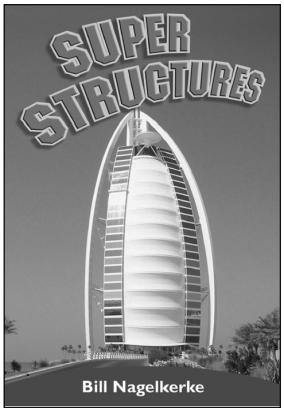
Super Structures



by Bill Nagelkerke

Book Summary

Bridges, dams, and pyramids are just some of the structures built by people. This book examines the amazing structures people have built, from the distant past to the present day.

Features of the Book

- Report
- Historical information
- Technical explanations
- Problems and solutions

Purpose

Super Structures can be used to introduce and reinforce the following skills and understandings:

- **S** analysing and synthesising;
- **S** summarising;
- **S** exploring how people have designed and built large structures since prehistoric times;
- **S** examining how people have invented new technologies to help build large structures.

Investigation Tools

- Step by Step – On the Level, pages 6–7
- Looking Closer – Build It Strong – Suspension Bridges, page 13
- Making Connections – Termite Towers, page 19
- Weighing Both Sides – Is Taller Better?, page 21
- Digging Deeper – A Building on Top of a Tower, page 23
- What's the Background? – Flood Control, page 26

The Guided Reading Lesson

- **S** Analysing and synthesising
- **S** Exploring how people have designed and built large structures since prehistoric times
- **S** Examining how people have invented new technologies to help build large structures

Introducing the text

Discuss some large structures. Prompt the students with structures they may have read about or seen on TV, such as the pyramids in Egypt, bridges, dams, and tall buildings.

- *What do they have in common?* (designed and built by people)
- *Why do people make such huge structures?*
- *How would you compare huge structures in the past with those today?*

Tell the students that they will be reading about "super structures" and they will be using the reading strategies of analysing and synthesising to gain a deeper understanding of the topic.

Reading and discussing the text

Ask the students to read the introduction and Chapter 1 silently, thinking about the text features.

– *Which feature was most useful? Why?*

Discuss the use of the diagrams, particularly those on page 7.

– *The investigation tool helps us to understand how the ancient Egyptians made sure the ground was level. How does this relate to what you know about water? How could you test this?* (Still water always makes a level surface; tilt a container of water to observe that the water level remains horizontal.)

Explain that when readers apply what they already know to information, they're analysing and synthesising. This strategy helps us to remember information and use it in different situations.

– *How can you use this strategy to help understand other information, for example, the use of ramps to move the stone blocks?*

Prompt the students to visualise, draw, or make a model to better understand the process.

– *As you read Chapter 2, think about the changes in bridge building over time. Use the text features, along with what you already know, to analyse and synthesise the information.*

– *What problems do bridge builders face that are different from building other structures?* (spanning distances, working in and over water, the actions of wind and waves, finding suitable materials)

– *The cables used on suspension bridges have some very important features. How did the designers overcome problems with making cables?* (The designers used steel wire twisted into thick cables; the cables were made on the site because they would have been too heavy to transport.)

– *The next chapter is about tall buildings. Think about what you already know to analyse the information and synthesise it into new learning.*

The students can read the chapter silently, then share their ideas. Good examples for discussion are on pages 19 and 21. Ask the students to relate the information about termite towers to what they know about tall buildings and the movement of warm air. The students can consider the pros and cons of taller buildings, combining the information with what they already know.

The students can finish reading the book silently. Ask them to think about the elements of successful designs and discuss their ideas when they have finished.

Revisiting the Text

The activities below can be used immediately after the guided reading lesson, during later reading sessions as mini-lessons, or as independent activities.

S Summarising

Remind the students of the strategies for summarising (using text structure, key facts, and subheadings to identify main ideas; determining importance; presenting the main ideas in a way t hat makes sense), then ask them to summarise the book, chapter by chapter.

✎ The students can use the blackline master to record their summary.

S Examining how people have invented new technologies to help build large structures

In pairs or as a group, the students can carry out further research into one or more of the structures described in the book. They could research the methods used, the challenges and solutions, the size of the structures, and their age. Alternatively, the students could construct scale models of one or more of the structures.

S Analysing and synthesising

The students can do an experiment to confirm the information on pages 6 and 7. They will need a tray of damp sand, a tool to dig a trench, water, and a jug. The students can level the sand, make a trench across it, and carefully pour the water into the trench. The students will be able to verify that the sand is level.

The students can then record their experiment as a procedure.