

# Towers, Tunnels and Turrets



Year Group: 1/2

Cycle B

## History

- Changes within living memory: Transport over time, including uses of bridges and tunnels
- Significant individuals (Isambard Kingdom Brunel)

## Design and Technology

- Design and build either a tower or bridge to solve a problem

## Climate/Environment

- Comparing forms of transport – which are most/least environmentally friendly?

## Computing

- Animation

## Science

- Everyday materials

# Science

**National Curriculum (Knowledge and Skills):** Pupils should be taught to:

## Year 1

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties

## Year 2

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

- ask simple questions and recognise that they can be answered in different ways
- observe closely, using simple equipment
- perform simple tests
- gather and record data to help in answering questions
- identify and classify
- use their observations and ideas to suggest answers to questions

### Suggested Investigation:

Bridges investigation (linked to DT) - <https://www.tes.com/teaching-resource/bridges-investigation-6063384>

### Climate/Environment Focus- children will also learn:

- Which forms of transport have the most/least impact on the environment, and what they can do to reduce their own carbon emissions

### Prior Learning

#### Forever Firs children working at ARE in Year 1 should already be able to:

- Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. (ELG KUW:TW)

#### Forever Firs children working at ARE in Year 2 should already be able to:

- See Year 1 statements above

### Key Vocabulary

Tier 1		Tier 2		Tier 3	
Year 1 Water	Year 2 Wood Plastic Glass Metal Rock Paper Cardboard Brick Shape Same Different	Year 1 Object Material Wood Plastic Glass Metal Rock Properties Compare Group Same Different	Year 2 Object Material Suitable Use Solid Twist Bend Stretch Squash Similar	Year 1 Transport Environment Carbon Pollution Greenhouse gas Climate change	Year 2 Transport Environment Carbon Pollution Greenhouse gas Climate change

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## Science Assessment

Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE
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## History

**National Curriculum:** Pupils should be taught about:

- changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life.
- the lives of significant individuals in the past who have contributed to national and international achievements. Some should be used to compare aspects of life in different periods.

**Key Lines of Enquiry:**

- Changes in transport over time
- Isambard Kingdom Brunel and his contribution to improvements in transport including faster railway travel

**Curriculum Intentions (key knowledge to be learned):**

- Isambard Kingdom Brunel was a famous engineer who lived around 200 years ago.
- IKB's designs helped people to travel much faster across the country and across the world.
- He designed the Great Western Railway, and used bridges and tunnels to make sure the railway line could stay as straight as possible – this meant the train could go faster.
- He designed a ship that could get from England to America in only 15 days – the fastest ship at that time!
- Children will learn to order types of transport according to when they first came into common use including horse drawn transport, sail boats, motor boats, steam trains, electric trains, bicycles, motorbikes and cars

**Age Related Subject Skills (Progression Guidance):**

- Develop, then demonstrate an awareness of the past, using common words and phrases relating to the passing of time
- Show where places, people and events fit into a broad chronological framework
- Begin to use dates
- Develop, the use a wide vocabulary of historical terms, such as: a long time ago, recently, when my... were younger, years, decades, centuries
- Ask and begin to answer questions about events e.g. When? What happened? What was it like.? Why? Who was involved?
- Understand some ways we find out about the past e.g. using artefacts, pictures, stories and websites
- Choose and use parts of stories and other sources to show understanding of events
- Communicate understanding of the past in a variety of ways
- Identify different ways that the past is represented e.g. fictional accounts, illustrations, films, song, museum displays
- Discuss change and continuity in an aspect of life e.g. holidays
- Recognise why people did things
- Recognise why some events happened
- Recognise what happened as a result of people's actions or events
- Identify similarities and differences between ways of life in different periods, including their own lives
- Recognise and make simple observations about who was important in an historical event/account e.g. talk about important places and who was important and why

**Prior Learning**

Forever Firs children working at ARE should already be able to:

- Order and sequence familiar events eg: family customs and routines
- Use everyday language to talk about time
- Measure short periods of time in simple ways
- Develop the of use everyday language to talk about time to compare quantities and objects and to solve problems.
- Comment and asks questions about aspects of their familiar world such as the place where they live or the natural world.
- Enjoy joining in with family customs and routines
- Identify their family's routines/ traditions
- Know the difference between past and present events in their own lives and some reasons why people's lives were different in the past

- Know about similarities between themselves and others, and among families, communities and traditions
- Know the difference between past and present events in their own lives and some reasons why people's lives were different in the past
- Talk about past and present events in their own lives and in the lives of family members

**Key Vocabulary**

Tier 1		Tier 2		Tier 3	
Boat	Car	Centuries	Bridges	Engineer	
Ship	Horse	Designs	Tunnels		
Train	Bicycle	Inventions	Railway		
Motorbike	Same	Change	Speed		
Different		Similar	Travel		

**History Assessment**

Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE




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## Design and Technology

**National Curriculum:** Pupils should be taught to:

- build structures, exploring how they can be made stronger, stiffer and more stable
- evaluate their ideas and products against design criteria
- select from and use a range of tools and equipment to perform practical tasks [e.g. cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

**Curriculum Intentions (Key Knowledge and Skills to be learned):**

- Children will explore a variety of materials and construction techniques in order to design and build either a tower or bridge to solve a problem e.g. a bridge to reach between two tables for a model car to drive over, or a high tower to keep the treasure safe (see science investigation)

**Age Related Subject Skills (Progression Guidance):**

### Design

- State the purpose of the design and the intended user
- Explore materials, make templates and mock ups e.g. moving picture / lighthouse
- Generate own ideas for design by drawing on own experiences or from reading

### Make

- Select from a range of tools and equipment explaining their choices
- Select from a range of materials and components according to their characteristics
- Follow procedures for safety
- Use and make own templates
- Measure, mark out, cut out and shape materials and components
- Assemble, join and combine materials and components Use simple fixing materials e.g. temporary – paper clips, tape and permanent – glue, staples
- Use finishing techniques, including those from art and design

### Evaluate

- Talk about their design ideas and what they are making
- Make simple judgements about their products and ideas against design criteria
- Suggest how their products could be improved
- Evaluating products and components used
- Investigate - what products are, who they are for, how they are made and what materials are used

### Technical Knowledge

- Understand about the simple working characteristics of materials and components
- Know the correct technical vocabulary for the projects they are undertaking
- Understand how freestanding structures can be made stronger, stiffer and more stable

**Prior Learning - Forever Firs children working at ARE should already be able to:**

### Physical Development

*(40-60 months)*

- Use simple tools to effect changes in materials
- Handle tools, objects, construction and malleable materials with safety and increasing control
- Show understanding of how to transport and store equipment safely

**(ELG)**

- Handle tools and equipment effectively

### Expressive Arts and Design

*(40-60 months)*

- Understand that different materials can be combined to create new effects
- Manipulate materials to achieve a planned effect
- Construct with a purpose in mind, using a variety of resources
- Use simple tools and techniques competently and appropriately
- Select appropriate resources and adapts work where necessary
- Select tools and techniques needed to shape, assemble and join materials they are joining

**(ELG)**

- Safely use and explore a variety of materials,

	tools and techniques, experimenting with colour, design, texture, form and function
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**Key Vocabulary**

Tier 1	Tier 2	Tier 3
Tall Long Strong weak	build stiffer stronger stable evaluate design improve	materials cutting joining bridge tower bricks construct characteristics

**Design and Technology Assessment**

Children working below ARE	Children working towards ARE	Children working at ARE	Children working above ARE
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## Computing

### National Curriculum:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content

### Key Lines of Enquiry:

- Children will learn how to create a simple animation linked to the transport theme of the topic

### Curriculum Intentions (Key Knowledge to be learned):

#### Year 1

- Children will be able to describe simple movements of how things move
- Children will be able to give instructions to their partner to make them do movements (drama). E.g. Walking: pick up your left leg, move it forward, put it down etc.
- Children will be able to describe different directions of movement: up and down, left to right, diagonal, circular etc.
- Children will be able to draw in 2create a story
- They will be able to explain what movements they want their drawing to do.
- They will be able to use the 'animation' button to add movements.  
<https://www.youtube.com/watch?v=u6NIVyMqJf0>

#### Year 2

- Children will understand that movements can be broken down in to steps/instructions
- Children will be able to say the steps involved in doing simple movements (drama link). For example: Waving, moving the arm from the elbow so the hand is near the shoulder, opening hand, moving hand from side to side.
- Children can then link this to making a figure to simple movements (split pin figures) E.g.  
<https://www.youtube.com/watch?v=o-Gvmb88Q1Q> <https://www.youtube.com/watch?v=my9YV7jdc34>
- Children will understand that by doing the steps at speed can look like something is moving.
- They will understand that you can take photos and play them at speed to show movements (understanding a simple definition of stop frame animation)
- Children will be able to take photos of themselves doing movements at slowly and play them back at speed.
- They will learn to create split pin figures/transport and be able to create a simple movement.
- They can take photos (using the netbook webcam, or camera) of their split figures in at least 5 frames to show a simple movement.

### Age Related Subject Skills (Progression Guidance):

- Pupils learn to make a simple animation, for instance in Puppet Pals

#### Year 1

To make animated pictures/drawings in 2create a story  
<https://www.youtube.com/watch?v=u6NIVyMqJf0>  
seesaw example)

#### Year 2

To create a stop frame animation using split pin figures

### Prior Learning

Forever Firs children working at ARE should already be able to:

(40-60 Months)

- Complete a simple program on a computer.
- Uses ICT hardware to interact with age-appropriate computer software.

### (Early Learning Goal)

- Recognise that a range of technology is used in places such as homes and schools.
- Select and use technology for particular purposes.

### Key Vocabulary

Tier 1	Tier 2	Tier 3
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movement steps instructions quick slow	body parts story left right up down	photograph video animate animation cartoon	camera	stop frame diagonal vertical horizontal	
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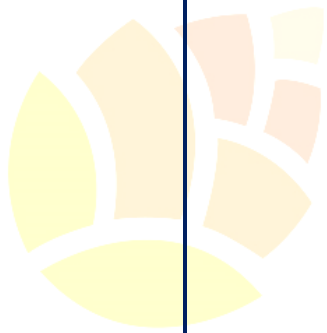
## Computing Assessment

Children working below ARE

Children working towards  
ARE

Children working at ARE

Children working above ARE



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