



Technology teacher support material

Example interim objectives

For use with the *Technology guide* (August 2008)

Objectives for years 1, 3 and 5 of the Middle Years Programme

Year 5 objectives

The technology objectives for year 5 of the Middle Years Programme (MYP) are already in place and can be found in the *Technology guide* (August 2008). This set of **prescribed** objectives forms the basis for the **assessment criteria**, also published in the guide, which must be used for the final assessment of students' work during year 5.

Example interim objectives

Example interim objectives for years 1 and 3 of the MYP appear in the tables that follow. They have been developed in order to:

- promote articulation between the MYP and the Primary Years Programme (PYP)
- support individual schools in developing a coherent curriculum across the five years of the programme (or however many years a school is authorized to offer)
- emphasize the need to introduce students to the required knowledge, understanding, skills and attitudes from the first year of the programme
- provide examples of possible learning experiences and assessment tasks that will allow students to work towards meeting the final objectives for year 5
- support schools that are authorized to offer the first three years of the MYP in designing appropriate assessment tasks for the end of the third year.

Unlike the objectives for year 5, the interim objectives for years 1 and 3 are not prescribed, although the IB recommends that all schools use them. Schools may choose to adopt the objectives contained in this document or develop their own.

If choosing to develop their own interim objectives, schools should start with the prescribed objectives for year 5 and modify each one by taking into account the age, prior knowledge and stage of development of students in an earlier year of the programme. Each year 5 objective will then correspond directly to a modified objective in a preceding year of the programme. **No objectives should be omitted** from an earlier year as it is vital to ensure a coherent progression of learning across all five years of the programme.

MYP units of work

Examples of possible learning experiences are provided in the tables that follow. Each learning experience is intended to form part of a larger unit of work designed to address a central question or theme, known as the **MYP unit question**. More information about MYP units of work can be found in the section on "Planning for teaching and learning" in *MYP: From principles into practice* (August 2008).

Within each unit of work, the **context for learning**, **significant concept(s)** and **assessment tasks** are defined in relation to the MYP unit question. The areas of interaction provide the context for learning while the significant concepts refer to the underlying concepts that define the principal goal of the unit. Assessment tasks are designed to address the levels of students' engagement with the MYP unit question and the aligned objectives.

Tables of objectives

Investigate

Year 1	Year 3	Year 5
At the end of the first year, students should be able to:	At the end of the third year, students should be able to:	At the end of the course, students should be able to:
Students identify the problem to be solved		
<ul style="list-style-type: none"> consider the problem within a wider context¹ 	<ul style="list-style-type: none"> consider the importance of the problem for life, society and/or the environment² 	<ul style="list-style-type: none"> evaluate the importance of the problem for life, society and the environment
<ul style="list-style-type: none"> understand the concept of a design brief and adapt a given design brief to the problem or, with guidance, start to develop a design brief. 	<ul style="list-style-type: none"> outline a simple design brief. 	<ul style="list-style-type: none"> outline the design brief.
Students develop the design brief		
<ul style="list-style-type: none"> ask useful questions about the investigation³ 	<ul style="list-style-type: none"> ask relevant questions at the different stages of the investigation 	<ul style="list-style-type: none"> formulate and discuss appropriate questions that guide the investigation
<ul style="list-style-type: none"> with guidance, identify appropriate sources of information and acknowledge these in a suitable format 	<ul style="list-style-type: none"> identify appropriate sources of information and acknowledge these using a recognized convention 	<ul style="list-style-type: none"> identify and acknowledge a range of appropriate sources of information
<ul style="list-style-type: none"> with guidance, use different systematic methods to collect and select information, and to organize it logically 	<ul style="list-style-type: none"> collect and select information, organize it logically and, with guidance, begin to analyse it 	<ul style="list-style-type: none"> collect, analyse, select, organize and evaluate information
<ul style="list-style-type: none"> understand the importance of questioning the value of sources of information. 	<ul style="list-style-type: none"> consider, with guidance, the value of sources of information. 	<ul style="list-style-type: none"> evaluate the sources of information.
Students formulate a design specification		
<ul style="list-style-type: none"> understand the concept and importance of the design specification and, with guidance, list the requirements that must be met by the product/solution 	<ul style="list-style-type: none"> list, with limited guidance, the specific requirements that must be met by the product/solution 	<ul style="list-style-type: none"> list the specific requirements that must be met by the product/solution
<ul style="list-style-type: none"> understand the importance of testing to determine the success (or otherwise) of the product/solution and, with guidance, design some simple tests. 	<ul style="list-style-type: none"> design, with limited guidance, tests to evaluate the product/solution against the design specification. 	<ul style="list-style-type: none"> design tests to evaluate the product/solution against the design specification.

¹ Students should first understand that the role of technology is to provide solutions to problems and, with guidance from the teacher, they should be given opportunities to explore different types of problems that are relevant to them and/or their environment.

² Students should be given opportunities to identify problems that could be solved using technology before discussing the implications for life, society and/or the environment.

³ The research questions should be based on the nature and type of materials, the tools, techniques and equipment and whether there are similar existing products.

Examples of possible learning experiences		
<p>Identify the problem to be solved</p> <p>Students could:</p> <ul style="list-style-type: none"> • discuss the issues surrounding a particular problem • discuss the formats of exemplar design briefs • adapt a design brief linked to a similar problem • complete a design brief that has been started • develop a simple design brief with guidance. 	<p>Identify the problem to be solved</p> <p>Students could:</p> <ul style="list-style-type: none"> • identify design problems that affect life, society and/or the environment • identify designs that can be tailored to specific users • write a design brief answering what, who, where and how questions. 	<p>Identify the problem to be solved</p> <p>Students could:</p> <ul style="list-style-type: none"> • consider problems and their solutions in relation to their possible impact on life, society and the environment • independently formulate questions when investigating a problem • devise problems and develop design briefs • identify and take into account the specific needs of users.
<p>Develop the design brief</p> <p>Students could:</p> <ul style="list-style-type: none"> • describe different sources of information • investigate research questions • reference sources of information • produce a list of resources • create a “rich picture” containing, for example, symbols, keywords, cartoons, sketches, pictures, a title • design a simple questionnaire • create a mood board • learn how to use the Internet safely by acting responsibly and critically. 	<p>Develop the design brief</p> <p>Students could:</p> <ul style="list-style-type: none"> • identify websites, library resources and people as possible sources of information • comment on the usefulness of the information selected • devise different research questions • learn how to reference and rate information sources. 	<p>Develop the design brief</p> <p>Students could:</p> <ul style="list-style-type: none"> • independently identify meaningful questions • carry out literature and web searches, develop questionnaires and survey selected audiences • select and organize appropriate sources and evaluate them.
<p>Formulate a design specification</p> <p>Students could:</p> <ul style="list-style-type: none"> • identify one or more constraints • carry out a given test on a product/solution and record the result. 	<p>Formulate a design specification</p> <p>Students could:</p> <ul style="list-style-type: none"> • identify major constraints • select the most important information from their research with a view to writing design specifications. 	<p>Formulate a design specification</p> <p>Students could:</p> <ul style="list-style-type: none"> • identify ways of testing a solution or product on a specific audience or the intended user • produce a listing of detailed specifications.

Plan

Year 1	Year 3	Year 5
At the end of the first year, students should be able to:	At the end of the third year, students should be able to:	At the end of the course, students should be able to:
Students design the product/solution		
<ul style="list-style-type: none"> create designs and communicate them using different forms and conventions 	<ul style="list-style-type: none"> generate a range of designs that attempt to meet the design specifications 	<ul style="list-style-type: none"> generate several feasible designs that meet the design specification
<ul style="list-style-type: none"> compare the designs against the design specifications 	<ul style="list-style-type: none"> compare the designs against the design specifications and identify the pros and cons of each design 	<ul style="list-style-type: none"> evaluate the designs against the design specification
<ul style="list-style-type: none"> select, with guidance, one design over the others. 	<ul style="list-style-type: none"> select one design and explain its choice. 	<ul style="list-style-type: none"> select one design and justify its choice.
Students plan the product/solution		
<ul style="list-style-type: none"> describe, with guidance, the steps needed to create the product/solution 	<ul style="list-style-type: none"> devise, with guidance, a series of logical steps to create the product/solution 	<ul style="list-style-type: none"> construct a plan to create the product/solution that has a series of logical steps
<ul style="list-style-type: none"> construct a plan to create, with guidance, the product/solution that makes effective use of resources and time 	<ul style="list-style-type: none"> construct a plan to create the product/solution that makes effective use of resources and time 	<ul style="list-style-type: none"> construct a plan to create the product/solution that makes effective use of resources and time
<ul style="list-style-type: none"> with guidance, consider the effectiveness of the plan and make suitable modifications. 	<ul style="list-style-type: none"> analyse the plan and explain the need for any modifications to the design. 	<ul style="list-style-type: none"> evaluate the plan and justify any modifications to the design.
Examples of possible learning experiences		
<p>Design the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> produce sketches develop storyboards make use of annotations use basic computer-aided design (CAD) tools devise working drawings consider a variety of shapes participate in brainstorming activities. 	<p>Design the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> develop computer-aided design (CAD) drawings make a set of dimensioned working drawings draw detailed sketches build 3-dimensional or pictorial models make use of screenshots consider different assembly techniques create a model take appropriate measurements. 	<p>Design the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> make sketches of computer-aided design (CAD) drawings make use of modelling techniques make use of dimensioning strategies produce detailed working drawings create "how to" diagrams take part in brainstorming activities make use of graphics software packages investigate package design and presentation.
<p>Plan the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> develop a basic time line write instructions for making/using the product/solution devise a flow chart 	<p>Plan the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> select suitable resources and/or techniques with guidance consider software options consider the process 	<p>Plan the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> make use of Gantt charts devise complex time lines devise a net produce detailed flow charts

<ul style="list-style-type: none"> • describe a process in the form of a recipe • follow an instruction sheet • foresee possible problems. 	<ul style="list-style-type: none"> • consider what equipment is needed • produce a step-by-step instruction sheet for creating the product/solution • devise pattern markings and layout • select appropriate materials • consider the areas that may cause problems. 	<ul style="list-style-type: none"> • consider appropriate materials and resources • consider problem areas and make any necessary adjustments.
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Create

Year 1	Year 3	Year 5
At the end of the first year, students should be able to:	At the end of the third year, students should be able to:	At the end of the course, students should be able to:
Students use appropriate techniques and equipment		
<ul style="list-style-type: none"> use different techniques and equipment, with guidance 	<ul style="list-style-type: none"> use appropriate techniques and equipment competently 	<ul style="list-style-type: none"> use a range of appropriate techniques and equipment competently
<ul style="list-style-type: none"> ensure a safe working environment for themselves and others. 	<ul style="list-style-type: none"> ensure a safe working environment for themselves and others. 	<ul style="list-style-type: none"> ensure a safe working environment for themselves and others.
Students follow the plan		
<ul style="list-style-type: none"> understand the importance of plans and, with guidance, follow the plan to produce the product/solution 	<ul style="list-style-type: none"> follow the plan to produce the product/solution with minimal guidance 	<ul style="list-style-type: none"> follow the plan to produce the product/solution
<ul style="list-style-type: none"> understand the importance of monitoring progress and revisiting the plan and, with guidance, making necessary changes. 	<ul style="list-style-type: none"> review the plan and explain any changes to the plan (when necessary). 	<ul style="list-style-type: none"> evaluate the plan and justify any changes to the plan (when necessary).
Students create the product/solution		
<ul style="list-style-type: none"> create, with some guidance, a product/solution of appropriate quality. 	<ul style="list-style-type: none"> create a product/solution of appropriate quality. 	<ul style="list-style-type: none"> create a product/solution of appropriate quality.
Examples of possible learning experiences		
<p>Use appropriate techniques and equipment</p> <p>Students could:</p> <ul style="list-style-type: none"> give examples of safe working practices/habits learn about the principles of food hygiene. 	<p>Use appropriate techniques and equipment</p> <p>Students could:</p> <ul style="list-style-type: none"> demonstrate ways of working safely consider health issues when working with specific pieces of equipment (for example, computers). 	<p>Use appropriate techniques and equipment</p> <p>Students could:</p> <ul style="list-style-type: none"> select and use equipment and/or techniques independently select and utilize appropriate software make appropriate choices of materials.
<p>Follow the plan</p> <p>Students could:</p> <ul style="list-style-type: none"> be given basic procedures and instructions to follow suggest ways of improving a set of instructions. 	<p>Follow the plan</p> <p>Students could:</p> <ul style="list-style-type: none"> follow their own instructions record any design modifications that are needed utilize selected software applications follow a recipe. 	<p>Follow the plan</p> <p>Students could:</p> <ul style="list-style-type: none"> follow detailed logical steps created by themselves or other students make independent changes to designs justify all decisions.

<p>Create the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> • work to produce a product/solution of quality appropriate to year 1 • keep a process journal with detailed entries. 	<p>Create the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> • work to produce a product/solution of quality appropriate to year 3 • keep a process journal with detailed entries • apply a suitable finish to the product. 	<p>Create the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> • work to produce a product/solution of quality appropriate to year 5 • keep a process journal with regular detailed entries, including critical evaluations of their work • select and apply a suitable finish to the product.
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Note: Appropriate quality is the best quality that can be produced, taking into account the resources available, the skills and techniques they have learned, their educational development, how the product/solution addresses the identified need and aspects of safety and ergonomics.

Evaluate

Year 1	Year 3	Year 5
At the end of the first year, students should be able to:	At the end of the third year, students should be able to:	At the end of the course, students should be able to:
Students evaluate the product/solution		
<ul style="list-style-type: none"> carry out or follow tests, with guidance, to compare the product/solution against the design specification 	<ul style="list-style-type: none"> carry out tests to compare the product/solution against the design specification 	<ul style="list-style-type: none"> carry out tests to evaluate the product/solution against the design specification
<ul style="list-style-type: none"> consider the success (and/or failure) of the product/solution based on testing, their own views and the views of the intended user 	<ul style="list-style-type: none"> consider the success (and/or failure) of the product/solution in an objective manner based on testing, their own views and the views of the intended user 	<ul style="list-style-type: none"> evaluate the success of the product/solution in an objective manner based on testing, their own views and the views of the intended user
<ul style="list-style-type: none"> consider, with guidance, the impact of the product/solution on individuals and/or on society 	<ul style="list-style-type: none"> consider the impact of the product/solution on individuals and/or on society 	<ul style="list-style-type: none"> evaluate the impact of the product/solution on individuals and on society
<ul style="list-style-type: none"> explain, with guidance, how the product/solution could be improved. 	<ul style="list-style-type: none"> explain how the product/solution could be improved. 	<ul style="list-style-type: none"> explain how the product/solution could be improved.
Students evaluate their use of the design cycle		
<ul style="list-style-type: none"> reflect on their performance at each stage of the design cycle 	<ul style="list-style-type: none"> reflect on their performance at each stage of the design cycle 	<ul style="list-style-type: none"> evaluate their performance at each stage of the design cycle
<ul style="list-style-type: none"> identify and describe the parts they found easy and the parts that proved difficult. With guidance, suggest ways in which their performance could be improved. 	<ul style="list-style-type: none"> identify the parts they found difficult and suggest ways in which their performance could be improved. 	<ul style="list-style-type: none"> suggest ways in which their performance could be improved.
Examples of possible learning experiences		
<p>Evaluate the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> devise star diagrams take photographs answer questions on the success of the product/solution test programs test their product/solution comment on the work of others take part in competitions participate in blind tasting. 	<p>Evaluate the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> devise simple tests take photographs during testing develop questionnaires for product testing suggest product improvements produce a graph showing test results test a website, animation or computer program arrange audience testing. 	<p>Evaluate the product/solution</p> <p>Students could:</p> <ul style="list-style-type: none"> develop a range of tests that focus on the user publish a website on the Internet report on the potential impact of marketing the product/solution make use of feedback from users detail improvements in the making of the product hold a fashion show demonstrate the product/solution to the public.

<p>Evaluate their use of the design cycle</p> <p>Students could:</p> <ul style="list-style-type: none"> • produce a time plan for a similar product/solution • comment on how good they think their performance was at each stage of the design cycle • suggest ways in which they could become more efficient. 	<p>Evaluate their use of the design cycle</p> <p>Students could:</p> <ul style="list-style-type: none"> • evaluate their personal performance at each stage of the design cycle • reflect on their time management skills • suggest ways in which they could become more efficient and/or raise their productivity levels • make meaningful entries in their process journals. 	<p>Evaluate their use of the design cycle</p> <p>Students could:</p> <ul style="list-style-type: none"> • respond to questions relating to, for example, how to factor time into the design cycle, how good they think their performance was at each stage of the design cycle, which processes they found easy or difficult • keep a chart (for measuring or illustrating the time left before an event).
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Attitudes in technology

This objective goes beyond technology and refers to encouraging attitudes and dispositions that will contribute to students' development as caring and responsible individuals and members of society.

This objective is set in the context of the technology class (and it is also present in MYP sciences as "Attitudes in science") but will pervade other subjects and life outside school. It includes notions of safety and responsibility when working in technology as well as respect for and collaboration with others and their shared environment.

Year 1	Year 3	Year 5
Throughout the course, students should:	Throughout the course, students should:	Throughout the course, students should:
<ul style="list-style-type: none"> carry out units of work in technology using materials and techniques safely and responsibly 	<ul style="list-style-type: none"> carry out units of work in technology using materials and techniques safely and responsibly 	<ul style="list-style-type: none"> carry out units of work in technology using materials and techniques safely and responsibly
<ul style="list-style-type: none"> work effectively as members of a team, collaborating, acknowledging and supporting the views of others 	<ul style="list-style-type: none"> work effectively as members of a team, collaborating, acknowledging and supporting the views of others 	<ul style="list-style-type: none"> work effectively as members of a team, collaborating, acknowledging and supporting the views of others
<ul style="list-style-type: none"> provide evidence of personal engagement with the subject (motivation, independence, general positive attitude) when working in technology. 	<ul style="list-style-type: none"> provide evidence of personal engagement with the subject (motivation, independence, general positive attitude) when working in technology. 	<ul style="list-style-type: none"> provide evidence of personal engagement with the subject (motivation, independence, general positive attitude) when working in technology.

Context for learning

Every MYP unit of work has an approaches to learning (ATL) component: a shared and agreed set of skills that all teachers develop with their students throughout the entire programme. The context that frames a particular unit of work is generally derived from one of the other four areas of interaction (AOI), although ATL might be the specific context on some occasions. The examples of possible assessment tasks listed are all set in the context of one or more areas of interaction.

Planning an interdisciplinary unit in collaboration with other subject teachers is also a possibility and several of the student activities listed offer this possibility.

Assessment tasks

One of the first stages in planning a unit of work is to design **summative assessment tasks**, linked to the MYP unit question, which provide varied opportunities for students to demonstrate their knowledge, understanding, skills and attitudes. It is also important to include ongoing **formative assessment tasks** within a unit of work as these provide valuable insights into the extent of student learning as the unit of work progresses. Some examples of possible assessment tasks are described in the table that follows. Each assessment task is intended to be integrated into a unit of work and may therefore be regarded as a formative or summative assessment task depending on the MYP unit question being explored.

Examples of possible assessment tasks		
Year 1	Year 3	Year 5
<p>Students are asked to create a media campaign to show seasonal changes in their environment. Students could explore developing a product/solution that uses powerful images to illustrate seasonal changes.</p> <p>Students could explore some basic features of Photoshop to rework digital images of nature (for example, autumn leaves) captured from the local environment.</p> <p>This task would involve students taking digital images around campus and then uploading them for simple manipulation using Photoshop (textures, shading, simple layers). Guidance should be given to students at each stage of the design cycle to ensure they understand and meet the objectives for each stage before moving on to the next stage.</p> <p>AOI context: environments, approaches to learning</p>	<p>Students are expected to identify a specific need of their immediate social community outside the school. Students are expected to develop a product/solution to raise awareness of this need in the community.</p> <p>Students could create a simple website that informs students of community and service opportunities.</p> <p>The website should include an index of the organizations (both local and global) in alphabetical order, with links to the full contact information (for example, a link to the Amnesty International website). Some guidance should be given to students at each stage of the design cycle to ensure they are meeting the objectives for each stage before moving on to the next stage.</p> <p>AOI context: community and service</p>	<p>Students are expected to find out whether their school would comply with health and safety regulations for schools in the district.</p> <p>Students could create digital videos that examine some aspect of health and/or the environment of their campus. For instance, how accessible their school is to people with disabilities or how pollution is dealt with on their campus (litter, recycling). These videos could be presented to the whole school to create awareness and foster responsibility among students.</p> <p>The digital video should be of high quality and include an introduction to the topic, background music, scripts and end credits with proper citation. Minimal guidance should be given to students at this stage as they are expected to be familiar with the stages of the design cycle and able to work independently.</p> <p>AOI context: health and social education</p>
<p>Students are asked to communicate to a group of parents if the school cafeteria gives students options to make healthy choices.</p> <p>Students could create nutrition podcasts about the nutritional value of the food served in their school cafeteria.</p> <p>Research for the podcasts could include interviews with the cafeteria staff and an analysis of the nutritional value of the food. The podcast should then incorporate this information into a two-minute podcast segment. Guidance should be given to students at each stage of the design cycle to ensure they understand and meet the objectives for each stage before moving on to the next stage.</p> <p>AOI context: health and social education</p>	<p>Students are asked to help an MYP year 1 teacher to introduce his/her students to the areas of interaction using a fun and engaging strategy.</p> <p>Students could use GarageBand (or similar software for the PC such as Monaco or Acoustica Mixcraft) to write an AOI rap song.</p> <p>The song should include background music and lyrics that explain what each AOI is about. These should then be presented on an AOI day. Some guidance should be given to students at each stage of the design cycle to ensure they are meeting the objectives for each stage before moving on to the next stage.</p> <p>AOI context: community and service</p>	<p>Students are asked to prepare a portfolio to communicate their achievements to a hiring agency or to their future high school teachers or to their parents.</p> <p>Students could create a website that would serve as an online portfolio (password protected) to showcase their work from other subjects in order to have an overview of their learning and to better communicate their learning to others.</p> <p>The website should include a home page that reflects the personality of the student (a short video clip of themselves). It should also include a link to their other subjects with samples and descriptions of their work (scanned in, printed to PDF or photographed digitally and linked). Minimal guidance should be given to students at this stage as they are expected to be familiar with the stages of the design cycle and able to work independently.</p> <p>AOI context: approaches to learning</p>