

**Teaching Notes**

**Generate and develop ideas**

This stage of the design cycle enables students to have a clear vision of what they need to redesign. Students can be organized into groups to undertake the process or they can work individually.

**Tasks**

**1. Develop your design brief**

**Team design folio**

 The Team Design Folio should be copied and shared between team members allow collaboration and co-development of design ideas, research and results of testing and final design solution development.

**2. Work scientifically**

**Roof materials**

 Students examine the photos of the experiment being conducted at another school. Open and read through/print the worksheet before starting the experiment.

**Exterior colours**

 Open and read through/ print the worksheet before starting the experiment.

**Shading**

 Students examine the photos of shade designs on models. Open and read through/ print the worksheet before starting the experiment.

**Landscaping**

 Open and read through/ print the worksheet before starting the experiment. Discuss the concept of deciduous trees and how they would let in the winter sun.

**3. Create redesign solutions**

**Sketch ideas**

 Teacher initiates a classroom discussion on what the students have learned about energy efficient design. Student teams / individuals create a mind map to explore their redesign ideas. A digital example of mind mapping can be seen on this video using bubbl.us: <http://youtu.be/AllXU_3nktU>

 Students sketch their ideas. Trace over a photo, sketch on a lightened photo printout or use graphics software to produce a digital version of their design ideas.

**Share designs**

 Students present their ideas. Teachers download, save and print the PMI forms and photocopy

enough copies to distribute to the audience who can provide feedback.



**Curriculum links**

**Curriculum focus: Science and Technology Years K-6 Syllabus**

*Focus Outcomes:*

[***Built Environments***](http://syllabus.bos.nsw.edu.au/science/science-k10/content/978/)– A student:

• ST3-14BE - describes systems in built environments and how social and environmental factors influence their design

• ST3-5WT - plans and implements a design process, selecting a range of tools, equipment, materials and techniques to produce solutions that address the design criteria and identified constraints

[***Material World***](http://syllabus.bos.nsw.edu.au/science/science-k10/content/977/)*–* A student:

• ST3-13MW - describes how the properties of materials determine their use for specific purposes

• ST3-4WS - investigates by posing questions, including testable questions, making predictions, and gathering data to draw evidence-based conclusions and to develop explanations

[***Physical World***](http://syllabus.bos.nsw.edu.au/science/science-k10/content/974/)– A student:

• ST3-6PW - describes how scientific understanding about sources, transfer and transformation of electricity is related to making decisions about its use.

