

2020 Edition



Building Bridges

A Primary STEM Activity Booklet



01 Introduction - Building Bridges

Bridge Design & Construction

A **BRIDGE** is a **STRUCTURE** built to provide passage over water, a valley, or a road, without closing the way underneath.

There are many different **BRIDGE DESIGNS** that each serve a particular purpose and apply to different situations.

Designs of bridges are different and depend on the **FUNCTION** of the bridge, the **MATERIALS** used to make it, and how much it will cost to build.

CIVIL ENGINEERS are involved in designing, building and looking after bridges once they are built.

Could **YOU** be a **CIVIL ENGINEER**?

We need **YOU** to help us design and build a bridge that you think would work to cross a road or river in your town.

Can your bridge hold a paper or plastic cup with coins in?



01 Different Bridge Designs



TYPES OF BRIDGES

arch bridge



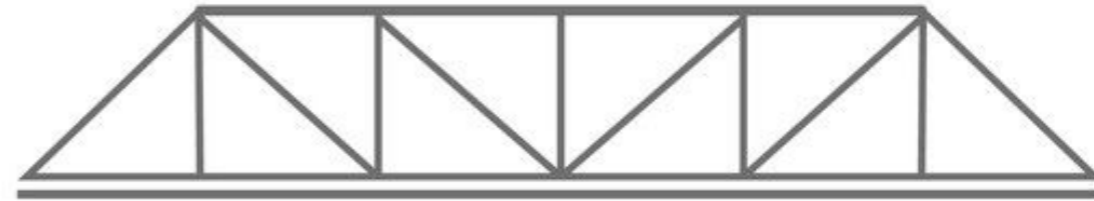
tied arch bridge



cantilever bridge



truss bridge



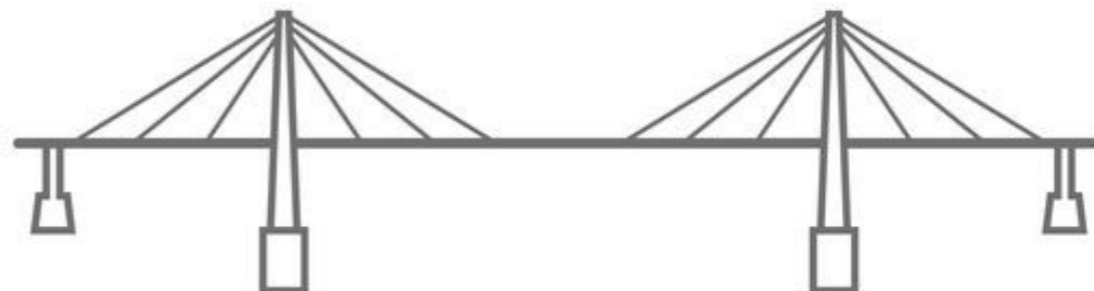
beam bridge



suspension bridge



cable-stayed bridge



Early Years Foundation

Building Bridges

Design, Build, Describe, Measure

All about You

Please fill in the form below with your details. If you were going to **BUILD** a Bridge on site, you would have to wear protective clothing. Using the examples, draw yourself in the PPE to show us what you would look like on site.

My name is:

My school is called:

I am in Year:

My class is called:

I am this old:



Bridge Design

Please use this sheet or a plain A4 sheet of paper to **DESIGN** your Bridge.

Think about the **TYPE** of bridge that you want to build, what **MATERIALS** you would like to make it out of, and how you would like to **DECORATE** it. You can use **ANY** materials you have available to build your bridge. This could include cardboard, paper, recycled materials, Lego, Duplo or any other available materials.



Build Your Bridge

Please include a photograph of the finished bridge.

Show how your bridge works, how it is decorated, and if it can go over any spaces or pretend roads / rivers. Show us if your bridge can hold a paper / plastic cup with some coins in. You can be in the photograph if you want.



Describe Your Bridge

Please use this sheet or a plain A4 sheet of paper to write down any words you can to **DESCRIBE** your bridge.

Think about the **SHAPES** that you have used for your bridge, what **MATERIALS** you have used, and how you have **DECORATED** it.

My bridge is

Describing words

My bridge has

Shapes

My bridge is made of

Materials

My bridge is the best because

Describing words

Measurements

Please use this sheet or a plain A4 sheet of paper to write down any words you can to **MEASURE** your bridge.

Think about the **HEIGHT**, the **LENGTH** and the **WIDTH** of your bridge and how many different **MATERIALS** you have used.

How many different materials did you use?

How **LONG** is your bridge?

cm

How **TALL** is your bridge?

cm

How **WIDE** is your bridge?

cm

Key Stage 1

Building Bridges

Design, Build, Describe, Measure

All about You

Please fill in the form below with your details. If you were going to **BUILD** a Bridge on site, you would have to wear protective clothing. Using the examples, draw yourself in the PPE to show us what you would look like on site.

My name is:

My school is called:

I am in Year:

My class is called:

I am this old:



Bridge Design

Please use this sheet or a plain A4 sheet of paper to **DESIGN** your Bridge.

Think about the **SHAPES** that you would want to use for your bridge, what **MATERIALS** you would like to make it out of, and how you would like to **DECORATE** it. **You can use ANY materials you have available to build your bridge. This could include cardboard, paper, recycled materials, Lego, Duplo or any other available materials.**

Build Your Bridge

Please include a photograph of the finished bridge.

Show how your bridge works, how it is decorated, and if it can go over any spaces or pretend roads / rivers. Show us if your bridge can hold a paper / plastic cup with some coins in. You can be in the photograph if you want.

Describe Your Bridge

Please use this sheet or a plain A4 sheet of paper to write down any words you can to DESCRIBE your bridge.

Think about the **SHAPES** that you have used for your bridge, what **MATERIALS** you have used, and how you have **DECORATED** it.

Measurements

Please use this sheet or a plain A4 sheet of paper to write down any words you can to **MEASURE** your bridge.

Think about the **HEIGHT**, the **LENGTH** and the **WIDTH** of your bridge and how many different **MATERIALS** you have used.

How many different materials did you use?

How **LONG** is your bridge?

cm

How **TALL** is your bridge?

cm

How **WIDE** is your bridge?

cm

Key Stage 2

Building Bridges

Design, Build, Describe, Measure, Research

All about You

Please fill in the form below with your details. If you were going to **BUILD** a Bridge on site, you would have to wear protective clothing. Using the examples, draw yourself in the PPE to show us what you would look like on site.

My name is:

My school is called:

I am in Year:

My class is called:

I am this old:



Bridge Design

Please use this sheet or a plain A4 sheet of paper to **DESIGN** your Bridge.

Think about the **TYPE** of bridge that you want to build, what **MATERIALS** you would like to make it out of, and how you would like to **DECORATE** it. You can use **ANY** materials you have available to build your bridge. This could include cardboard, paper, recycled materials, Lego, Duplo or any other available materials.

Build Your Bridge

Please include a photograph to show the finished bridge.

Please use a photograph to show the finished bridge. Show it going between two chairs or tables (or another space) and if it can hold a paper / plastic cup with coins in. You can be in the photograph if you want.



Describe Your Bridge

Please use this sheet or a plain A4 sheet of paper to write down any words you can to **DESCRIBE** your bridge.

Think about the **TYPE** of bridge you have built, the **STRUCTURES** and **SHAPES** used, how **STRONG** it is, what **MATERIALS** it is made of and how it is **DECORATED**.

Measurements

Please use this sheet or a plain A4 sheet of paper to write down any words you can to **MEASURE** your bridge.

Think about the **HEIGHT**, the **LENGTH** and the **WIDTH** of your bridge and how many different **MATERIALS** you have used.

How many different materials did you use?

How **LONG** is your bridge?

cm

How **TALL** is your bridge?

cm

How **WIDE** is your bridge?

cm

Research

With an adult, use the internet to **RESEARCH** the following words that are used when talking about **BRIDGES**.

Write down below what each word means.

Tension	
Compression	
Span	
Beam	
Abutment	
Pier	

Research

With an adult, use the internet to **RESEARCH** the following **TYPES OF BRIDGES** and **DRAW** a diagram of
Also write down the name of a **FAMOUS BRIDGE** of that type.

Suspension Bridge

Famous Bridge:

Cantilever Bridge

Famous Bridge:

Cable-Stayed Bridge

Famous Bridge:

Arch Bridge

Famous Bridge: