

Full Steam Ahead - Key Stage 2 Teacher Overview

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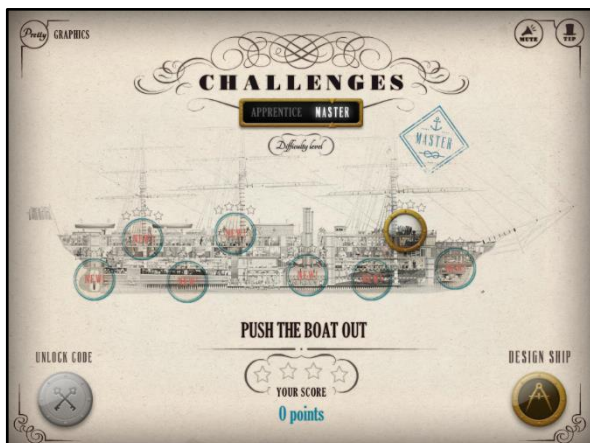
Design Technology

Level: MASTER

Challenge: PUSH THE BOAT OUT

Designing a ship for a number of different purposes is never easy! Speed, strength and aesthetics are all important factors, but how do you decide what makes a ship 'the best'? Use this challenge to discover how Brunel helped shape the future of ship design and technology.

In this challenge your pupils can select construction materials based on their physical properties and aesthetic appearance. How does hull shape and size affect their ship's performance, and which components are most essential for speed? Should you use paddlewheels, propeller or sails? Encourage your pupils to evaluate each other's designs to predict whose ship will be the most successful, and why!



Maths

Level: APPRENTICE and MASTER

Challenge: TUG-O-WAR

To prove that a screw propeller was better than paddle power, Brunel staged a Tug O' War at Southampton Docks between HMS Rattler (a screw-propelled steamer built for the navy under Brunel's instruction) and the similar, but paddle-powered, steamer, HMS Alecto.

Supporting concepts relating to the properties of shapes, it's your pupils' turn to compete, prove their superior ship design ability, and defeat the HMS Alecto in a Tug O' War. At Apprentice level, your class can investigate the efficiency of a propeller versus a paddle wheel and discover how angles and lines of symmetry can affect propeller performance. At Master level, provide your pupils with dimensions and angles to draw specific hull shapes and explore the impact on performance.



Science

Level: APPRENTICE and MASTER

Challenge: CRUISE CONTROL

Use Cruise Control to explore concepts relating to scientific enquiry and forces. Challenge your class to build a ship that can cross the Atlantic Ocean from Liverpool to Australia in as fast a time as possible. Pupils can use predetermined hull shapes at Apprentice level or design their own at Master level. They can discover which hull is most successful in reducing drag and find out how sail power can reduce coal consumption on-board their ship.

