



# Engaging Places

A resource to support teaching and learning through buildings and places



## Roofs over our heads (1), by Rob Deane, Teacher, Oak Hill School

Curriculum subject/s	Science
Key stage/s	KS2
Curriculum outcomes	Sc1 Scientific enquiry 1b, 2a, b, c, f. Sc3 Materials and their properties 1a.
Lesson objectives	Pupils can design a fair test to compare the permeability of different roofing materials. Pupils will learn about different styles and types of roof. Pupils can work in a team.

**This is one of three lessons investigating the properties of materials that could be used for building roofs. These three lessons could easily be combined with lessons investigating forces and buildings.**

### Starter:

- Organise your pupils into teams and explain that although each team member may be doing something different all their roles are vital. Emphasise that you are assessing their ability to be good team members just as much as their final test ideas. (5)
- Their first task as a group is to make a list about what roofs are for and to report back their ideas to the class (set a time limit). Put their ideas on the board. Answers should include: to keep wind, rain and sun out, and to insulate. (10)

### Main:

- Show pupils a series of images of the roofs of buildings. Ask them as a group to think about how these roofs keep water out, what materials they are made of, and any other interesting things they notice about them. (10)
- Groups to feedback findings to the class (5)
- Show pupils a selection of materials you want them to test for permeability (explain meaning). They now need to agree on how they can design a fair test (it would be helpful to explain what materials and tools they can use e.g. K'nex, Lego or similar, trays, jugs or watering cans, etc). Each group should write down a series of bullet points to describe each stage of their test. (25)

## Just around the corner

Take pupils out and observe the different types of roofs they can see. They could conduct a survey/tally chart of styles and materials. The data could be put in a bar chart. This trip could be a walk around the local area or it could be restricted to roofs that can be seen from the school grounds.

## Plenary

- Ask each group to say two things they have done well and one thing they could improve on as a group. (5)

## Homework

Ask pupils to list the different types of roof and the materials they are made of.

## Assessment for learning

Formative:

Assess current knowledge from the initial group lists.

Summative:

Mark their written description of the test. Peer and self assessment at end of lesson 3.

## Resources

- Images of roofs ideally to include: flat roof, tiles, slate, thatch, steeply pitched, glass and felt, etc.
- Selection of roofing materials to test. A piece of roofing felt (ask the caretaker!), thatch (use straws), tiles (use small bathroom or kitchen tiles), slate, glass (use Perspex or clear plastic)
- A suitable construction kit such as K'nex.
- Trays
- Watering cans (garden club?)
- Measuring jugs
- Paper towels
- Engaging Places 'in your area' - [www.engagingplaces.org.uk](http://www.engagingplaces.org.uk)

## Cross-curricular links

Literacy: Writing down bullet points describing their test.

Personal, learning and thinking skills: Thinking creatively about designing a fair test. Communicating to the class. Self-assessment.

This resource is from a bank of resources created for Engaging Places by practising teachers and education professionals. If you have ideas for using buildings and places in teaching and learning, and would like to help us create further resources, please email: [engagingplaces@cabe.org.uk](mailto:engagingplaces@cabe.org.uk)