Statements of inquiry

Statements of inquiry set conceptual understanding in a global context in order to frame classroom inquiry and direct purposeful learning. Table 3 shows some possible statements of inquiry for MYP mathematics units.

Statement of inquiry	Key concept Related concepts Global context	Possible project/study
Architects and engineers must use finite resources responsibly when they design new structures.	• Form • Space • Quantity • Fairness and development	Geometry and trigonometry—volume
Logic is a powerful tool for justifying what we discover through measurement and observation.	• Logic • Measurement • Justification • Orientation in space and time	Geometry and trigonometry—parallel lines and transversals
Decision-making can be improved by using a model to represent relationships.	• Relationships • Models • Representation • Identities and relationships	Algebra—quadratic functions
Understanding form and shape enhances creativity.	• Form • Patterns • Space • Personal and cultural expression	Geometry and trigonometry—transformations
Modelling using a logical process helps us to understand the world.	• Logic • Patterns • Simplification • Models • Scientific and technical innovation	Algebra—projectile motion

Discovering mathematical relationships can lead to a better understanding of how environmental systems evolve.	• Relationships • Systems • Change • Globalization and sustainability	Number—exponentials and logarithms
Establishing patterns in the natural world can help in understanding relationships.	• Relationships • Patterns • Scientific and technical innovation	Statistics and probability—line of best fit

Table 3
Example statements of inquiry

Inquiry questions

Teachers and students use statements of inquiry to help them identify factual, conceptual and debatable inquiry questions. Inquiry questions give direction to teaching and learning, and they help to organize and sequence learning experiences.

Table 4 shows some possible inquiry questions for MYP mathematics units.

Factual questions: Remembering facts and topics	Conceptual questions: Analysing big ideas	Debatable questions: Evaluating perspectives and developing theories
• How do the gradients of perpendicular lines compare? • How does the volume of a quantity differ from its area? • What determines whether two events are independent?	• What does it mean to have a "solution" of a function? • Why can estimation be useful? • How could we map the neural network of a human brain?	• What is more natural: order or chaos? • Are all events in the universe determined by probability? • How big is infinity?

Table 4
Examples of factual, conceptual and debatable questions

Approaches to learning

All MYP units of work offer opportunities for students to develop and practise approaches to learning (ATL) skills. These skills provide valuable support for students working to meet the subject group's aims and objectives.

The ATL skills are grouped into five categories that span the IB continuum of international education, and IB programmes identify discrete skills in each category that can be introduced, practised and consolidated in the classroom and beyond.

While ATL skills are relevant across all MYP subject groups, teachers may also identify ATL skill indicators especially relevant for, or unique to, a particular subject group or course.

Table 5 suggests some of the indicators that can be important in mathematics.

Category	Skill indicator
Thinking skills	Use prioritization and order of precedence in problem-solving.
Social skills	Help others to create success for themselves during group work.
Communication skills	Organize and interpret data using both analogue and digital tools.
Self-management skills	Practise focus and concentration while solving multiple problems.
Research skills	Use a variety of technologies and media platforms, including social media and online networks, to source information.

Table 5
Examples of mathematics-specific skill indicators

Well-designed learning engagements and assessments provide rich opportunities for students to practice and demonstrate ATL skills. Each MYP unit explicitly identifies ATL skills around which teaching and learning can focus, and through which students can authentically demonstrate what they are able to do. Formative assessments provide important feedback for developing discrete skills, and many ATL skills support students as they demonstrate their achievements in summative assessments of subject group objectives.

Table 6 lists some specific ATL skills that students can demonstrate through performances of understanding in mathematics.

Approaches to learning
Thinking (critical thinking): draw justifiable conclusions and generalizations from investigating patterns. **Communication (reflection):** keep a regular journal during the investigation to maintain a record of reflections.

Table 6

Examples of demonstrations of ATL skills in mathematics