**Year 8 Integrated Assessment Task**

**Topic: Designing a low energy, sustainable city**

**Rationale**

Creativity is defined as active exploration and construction of meaning. This involves using the imagination to devise an original idea that has a purpose and value. Creativity and problem solving are essential skills for the future!

This integrated assessment task is about working with a team to explore, understand and create an original idea in response to a pressing world-wide issue: the need to transform cities into low energy, sustainable places.

The European Environment Agency (EEA) that has been advocating for European countries to move towards creating low energy, sustainable cities for a greener, healthier future, states ‘The urban environment influences human physical, social and mental well-being, therefore, a healthy, supportive environment is indispensable to quality of life in cities’.

When we collaborate together, our collective skills, ideas and knowledge can work synergistically and powerfully, to devise extraordinary solutions.

**Your Team’s Task**

Your team’s mission is to design a low energy, sustainable city that has been informed by research. You can use an online gaming program such as Minecraft where we have already allocated a space for your city to be constructed, or another program of your team’s choice, such as: a computer animated drawing program like Google Sketch-up or you can simply sketch and label the design or even build a city out of Lego or cardboard.

When you have created the city, the team has to write a report that summarises the findings of your research and the factors that influenced the design of your city. It must include a description of the aspects of your city that make it low energy.

A Knox Virtual Site has been created for you that houses information and ideas about low energy cities. Your team will have time allocated for research and the generation of original ideas before designing the low energy city.

The teams of three to four boys will be formed in your Language classes. Each team member must be allocated a role. You will be surveyed prior to starting the task regarding your understanding of creativity.

During **week 7 and Monday and Tuesday of week 8**, your team will stay together for Language, English, Science and Mathematics classes. You will also be required to complete a range of challenges during the week that attract bonus points.

**Minecraft Users**

If you are using Minecraft, you will be designated an area that is already cleared, and provided with tools and a certain amount of material. If you were planning a city anywhere in the world today you would be restricted by the spaces you could use so we are emulating reality.

Our KNOXcraft environment has been developed by Knox staff and sits on one of the school’s computers. It is secure and cannot be accessed by anyone without permission from an administrator.  It will only be available during specific times of the school day.  In order to access the KNOXcraft virtual environment, students must have a legitimate version of Minecraft from Mincraft.net.

The environment will be monitored and administrators have the ability to restrict access to any individual. The KNOXcraft environment has been set to ‘peaceful’ mode (no Mobs), to enable students to work in a positive and constructive manner.

**Task Timeline**

* **Week 7:** Working in teams on the project during allocated periods (A timetable detailing rooms and times will be provided)
* **Week 8:** Monday and Tuesday working in Language, English, Mathematics and Science classes.
* **Week 8 Wednesday:** Task completed and reports submitted by 9:00am

**Your team will be assessed on how they:**

* Demonstrate evidence and application of research.
* Synthesise and apply the knowledge and skills of your KLAs.
* Communicate creative ideas and understanding through the design of a low energy, sustainable city and a **500-word** report.
* Work collaboratively as a team to create a low energy city.

**Outcomes to be assessed**

**English**

3 A student responds to and composes texts in different technologies

11 A student uses, reflects on and assesses individual and collaborative skills for learning.

**Mathematics**

WMS4.5 - Working Mathematically: Links mathematical ideas and makes connections with, and generalisations about, existing knowledge and understanding in relation to Stage 4 content.

**Science**

4.4 Identifies choices made by people with regard to scientific developments

4.16 Accesses information from identified secondary sources

4.18 With guidance, presents information to an audience to achieve a particular purpose

4.26 A student recognises the role of science in providing information about issues being considered and in increasing understanding of the world around them.

**Geography**

4.5demonstrates a sense of place about global environments

4.8describes the interrelationships between people and environments

4.10explains how geographical knowledge, understanding and skills combine with knowledge of civics to contribute to informed citizenship

**Technology**

4.1.2 Describes factors influencing design in the areas of Built environments, Products and Information and Communications.

4.2.1 Generates and communicates creative design ideas and solutions.

4.4.1 Explains the impact of innovation and emerging technologies on society and the environment.

4.6.1 Applies appropriate evaluation techniques throughout each design project.

4.6.2 Identifies and explains ethical, social, environmental and sustainability considerations related to design projects.

**Languages**

4.UL 4 uses available resources to access structures and vocabulary to build a message.

**Week 7 Timeline**

|  |  |
| --- | --- |
| **Day** | **Task** |
| Monday | * Visit Virtual Knox Site to do research for the development of the low energy city. Begin by viewing this great site and reading about green technology: [http://videos.howstuffworks.com/adventure/world-cities-videos-playlist.htm#video-38280](https://webmail.knox.nsw.edu.au/owa/redir.aspx?C=70d42df2b93f422cad397d3ba8b1ab7d&URL=http%3a%2f%2fvideos.howstuffworks.com%2fadventure%2fworld-cities-videos-playlist.htm%23video-38280) and <http://www.news.com.au/top-stories/hey-london-take-a-walk-on-the-wired-side/story-e6frfkp9-1226166720458> * Decide upon the design of an environmentally sustainable city and what innovations you will include in the design, such as solar panels, water recycling, water harvesting, use of kinetic energy, etc. * Decide on the method to be used for the development of the city. E.g. MineCraft. * Allocate roles in the team. I.e. Designer, developer, report writer, researcher. |
| Tuesday | * Begin planning and designing the city. * Do the Mathematic Challenge. |
| Wednesday | * Continue developing the city. |
| Thursday | * Continue developing the city. * Do the Science Challenge. * Do the Language challenge. |
| Friday | * Continue developing the city. * Do the English challenge. |
| Monday | * Continue developing the city. |
| Tuesday | * Continue developing the city. |
| Wednesday | * Complete the city and the report. * Submit the report via email or paper copy by 9:00am |

**Report**

The report must address the following questions and use the format provided.

Team Members:

1. Why do we need to design low energy, sustainable cities? (Provide at least five reasons that are grounded in research.)

a.

b.

c.

d.

e.

1. What the main factors that influenced the design of your low-energy, sustainable city? (Refer to at least four factors)

a.

b.

c.

d.

1. Describe the main design features of your low-energy, sustainable city. You could refer to the use of building materials, placement of buildings, power sources, such as solar panels. (300 words minimum)

**Bibliography**

Provide a list of all URL sites that you accessed for information, and any other sources of information. E.g. <http://www.news.com.au/top-stories/hey-london-take-a-walk-on-the-wired-side/story-e6frfkp9-1226166720458>. Accessed 24th November, 2011

**Assessment Task Marking Guidelines**

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| --- | --- |
| **Performance Descriptor** | **Marking Guidelines** |
| **Sophisticated** | * Insightful evidence and application of research * Sophisticated synthesis and application the knowledge and skills of the KLAs * Skilful communication of the ideas and understanding through the design and report |
| **Effective** | * Effective evidence and application of research * Effective synthesis and application the knowledge and skills of the KLAs * Effective communication of the ideas and understanding through the design and report |
| **Sound** | * Sound evidence and application of research * Sound application the knowledge and skills of the KLAs * Sound communication of the ideas and understanding through the design and report |
| **Working towards** | * Limited evidence and application of research * Limited application the knowledge and skills of the KLAs * Limited communication of the ideas and understanding through the design and report |
| **Not demonstrated** | * Little or no attempt to engage with the demands of the task |