Glasgow Science Festival
Creating Engineers 2018

Classroom Heat

Build a Bridge

The scenario

The new bridge across the River Forth is due to open in May this year. The Engineers who designed this bridge have been asked to design and build a new road bridge over the river Clyde and they need your help.
Can you design and build a bridge that will allow all vehicles to cross the river but also allow boats, which may be taller than the bridge, to pass under?

The Challenge

You have ONE HOUR.
Your task is to design and build a **bridge** which can span across 2 desks and have **a way of opening** to allow boats to pass under. The bridge needs to be able to support the weight of a small bottle of water without collapsing and open to allow any size of boat through.

The Specifications

Your bridge must:

- Be **at least** 19cm high (the height of a grey K'Nex rod)
- Be **at least** 30cm long (the length of a standard ruler)
- Have a strong robust structure to stand on its own
- Be able to support the weight of a small bottle of water or equivalent weight
- Be able to open to allow tall river vessels to pass through safely.

Things to think of

- Remember to discuss plan and draw your design
- What K'Nex pieces have you been given? How do they connect together?
- Are smaller rods with more connectors better than long rods with less connectors?
- Can the structure stand without tipping - with and without the weight of the water?
- Does your bridge have a road wide enough for your water bottle to sit?
- How is your bridge going to open to allow boats to pass through – is it going to lift up or move to the side?
- Levers, pulleys and ropes will all gain more points as will any innovative designs!

GOOD LUCK!