Statements of inquiry

Statements of inquiry set conceptual understanding in a global context in order to frame classroom inquiry and direct purposeful learning. They establish the unit's purpose within a specific, relevant and engaging exploration of a global context. Table 3 shows some possible statements of inquiry for possible units of work in MYP sciences.

Statement of inquiry	Key concept Related concepts Global context (exploration to develop)	Possible topic or area of study
Societies must consider the consequences of change made possible by the biological revolution's technological innovations.	• change • consequences, function • scientific and technical innovation (the biological revolution)	Biology: biotechnology Physical chemistry: nanotechnology
Models help people visualize the relationship between the structures and functions that shape human identity.	• relationships • function, models • identities and relationships (identity formation)	Biology: evolution (DNA and genetics)
Energy is distributed within a system, and can be transferred between a system and its environment.	• systems • energy, environment, transfer • scientific and technical innovation—exploring the natural world and its laws (products, processes and solutions)	Biology: interaction between organisms Physics: energy transfer and transformation Chemistry: bonding
Health is a function of interactions between individuals and societies.	• relationships • conditions, interaction • identities and relationships (health and well-being, lifestyle choices)	Biology: interactions with environment Chemistry: food science
Pioneering discoveries can challenge conventional wisdom and open pathways toward deeper understanding.	• change • evidence, development, patterns • orientation in space and time—discoveries and turning points (evolution, constraints and adaptation)	Chemistry: periodic table (trends, groups and periods) Nature of science and science-based ways of knowing
Scientists discern patterns and use them to construct systems with rules and conventions that	• systems • models, patterns	Chemistry: organic chemistry; types of chemical reactions; chemical nomenclature

help to explain how the world works.	• personal and cultural expression (social constructions of reality; history of ideas, fields and disciplines; analysis and argument)	

Statement of inquiry	Key concept Related concepts Global context (exploration to develop)	Possible topic or area of study
In order to meet growing demands for energy, societies often turn to new technologies that interact with the natural world.	• change • consequences, energy, interaction • fairness and development (imagining a hopeful future)	Physics: electromagnetism (generation and transmission of electricity); forces and energy (pressure, work and power); atomic physics (uses and dangers)
Technological innovations often alter the relationships people have with their local and global environments.	• relationships • development, environment • globalization and sustainability (consumption, conservation, natural resources and public goods)	Physics: forces and energy (fuels and environmental impact)
Innovative devices transform matter and energy to satisfy human needs and desires.	• creativity • form, function, transformation • personal and cultural expression (entrepreneurship, practice and competency)	Physics: heat, light and sound; waves (electromagnetic spectrum, imaging and applications)

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.

Factual questions: Remembering facts and topics	Conceptual questions: Analysing big ideas	Debatable questions: Evaluating perspectives and developing theories
• What do cells look like? • How do scientists measure chemical molecules and compounds? • Which technologies are available for producing electrical energy at an industrial scale?	• How is the universe structured? • How do models evolve and transform? • What is the relationship between microbiology and natural selection?	• Who should have the power to modify and control genetic material? • What are the social and economic consequences of nuclear energy? • What are the limits of scientific understanding?

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.

ATL skills are grouped into five categories that span the IB continuum of international education. 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 sciences.

Category	Skill indicator
Thinking skills	Interpret data gained from scientific investigations.
Social skills	Practise giving feedback on the design of experimental methods.
Communication skills	Use appropriate visual representations of data based on purpose and audience.
Self-management skills	Structure information appropriately in laboratory investigation reports.
Research skills	Make connections between scientific research and related moral, ethical, social, economic, political, cultural or environmental factors.

Table 5
Examples of sciences-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 sciences.

Approaches to learning
Thinking (or critical thinking): Draw justifiable conclusions based on processing, interpreting and evaluating data gained from scientific investigations. **Communication (or interaction):** Use appropriate scientific terminology, data tables and graphs to make the meaning of your findings clear to an audience of your peers.

Table 6
Examples of sciences demonstrations of ATL skills