

DELEDDA INTERNATIONAL SCHOOL

SUBJECT GROUP OVERVIEW
Content

Unit Title	Key Concepts/ specified concept	Related Concepts	Global Context and Explorations	Statement of Inquiry	Content	Objectives (criteria)	ATL Beta
Design (MYP1)							
MYP1 - Design (20)25/26 Unit 1 BETA (<i>Lab Design</i>): Carrying water: a design project with Sphero.	Creativity, Collaboration, Invention, Sustainability		Personal and cultural expression	The creation of unique inventions through collaboration and creativity allows for a balance between sustainable craft and aesthetic beauty.	<p>Topics:</p> <p>Introduction to Robotics: Sphero navigation and precision control.</p> <p>The Design Cycle (Focus on Criterion D): From sketching to iterative testing and evaluation.</p> <p>Sustainable Prototyping: Utilizing recycled and discarded materials (Upcycling).</p> <p>Competitive Testing & Data Collection: Using race metrics as a tool for design analysis.</p> <p>Team Dynamics: Collaborative decision-making and peer feedback.</p> <p>Knowledge:</p> <p>Command and Control: Basic Sphero operations (speed, heading, and lights).</p> <p>Critical Design: Understanding the gap between a theoretical idea and its practical feasibility.</p> <p>Testing Methodologies: How to collect quantitative data (time, volume of water transported) and qualitative data (aesthetics, stability).</p> <p>Collaboration (Social ATL): Understanding the importance of individual contribution to the overall success of the team.</p>	<p>Aims</p> <p>Enjoy the design process, develop an appreciation of its elegance and power</p> <p>Develop knowledge, understanding and skills from different disciplines to design and create solutions to problems using the design cycle</p> <p>Use and apply technology effectively as a means to access, process and communicate information, model and create solutions, and to solve problems</p> <p>MYP subject group objective(s)</p> <p>D: Evaluating</p> <p>i. outline simple, relevant testing methods, which generate data, to measure the success of the solution</p> <p>ii. outline the success of the solution against the design specification</p> <p>iii. outline how the solution could be improved</p> <p>iv. outline the impact of the solution on the client/target audience</p>	<p>ATL Skills</p> <p>Social</p> <p>Help others participate, contribute and succeed</p> <p>Self-management</p> <p>Reflect on and evaluate content learning Description</p> <p>Social</p> <p>Help others participate, contribute and succeed</p> <p>In this unit, collaboration is the core driver of the design process. Working in teams to construct the water transport structure, students managed group dynamics to achieve a shared objective. This skill was assessed through a group reflection log, documenting how each member contributed to the collective success. Such collaboration was essential for effectively conducting experimental testing and completing the evaluation phase (Criterion D).</p>
MYP 1 - Design (20)25/26 Unit 1 BETA : Designer detective: learning to analyse the reality around us.	Communities, Evaluation, Function, Perspective		Scientific and technical innovation	Evaluation of a product's function through different perspectives leads to more responsible design methods within our community.	<p>Topics:</p> <p>The Design Cycle - Phase A: Deep dive into Inquiring and Analysing.</p> <p>Design Investigation: The "Designer Detective" methodology for observing reality.</p> <p>User-Centered Research: Defining the "Victim Profile" (target audience) and their needs.</p> <p>Technical Product Analysis: Investigating materials, measurements, and capacity (e.g., stainless steel, silicone, ml/grams).</p> <p>Market Comparison & Forensic Analysis: Evaluating existing solutions through an objective lens.</p> <p>The Design Brief: Synthesizing research findings into a formal project proposal.</p>	<p>Aims</p> <p>Enjoy the design process, develop an appreciation of its elegance and power</p> <p>MYP subject group objective(s)</p> <p>A: Inquiring and analysing</p> <p>i. explain and justify the need for a solution to a problem</p> <p>ii. state and prioritize the main points of research needed to develop a solution to the problem</p> <p>iii. describe the main features of an existing product that inspires a solution to the problem</p> <p>iv. present the main findings of relevant research</p>	<p>ATL Skills</p> <p>Research</p> <p>Use an organised process for conducting research</p> <p>Thinking</p> <p>Analyse complex information Description</p> <p>Research</p> <p>Use an organised process for conducting research</p> <p>In this unit, students act as "Designer Detectives" by following a structured inquiry process to satisfy Criterion A (i-iv). They are required to systematically collect, categorize, and document data regarding product features, ergonomics, and usability. By adhering to a clear research framework, students transition from superficial observation to a rigorous investigation, ensuring that all findings are logically organized and directly support the identification of design problems and potential solutions.</p>
					<p>Knowledge:</p> <p>The 4 Strands of Criterion A: Justifying a need, prioritizing research, analyzing existing products, and developing a design brief.</p> <p>Key Design Requirements: Definitions and applications of Functionality, Ergonomics, Safety, and Sustainability.</p> <p>Prioritization Logic: Understanding the "Detective Code" (Urgent, Medium, Low) to rank design needs.</p>		

MYP 1 - Design (20)25/26 Unit 2 **BETA** (Lab Design): Design a game for Sphero.

Collaboration, Invention, Perspective

Personal and cultural expression

The invention of unique games through collaboration and diverse perspectives enables the creation of products that balance beauty and interactive craft.

Topics:

Game Design Principles: Rules, player interaction, and objectives.

The Design Cycle (B & C): From individual sketching to technical prototyping.

Robotics Integration: Using Sphero as the central mechanics of a game.

Iterative Design: Understanding why and how to modify a project during the building phase.

Visual Communication in Design: Presenting rules and layouts for others to interpret.

Knowledge:

Criterion B Strands: How to present a feasible idea and justify the final choice.

Criterion C Strands: Technical skills for model making and the importance of tracking changes.

Physics of Movement: Traction, friction, and stability for a moving robot on different surfaces.

Feedback Loops: The importance of peer testing in the development of a product.

Skills:

Design Synthesis: Combine individual sketches into a cohesive group project (Social Skill).

Topics:

Visual Identity & Mind Mapping: Using keywords to translate personal passions into design concepts.

The Design Cycle (B & C): Developing success criteria and documenting the fabrication process.

Prototyping Techniques: Measuring, cutting, and assembling using various materials (cardboard, plastic, 3D printing).

Sustainable Design: Reusing and upcycling discarded materials.

Communication in Design: Creating process posters to present technical and creative journeys.

Knowledge:

Success Criteria: How to define measurable goals for construction, materials, and aesthetics.

Technical Constraints: Understanding the strengths and weaknesses of different materials (e.g., rigid vs. light cardboard).

Documentation Standards: The importance of "work-in-progress" photography to track the evolution of a project.

Reflective Practice: Recognizing why a design changes during the building phase (Criterion

Aims

Enjoy the design process, develop an appreciation of its elegance and power
MYP subject group objective(s)

B: Developing ideas

ii. present feasible design ideas, which can be correctly interpreted by others

iii. present the chosen design

C: Creating the solution

ii. demonstrate excellent technical skills when making the solution

iv. list the changes made to the chosen design and plan when making the solution

ATL Skills

Social

Facilitate group discussion

Self-management

Use appropriate strategies for organizing material and complex information
Description

Social: Facilitate group discussion

The transition from individual to group design (Strands B.ii to B.iii) was scaffolded by the ATL skill "Facilitate group discussion". Through continuous teacher-led feedback and iterative dialogue, I supported students in critically synthesizing their individual sketches and rules into a cohesive group project. This process enabled them to evaluate the feasibility of various concepts against functional criteria, ensuring the final group design represents a logical integration of their collective ideas.

MYP 1 - Design (20)25/26 Unit 2 **BETA**: Pen Holder Project

Form, Function, Innovation

Personal and cultural expression

The innovation of an object's form and function through creative craft allows for the creation of beautiful solutions that reflect personal identity.

Topics:

Visual Identity & Mind Mapping: Using keywords to translate personal passions into design concepts.

The Design Cycle (B & C): Developing success criteria and documenting the fabrication process.

Prototyping Techniques: Measuring, cutting, and assembling using various materials (cardboard, plastic, 3D printing).

Sustainable Design: Reusing and upcycling discarded materials.

Communication in Design: Creating process posters to present technical and creative journeys.

Knowledge:

Success Criteria: How to define measurable goals for construction, materials, and aesthetics.

Technical Constraints: Understanding the strengths and weaknesses of different materials (e.g., rigid vs. light cardboard).

Documentation Standards: The importance of "work-in-progress" photography to track the evolution of a project.

Reflective Practice: Recognizing why a design changes during the building phase (Criterion

Aims

Enjoy the design process, develop an appreciation of its elegance and power
MYP subject group objective(s)

B: Developing ideas

i. develop a list of success criteria for the solution

ii. present feasible design ideas, which can be correctly interpreted by others

iii. present the chosen design

C: Creating the solution

ii. demonstrate excellent technical skills when making the solution

iv. list the changes made to the chosen design and plan when making the solution

Self-management: Use appropriate strategies for organizing material and complex
ATL Skills

Self-management

Set goals that are challenging and realistic

Thinking

Generate multiple new ideas, solutions, and inquiries
Description

Self-management

Set goals that are challenging and realistic

This skill is fundamental to the development of the Success Criteria (B.i). Students are required to define design objectives that are both ambitious and technically feasible. Through the creation of the first project poster, they learn to translate functional requirements into measurable criteria, developing the ability to plan their work realistically to ensure the final product meets the established standards.

Thinking

MYP 1 - Design (20)25/26 Unit 3 BETA : Food Design	Change, Invention, Perspective	Scientific and technical innovation	<p>Students are called to be advocates of a change in perspective, an innovation in the way food is tasted and designed.</p> <p>This project is an opportunity to study the processes of production and marketing of snacks in order to propose its own alternative version. It is an activity where you have to put yourself in play and risk to be able to offer unique and alternative solutions.</p>	<p>Topics</p> <p>Introduction to Food Design: Historical Snapshots and evolution of food as a design object; the role of the Food Designer in contemporary industry.</p> <p>Sensory Branding: The relationship between taste perception (the 5 tastes) and visual representation.</p> <p>Packaging and Sustainability: Functional vs. aesthetic requirements of food containers.</p> <p>The Design Cycle in Food Industry: From recipe development to consumer feedback and the final exhibition.</p> <p>KnowWedge</p> <p>Terminology: Specific vocabulary related to food design (e.g., ergonomics of food, sensory experience, visual identity, branding, prototyping).</p> <p>Visual Language: Principles of graphic design, color theory in food marketing, and the anatomy of a logo.</p> <p>Materiality: Knowledge of different materials used for physical modeling (cardboard, clay, recycled materials) and their properties.</p> <p>Skills</p> <p>Analytical Skills: Deconstructing existing products to identify successful design features (Criteria A, B, C, D)</p>	<p>Aims</p> <p>Enjoy the design process, develop an appreciation of its elegance and power</p> <p>MYP subject group objective(s)</p> <p>A: Inquiring and analysing</p> <p>iii. describe the main features of an existing product that inspires a solution to the problem</p> <p>B: Developing ideas</p> <p>ii. present feasible design ideas, which can be correctly interpreted by others</p> <p>iii. present the chosen design</p> <p>C: Creating the solution</p> <p>ii. demonstrate excellent technical skills when making the solution</p> <p>iv. list the changes made to the chosen design and plan when making the solution</p> <p>D: Evaluating</p> <p>iii. outline how the solution could be improved</p> <p>iv. outline the impact of the solution on the client/target audience</p>	<p>ATL Skills</p> <p>Communication Communicating information and ideas effectively using appropriate style (Descriptor created by us)</p> <p>Self-management Set goals that are challenging and realistic Description</p> <p>In order to Develop ideas (B, ii, iii), students will develop Communication skills by communicating information and ideas effectively using appropriate style. They will achieve this through the creation of detailed sketches and visual transpositions that clearly articulate their design concepts. Furthermore, they will produce a final poster designed to synthesize the entire design cycle in a linear, accessible, and professional manner, ensuring that the project's evolution and rationale are clear to an external audience.</p> <p>In order to Create the solution (C, ii, iv), students will develop Self-management skills by setting challenging and realistic goals for their production phase. They will establish</p>
Design (MYP2) MYP 2 - Design (20)25/26 Unit 2 BETA : Geometric Construction Unit	Evaluation, Function, Systems	Scientific and technical innovation	<p>Using geometric systems to create functional models allows for an objective evaluation of how mathematical rules govern the performance of a product.</p>	<p>Topics:</p> <p>Fundamental Geometric Constructions: Mastering 10 core problems, including perpendicular bisectors, triangles (equilateral, isosceles, right), and quadrilaterals (squares, rhombuses).</p> <p>Technical Drawing Literacy: Proper use of 2H and HB pencils to distinguish between construction lines and final outlines.</p> <p>Kite Engineering: Applying triangular and deltoid geometry to create stable, flying structures.</p> <p>The "Reverse" Design Plan: Moving from following teacher-led steps (Geometric Problems) to authoring a personal construction manual (Kite Project).</p> <p>KnowWedge:</p> <p>The 10 Construction Protocols: The exact sequence of compass arcs and ruler alignments needed for each basic figure.</p> <p>The Mathematics of the Deltoid: Why the "Kite" shape requires specific symmetry and angle properties to maintain balance in the air.</p> <p>Criterion B vs. Criterion C: The difference between a theoretical technical drawing (the plan) and a physical prototype (the result).</p> <p>Skills:</p>	<p>Aims</p> <p>Enjoy the design process, develop an appreciation of its elegance and power</p> <p>Develop knowledge, understanding and skills from different disciplines to design and create solutions to problems using the design cycle</p> <p>MYP subject group objective(s)</p> <p>A: Inquiring and analysing</p> <p>ii. construct a research plan, which states and prioritizes the primary and secondary research needed to develop a solution to the problem</p> <p>iv. develop a design brief, which presents the analysis of relevant research</p> <p>B: Developing ideas</p> <p>ii. present a range of feasible design ideas, which can be correctly interpreted by others</p> <p>iii. present the chosen design and outline the reasons for its selection</p> <p>C: Creating the solution</p> <p>ii. demonstrate excellent technical skills when making the solution</p> <p>iv. explain changes made to the chosen design and plan when making the solution</p> <p>D: Evaluating</p> <p>ii. explain the success of the solution against the design specification</p> <p>iii. describe how the solution could be improved</p>	<p>ATL Skills</p> <p>Self-management Reflect on and evaluate content learning</p> <p>Thinking Identify connections (patterns, relationships, trends Description</p> <p>Thinking</p> <p>Identify connections (patterns, relationships, trends)</p> <p>This skill is fundamental during the technical drawing phase (Criteria A and D). Students must identify the logical and geometric connections between the different construction steps of geometric figures. This ability allows them to establish the correct sequence of operations (A) and to identify where the logical chain was broken in an incorrect drawing (D), proving they understand geometry as a system of relationships rather than isolated lines.</p>

MYP 2 - Design (20)25/26 Unit 2 BETA (<i>Lab Design</i>): Tell a story with Sphero	Collaboration, Communities, Invention	Scientific and technical innovation	The invention of a synchronized narrative requires the integration of all previous technical functions and new logical models to achieve effective collaboration within a system.	<p>Topics:</p> <p>Comprehensive Block Programming: Simultaneous use of Movement (Roll, Heading, Spin), Lights (Main LED, Fade, Strobe), and Utilities (Delay, Speak).</p> <p>Advanced Logic Extensions: Integrating Loops for repetitive actions and Sounds for narrative cues.</p> <p>Temporal Alignment: The math behind synchronizing multiple "Wait" and "Delay" blocks across different programs.</p> <p>Physical Character Design: Building 3D structures that interpret a role without obstructing the Sphero's sensors or movement.</p> <p>Knowledge:</p> <p>The Full Syntax: How to combine Spin and Speed for circular movement while simultaneously using a Loop.</p> <p>Resource Management: Every studied block must be present at least once in each student's individual code.</p> <p>Criterion C (Modifications): Identifying why a physical model might require a change in the original code (e.g., more speed needed for a character).</p> <p>Skills :</p>	<p>Aims</p> <p>Enjoy the design process, develop an appreciation of its elegance and power</p> <p>Develop knowledge, understanding and skills from different disciplines to design and create solutions to problems using the design cycle</p> <p>MYP subject group objective(s)</p> <p>A: Inquiring and analysing</p> <p>iii. analyse a group of similar products that inspire a solution to the problem</p> <p>iv. develop a design brief, which presents the analysis of relevant research</p> <p>C: Creating the solution</p> <p>ii. demonstrate excellent technical skills when making the solution</p> <p>iv. explain changes made to the chosen design and plan when making the solution</p>	<p>ATL Skills</p> <p>Communication</p> <p>Communicating information and ideas effectively using appropriate style (Descriptor created by us)</p> <p>Social</p> <p>Use group roles to clarify and organise individual responsibilities</p> <p>Description</p> <p>Communication</p> <p>Communicating information and ideas effectively using appropriate style (Descriptor created by us)</p> <p>This skill is central to Criterion C. Students must communicate their project using various styles: block-based programming language, technical path descriptions, and the explanation of changes made (C.iv). The ability to present technical and creative choices clearly is essential for documenting the construction process of the scenery and the character models.</p>
MYP 2: Design (20)25/26 - Unit 1 BETA (<i>Lab Design</i>): Block programming part 1.	Evaluation, Function, Logic	Scientific and technical innovation	The application of computational logic to program the function of a system allows for the evaluation and creation of precise automated solutions.	<p>Master Complex Sequences: Build a program that uses the entire "Block programming part 1" Topics:</p> <p>Computational Logic: Sequences, delays, and loops.</p> <p>Sphero Block Library: Deep dive into movement (Roll, Heading, Spin), lights (Fade, Strobe), and sound (Speak).</p> <p>Robotic Navigation: Calculating time/distance ratios (e.g., 50 cm = 1.35s at speed 20).</p> <p>Genoa's Cultural Heritage: Analysing historical landmarks to create a digital narrative.</p> <p>Debugging Strategies: Identifying logical vs. technical errors in a program.</p> <p>Knowledge:</p> <p>Block Parameters: The difference between Spin (rotating on axis) and Spin + Speed (circular movement).</p> <p>The Design Brief (A.iv): How to synthesize long texts into essential "Speak" commands.</p> <p>Testing and Debugging (D.ii): How to use a map as a reference to verify a program's accuracy.</p> <p>Hardware Constraints: How surface friction affects Sphero's speed and heading.</p> <p>Skills:</p> <p>Program: Build a complete autonomous tour of Genoa using block-based coding (A)</p>	<p>Aims</p> <p>Use and apply technology effectively as a means to access, process and communicate information, model and create solutions, and to solve problems</p> <p>MYP subject group objective(s)</p> <p>A: Inquiring and analysing</p> <p>iii. analyse a group of similar products that inspire a solution to the problem</p> <p>iv. develop a design brief, which presents the analysis of relevant research</p> <p>D: Evaluating</p> <p>iii. describe how the solution could be improved</p>	<p>ATL Skills</p> <p>Self-management</p> <p>Reflect on and evaluate content learning</p> <p>Thinking</p> <p>Analyse complex information</p> <p>Description</p> <p>Thinking</p> <p>Analyse complex information</p> <p>This skill is fundamental to Criterion A (iii) and D (iii). In the debugging and path-finding exercises, students must analyse complex information by deconstructing block-based logic and urban maps. Instead of simple trial and error, they evaluate the relationship between different variables, loops, and conditional statements. By analyzing pre-written code on paper, students demonstrate a deep understanding of logical structures, identifying errors and reconstructing the program based on a rigorous analysis of technical data.</p>

MYP 2: Design (20)25/26 Unit 1 **BETA**: Geometric patterns. Relationships, Form, Invention

Scientific and technical innovation The invention of complex forms through technical processes reveals the relationships between geometry and innovative design solutions.

Topics: Insights into the History of Ornament: Brief focus on Greek and Roman patterns and their geometric structures (connected to Visual Arts).

Technical Drawing Fundamentals: Use of set squares (45° and 30°/60°), compasses, and varied pencil leads (2H/HB).

Geometric Construction: Grids, tessellations, and symmetry.

Introduction to CAD (Computer-Aided Design): Basics of Tinkercad (solid vs. hole, grouping, aligning).

Additive Manufacturing: Basics of 3D printing (slicing, filaments, and 3D printer operation).

Knowledge:

Technical Standards: Layout of a drawing sheet and precision requirements.

Pattern Logic: How simple shapes repeat to create complex visual relationships.

3D Design Principles: Transitioning from a 2D sketch to a 3D object suitable for printing (stamps).

Material Properties: Understanding how 3D-printed textures interact with other materials like clay or ink.

Skills:

Aims: Enjoy the design process, develop an appreciation of its elegance and power. Appreciate past, present and emerging design within cultural, political, social, historical and environmental contexts. MYP subject group objective(s)
B: Developing ideas
 iii. present the chosen design and outline the reasons for its selection
C: Creating the solution
 ii. demonstrate excellent technical skills when making the solution
 iii. follow the plan to create the solution, which functions as intended

ATL Skills
 Self-management: Use appropriate strategies for organizing material and complex information
 Thinking: Generate multiple new ideas, solutions, and inquiries
 Description
 Self-management: Use appropriate strategies for organizing material and complex information

This competence is directly linked to Criterion C (ii and iii). To achieve technical excellence and precision, students must manage specific tools (set squares, compasses, graded pencils) and maintain an organized workspace. The ability to bring the necessary materials and follow a logical construction sequence is essential for meeting deadlines and ensuring fidelity to the design plan, which ultimately guarantees that the final prototype is viable for 3D printing.

Design (MYP3)

MYP 3 - Design Unit 1 **BETA** 2025/2026: Methods of drawing representation. Communication, Form

Personal and cultural expression Craft, Creation The different methods of drawing representation are important forms of communication achieved through craft handed creations: the different visual perspectives allow us to express our personal expression in an universal drawing code.

Please note that the usual approach of the didactical learning of the subject is adapted during this year (MYP3) to the requirements of the exam of "Terza Media", that is the Italian National Exam done at the end of MYP3. For this reason the approach used is to orient the students towards such exam and to consider the didactical national standards. Students will learn to use in the proper way 2 core methods of representation:

- Orthogonal projections
 - Axonometric projections
- Becoming expert in these 2 methods of representation allows them to be able to represent in a powerful way with the drawing methods the World around them. They learn how to use these 2 methods using 2 different approaches: the one of technical drawing and the one of sketch technique, even though these approaches are very different in the execution, they are using the same concept approach.

Through the sketch technique skills students learn this important drawing method that allows them to represent in an immediate way the concepts they have in their mind only using a sketchbook and a pencil; through the technical drawing skills students learn how to draw with rigorous and precise approach using the proper tools in an effective way. Students learn how to use in the proper way the material to create the technical drawings. The most important practical skills they have to learn are:

- proper use of squares to draw parallel lines
 - proper use of the pencils to differentiate the stroke
 - proper use of the compass to draw "clean" arches
- Associated to these they gain some conceptual skills that enable them to represent the drawings in the proper way:
- capability of visualizing the 3D shapes using the orthogonal projection perspectives and representing them correctly
 - capability of 3D visualization when using the axonometric projections methods

Students will be assessed with specific tests about orthogonal projections and axonometric projections.

In both cases they will have to produce a technical drawing from scratch using their knowledge and their skills.

In those tests students will be required to communicate in the proper way using the drawing techniques. The tests will be assessed using **criteria B and C**: criterion B will evaluate how well the concepts were understood and applied by students, criterion C will evaluate how well they managed the material and they achieved a clean and precise drawing. Criteria B and C are used to evaluate the technical drawings done with precision and proper use of the traditional tools (compass, rulers, squares, pencils and so on).

The **criterion A** will be used to test the students in a test that is much more declined to conceptual challenges and for this reason the use of technical drawing material will not be considered for this test: students will have to sketch by hand, demonstrating a proper understanding of concepts related to orthogonal projections and axonometric projections. This test is focused on the "inquiring and analysing" aspect, students need to inquire themselves on different situations related to the drawing representations and need to come up with their analysis through the construction of sketch solutions. The fast nature of sketching allows to obtain a result that is extremely different from the technical drawing execution, still enabling the

Self Management: Use appropriate strategies for organizing material and complex information.
 Creating a technical drawing requires dedication and in order to do it in the proper way students need to plan strategies to reach that goal, taking then action with the correct approach: students need to bring all the necessary equipment to school, organizing effectively the material that they are using to obtain varied results. If they are not managing the material in the proper way the final result is strongly compromised.

Thinking: Generate multiple new ideas, solutions, and inquiries

In this unit, students transition from 2D orthographic projections to 3D axonometric representations. They practice generating multiple solutions for spatial visualization by exploring different drawing methods and orientations. By testing various axonometric perspectives to represent a single object, students must determine the most effective way to communicate complex three-

MYP 3 - Design Unit 2
BETA 2025/2026:
 Renewable and no-renewable sources of energy

Sustainability, Resources.

Globalization and sustainability. Human impact on the environment

The evaluation of the complex systems allowing us to generate energy and the consequent human impact on the environment in the process of generation clearly dictates the need to prefer more sustainable systems of energy generation having less impact on the natural resources.

Please note that the usual approach of the didactical learning of the subject is adapted during this year (MYP3) to the requirements of the exam of "Terza Media". For this reason the approach used is to orient the students towards such exam. The different topics that will be covered can be divided in no renewable sources of energy and renewable ones. After a first introduction to what is energy and how we're using it, the topics that will be covered in relation to no renewable sources of energy will be:
 - Oil: its extraction and use, the system of refinement, limitations and risks associated to this source of energy
 - Nuclear energy: how it's obtained, strengths and risks associated to it
 - Hydroelectric energy: the positive aspect of the production of energy with such method that anyway presents risks and downsizes
 - Solar energy: the different ways in which this source of energy can be used
 - Wind energy: the great potential for this source of energy that is affected anyway by evident limitations

The summative assessment will be based on written tests structured with multiple choice questions and open ended questions. Close to each question of the test, the students can see the number of maximum points they can achieve for each question.

Criterion D: Evaluating
 Description:

The MYP criterion D is used to evaluate the level of knowledge of the students. Considering the nature of this criterion and its role in the design cycle, we must underline that the way in which it is assessed is an adaptation to the specific characteristics of the MYP3 programme that is influenced by the exam of "Terza media". As written in one of the previous sections, at the end of MYP3 students face this exam and the programme, as the evaluation using the criteria, need to be adapted to the specific features of the examination that is taking place in Italian schools. Due to this reason the criterion D, about evaluating in the design cycle, is adapted to the concept of evaluation of the different energy sources, to the evaluation of their features and so on with the need for the students to show evidence of proper acquisition of theory concepts.

Thinking SKILLS:
 Analyse complex information

Students practice this skill by deconstructing multifaceted information from readings and videos to identify the strengths, weaknesses, and potential threats of different energy sources. This analytical approach is essential for Criterion D, as it enables students to move beyond generalisations. By analysing data, they develop the critical thinking necessary to evaluate the real-world impact of energy solutions (D.iv) and to propose logically justified improvements (D.iii) based on technical awareness rather than superficial opinions.

Self-management:
 Reflect on and evaluate content learning

In Criterion D, students reflect on and evaluate their understanding of complex energy systems. They assess how their critical thinking evolved through the analysis of trade-offs (pros/cons), allowing them to evaluate the real-world impact of their solutions and reflect

Design (MYP4)

MYP 4 - Design Unit 1
BETA 2025/2026:
 DESIGN of an APP. Prototyping and testing, keys for innovation.

Markets and trends, Invention.

Personal and cultural expression. Entrepreneurs hip. Practice and competency.

The development of the prototype of an app represents a perfect chance to come up with an invention that is the result of personal driven motivation, thus leading to catch the perception of entrepreneur approach based on personal inspiration and at the same time necessity to meet the needs of the users and the trends of the society in order to be successful in the market.

The idea of a design process that continuously focuses on the needs of the user and is somehow strictly related to the way in which the IBO DESIGN CYCLE has been developed. In the world of technology and APPS the requirement to have a constant contact with the users has become of vital importance, much more than in the past. The way a product is developed is today strictly related to the feedbacks received during the design process, being able to fast prototype a product and testing has become a key for the success. Prototyping and testing are 2 key elements of the design process. In this unit they are applied to a kind of product that in the last decade has been diffused and used from a huge numbers of users: SMARTPHONE APP.
 - Skills explored and developed in the unit:
 - The sketch techniques used to define the basic wireframes that describe the structure of the app, its functionalities and its core principles- The proper approach to design the APP using a vectorial software- The use of a vectorial software to create 2 versions of the design: the "grey" version with grey colors, basic structure and no pictures and the "final" version with definitive colors, symbols and pictures. The specific capability to use a vectorial digital software is acquired through practice and formative experiences. The students learn to use the software with a gradual curve of learning that is bringing them to manage it in the proper way to design their solution.

Students need to demonstrate capability of managing the design cycle from the early stage to the final evaluation. Knowledge explored in the unit.

Cr. A:
 Understanding of the need of the users as starting point for the creation of each APP entering into the market. The comparison chart as a tool to present effectively the differences among different products (in this case APPS), analysing the competition in a detailed way with authentic test of the other APPS done by the students
 The single page graph as a tool to summarize the distinctive features of a product
Cr. B:
 The user chart as a method to visualize effectively the structure of the APP and the steps the user is going through to perform an action.
Cr. C:
 The guidelines of an effective and well designed APP.

Cr. D:
 The evaluation of a product accomplished through questions to the users using surveys and questionnaires showing the design of the app that represents in this case the "prototype" of the product.
 Concepts explored in the unit:
 - The brainstorming method to explore possible perspectives of development of ideas, use of insightful approach through

Thinking:
 Analyse complex information. (Criterion A)

In Criterion A, students practice this skill primarily during the investigative phase. For strand ii, they must analyse complex information gathered through online research and user surveys/interviews. This requires them to filter large amounts of raw data to identify recurring problems and user needs. Furthermore, in strand iii, they apply this analytical depth to a comparison chart of existing apps, deconstructing their technical and functional features. This process of analysing and comparing diverse sources allows students to move beyond a superficial understanding, providing a solid, data-driven foundation for their Design Brief.

Self-management:
 Reflect on and evaluate content learning. (Criterion D)

This skill is central to Criterion D. After sharing their visual prototypes and collecting user feedback through structured surveys, students

MYP 4 - Design Unit 2
BETA 2025/2026:
 Function, Innovation, Infographics.

Scientific and technical innovation. Ingenuity and progress, Industrialization and engineering. The history of industrial design is characterized by ingenuity of designers of the past at the service of Industrialization: the function of an infographic is to communicate such design innovations with an engaging and effective layout.

Students will be engaged in the analysis of different topics of the History of Design, every one of them will be assigned with a topic to base the research on. First the students will conduct a research on the topic using the Web and collecting appropriate images (STEP A of DESIGN CYCLE). They will have to use varied sources to investigate the topic from different perspectives, the collection and citation of the sources and the analysis of at least 2 of them will be mandatory. In the second part students will be requested to sketch by hand (STEP B of DESIGN CYCLE) the structure of the Infographic with the purpose to find the perfect balance between conveying information and getting an interesting and aesthetically pleasing aspect of the Infographic that should be engaging and easy to read by the user. The students have to sketch by hand different, varied solutions and then decide among them which one would they consider to bring forward in the design process with justification. In the following step the students work on the step C, Creating the solution. Having already gained knowledge and practice on the software Indesign, students will be able to design the Infographic with such software in an easier way: they are supposed to design a definitive final digital version of their idea of the infographic based on the choice they have made in the step B. The solution should be connected to the sketch they have chosen in the step B but it can present some iterations based on reasoning in order to improve the final communication. The unit is then finalized with the presentation by each student of the INFOGRAPHIC that has been designed, outlining briefly in front of the peers the main features of the topic that was analysed.

A: Inquiring and analysing
B: Developing ideas
C: Creating the solution
 Description

For every criterion of evaluation of the project the students will have to upload a presentation with the development of the single task for that criterion: in this way if some weaknesses are outlined in one criterion, there will be still some space for improvement for the students in the following tasks.

Students need to demonstrate excellent capability of managing the design cycle from the early stage to the final evaluation, for this reason the criteria A, B, C are evaluated in this project.

The students will carry on a research on one topic related to the history of Design, the capability to organize and manage information in the proper way will be paramount for the achievement of a satisfactory result for the criterion A.

In the following 2 tasks the students move from the sketch of varied solutions by hand (step B) to the final digital design using the software Indesign (step C).

At the end of the unit they will have acquired awareness of the power of the infographic as a tool to communicate to others in an innovative way by putting that into practice with an

ATL SKILL 1: Research: Evaluate sources

By planning in an organized way the strategy to acquire the variety of information connected to their research in the STEP A, students train on this important ATL skill that will be paramount in their academic future.

The students need to analyse different sources for their topic of research on the History of Design. Their approach for the research must consider different, varied sources that can give a wide perspective on the topic that was assigned to them, understanding the importance of comparing them to come up with a conclusive piece of text to be inserted in their infographic design.

Self-management:
 ATL SKILL 2: Self management: Use appropriate strategies for organizing material and complex information

By developing feasible ideas to structure the information related to their topic in the STEP B and C, visualizing the most effective solution for the infographic, students use a strategy for organizing and prioritizing content from varied

Design (MYP5)

MYP 5 – UNIT 1 **BETA**
 2025/2026: Redesign
 of a packaging
 Innovation, Markets and trends, Sustainability.

Scientific and technical innovation, Products, Processes and solutions. The system through which designers innovate the products we use every day is with a process of alternatives and iterations to find the best solution that is not only differentiating itself from usual trends in the markets but it's also aimed to sustainability becoming in such way distinctive.

The students are introduced with the topic of packaging design. They get to know the various reasons behind the use of packaging and the reason why it is so important in the modern world. The concepts of marketing, sustainability are paramount in this unit and they are introduced with clear reference to existing packaging designs. Then the students are required to analyse a situation where an existing packaging could be improved with their intervention, doing a redesign. They pick up a situation where an existing packaging is presenting space for improvement in connection to the functionality and or to the aesthetics and marketing and or to the sustainability. Watching the sample developed and presented by me the students have the possibility to get to know how to proceed in the process of the development of the design cycle. After identifying and analysing a problematic situation where an existing packaging exists, students are required to propose possible alternative ways for the redesign of such packagings using the sketch technique and the creation of physical models. The process of development requires to apply and to clearly present meaningful iterations for their design proposals and in such a way moving in the direction of designing a final packaging proposal using a graphic software (Inkscape). The last step of the unit requires students to exchange among themselves their designs to proceed with the evaluation, outlining the possible improvements of such solutions. The process of exploring differentiated solutions is something the students already faced in other units in MYP4, anyway conceptually the great difference in this unit is that they are required also to develop and to present proper iterations that can improve their design solutions in a process that should present itself as creative and critical at the same time.

All the criteria of the design cycle will be tested through this unit. Students' works will be assessed in their capability of exploring a proper problem, proposing innovative solutions with an iterative approach, choosing a proper solution based on external feedback, designing it with precision with digital software and lastly evaluating its success in relation to the initial specifications.

MYP Assessment Criteria
A: Inquiring and analysing
B: Developing ideas
C: Creating the solution
D: Evaluating

Self-management:

Reflect on and evaluate content learning:

During the evaluation phase (Criterion D), students practice the skill to reflect on and evaluate their learning by performing a rigorous self-analysis of their final mock-up. They are required to move beyond a simple description, identifying the specific strengths and weaknesses of their redesign in relation to the initial goal. By reflecting on the challenges faced during the development and the logical steps taken from the initial concept to the final prototype, they justify the success of their solution. This analytical process allows them to explain how the packaging could be improved (D.iii), demonstrating a professional mindset focused on continuous design iteration and the critical assessment of their own technical growth.

Thinking:

Generate multiple new ideas, solutions, and inquiries

In the packaging redesign process during the

MYP 5 – UNIT 2 BETA Invention, 2025/2026: Problem, Adaptation, need, design, solution.

Orientation in space and time, Evolution

The invention is made possible through a balance between insight, rational approach, dedication, technical knowledge and initiative: the evaluation of the weaknesses of existing solutions and possible improvements in the way we interact with them allows the designers to propose inventions that often are adaptations of existing solutions with novel developments and connections.

The use of the design CYCLE will be at the base of the results in this unit. The students need to identify a situation where there is problem in the way the users are living their everyday life. The situation can be identified in many different fields, spanning from a situation they notice in their house, a problem in the sport activity they are doing, in the hobby they are passionate about, in the way a problem was reported from a family member or noticed in the community. This complete freedom is putting them to the test simulating somehow also how they should identify the problem in the DP course: as this one is the last unit of MYP for Design, the goal is also to give to the students an experience of work similar to the Internal Assessment, done in the DP years. In this way they are able to better understand if the journey of Design Tech in the DP would be something they would potentially enjoy or not. The development of the projects in the case of this unit is limited to 2 proposals, nevertheless they should present a proper level of critical approach while developing them (as shown in the sample presented by the teacher). The goal is to arrive to produce a set of engineering drawings in the step C (with the use of the software), drawings that could be potentially used for the production by a third party.

The assessment of the tasks of this unit will consider the entire design cycle, with criteria A, B, C, anyway only some strands will be considered in order to focus on the most important aspects of the development, considering also the limited amount of time and the requirement to give continuous feedback to the students and help them with the use of the software.

Specific presentations are prepared by the teacher in which reference samples, prepared ad hoc by the teacher, are offering the opportunity for students to understand what they are required to do.

The **criterion A** is evaluating their presentation for the analysis of the problem they identified, the structure of the presentation is pushing them to investigate their problem with a proper level of depth.

In the **criterion B** the evaluation is considering the work done by students to present possible proposals that could have the potential to solve the problem, this step is accomplished exclusively with the sketch by hand technique. The core concepts associated to this step are the differentiation of the proposals and the iterative approach used to improve the proposals.

In the **criterion C** students are required to come up with a solution that is the best evaluation of their best proposal and to

ATL SKILL 1: Thinking: Consider ideas from multiple perspectives

The students are required to develop 2 different proposals. It is paramount, in their design process, to iterate those proposals using a method of critical approach, considering multiple perspectives on the design they have proposed: analysing the functional requirements, the feasibility, the environmental impact, the aesthetic just to name a few. The presentation of the sample, presented by the teacher, is giving them the opportunity to appreciate the iterative development through critical analysis of multiple perspectives.

ATLSKILL 2: SelfManagement: Use appropriate strategies for organizing material and complex information

The students will apply the use of a graphic software to propose their final solution in the step C, presenting proper engineering drawings. The use of a software like this requires being organized, following a certain