GAMIFYING THE ENERGY-WATER NEXUS – THE WATER UTILITY GAME

Ghajn: National water Conservation Awareness Centre

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GHAJN CENTRE

- Opened its doors 2017
- Norwegian Grants
- Educational Programme (LIFE 16)

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AIMS OF THE GHAJN CENTRE

- to educate the visitor,
- introduce the visitors to Malta's traditional water resources,
- highlight Malta's water scarce conditions,
- promote current innovations in the Maltese sector,
- highlight the local importance of ecologically significant areas sustaining groundwater dependent ecosystems and
- introduce visitors to the Water Framework Directive

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VISITORS AT GHAJN

- Local school students
- Summer school students
- Corporate employees
- General Public (groups)

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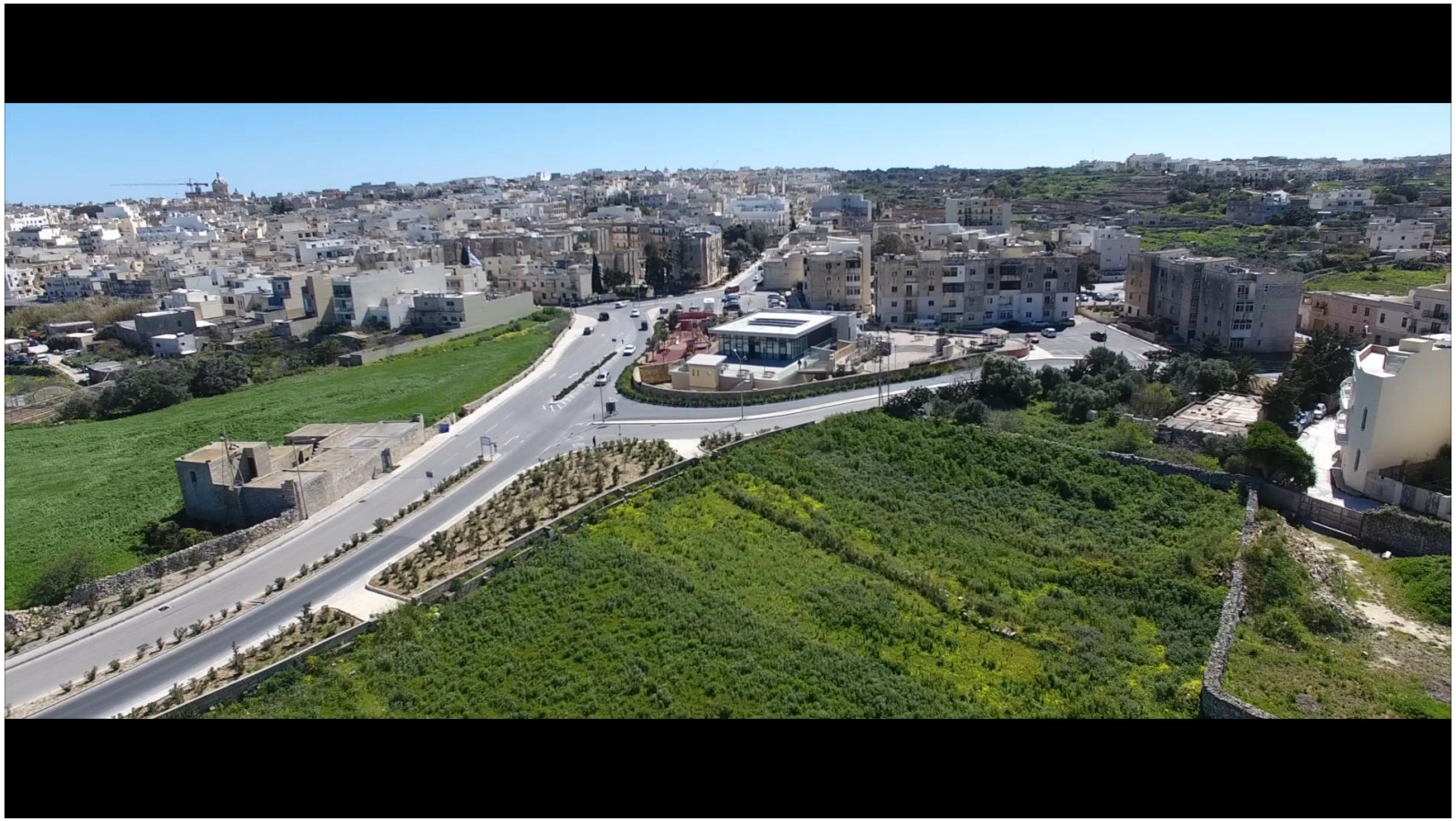
GHAJN: NATIONAL WATER CONSERVATION AWARENESS CENTRE



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THE EDUCATIONAL PROGRAMMES:

- It is facilitated by educators
- We cater for a group of students with an average class size ranging from 20 to 25 students
- We address students from different age groups and different abilities.
- We address students from a number of different schools in Malta and Gozo.
- To raise awareness on the scarcity of natural water resources in the Maltese Islands and to promote water conservation and energy efficiency amongst the younger generation.
- 3 hr programme

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STUDENT CENTRED LEARNING :

Student-centred learning refers to a

- wide variety of educational programs,
- learning experiences, instructional approaches,
- academic-support strategies mainly through different types of teaching aids and resources

These are intended to

- address the distinct learning needs, interests, aspirations, or cultural backgrounds of individual students and groups of students.
- wide variety of educational methods,

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INFORMAL EDUCATION

- Traditional resources
- Digital learning resources
- Non-classroom setting
- No time setting
- Fun way of learning

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THE INTERACTIVE GAMES

- Weather Station
- 2 Interactive Sandboxes
- 8 Wall touch Screens
- 4 Main Interactive Screens

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EDUCATIONAL PROGRAMME:

- Interactive Digital Games
- Adapted Classic Games
- Puppets and Puppet Scripts
- Accompanying Exercise books in both Maltese and English

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THE RENEWABLE PUPPETS

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PUPPET PRODUCTIONS

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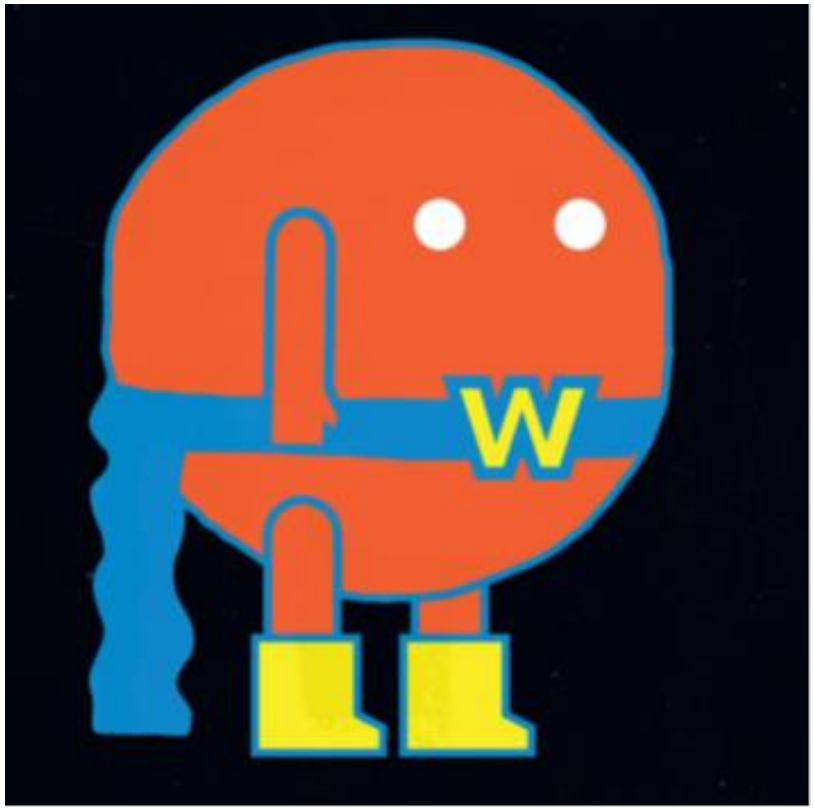
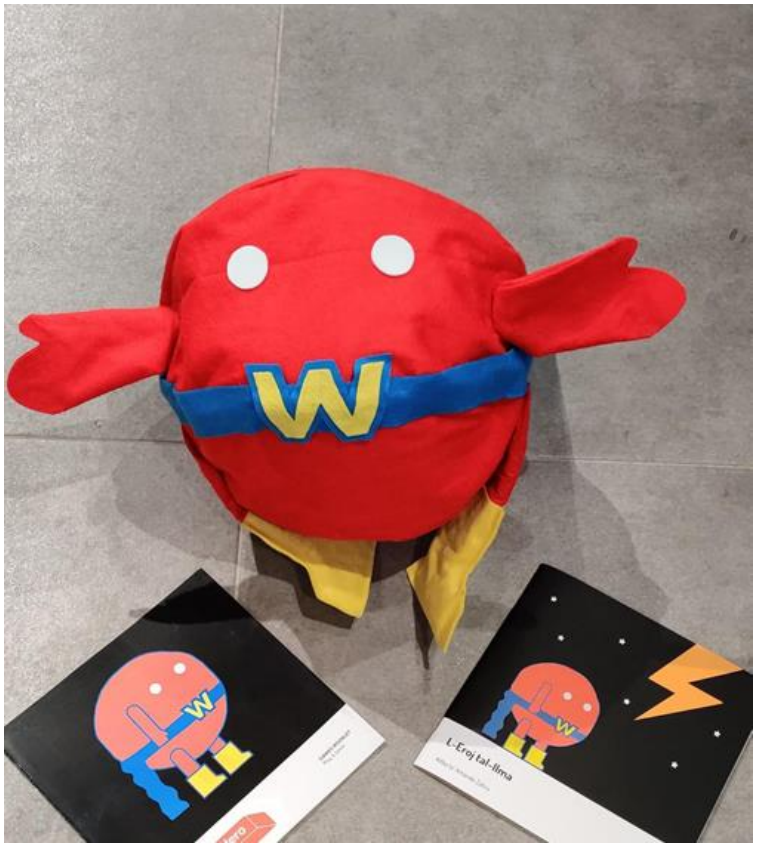
THE WATER HERO TEACHING AIDS





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EXERCISE BOOKS:

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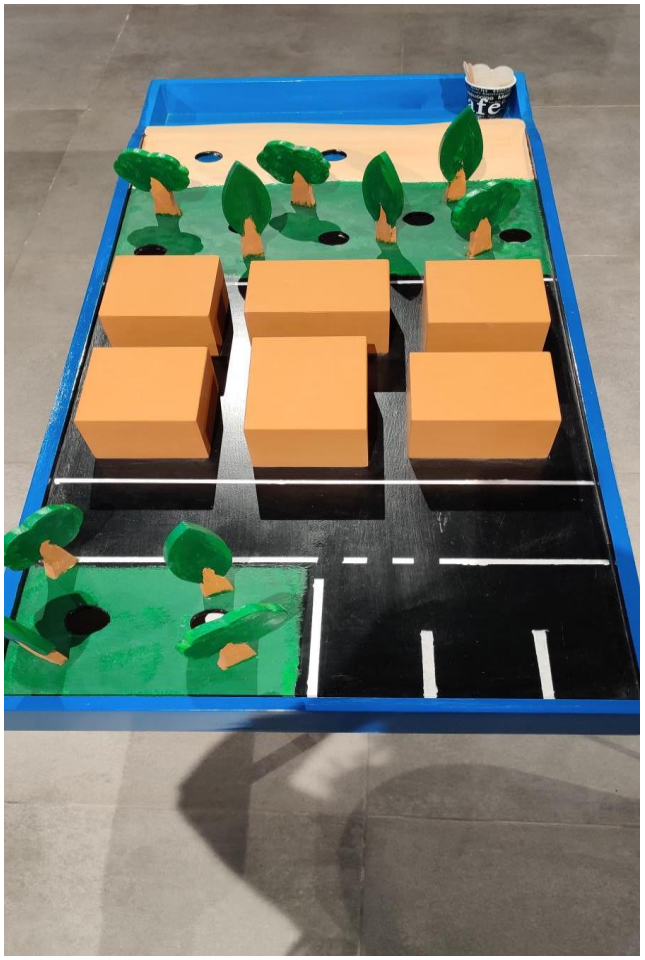
ADAPTED CLASSIC GAMES

Jenga



Flooding Game

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INTERACTIVE GAMES:

BIG SCREENS

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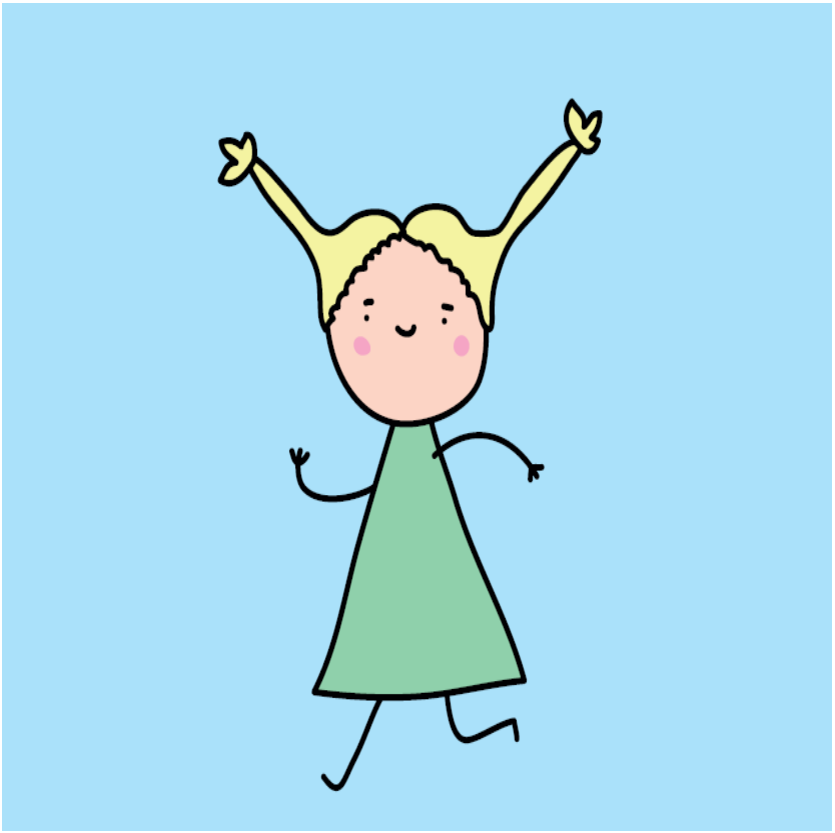
THE WATER CYCLE



- The water cycle
- Issues of nitrates
- Main polluters of water

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THE FAIRLY HYDRATED KNIGHT

- Water management practices (history to present day)
- Conservation of natural water resources

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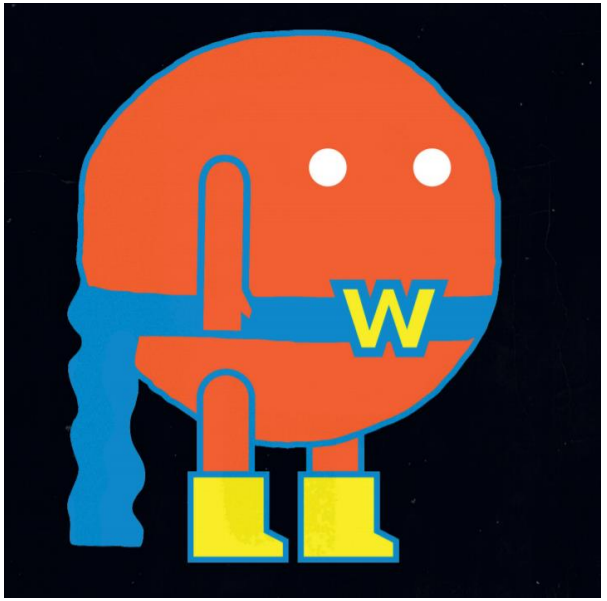
THE WATER HERO

- Efficient water use at home
- Aerators, volume reducers, efficient showers & dual flush
- Greywater system
- Rainwater harvesting



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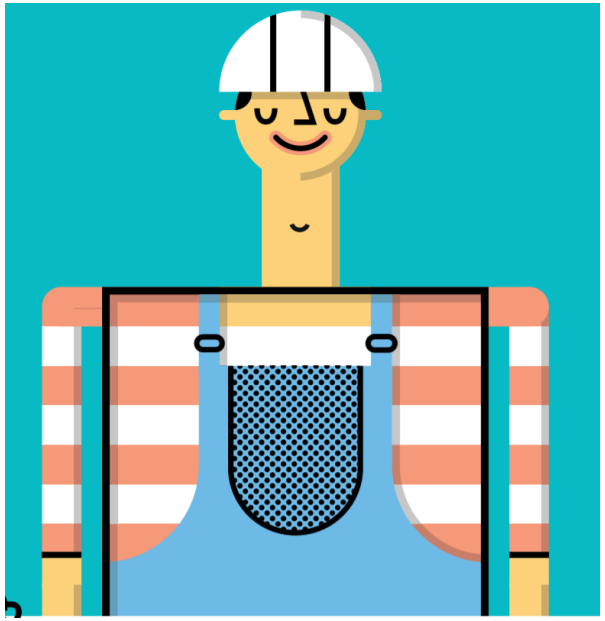
THE UTILITY OPERATOR

- Provision of water services
- Link between cost and energy use
- Problem solving
- Critical thinking
- Teamwork



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THE UTILITY OPERATOR:
(WATER ENERGY NEXUS)

This game immerses the player in various circumstances where the main focus is to optimise all resources for the best outcome, the resources available are the main concepts in any energy and water management scenario, mainly :

- The urgency of the situation
- cost ,
- the environmental impact.

Players must discuss their options and seek the best decision in order to solve the situation.

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THE UTILITY OPERATOR:
(WATER ENERGY NEXUS)

Within the game, various strategies are required to complete the quest in the most sustainable, cost effective and energy efficient manner. Scenarios include various resources and the implications of using such a resource over another similar resource. Examples are:

- Desalination plants vs ground water where the process of removing salt to make drinkable water, is extremely energy-intensive.
- Waste water treatment system that is central to water-energy interactions , consumes high volumes of electrical energy to render a decrease in the pollutants in the wastewater that is ultimately sent out to sea.

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THE RENEWABLES

- Introduction to 4 renewables.
- Advantages
- Climate Change
- Maltese Scenario

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THE ENERGY HUNTERS

- Energy Efficiency
- Conservation of Energy
- Climate Change

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Thank You

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