for others. • Listen closely to others' perspectives and to instructions. • Be respectful to others. • Learn cooperatively in a group: being courteous, sharing, taking turns. • Help others to succeed. • Build consensus and negotiate effectively. • Make fair and equitable decisions. • Encourage others to contribute. • Take on a variety of roles in group learning. • Advocate for one's own rights and needs, and those of others. <p>Social and emotional intelligence</p> <ul style="list-style-type: none"> • Be aware of own and others' emotions. • Manage anger and resolve conflict. • Be self and socially aware. • Be aware of own and others' impact as a member of a learning group.

Figure ATL07 *Social skills – what students do*

Self-management skills	
Sub-skills	What students do:
<p>Organization</p> <p>Managing time and tasks effectively</p>	<ul style="list-style-type: none"> • Plan short- and long-term tasks. • Set goals that are challenging and realistic. • Use time effectively and appropriately. • Bring necessary equipment and supplies to class. • Keep an organized and logical system to document learning. • Understand and use learning preferences. • Use technology effectively and productively. • Take on and complete tasks as agreed. • Delegate and share responsibility for decision-making.
<p>States of mind</p> <p>Using strategies that manage state of mind</p>	<p>Mindfulness</p> <ul style="list-style-type: none"> • Use strategies to support concentration and overcome distractions. • Be aware of body–mind connections. <p>Perseverance</p> <ul style="list-style-type: none"> • Demonstrate persistence. • Use strategies to remove barriers. <p>Emotional management</p> <ul style="list-style-type: none"> • Take responsibility for one’s own actions. • Use strategies to prevent and eliminate bullying. • Use strategies to reduce stress and anxiety. • Manage anger and resolve conflict.

Self-motivation

- Practice positive thinking and language that reinforces self-motivation.

Resilience

- Manage setbacks.
- Work through adversity.
- Work through disappointment.
- Work through change.

Figure ATL08 *Self-management skills –what students do*

Further reading

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