



Cable Cars

National Curriculum - Key Stage 2 - Pre-Visit

Design: Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate information and technology.

Make: Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components including construction materials.
Technical knowledge: Build structures exploring how they could be made stronger, stiffer and more stable.

Learning Objective

To discuss, design and make a cable car out of recycled material, considering structure, purpose and strength.

Success Criteria

All: with teacher support can discuss and make a cable car out of recycled material considering structure.

Most: with some support can discuss and make a cable car out of recycled material considering structure and purpose.

Some: can independently discuss, design and make a cable car out of recycled material, considering structure, purpose and strength.

Activity

Introduction: To discuss the facts of a cable car in relation to The Heights of Abraham. Ask children if they have ever seen or been on a cable car. Discuss why people might use a cable car.

Teach: Discuss materials you would use for a real cable car then discuss what materials the children could use to replicate a cable car (recycled material).

Activity: In pairs or groups discuss and plan how to make a cable car. Considering materials, structure and purpose. Once designed start collecting the materials required and begin and complete construction of the cable car.

Challenge: Structure a cable car system (for example, using chairs and string) and test if their cable cars will hook onto the rope.

Plenary: Did your cable car meet the criterias, if not, discuss why not.

Name: _____

Class: _____

Cable Car Facts Sheet

When was the Cable Car installed at the Heights of Abraham?

The 21st April 1984 saw the opening of the first alpine style cable car system in Britain. Built in just seven months it enables everyone to make the dramatic journey across the Derwent Valley, passing over the railway, the River Derwent and the busy A6 trunk road to the Tree Tops Visitor Centre. New cable cars with larger windows were installed in 2004 giving an incredible panoramic view of the Derwent valley.

Which country manufactured the cable car?

After many months of intensive research and planning, the cable car system you see today was designed, manufactured and installed by a French company who are world leaders in this type of passenger transportation.

Work started in September 1983 and continued through the winter months. A rough road was built over the hill top; cable car components were shipped to England; a small team of French engineers took temporary residence in Matlock Bath and a local building contractor started constructing the new buildings at the Base Station and the summit. The Derwent Valley posed its own unique problems for the engineers. A helicopter was needed to lift sections of tower into position, the pilot having to fly close to trees on occasion in order to lower his load.



What are the statistics of the cable car?

The cable, which is 1,136 metres long by 40.5 mm in diameter, had to be hauled across the valley over road, river and railway, and forms a continuous loop to which twelve cable cars are attached in four groups of three. Each of the 12 cars carries a maximum capacity of 6 passengers. There is a theoretical capacity of 560 people per hour.

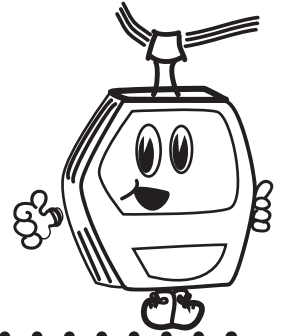
On the first floor of the Base Station are the 360 h.p. electric motor, gearbox, standby diesel engine and computer room, together with a hydraulic unit which enables all this equipment to move backwards and forwards on giant rollers in order to keep the tension of the cable adjusted.

The distance travelled from the Base Station to the top is 568 metres, with a vertical rise of 169 metres, passing over four towers. The highest is Tower 2, which is 23.5 metres, located above the sheer face of the Long Tor escarpment.

Name: _____

Class: _____

Design of my Cable Car



A large rectangular area defined by a dotted line, intended for drawing a design of a cable car.

Materials I will use:

Five horizontal dotted lines for writing the materials used.