

Designing an Energy Efficient House

Student Inquiry – Small Group

🕒 Overview

You are going to work in groups to design an energy efficient house. The house you will design is not a high-tech home but a family home built to an average budget. The design will need to consider the use of passive solar energy.

Each group will:

- Complete internet research using the resources on page 5 to identify what factors and design features need to be considered when designing an energy efficient house
- Discuss their research findings and work together to agree on a design for an energy efficient house
- Present their design to the class describing its features.

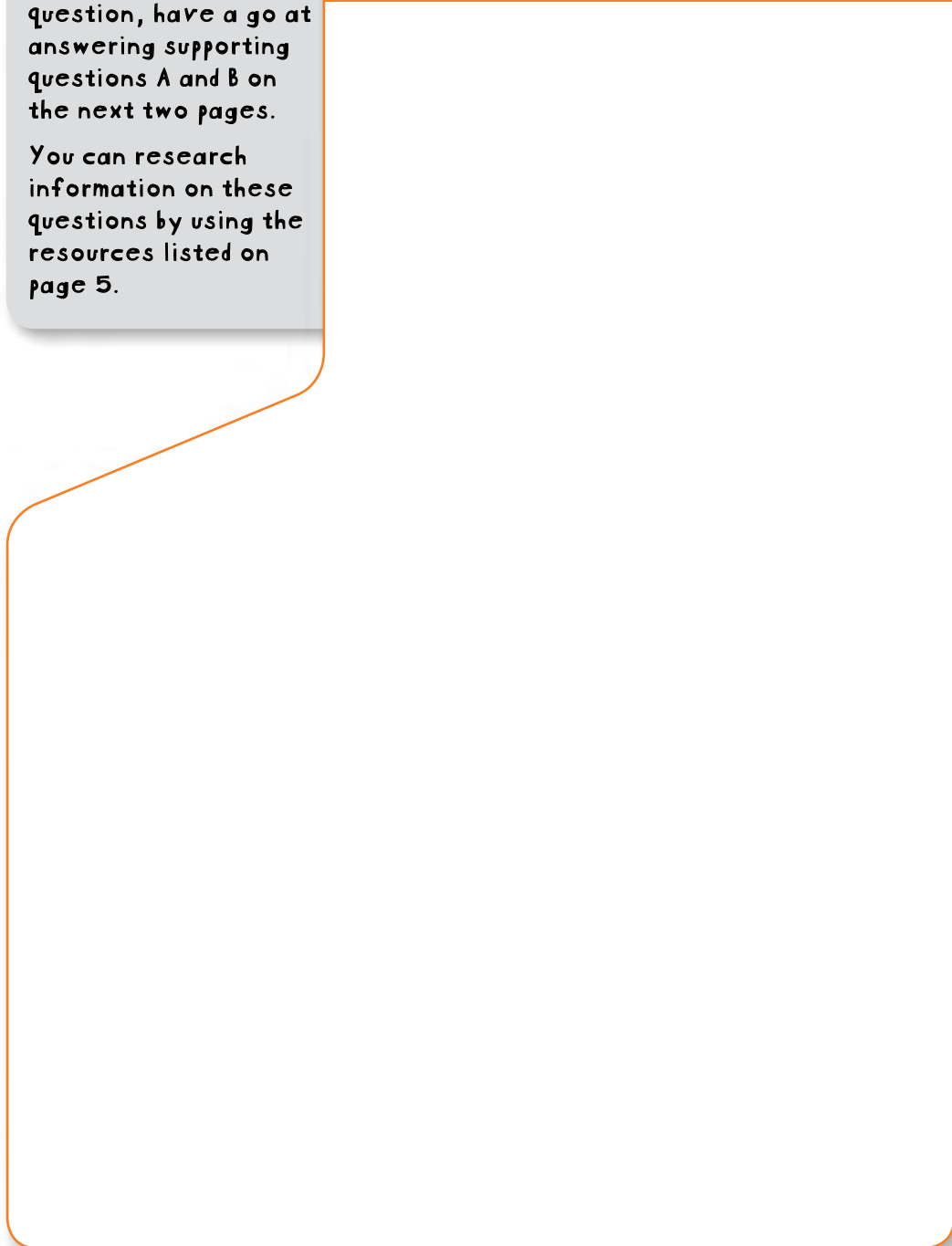
Student Inquiry
Levels 3-4

○ **Key Question**

Before you try to answer this question, have a go at answering supporting questions A and B on the next two pages.

You can research information on these questions by using the resources listed on page 5.

What is your group's design for an energy efficient house? List and then sketch your ideas in the space below.



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Supporting question A

What passive solar energy factors need to be considered when designing an energy efficient house?

Factors	What design features can be used to increase energy efficiency?	How will this increase energy efficiency?
<p><i>The sun's path is higher and there are more sunlight hours during summer.</i></p>	<p><i>Plant deciduous trees on the North and West to allow sunlight in during winter, and to shelter the house from the sun in summer.</i></p>	<p><i>Save energy on air-conditioning.</i></p>

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Supporting question B

What other energy efficiency factors need to be considered when designing an energy efficient house?

Factors	What design features can be used to increase energy efficiency?	How will this increase energy efficiency?
<p><i>Heat can be lost through walls.</i></p>	<p><i>Put insulation in the walls.</i></p>	<p><i>This will trap warm air and slow down heat loss during winter. The insulation will also help keep the house cool in summer.</i></p>

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🕒 Resources

These websites provide all the information you need for this investigation.

Right House

The website provides many useful tips and information to help you get a more energy efficient, healthy, comfortable and cost-effective home. Check out the info-graphic (Adobe Flash) of the house here

<http://www.righthouse.co.nz/>

Also be sure to do the quick quiz '**Right Now Online Home Assessment**'.

<http://www.righthouse.co.nz/useful-stuff/tools-extras/quizzes/right-now-online-home-assessment>

Energywise

This website offers a great deal of useful information about energy efficiency as well as having all the episodes of the well-known Energy Spot TV adverts.

Find out more about how each room in the house can be made more energy efficient:

<http://www.energywise.govt.nz/tools/room-by-room>

Energy Efficiency & Conservation Authority

You can also develop an energy saving plan for the home using this handy checklist.

http://www.eeca.govt.nz/sites/all/files/eeca_checklist.pdf

Consumer

The Consumer organisation has some useful tips and information on saving on energy bills around the home. Check them out here:

<http://www.consumer.org.nz/reports/saving-energy>

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EECA Energywise

This is the Energy Efficiency and Conservation Authority's website shows many ways in which we can improve the energy-efficiency of your home and appliances.

<http://www.energywise.govt.nz/>

Homestar Rating

Take the test to see where your home scores on 1 to 10 on the homestar rating scale! This website will also give many tips and suggestions for how to get a higher rating.

<http://www.homestar.org.nz/>

Right House

<http://www.righthouse.co.nz/>

Smarter Homes

Find out about all the elements you need to create a "smarter" home.

<http://www.smarterhomes.org.nz/>