

Lesson Plan KS2



DESIGN & TECHNOLOGY Do we need a new roof?

Lesson Objective

To investigate and analyse a range of existing products.

Starter	Main Teaching	Resources
PRIOR to the lesson: Children to draw a section of the church ceiling with pillars.  <i>Explore ways in which pillars and beams are used to span gaps:</i> Describe the features/construction of the church roof. Why are pillars used? Are there other ways to support a roof without using pillars?	Activity 1 - Arch exploration Children are given a range of materials and work in pairs or small groups to construct a model of part of the church roof (e.g. four pillars with arches joining them in the middle). Using a weight, children test the strength of their rooves; analyse its successfulness recording on 'Do we need a new roof?' Worksheet A1 and make adaptations where needed. Activity 2 - Redesign it Children retest their roof, with the new adaptations made, and evaluate their build so far, using diagrams and brief notes on 'Do we need a new roof?' Worksheet A2. Activity 3 - Investigate it Similar to activity 1, the children now investigate whether a beamed, flat roof would be stronger or weaker than an arched one. How could we make it a fair test, so that it is just the structure of the roof that is tested?...Children use the same materials with the same number, size and height of pillars so comparisons between arched roof and flat roof are fair. Once built, test the flat roof with the same weight as previously used and record results on the 'Do we need a new roof?' Worksheet A3. Activity 4 - Analyse it As a class, discuss which structure was the strongest and why. The discussion could into research about tension and compression forces, e.g. how arches are used to spread and redirect compression forces. Is a church roof just designed to be strong? Does it have any other purposes? (How it looks, the acoustics, etc.) Children vote for which structure looks most aesthetically pleasing and why. What would you keep the same and what would you change about St Mary and St Giles' church roof? Jot ideas down on 'Do we need a new roof?' Worksheet A4.	A camera could be used to take photos of the roof constructions. Card, paper, straws, scissors, glue, sticky tape and plasticine. 'Do we need a new roof?' Worksheet