

# Holding back the water

Reference could be made to the aerial photograph of Kielder Dam, asking children to identify the land features surrounding Kielder Water.

The shape of the dam is important. By experimentation the children will find that if they make it thicker and heavier at the base it will be more able to withstand the pressure of water behind it.

This principle could be demonstrated by building a dam from construction materials such as clay, soil, sand, etc. and observing the outcome.

Older children could decide/suggest the best materials for the dam before they begin construction.

They could try building an entire dam using only one material and then test it to see how effective/stable the resulting dam would be. They should eventually find that the most effective dam will have a solid core reinforced by sand, soil and gravel.

Extra questions could be asked e.g.

- Which is the easiest material to handle?
- How would you conduct a fair test?
- Would weighing the materials in equal proportions make it fairer?

## COMMUNICATING TO OTHERS

Children could make a cartoon strip of how they built their dam.

## **EXTENSIONS**

Can you make a reservoir behind your dam?

What would happen if your reservoir was too full?

What would happen to the extra water?

How could you give the valley below the dam a small but constant supply of water without flooding the valley or draining the entire reservoir?

Research major dams in other parts of the world e.g. the Aswan High Level Dam in Egypt and Kariba Dam on the Zambezi river between Zimbabwe and Zambia.

## **MATERIALS**

Water tray of a reasonable depth

Sand

Stones

Gravel

Clay

Garden soil

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## EXPERIMENT

Can you build a model of a dam?

**Carry out some tests to find the answers to these questions:**

An embankment dam forms a massive barrier across a valley and holds back millions of litres of water . . .

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1 Which are the best materials for building a dam?

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2 Which is the best shape to make a dam?