



Matija Gubec International School Zagreb

# Subject Overviews

## MYP 0

## Design



# **MYP0: DESIGN**

## **Unit 1: Zagreb City Attractions Mapping**

This unit introduces students to the MYP Design cycle while at the same time uses the city they live in as a stimulus for design expression. The students will solve design problems learning about Zagreb cultural-historical sights and creating a sign/installation to map the top places in the city they live in.

**Key Concept:** Communication

**Related Concepts:** Adaptation

**Global Context:** Identities and relationships

**Statement of Inquiry:** We communicate through designs finding ideas in one product and incorporating them into the development of a new product.

### **Main Content Addressed:**

- design cycle
- exploring most amusing places in Zagreb during the city tours and field classes
- examining some icons and symbols to notice their design and symbolism
- formulating a design specification
- sketching and developing design ideas
- comparing each design against the design specification
- making a step-by-step plan
- creating an installation to “make the city alive”
- product testing and evaluation

## **Unit 2: National Handicraft Items**

The students appreciate the heritage and variety of other cultures; get to know the background in which particular national items and festive decorations were developed, share experiences of and between different cultures or nationalities and raise multicultural awareness. The students design and make a unique national handicraft item to promote the heritage and tradition of their country of origin.

**Key Concept:** Development

**Related Concepts:** Perspective

**Global Context:** Identities and relationships

**Statement of Inquiry:** The development of products should always take cultural aspects into consideration.

**Main Content Addressed:**

- national handicraft items and festive decorations: shape, structure, patterns, symbolism, historical and cultural background
- designing and making a unique national handicraft item



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# Subject Overviews

## MYP 1

## Design



# MYP1: DESIGN

## Unit 1: Designing and Making a Jewellery Box

Following the MYP Design cycle the students raise their understanding of the concepts and importance of the design specification for the product/solution and learn how to find creative solution to solve the problem. The students design and make a jewellery box for a specific target user developing the creative use of material by understanding its working properties.

**Key Concept:** Communication

**Related Concepts:** Form, Collaboration

**Global Context:** Personal and cultural identity

**Statement of Inquiry:** Each product can be personalised.

### Main Content Addressed:

- examining some jewellery box designs
- investigating properties of materials
- formulating a design specification (function, safety, performance, material, maintenance, anthropometric, ergonomics, target market, appearance, design-aesthetic, durability, reliability, cost, construction techniques, weight)
- sketching and drawing different designs
- making a Gantt chart
- making a step-by-step plan
- making working drawings
- making a jewellery box out of plywood for a target user
- product evaluation and self-evaluation

## Unit 2: Energy Efficient House Design

*Interdisciplinary Unit – Science (Unit: Forms of Energy and Protecting Nature)*

This unit particularly fosters students' understanding of the importance of using alternative sources of energy and including energy efficiency in the design while appreciating the ability of humans to create changes. The students investigate ways that help save energy and design an energy efficient house using the computer program for 3-D modelling.

**Key Concept:** Development

**Related Concepts:** Adaptation, Resources, Sustainability

**Global Context:** Scientific and technical innovations

**Statement of Inquiry:** Right in our home we have the power to save resources, energy and money.

### **Main Content Addressed:**

- architectural symbols
- site and housing plans
- exploring ways in which the environment influences the design and construction of houses around the world
- different styles of houses located in different climates
- construction materials
- different architectural concepts and strategies which help save energy
- features of low energy house designs
- rating the energy efficiency of the house
- designing an energy efficient house using the *Sketch Up* – computer program for 3-D modelling

### **Unit 3: Thinking Hats**

Thinking skills and thinking hats are strategies to help individuals consider a problem, issue or situation from a variety of perspectives. Teachers often use this technique to stimulate discussion and debate in the classroom. Using fabric the students design and make a “thinking hat” for use in the classroom.

**Key Concept:** Communication

**Related Concepts:** Form, Function

**Global Context:** Personal and cultural expression

**Statement of Inquiry:** Effective forms of communication can provide stimulus for the development of products.

### **Main Content Addressed:**

- modelling materials/fabric, anthropometrics
- permanent fabric-joining techniques
- use of appropriate adhesives and materials
- card and paper modelling
- patterns and nets



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# Subject Overviews

## MYP 2

## Design



## **MYP2: DESIGN**

### **Unit 1: Packaging and Logo Design**

Traditional fast-food chains acknowledge they have an image problem. As people express distaste for food they think is overly processed, fast-food chains have been trying to change its fast-food image with healthier meals. They have already adapted their menus but they need a better marketing promotion. The students play a role of designers hired by the chain of fast-food restaurant to change its fast-food image and to promote healthier options (“good food served fast”).

The students raise their awareness of the influence of design on the quality of the product, develop their personal style of designing and enhance their use of design cycle to solve complicated problems. The students design and make a package with a logo for a chain of fast-food restaurant that tries to change its brand image and promote itself as a healthy alternative to other fast food restaurants.

**Key Concept:** Development

**Related Concepts:** Perspective, Markets and trends

**Global Context:** Globalization and sustainability

**Statement of inquiry:** Development of product design can create a different perspective about the quality of the product, change market interest in products and shift established trends.

#### **Main Content Addressed:**

- principles of packaging
- packaging design: appearance, function, safety, reliability, material and construction methods
- logo design: symbolism, messages (slogans) and styles
- drawing the 3-D net
- designing and making a package
- designing a logo using some graphic software
- product testing and evaluation; self-evaluation

### **Unit 2: Presentation Matters!**

This unit of work raises students’ awareness of health issues/hazards in their local community and enables them to devise health and social awareness campaigns within the school and local community using products/solutions developed in technology. The students become aware that health risks and hazards can be reduced through careful design of products/solutions.

After completing initial research into a number of health-related issues and carrying out a survey to assess the pre-campaign awareness level of the issue, the students select one of these issues and devise a multimedia campaign to raise their fellow students’ awareness of the problems. The students become capable of making informed choices regarding health issues and aware of their roles and responsibilities in their local community.

**Key Concept:** Communication

**Related concept:** Form

**Global Context:** Personal and cultural expression



**Statement of Inquiry:** Aesthetic consideration in the presentation of information leads to more effective communication of ideas and reaches out to a target audience.

**Main Content Addressed:**

- aspects of health
- elements of physical, mental and social health
- major health issues among teenagers
- carrying out a survey, analysing and presenting survey results in MS Excel
- different medias and campaign strategies
- devising a variety of campaign solutions
- designing and making a multimedia campaign

**Unit 3: Design Through Waste Minimization Plan (Pasta bridge)**

This unit of work deepens students' understanding and knowledge on structures and forces and enables them to plan and construct a strong frame structure with minimal materials and waste.

The students are expected to examine shell and frame structures, investigate forces, identify differences between classes of bridges, design and test a frame bridge using a computer simulation, make an orthographic drawing, plan the construction of a model so as to minimize waste, create the budget, construct a bridge in accordance with the design and construction plan, test the structural efficiency of the bridge and analyse the results of the performance testing.

**Key Concept:** Systems

**Related Concepts:** Resources, Sustainability

**Global Context:** Globalization and sustainability

**Statement of Inquiry:** Reducing waste is an important sustainable and environmentally sound strategy.

**Main Content Addressed:**

- frame and shell structure
- four classes of bridges and their weaknesses and strengths
- investigating the forces affecting the structures in bridge design and their impact on bridge design
- constructing and testing the frame bridge using a computer simulation *West Point Bridge Designer*
- making a budget plan: recording measurements of the structural members in the bridge design, amount of material and costs of the bridge members
- economical use of materials
- planning and constructing a strong frame structure with minimal materials and waste
- testing the structural efficiency of the pasta bridge



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# Subject Overviews

## MYP 3

## Design



## **MYP3: DESIGN**

### **Unit 1: Our School**

The students are expected to examine the classrooms and school environment and re-evaluate their design and functionality taking into account the specific needs of intended users in order to come up with their own creative solutions for improving school learning environment. The students enhance their excellence and independence while taking action to create solutions and products to solve their own and other people's problems and to produce ideas that demonstrate imagination, creativity and resourcefulness.

**Key Concept:** Communities

**Related Concepts:** Function, Collaboration

**Global Context:** Identities and relationships

**Statement of Inquiry:** Interaction with target audiences ensures products are developed to fulfil their personal needs.

#### **Main Content Addressed:**

- re-evaluating the design and function quality
- identifying and taking into account the specific needs of users
- examining the classrooms and school environment
- creating different useful items to improve the school environment

### **Unit 2: Eco-Friendly Furniture**

This unit deepens students' awareness of the great importance and application of green design concepts of ergonomics for health, comfort and efficiency. The students expand their knowledge and develop their skills in structural design (at a full-size scale), which integrates function, ergonomics and aesthetics.

The students investigate the usage of ergonomics and anthropometrics in design and gather proper anthropometric data of the intended users in order to ergonomically design a piece of furniture they decide to make. Taking in consideration forces affecting the structures in furniture design and properties of material along with their environmental impact, the students provide a range of designs, make a plan of production and create an eco-friendly piece of furniture using tools safely and effectively.

**Key Concept:** Systems

**Related Concepts:** Ergonomics, Function

**Global Context:** Fairness and development

**Statement of Inquiry:** Systems that are designed to meet an individual's ergonomic requirements can increase their ability to function.

### **Main Content Addressed:**

- use of ergonomics and anthropometrics in design
- ergonomically correct computer use
- collecting anthropometric data of the intended users
- investigating construction techniques taking in consideration forces affecting the structures in furniture design and properties of materials along with their environmental impact
- sketching and drawing furniture designs in 3-D
- making a step-by step plan and working drawings
- designing and making an eco-friendly piece of furniture
- determining and testing the structural efficiency

### **Unit 3: Designing a Shelter Against Natural Disaster**

The students design a model of shelter to protect against a natural disaster using the computer program for 3-D modelling. Before stating the design specification student choose a site with a specific climate and a type of disaster.

**Key Concept:** Development

**Related Concepts:** Invention, Adaptation

**Global Context:** Orientation in space and time

**Statement of Inquiry:** A consequence of changing climates is the search for technological solutions that can save people's lives.

### **Main Content Addressed:**

- investigating features of a good shelter (strengthening features)
- natural disaster: causes and effects, geographical and climate features
- needs for survival
- water and power supply
- designing a shelter using the computer program for 3-D modelling