Go4SET
EDT

My school is an Island

PROJECT

ECO

EDT — Inspiring future engineers & scientists

seafarers UK
Supporting the maritime community

Seafarers UK is a charity that helps people in the maritime community, by providing vital funding to support seafarers in need and their families.

Established in 1917 as King George's Fund for Sail-ors, Seafarers UK gives annual grants totalling £2.5 million to more than 70 maritime welfare charities and other organisations that support seafarers, their families and dependants, from across the Merchant Navy, Fishing Fleets, Royal Navy and Royal Marines.

In addition to funding support services for serving and ex-seafarers, Seafarers UK campaigns to raise public awareness of the UK's dependence 'as an island nation' on seafarers and ship-ping for essential food, fuel and goods. That's why Seafarers UK promotes Seafarers Awareness Week in June every year. The charity is also a major participant in the exciting EDT 'My School is an Island' project.

Seafarers UK receives no government funding and is heavily de-pendent on public donations and legacies to support this project and the charity's other work that benefits the whole maritime com-munity.

For details of how you can get involved in charity's Supporting Seafarers Day and other events that raise funds to help seafarers in need, please visit the charity's website at www.seafarers.uk

An island is any piece of sub-continental land that is surrounded by water. There are more than 2 million islands in the world, many of which are nothing more than sand dunes that appear and disappear with tidal flow. Very small islands such as emergent land features on atolls can be called islets, cays or keys.

However, there are an estimated 100 000 inhabited Islands with people living and carrying out their every day lives, using water, energy and producing waste such as in the British Isles. Some of these populations live independently and others travel to and work with other islands or countries to buy goods, import food or export their waste. What would the main differences be between your life now and one where you lived on an island? Consider Islands that are close by such as the Isle of Wight, the Hebrides or the Isle of Man and how their inhabitants live. Also consider the following:

Resources: land and sea resources that can be used to feed a population, trade with other islands or used to build schools and houses and heat them.

Travel: ways in which travel around the island and to and from another land source for work, trade or medical purposes.

Bi-Products: any wastage from food or manufacturing. What about human waste, where does it go, where is it stored? Can it be re-used for other purposes such as heat or agricultural feed?

An artificial island or man-made island is an island or archipelago that has been constructed by people rather than formed by natural means.

They are created by expanding existing islets, construction on existing reefs, or amalgamating several natural islets into a bigger island.

Artificial islands may vary in size from small islets reclaimed solely to support a single pillar of a building or structure, to those that support entire communities and cities.

Your challenge

Your challenge is to think of your school as a island and transform it so it can be a fully functioning island setting.

The Island School should meet all the requirements of your current school including the number of people using the school and their living needs; the size of the island should also be approximately the same as your current school site.

However, you can choose a new geographical setting and site design and by doing so address any restraints of your current school provisions. This could be the geographical location to improve the levels of sunshine which can be used to grow crops, the eco system of the island for food resources or the positioning within the sea to benefit from tidal energy. You will also need to consider the safety issues of living on an island with the need for coastguard services and understanding tidal patterns. Use your imagination and creative skills to re-design your is-land school but whichever location is decided upon by the team, the island perimeter must be a minimum of 1km from any mainland access.

It is essential throughout your project that differences between your school and the island school in terms of the way they function are highlighted.

The project is in three stages:

❯ Stage 1 • Research

With the aid of your teacher and mentor perform an audit of your school to find out as much as you can about the way it functions eg. how the school receives energy & water, how it recycles waste, how provisions are delivered, how students and staff travel to school etc. The more in-formation you can find out, the better you will understand the challenges the school faces on a day to day basis. You will also need to find out the basic facts about the school: number of students, teachers, support staff and site surface area. You should pay particular attention to environmental and sustainability issues your current school has and focus on these when considering the island school. The school site manager/caretaker should be able to give you valuable information regarding site issues.

Stage 1 findings should be detailed in your project report.

❯ Stage 2 • Project Development

Begin by defining your island setting in terms of geographical location. With your mentor and teacher brainstorm possible ideas about your island school design, whether the whole school or a specific area of focus such as Energy, Transport, Water, or Recycling. Your company visit and mentor will assist you in deciding focus areas.

Once you have decided on your focus develop your solutions for the remainder of the project phase. It is essential that development ideas for your island school should show the contrast with mainland schools. Environmental and sustainability considerations must be integral to your thinking at all times.

Stage 2 developments and solutions should be detailed in your project report, 2D and 3D modelling should be considered to enhance your final display.

❯ Stage 3 • Evaluation

In this stage you are required to evaluate your final project solution and your performance as a team. Consider:

• Does your island school fully function?
• What are the benefits of the island school to the mainland school.
  Are there any negatives?
• Which issues still need to be addressed?
• How did you perform as a team?
  How could this have been improved?
• What would you do differently?
• This evaluation should be detailed in your project report.

Plan of action

How to make your project a success?

• Make sure you understand the project brief and find answers to your starting questions.

• Create as many exciting and imaginative ideas as you can which might match your list of key design features. Then decide which main idea/(s) you want to use and create your list of design features to develop into a practical proposal. This should ideally be in the first two weeks!

• Give yourself a team name and allocate roles depending on what each member of the team is good at, for example Managing Director—The boss!, Design Engineer—good at ideas and drawing, Finance director—in charge of how much money is being spent / saved etc.

• Always keep good notes about what you are doing; a team diary of progress is a good idea.

• Write your project report as you go along.

• Plan your work over the few weeks using a Gantt Chart (at the end of this booklet):

• Make lists of the things that need to be done.

• Try to organise these things into a suitable order.

• Try to decide which team member/s will do what things.

• Good planning at the beginning of a project means you will be more organised and will make your pro-ject more structured. This will give you the ability and confidence to finish on time!

• Evaluate the outcome of your project; how well does satisfy your specification? How effective is your model?

• Develop the idea(s) into a practical design. Build a model which ac-curately reflects your facility design.

• Costs—Does your design save money? Think about how much your design will cost to begin with and how much it could save over a peri-od of time. The savings could be environmental as well as financial.

• Put finishing touches to your project and practise your presentation.

🔍 Useful websites:

• http://islands.unep.ch/isldir.htm
• www.skyemuseum.co.uk
• http://theenvironmentinseychelles. blogspot.co.uk/2012/09/green-jobs-whats-reality.html

End of project Stage 1 - 3

The end of your project is your Celebration and Assessment Day (CAD) where you will present what you have done to professional engineers. The assessment has four stages, the marking criteria for which is in your Teachers; Handbook. Stages 1 - 3 must be ready for the CAD but the written report needs to be uploaded one week beforehand to allow the Assessors reading time.

❯ Stage 1 • A model of your project

Your model can be built with any materials available and should visually demonstrate how your project would work and look.

❯ Stage 2 • A display

This is a written and visual method of communicating your project to the assessors, who will visit and question you at the stand and the good news is you get to keep it after the CAD!

Try not to clutter your board; think of what looks good and best demonstrates your project to a passer by. Maybe you could take photos of you all at work throughout your project, or could create a logo for your team?

You will need to ask your teacher to get any materials to create your board, eg. Sellotape, Blu-Tack, scissors, etc. Your teacher will also have the dimensions of the board in the Handbook.

❯ Stage 3 • A five minute presentation and questions

You may want to use PowerPoint or could just use your model and display. You will need to talk about how your concept works and how it benefits your school. Also, you should talk about how you came up with the ideas and how you overcame any problems.

Make sure every member of the team speaks during the presentation and that you know enough about your project to be able to answer questions about it from the Assessors. Remember, be inventive; use diaries, videos or films and remember practice makes perfect!

End of project Stage 4

You need to hand in a written report for your project one week before the CAD to allow the Assessors time to read through it. You will also need to bring 4 hard copies on the day, printed on A4 and bound as a professional report. Your report should include the following:

• A professional Front Cover with the name of your school, your support company and the year of participation.

• Acknowledgements and Contents Page.

• Team Introduction: introduce the team, including your teacher and mentor.

• Project Introduction: explain why you chose your project over others and what your first ideas were. How did you come up with your main proposal?

• Planning: describe who did what and any particular roles that a team member took, such as Project Manager or Designer. How did you plan your time and what tools did you use to manage this plan?

• Research and Testing: describe any research you did to understand the challenge and any scientific or mathematical knowledge you gained as part of the project.

• Result Analysis: did you get the results you expected? What did they tell you? What worked and what changes would you recommend?

• Recommendations: present your design ideas along with the model, and explain why you think this is the best solution for your design.

• Conclusions: describe your results and how these benefit the community group. How would you do things differently if you did this project again?

• Personal Appendices: each student should write half a page on what they have learned from the project from a personal perspective, including practical skills and future aspirations.

• References, Glossary.

• Appendices: minutes of meetings, a copy of your Gantt Chart, calculations, graphs, research etc. (Include anything that is useful information but does not need to be a part of the report.)

Get your mentor to check your report a few days before the submission deadline: the quality of the report (spelling, grammar etc.) is part of the marking criteria so you will need time to edit the report. There is more guidance in the scheme Handbook; your teacher has a copy.

Timetable
My school is an Island

Launch: Meet with your mentor and arrange when you are going to do the project and when you are going to go on your company visit.

Week 1: Start your research into your school, its functions, use of energy and water, creation of waste. Also find out how people travel to school, staff and student numbers, identifying any problems you can address.

Week 2: Decide where your island school will be, dimensions, geographical location. Brainstorm ideas about your school design.

Week 3: Choose from your ideas and decide on your area(s) of focus. Explain why you chose your area and how your ideas will contrast to your existing school.

Week 4: Begin work on your design and model. How can you best represent your idea? What materials will you need for your model? Ask your teacher how to get them.

Week 5: Work on your model.

Week 6: Work on your model. Your design may alter as you build your model. Keep a note of this and explain it in your presentation. Start writing your report.

Week 7: Work on your model and continue with the report.

Week 8: Carry on with the report and the model. Begin to think about your evaluation as part of the report

Week 9: Get your report checked by your Mentor and send it to Go4SET to be passed to the Assessors.

Week 10: Put the finishing touches to your model and presentation.

CAD: Present your work to the Assessors.

The table below is an example of a Gantt chart. You should use this, or a similar method to plan how long you need to spend on different tasks throughout your project. Below are some example tasks so you will need to create your own plan and decide when to do a task. Remember to plan for deadlines and allow for holidays!

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Tasks	Week number									
	1	2	3	4	5	6	7	8	9	10
Example										
Specification of problem										
Company visit										
Research										
Generation and evaluation of ideas										
Design ideas and evaluation										
Prototyping and testing										
Manufacture and production										
Final evaluation & modification										
Writing report										
Producing presentation										

Go4SET Regional Contact

Company Mentor Contact

Project Report Submission Date

Date and location of CAD

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