



# SCHOOLS OUT OF THIS WORLD

Take the opportunity to  
build a space community!

**Student Handbook**

# SCHOOLS OUT OF THIS WORLD

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We would like to acknowledge the students at Cranleigh School for coming up with our tag line: **"Take the opportunity to build a space community!"**



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## Introduction

NASA wants to send humans to Mars by 2040. But getting humans to the red planet is one thing; getting them to survive long term is another. The atmosphere on other planets is completely different from here on Earth. Each planet has its own different atmosphere, although there are some similarities between the four terrestrial planets; Mercury, Venus, Earth and Mars.

### The task

Imagine planet Earth was about to be destroyed by a huge asteroid.

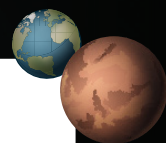
You have to find a new planet to relocate your school to.

You will need to think about how you can live independently in your school community.

What would the main differences be between your life now and one where you lived on a different planet?



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## The challenge

Your challenge is to think of your school on a different planet and transform it so it can be a fully functioning community in space.

The space school should meet all requirements of your current school including the number of people using the school and their living needs: the size of the site of your space school should also be approximately the same as your current school site. You can choose any planet within our solar system as your new location, and by doing so, you will need to address any restraints of your current school provisions. This could be the location of your school on the new planet. Planets have different hemispheres and seasons just like Earth. Think about food resources and energy provisions for your school.

You will also need to consider the safety issues of living in space, in a different atmosphere and the dramatic temperature changes. Use your imagination and creative skills to re-design your space school.

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

### Project Assessment Event (PAE)

The end of your project is your PAE where you will present to the other school teams and Assessors.

All project outcomes will be assessed by a panel of Assessors. Each team should produce a report, a display model and will be required to present to the panel at the PAE.

The competition has a number of prize winning categories including Best Overall Project, Most Innovative Project and Pupils Choice award.

### What to do first?

Decide on the planet and the location of your school.

Start by thinking about some of the following questions:

- ✓ How will people travel to the planet?
- ✓ Where will they live on the planet?
- ✓ What facilities are essential for the efficient running of a school?
- ✓ How will the energy needs of the school be met?
- ✓ How will everyone be fed and watered?





You will have plenty of other questions and the answers will help you to create a detailed list to include in your project proposal. This list is called the "specification".

Next, as a team, identify the areas to focus upon for your project and begin to think about which planet you are going to choose, the design of your school community and how you will incorporate these into your project.

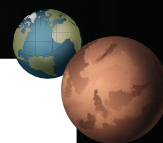
Once you have agreed on the areas to concentrate on, your teacher will help you formulate and develop your ideas.

Your final presentation should focus on one specific idea or a set of related ideas. Remember that you will only have a limited amount of time to work on this project so try to keep your ideas fixed.

## Plan of action

- ✓ Make sure you understand the project brief and find answers to your starting questions.
- ✓ Create your specification (the list of features to be included in your proposal). You should try to do this as early as possible, the first week is ideal.
- ✓ Create as many ideas as you can which might follow your specification. Decide which main idea or set of ideas to focus on and develop into a practical proposal.
- ✓ Always keep good notes about what you are doing: a team diary or progress report is a good idea.
- ✓ Write your project report as you go along.
- ✓ Plan your work over the weeks using a GANTT chart (found at the end of the booklet).
- ✓ Make lists of the things that need to be done and try to organise these things into a suitable order.
- ✓ Give yourself a team name and decide which team member/s are responsible for each task 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.
- ✓ Evaluate the outcome of your project: how well does it satisfy your specification?
- ✓ Costs - you need to think about how much your design will cost to begin with and how much it could cost over time.

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## You may want to think about:

- ✓ Resources – how are you going to feed your school population? What resources could be used to build the school and heat or cool it.
- ✓ Travel – how are you going to get there? How long will it take to travel to your new planet? Will you need to travel around your new planet? If so, how are you going to do this?
- ✓ Bi-products – is there 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?
- ✓ How to provide the energy resources required for your school.
- ✓ How the various areas of the school are used.
- ✓ How you would like the school to look.
- ✓ The use of materials – can these be found on your planet? Will you need to transport anything?
- ✓ How you can enhance the students' experience whilst in the school.
- ✓ How to reduce waste.

Good planning at the beginning of the project means that you will be more organised and will make your project more structured. This will give you the ability and confidence to finish on time.

## What you need to produce

The end of your project is the PAE where you will present your project to a panel of Assessors. The assessment has FOUR stages that must be ready before the deadline date:

### 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. You may wish for your model to focus on one aspect of your school such as a classroom, living area or energy provision.

### 2. A display

This should be a written and visual method of communicating your project to the assessors and other teams, who will visit and ask questions. Try not to clutter your board – think of what looks good, is eye catching and best demonstrates your project.



### 3. A five minute presentation and questions

You may want to use Power Point or could just use your model and display. You will need to talk about how your concept works and how it benefits the school. Also, you should talk about how you came up with your 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 and videos. Practice makes perfect!

### 4. A written report

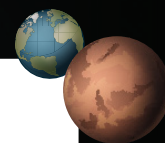
You need to hand in a written report THREE WEEKS before the PAE to give the Assessors time to read through it. This should be emailed to the available email address. You will need to bring hard copies on the day, printed on A4 and bound as a professional report. Your report should include the following:

- ✓ A professional front cover with the name of your school and year of participation.
- ✓ Acknowledgments and content pages.
- ✓ Team introduction: introduce the team and teachers.
- ✓ Project introduction: what were your first ideas? 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 didn't work. What changes would you recommend?
- ✓ Recommendations: present your design ideas along with the model and explain why you think this.
- ✓ Conclusions: describe your results and how these benefit the community group. How would you do things differently if you did this project again?
- ✓ References and glossary.
- ✓ Appendices: minutes of meetings, a copy of your GANTT chart, calculations, graphs, research etc.

Ensure the report is checked for grammar and spelling mistakes as this is part of the marking criteria. Ask your teacher if you need more help with this.

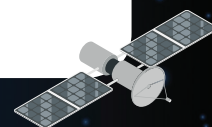


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## Timetable

<b>Week 1</b>	Look at the current school design and investigate/research how it can be improved. Choose the planet you will be relocating your school to.
<b>Week 2</b>	Decide what you are going to do to make the school more efficient and sustainable. What resources does your planet have? How are you going to get there? Draw up some possible ideas.
<b>Week 3</b>	Choose from your ideas and decide how you are going to build your design. Explain how you decided on your final design and think about the materials you will need.
<b>Week 4</b>	Begin work on your model. How can you best represent your idea? What materials will you need for your model? Ask your teacher how to get them.
<b>Week 5</b>	Work on your model and start writing your report.
<b>Week 6</b>	Work on your model and your report. Your design may alter as you build it. Keep a note of this and explain it in your presentation.
<b>Week 7</b>	Work on your model and report.
<b>Week 8</b>	Carry on with your report and model. Begin to think about your display.
<b>Week 9</b>	Check over your report in time to meet the deadline.
<b>Week 10</b>	Put the finishing touches to your model, project display and presentation.
<b>PAE</b>	Present your work to the Assessors.



# GANTT chart

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 and remember, plan for the deadlines and allow time for holidays!

Tasks	Week Number									
	1	2	3	4	5	6	7	8	9	10
Decide on planet										
Project focus										
Conduct Research										
Generation and evaluation of ideas										
Design ideas and evaluation										
Prototyping and testing										
Build model										
Final evaluation and modification										
Writing report										
Producing presentation										

A space-themed notebook page. The background is a dark blue space with white stars. In the top left corner, there is a blue and white rocket with a red nose cone. In the top right corner, there are two planets: a small Earth and a larger Mars. In the bottom left corner, there is a small green alien with a white helmet and a red antenna. In the bottom right corner, there is a white satellite with two solar panels. The word "Notes" is written in red at the top left. Below it are 15 horizontal red lines for writing.

[illegible]



[illegible]



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