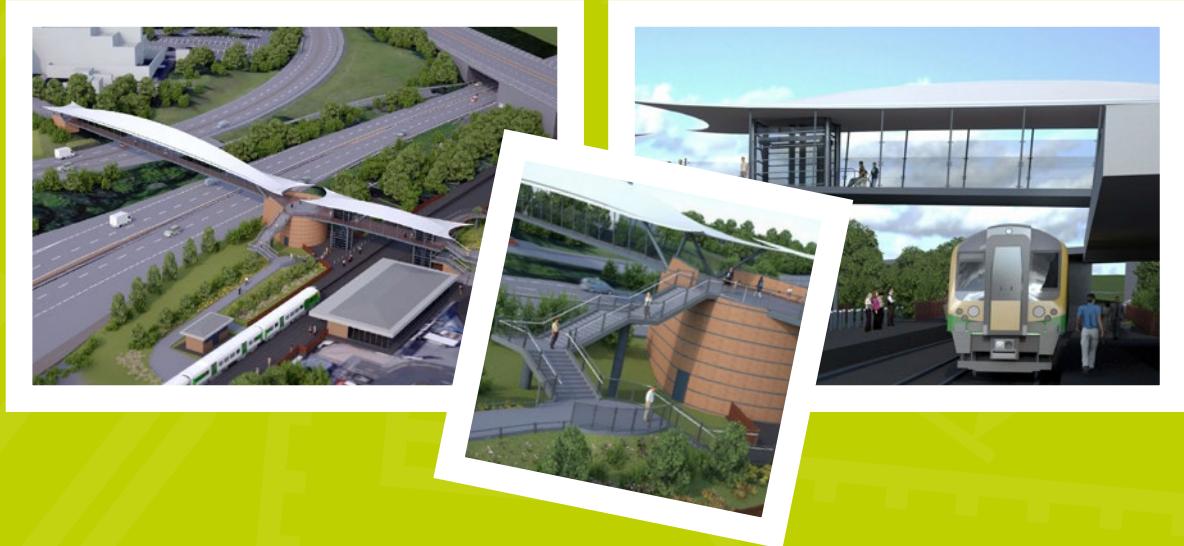


big TELFORD **BRIDGE** challenge



Put your creative
skills to the test!

Guidelines



JACOBS

Balfour Beatty





Picture front cover:

Artist impression of the new Telford Central footbridge

Picture this page (clockwise):

Millennium Bridge, Gateshead; Tower Bridge, London; and

Artist impression of the new Telford Central footbridge

1.0 Welcome to Telford's Big Bridge Challenge

Working in engineering is exciting, rewarding and creative. We need the next generation of innovators and problem solvers to join the industry and help shape the future of the world we live in.

Telford & Wrekin Council hopes to play a part in sparking the interest of the town's young people in STEM subjects by inviting pupils from across the borough to join in the Big Bridge Challenge. They will put themselves in the position of our engineers and create their own bridges. They can also enter the naming challenge for the new bridge from which the winning entry will be adopted during an official opening ceremony later in the year.

A lot of thought goes into designing the perfect bridge to ensure the structure is safe, reliable and able to withstand the test of time. The new Telford footbridge presents a perfect STEM learning opportunity and Telford & Wrekin Council have joined forces with the Year of Engineering celebrations - a national campaign - increasing awareness and understanding of what engineers do, among young people aged seven-16, their parents and teachers.

With help from our partners, we've arranged some unique prizes too. We are grateful to our contractors Balfour Beatty, Jacobs and partners RAF Museum Cosford and Enginuity Museum for providing experiences that support STEM learning for both primary and secondary pupils, teams and individuals. In addition, every child that enters will receive a free pass for Telford Ice Rink as a thank you so be sure to complete the entry forms correctly.

Project background

Work started in 2017 to replace the existing Telford Central footbridge that connects the train station to the town centre. This complex engineering project spans two dual carriageways carrying around 14 million vehicles a year as well as a live railway line. The bridge has reached the end of its lifespan and would be too expensive to maintain, costing in excess of £1m, just to repaint.

Also, it doesn't meet modern design in terms of disability legislation requirements. If you've ever tried using the ramps to get to the bridge in a wheelchair, pushing a child's buggy or with heavy luggage, you'll appreciate just how steep it is and the new lifts will make a huge difference. Take a look at this video to learn more www.telford.gov.uk/Footbridgevideo

The current bridge doesn't provide a good first impression for residents and commuters arriving at Telford by train, a journey that many people follow to the International Centre or Telford Shopping Centre. Crossing the current bridge in cold, dark and wet conditions is not a pleasant experience either and the new bridge will resolve many of these issues - visit <http://www.telford.gov.uk/telfordfootbridge> for further information on the Telford Footbridge project.

The Telford Big Bridge Challenge is just one opportunity designed to excite young people about engineering. Throughout the yearofengineering.gov.uk Telford & Wrekin Council is working with hundreds of partner organisations, including museums, galleries and schools who are all taking part.

If your school would benefit from a STEM Ambassador to attend and

support classroom activities, email Mark Robinson, West Midlands Hub coordinator for support.

All ambassadors have an Enhanced DBS and are clear for working in schools creating access to a skilled resource with a view to improving key skills and building a deeper understanding of STEM subjects.

To arrange a visit, or to learn more about STEM support for schools email mark.robinson@entrust-ed.co.uk or call 01785 337194. For further details visit www.entrust-ed.co.uk

We hope to capture the imagination of a generation, showing that if you want to shape the world, engineering is the way to do it. If you want to know more about engineering, or see what else is happening near you, visit <https://www.yearofengineering.gov.uk/> or search #YoE on Twitter.

2.0 Teams or individuals?

The Big Bridge Challenge has two parts.

Naming Challenge

This section is open to pupils of all ages (primary and secondary school) and is an **individual challenge** to come up with a great name for the new footbridge and answer the tiebreak question for choosing it, in no more than 25 words.

Enter the naming challenge here:

www.telford.gov.uk/BridgeNaming

Building Challenge

This **team challenge** is open to primary school pupils (max size one whole class) and secondary school pupils (max team size six).

Primary schools need to build a bridge that will be judged on two criteria **Aesthetics** and **Efficiency**.

Secondary schools need to build a bridge that will be judged on **Efficiency ONLY**.

Pupils will need to use their design skills to create an aesthetically pleasing structure and STEM knowledge build a structure able to withstand the greatest load. Register your school here:

Register your school here:

Primary www.telford.gov.uk/BridgeBuildSPPrimary

Secondary www.telford.gov.uk/BridgeBuildSecondary

3.0 Bridge naming

The Task

The naming challenge asks pupils to put their thinking caps on and consider the town's history, geography and the new bridge's characteristics to find a suitable name. Information about the new bridge can be found here: <http://www.telford.gov.uk/telfordfootbridge>

Answer the following tiebreak question, in no more than 25 words.

The new Telford footbridge should be called _____ because...

There are some fantastic prizes including an iPad donated by the Balfour Beatty, an invitation to be part of the official opening ceremony when the bridge opens later in 2018 and a chance to won a bit of history with an original signed artwork from the bridge architect, Professor Ric Russel.

To Enter

Complete the form here: www.telford.gov.uk/BridgeNaming

Post: Print off and complete the entry form (download link), complete and send to Footbridge naming competition, Telford & Wrekin Council, Addenbrooke House, Ironmasters Way, Telford, TF3 4NT

By Hand: Post your entry form (download link) with your name, address, email and telephone number in the letter box at Southwater Library

Closing date: 5pm on Monday, September 31, 2018

To claim the ice rink passes for entrants, email media.telford@telford.gov.uk with the number of passes required and subject: Bridge Naming Challenge.

4.0 Bridge Building

The Task

This challenge involves building a bridge with the specified materials, no larger than 1m long x 1m wide x 1m high and able to span a gap of 40cm. It will then be tested by bridge engineers and designers for its aesthetic appeal and efficiency.

Materials: Art straws, paper (not cardboard), cups (small plastic or paper), ice lolly sticks (max length 20cm), white PVA glue, string.

Primary – Year Groups 3 to 6

The goal for primary pupils is to build bridges based on their own designs to be judged in one of two categories. Each school can submit two overall models, one for each category - **efficiency** and **aesthetics**.

In civil engineering, the best solution may not always be the biggest or strongest bridge. Typically designs are driven by limitations such as money or availability of resources. We will be testing for **efficiency** by first weighing the bridge, then testing its maximum downward load. These constraints often push us to find a solution that satisfies these limitations most efficiently.

Professional designers, who create real buildings and bridges as a career, will judge your bridge on style and construction. All bridges must meet **aesthetic** criteria because they must appeal to the users and complement their environment. For further details on the new bridge and design information visit http://www.telford.gov.uk/info/20368/telford_central_footbridge/3387/visuals_and_plans

Primary prizes

Efficiency Prize: RAF Museum Cosford will host a whole-class rocket cars building workshop where pupils will develop their understanding of friction, aerodynamics, team building and communication as they work in small teams to design their own vehicle out of K'nex.

During the workshop, students will use a variety of resources, designing and building a rocket-powered vehicle and launching it safely. They will then evaluate their design and make changes throughout the workshop to compete with their classmates for the most successful model.

Aesthetics Prize: Enginuity Science Museum in Coalbrookdale will host pupils while they learn about the interactive forces of gravity, friction, air resistance and thrust through a team buggy racing challenge.

Each team designs the body of their buggy, evaluating the success of different materials and construction techniques as they go along and testing it throughout the session - identifying ways to make improvements, culminating with a race at the end.

To Enter

The challenge coordinator must select the bridge they feel has the best chance of success and the bridge will need to delivered to Granville House, St Georges Road, Donnington Wood, Telford, TF2 7RA between 9am – 12noon on Friday, June 22, 2018.

Complete the primary school form here:
Primary www.telford.gov.uk/BridgeBuildSPPrimary

Closing date: 12noon Friday, June 22, 2018.

4.0 Bridge Building

Secondary – Year Groups 7 to 11

The goal for secondary pupils is to build bridges based on their own designs to be judged in one of two categories. Each school can submit two overall models, one for each category - **efficiency** and **aesthetics**.

In civil engineering, the best solution may not always be the biggest or strongest bridge. Typically designs are driven by limitations such as money or availability of resources. We will be testing for efficiency by first weighing a bridge, then testing its maximum downward load. These constraints often push us to find a solution that satisfies these limitations most efficiently.

As you will be aware pupils in **Year 11 will be taking exams during the period of the competition**. We would recommend that schools think carefully about Year 11 pupils participating and adding extra pressure to an already busy timetable.

Secondary prize

Efficiency Prize: The prize for efficiency is sponsored by Jacobs includes return transport from Telford. Entry for up to six pupils and two adults from the winning school to British Airways i360 – the innovative new observation tower on Brighton beach, guided by an expert engineer.

British Airways i360 has one of the most slender towers in the world and is a magnificent feat of engineering. Visitors glide up gently in a giant glass viewing pod 10 times the size of a London Eye capsule for breathtaking 360° views across the Sussex coastline. Visit <http://britishairwaysi360.com> for full details.

Aesthetics Prize: The prize for aesthetics will be a visit to RAF Museum Cosford and whilst on a self-guided visit, pupils will have exclusive access onto one of RAF Museum Cosford's aircraft – something on the average visitor doesn't get to experience. This visit will be arranged independently through the museum and the school on a date to suit.

To Enter

The challenge coordinator must select the bridge they feel has the best chance of success and the bridge will need to be delivered to Granville House, St Georges Road, Donnington Wood, Telford, TF2 7RA between 9am – 12noon on Friday, June 22, 2018.

Complete the form here:

Secondary www.telford.gov.uk/BridgeBuildSecondary

Closing Date: 12noon Friday, June 22, 2018.

Balfour Beatty
JACOBS®

**IRONBRIDGE
GORGE MUSEUMS**

ROYAL AIR FORCE museum
COSFORD

 **BRITISH AIRWAYS**
i360

 **West Midlands Railway**

 **STEM**
AMBASSADORS

Terms & Conditions

This bridge naming and bridge building challenges are both being run by Telford & Wrekin Council.

The bridge **naming** challenge is open to all primary/secondary schools in the Borough of Telford & Wrekin and pupils are limited to one entry per pupil which should be submitted by 5pm on Monday, September 3, 2018.

In the event of a tie involving matching answers to the naming challenge, the winner will be judged on the strength of their answer to the tiebreak question. Cabinet members will judge the entries and their decision is final.

Entries not providing contact details or an answer to the tiebreak question for the naming challenge will not be considered. Judges will select 10 finalists but reserve the right not to use any of the proposed names if deemed unsuitable.

The winner will be contacted by email by Wednesday, October 31, 2018.

The winners of the naming challenge will be invited to attend the opening ceremony of the bridge. The bridge is expected to be completed by the end November. The date of this is to be confirmed and the Council will endeavour to provide as much notice as possible of the event which may be during school hours.

The bridge **building** challenge is open to primary/secondary schools Years 3 to 11 in the Borough of Telford & Wrekin. We'd like to encourage whole schools to participate in the event but only Years 3 to 11 can go through to the finals - due to the suitability of prizes.

Primary and secondary schools can submit a maximum of two bridges for the bridge building challenge which will be

judged on two criteria - **aesthetics** and **efficiency**.

It is the responsibility of the project coordinator from each competing school, to assess the structures they would like to submit for each category.

Entries for the bridge building challenge should be delivered to Granville House, St Georges Road, Donnington Wood, Telford, TF2 7RA between 9am – 12pm on Friday, June 22, 2018.

Once submitted, bridges will be tested to destruction and will not be returned.

Judges from Telford & Wrekin Council, Balfour Beatty and Jacobs will test the bridges and winners will be presented with their prizes at the Digital Day at apprx 3.30pm on Thursday, June 28 2018.

The closing day for the bridge building competition is 12noon on Friday, June 22 2018.

Entries not providing contact details, exceed the specified measurement criteria or materials will not be considered.

By entering these challenges, the entrant will be invited to have photographs, their name and/or commentary published for publicity purposes.

Telford & Wrekin Council reserves the right to amend these rules at any time.

The prizes are not transferable to another person but should a pupil from the winning team be unable to attend, the prize can be offered to another pupil from the winning school in the relevant age group.

No part of the prizes are exchangeable for cash or any other prize.

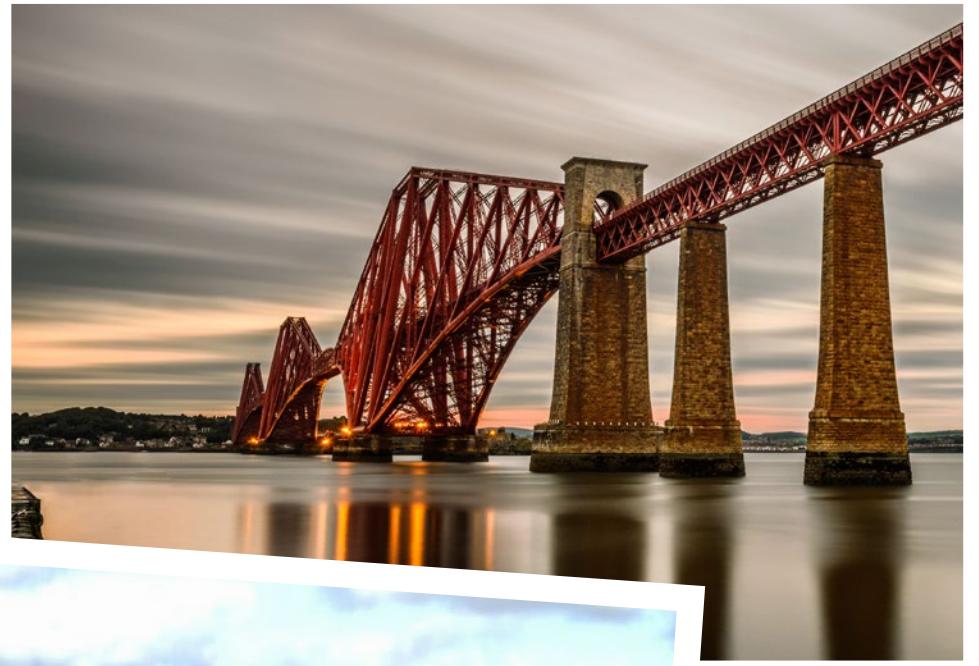
Should an advertised prize be unavailable, we reserve the right to offer an alternative prize.

Incorrectly completed entries will be disqualified as will those deemed unsuitable by the judges due to being contrary to the spirit of the challenge.

No responsibility can be accepted for entries which are lost or delayed, or not received for any reason.

Any personal information being held meets requirements under Article 9(2)(c) & (h) of the General Data Protection Regulations 2018 or equivalent United Kingdom legislation. Telford & Wrekin Council will not share any of your personal data collected with external organisations unless required to do so by law. For further details on the council's privacy arrangements please view the privacy page on the Council's <http://www.telford.gov.uk/terms>

For further information contact James Corrigan
james.corrigan@balfourbeatty.com



Picture this page (clockwise):

River Dee Bridge, Ballatar; Forth Railway Bridge, Edinburgh;
and Artist impression of the new Telford Central footbridge

