

Workshop : George Stephenson Engineering

National Curriculum Links

KS1 History: The lives of significant individuals in the past who have contributed to national and international achievements

KS1 Local History: significant historical people in their own locality- local engineers/inventors (George Stephenson)

KS1 STEM: Exploring materials used in train design and experimenting to test the best shape for train wheels

Learning objectives	Session structure	Assessment for learning
<p>To develop engineering skills through exploring materials used in train design and carry out an experiment to test the best shape for train wheels</p>	<p>Introduction</p> <p>Show children image of the Stephenson works and ask what kind of place this is. Explain what the picture is of and what the children are going to do in this workshop.</p> <p>Session activities</p> <p>Children to be given a box of materials in groups and to find examples of where these materials have been used to design trains. They also need to be able to explain why they the designers have used one material over another e.g. used glass for windows rather than wood or metal.</p> <p>Show animation of Killingworth Billy so that children understand how he works. Explain that George Stephenson thought carefully about all the different parts used in Killingworth Billy and how he could get them to work well. Explain that one way he experimented was through changing the shape of the wheels and thinking about the railway tracks that the train ran on.</p> <p>Explain to the children the experiment they are going to have a go at doing- trying out different wheel shapes. Show them how to make the</p>	<p>Children will explore themes through exploration of the museum and experiments- we will ask questions throughout to check understanding.</p> <p>Children will have opportunities to respond and give feedback throughout the session.</p> <p>There will be opportunities for Q&A at the end of the session.</p>

	<p>different wheel shapes. In groups children to make sure they have 3 different wheel shapes.</p> <p>Move to the museum so that children can experiment using different wheels shapes in groups. They need to record which wheels work best.</p> <p>Plenary</p> <p>Ask children to tell you which shape wheel worked the best and why they think this is.</p>	
Before your visit	After your visit	Key vocabulary
<p>Make a free teacher pre visit to familiarise yourself with the site- contact learning@stephensonsteamrailway.org.uk</p> <p>Borrow a George and Robert Stephenson themed Box of Delight</p> <p>Loans boxes Tyne & Wear Schools (twamschools.org.uk)</p>		<p>Stephenson works</p> <p>Engineer</p> <p>George Stephenson</p> <p>Killingworth Billy</p> <p>Wheels, Flange, Axel</p>