



## Find out about Semaphore Tower's past...



Sir Home Riggs Popham

1762 - 1820

Hello! Welcome to Semaphore (**say sem-ah-for**) Tower! My name is Henry, the year is 1823 and I'm 8 years old. My dad is Lieutenant Harries, he used to serve in the Royal Navy but as he's getting a bit old now, they've sent him here to operate the semaphore signals. Our tower is just one in a chain that goes all the way from London to Portsmouth.

To you and I, **semaphore** is a fancy way of saying 'signal' – it's a system used to get messages across long distances. Dad says that the French inventor of the system, Claude Chappe, made up the word from the Greek symbols for 'sign', 'carrying' and 'to bear'.

Before this, they used flags or moving balls but you couldn't see these very well in bad weather so a man called **Home Riggs Popham** (what a silly name!) created a new system using wooden arms, like the ones used here. Interesting, eh?

### Fact:

**Sir Home Riggs Popham** joined the Royal Navy when he was 16 and rose to be a Rear Admiral. He created the semaphore system we see at Chatley Heath in 1816. It was first designed to be used for ship-to-ship communication, but it worked well across the land too. With his system, on a clear day, a message could be sent 75 miles from London to Portsmouth in just 15 minutes!

When we moved in, dad showed my brother Samuel and I how to operate the arms on the mast. You use little handles to wind them up or down.\* Each position you put them in is a different letter in the alphabet or has its own meaning. It's great fun, but dad says we must never use it whilst he's not there as we might accidentally send a message that could trigger a war!

My brother and I draw the different signals down on paper to send secret messages to each other – this really annoys mum, as she's never been able to remember which signal goes with which letter and can't decipher our code! Why don't you try to draw down your own secret message using the signals? (You can find a copy of the letters in the 'Create' section of this pack.)

*\*(Sorry the handles aren't in place for your stay, so you won't be able to turn them!)*



It has taken us quite a bit of time to get used to living here – we used to live at the Naval Base in Plymouth, which is a busy place. Every day we'd be woken up by the hustle and bustle of town life (and the seagulls), but it's so peaceful here.

To stop us from getting bored, mum and dad make us help in the vegetable garden we planted when we moved in. The trip to the nearest town is quite long so we grow our own veg to save time and money.

I've started growing pumpkins and potatoes, and mum says next season we should have pears on the trees – yum!

Do you grow any vegetables in your garden at home? Or perhaps there's a vegetable patch at your school?



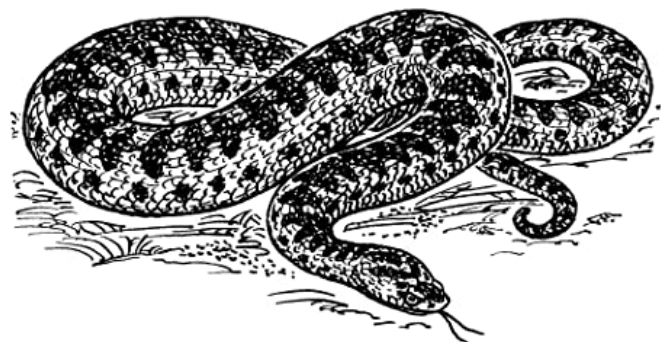
## Fact:

Chatley Heath is a rare heathland habitat that is home to many different species of birds and reptiles.

There's so much land here, Samuel and I love playing hide and seek amongst the trees and on the heathland. Last week I was hiding for 20 minutes and because I was sitting so still, I managed to spot an adder – that's a snake with a diamond pattern on its back. I was smart enough to stay away from it though as they can give you a nasty bite! I wonder if you've seen any wildlife during your stay?

We also have four chickens and two pigs in the garden – something I'd never have imagined having when we lived in Plymouth.

I've called my two chickens Popham and Chappe after the inventors of the semaphore systems. They're really friendly now and will take the grain right from my hands. Do you have any pets?



# Unruly Rulers



## Who were the Georgians?

The **Georgians** were nobles from Germany. George I was King James I's great grandson. So when Queen Anne died with no heirs George became king. They are called **Georgians** because they are all called George (apart from William – but he wasn't meant to be king anyway!) They came from **Hanover** in Germany so this time is called the **Hanoverian** (say 'han-o-ver-ee-an') period.



1714 **King George I**

A king from Germany who couldn't speak much English. He kept his wife in prison for 32 years - how mean!

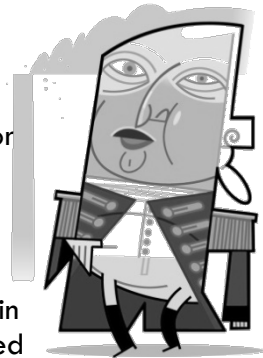


**King George II** 1727

A boring king who only liked to fight battles. He died on the toilet of constipation, pooh!

1760 **King George III**

A popular king who went mad. He started talking to an oak tree in Windsor thinking it was Frederick the Great! Poor Georgie, he had to stop ruling as he was so mad.



George III's son George IV had to step in and rule as Prince Regent. This was called the **Regency Period**.



**King George IV** 1820

A bad king who ruined all his dad's hard work. He loved to drink, eat and party!

1830 **King William IV**

A simple king who wanted to be a sailor but was too stupid to command a ship. He would sometimes offer people a lift in his carriage!





## Meet King George IV – who ruled when Semaphore Tower was built.



### Hi George!

#### So when did you become king?

Well, I became Regent in 1811 because my dad became ill and eventually became King on 29 January 1820 when I was 48.

#### What are you most famous for?

My extravagant lifestyle...

#### What is your favourite thing to do?

I love to eat, drink and throw big parties, but I'm also a lover of the arts!

#### What is the naughtiest thing you've ever done?

My dad was a great king until he went mad, a lot of people say I ruined all the hard work he'd put into the country – the cheek of it!



## What does Semaphore Tower look like?

Can you walk all the way around it?

Can you use any of these words to describe the building? Draw a circle around the ones that do.

Does Semaphore Tower look similar to other buildings in the area?

Castle

Tall

Pretty

Industrial

Stone

Brick

Symmetrical

Home

Square

Elegant

Friendly

Low

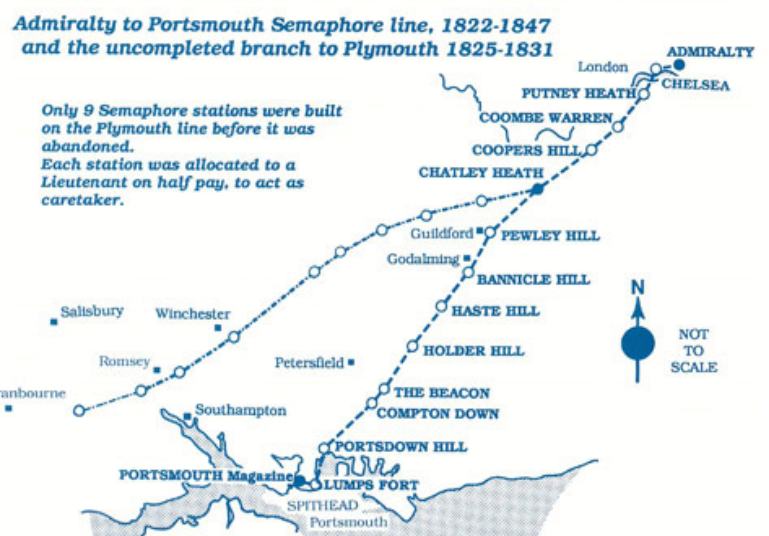
In 1816 the Admiralty – that’s the government department who command the Royal Navy in Britain – ordered a line of semaphore towers to be built between Admiralty House in London and the docks in Portsmouth. This was so that they could pass messages along the line and warn of any invasions with the use of signalling arms.

Chatley Heath Semaphore Tower was completed in 1822 and it was the only one in the line of towers that had five storeys – this was because there were seven miles between it and its two neighbouring towers so it needed to be clearly visible!

The tower is octagonal (say **oct-ah-gon-all**) and is 18 metres tall.

The 12-metre mast is hollow and two signalling arms are folded down inside it. They’re connected with steel rods and dials to handles inside the tower that make them go up and down. The different positions of the arms mean different letters and coded messages.

For 20 years, messages were sent up and down the line, but with the introduction of the railways and electric telegraph systems, the towers were no longer needed, and the line was closed in 1847.



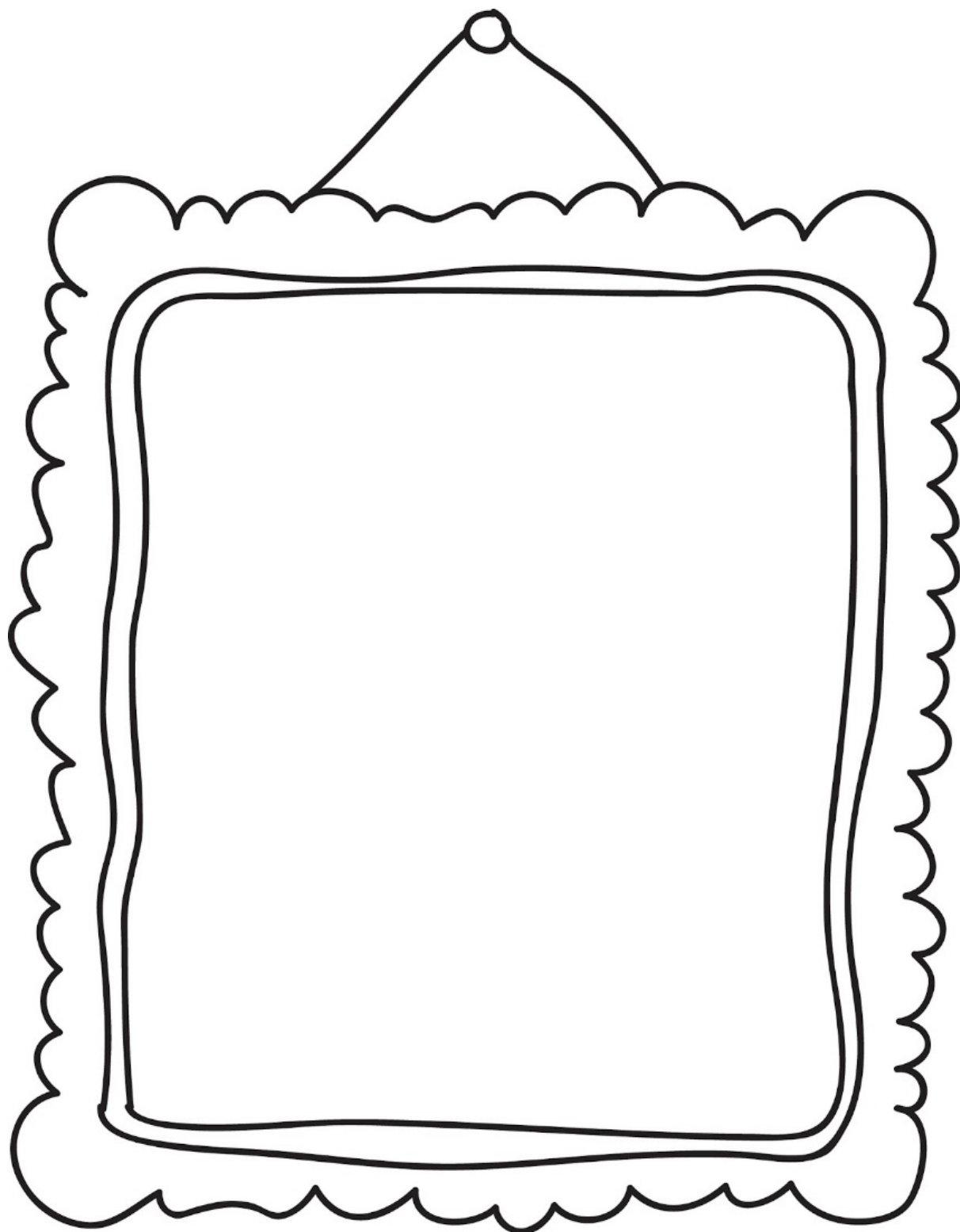
This image shows the positioning of the towers in the line. The second line, which splits off from Chatley Heath, was planned but never built. Can you find the tower you’re staying in?



Buildings are quite easy to draw. They are usually made up from lots of geometric shapes, like squares, triangles and circles.

**Have a go at drawing Semaphore Tower.**

Please tell an adult where you are going so they don't worry about where you are!





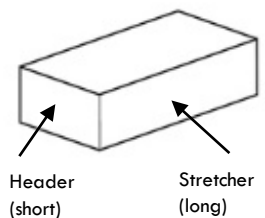
## What is Semaphore Tower built from?

### Fact:

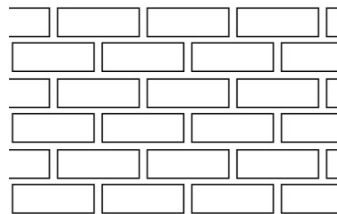
The earliest bricks date back to about 7,500BC and were made of mud. The mud was packed into wooden moulds. They were then turned out and left to dry in the sun until they were hard. The first fired bricks were made around 3,000BC. Fired bricks are harder and last longer in wetter climates.

Today we make bricks in factories by mixing together clay, sand and lime. This mixture is poured into a mould, dried and then fired in an oven at 1100 degrees.

Bricks have a long and a short face like this.

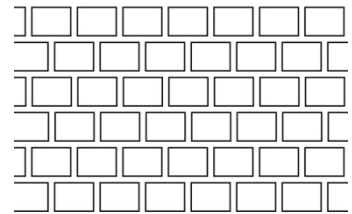


They are arranged in layers, or courses which have different patterns.



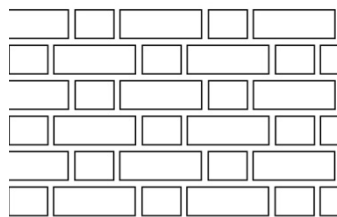
### Stretcher bond

The simplest bond to lay – using the long face of the brick.

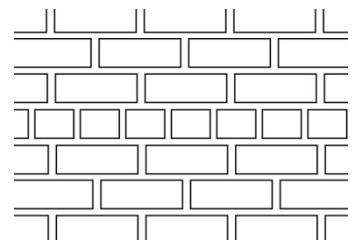


### Header bond

The bricks are laid with the header facing outwards. The header is the end of the brick.



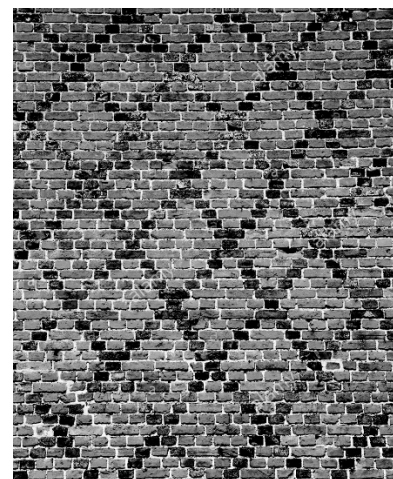
**Flemish bond** Bricks are laid with one header and one long face.



**English bond** Three rows of long face and one row, of headers.

Try colouring in the short end on the brick patterns above, so you can see the pattern.

Some architects and builders were a bit more creative and designed very beautiful walls like these ones here. They used different coloured bricks to make these patterns.



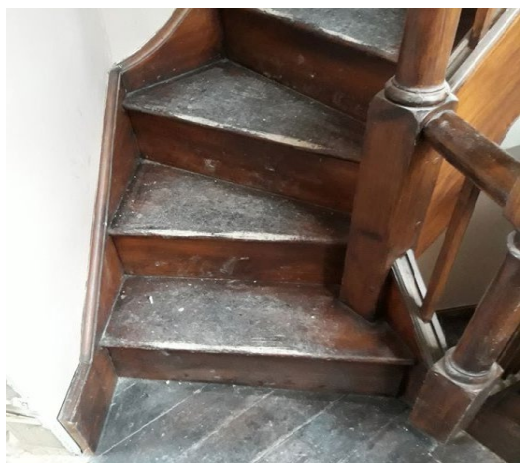






## Phew – that’s a lot of stairs...

How many steps are there at Semaphore Tower?



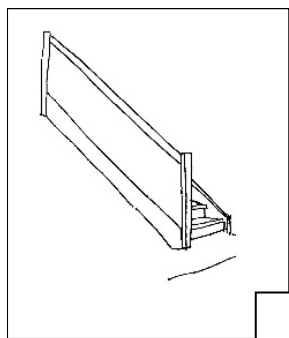
### Fact:

Staircases are made up of **treads** and **risers**. The **treads** are the parts which you step on, the **risers** are the vertical parts between each **tread**.

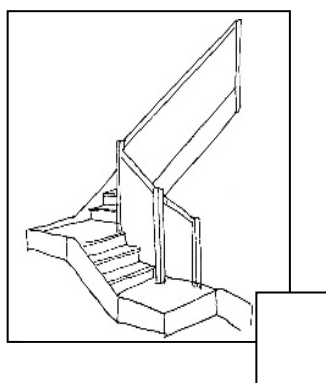
This photograph was taken during the restoration of the tower.

Can you see how the wooden treads are worn out from so many pairs of feet stomping up them over time?

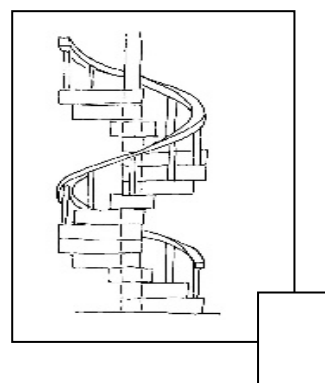
There are many different styles of staircases. Which style is closest to the staircase at Semaphore Tower?



Straight



Quarter turn



Spiral

### Fact:

Have you noticed that spiral staircases go clockwise when you're going up and anti-clockwise when you're going down? Most people carry their sword in their right hand and if they were climbing the stairs to attack, they would be showing more of their body to the defender above them.

Do you have stairs in your home? Are there as quite as many as there are at Semaphore?

# Quest



## Discover more about Semaphore Tower.

The Semaphore Tower has stood on this site since 1822. Although there was a serious fire here in 1984, the tower was restored back to exactly how it always was (except that the mast stops on the top floor – in 1822 it went right through the building to the first floor!) Follow this Quest to discover more about it now.

### What are these dials for and where might you find them?

You can find these dials in the kitchen – they are part of the **mechanism** (say *mek-an-ism*) that controls the signal arms. They show the position of each arm.



### Have you found the mini Semaphore Tower?

This is a scale model of the tower – this means that it's a copy of an object which is bigger or smaller than the real size of the object. Scale models can act as guides when building or restoring buildings. You can have a go at making your own scale models out of cardboard boxes and tubes.

### Fact:

When talking about buildings, a **footprint** means the space that the building takes up on the land. It's not the same as the footprint you make with your muddy boots!

Towers usually have very small footprints.



The image above is called a **panorama** (say *pan-oh-raa-mah*). Panoramas show clear and complete views. If you or an adult you are staying with has a mobile phone, you may be able to take your own panoramic picture from the roof top. What do you think you'll be able to see?

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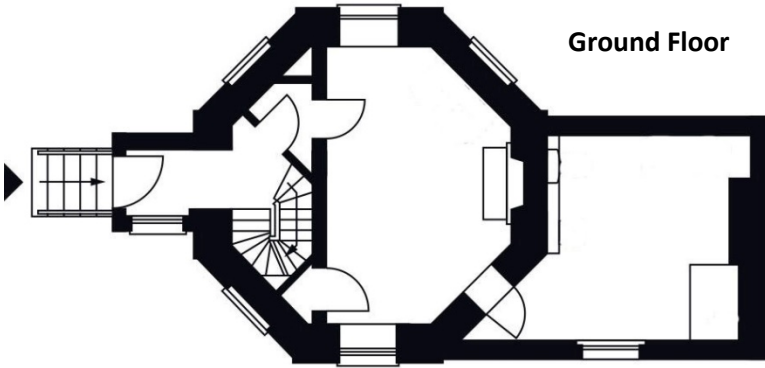
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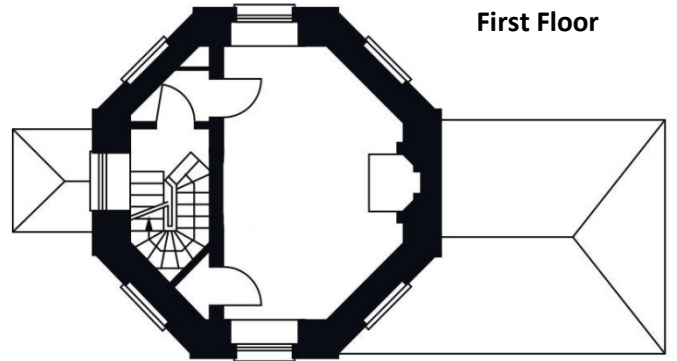
## Living in Semaphore Tower

The floorplan of a building is a map of the rooms. Semaphore Tower has six floors including the basement. The plans below show you the shape the rooms. Take a walk around each floor. Can you identify the rooms and write on the plan how they are used today? Mark the bedroom you are sleeping in with a star. ★

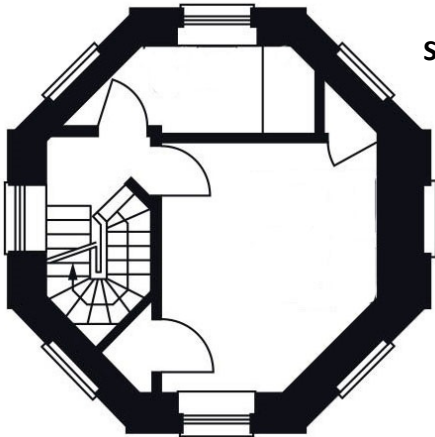
Ground Floor



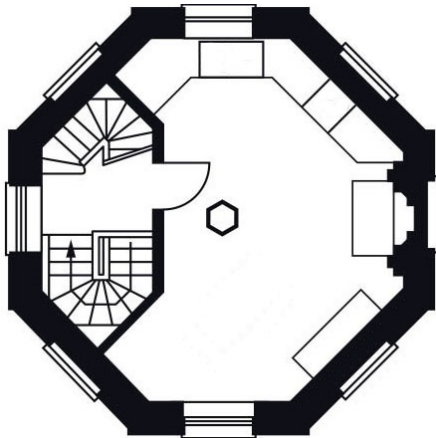
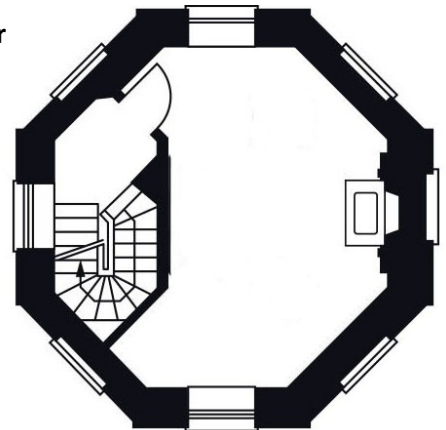
First Floor



Second Floor



Third Floor

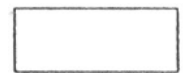


Fourth Floor

We use these symbols to show where beds, tables and bathrooms are. Add the symbols on to the floorplans to show where the furniture is.



Bed



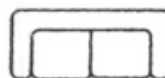
Rectangular (or a round) table



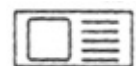
Bathroom



Cooker



Sofa



Kitchen sink



Can you find an example of each of these things inside Semaphore Tower. Describe, or draw the object when you find it.

Your favourite piece of furniture

The windows. (Can you see the bricked up windows? These are called **blind windows**.)

The pattern of a rug on the floor

### Fact:

**Blind windows** – These are window **recesses** (say ree-sess-es) that are bricked up. The building may have been designed with blind windows – like Semaphore Tower or may once have had windows that have been replaced with bricks. In the 18<sup>th</sup>/19<sup>th</sup> century, window tax was brought in which meant you had to pay for the amount of windows you had – for many people it was cheaper to brick up the windows than pay the tax!

In the box below, draw the view from your bedroom window. What can you see in the distance? Can you see any wildlife on the heathland?

A large, empty rectangular box with a black border, intended for drawing the view from a bedroom window.





## Can you answer these questions correctly?

1. Which year was Semaphore Tower built?

1992

1578

1822

2012

2. Who ordered that the tower was built?

The King

Napoleon

The Admiralty

James Bond

3. What is the name of the next tower in the line?

Pewley Hill

Portsmouth

The Beacon

Admiralty House

4. Who invented the term 'semaphore'?

Winston Churchill

Claude Chappe

Sir Home Popham

Queen Victoria

5. Which of the following have not been used as signals in the past?

Flags

Balls

Shutters

Singing loudly

6. How many sides does Semaphore Tower have?

4

5

8

10

7. What animal wouldn't you find on the heathland?

Snake

Dragonfly

Lion

Lizard

8. Who was on the throne when Semaphore Tower was built?

(Psst. Look at Unruly Rulers...)

George IV

Elizabeth I

Henry VII

Victoria

9. What is Semaphore Tower made of?

Stone

Brick

Cobb

Wood

10. How tall is the mast?

(Take a look at the Design section)

19 meters

7 meters

12 meters

4 meters

To find the answers skip two pages...



## Semaphore Tower Word Search

Now have a go at the word search. The words to find are things that you can see in and around the tower. The words to find are at the bottom of the page.

B R O Y A L N A V Y X A A  
R V L A N G I S D Y P M R  
I V I E W S M N M A S T M  
C S E T T D A J Z Q U H S  
K A E A A L U O B E F N Z  
S N I E H L A N O G A T C  
Y R S T R H L N N L I N V  
S B A H Y T L A R I M D A  
K E A H D R K G M W A S D  
H C H A T L E Y H E A T H  
E S W O D N I W D N I L B  
T N P X G N D O O M S R N  
V F X K Q H F E S T T K J

HEATHLAND

OCTAGONAL

ADMIRALTY

TOWER

MAST

TREES

CHATLEY HEATH

VIEWS

BRICKS

ROYAL NAVY

ARMS

TALL

STAIRS

NAPOLEON

SIGNAL

BLIND WINDOWS

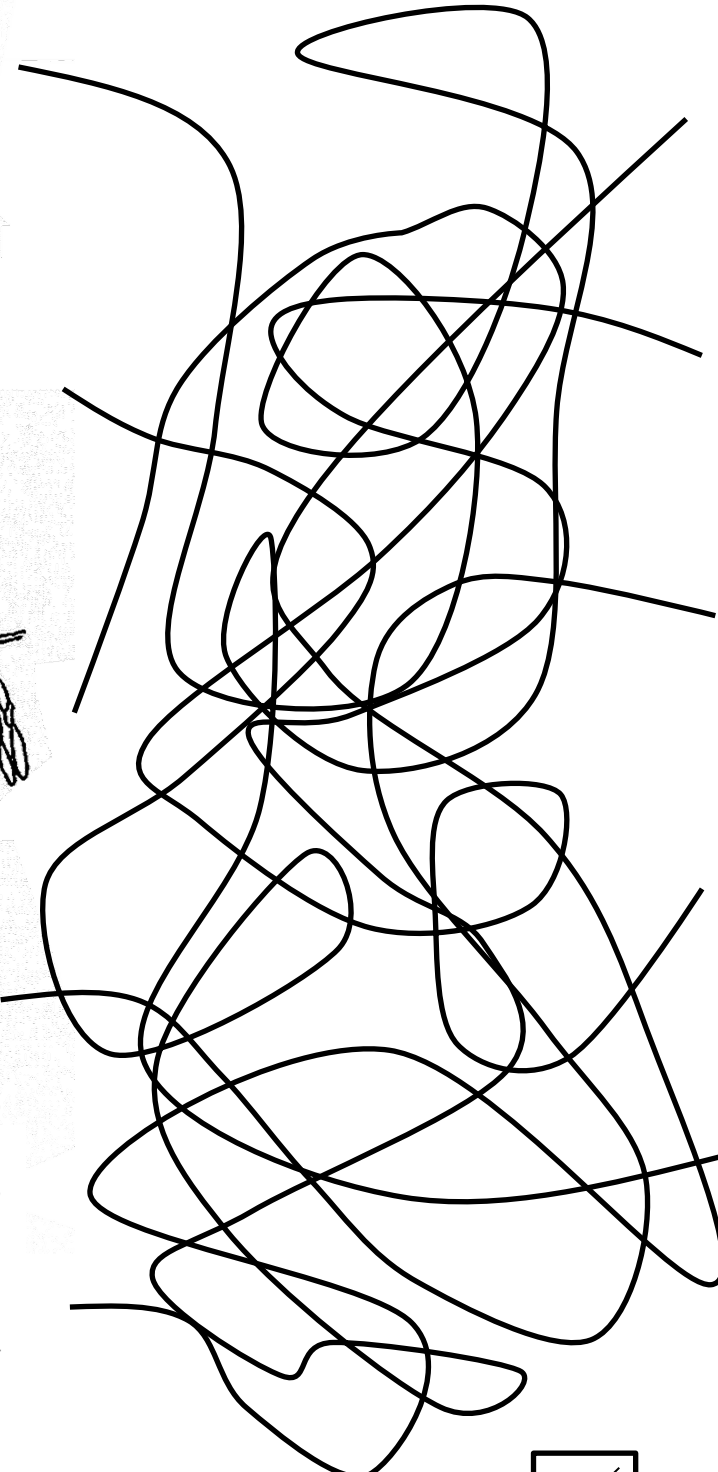
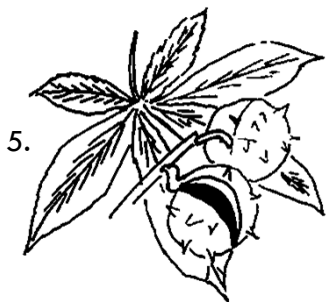
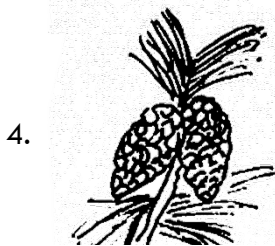
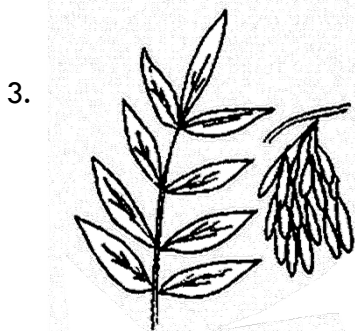
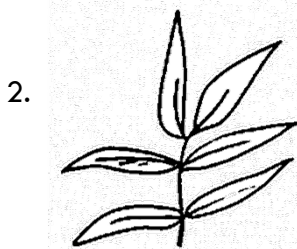
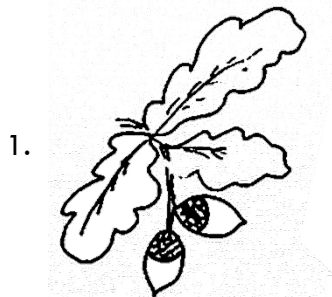
How many of these words did you find? Put your score in the box.

16



### Which leaf belongs to which tree?

Match the leaf to the correct tree.



Horse Chestnut

Willow

Pine

Ash

Oak

Did you match them correctly? Put your score in the box.  
Look out for these when you go for a walk!



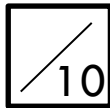


## Answer sheet:

### Quiz answers:

1. 1822
2. The Admiralty
3. Pewley Hill
4. Claude Chappe
5. Singing loudly
6. 8
7. Lion
8. George IV
9. Brick
10. 12 meters

How many did you get right?



### Fact:

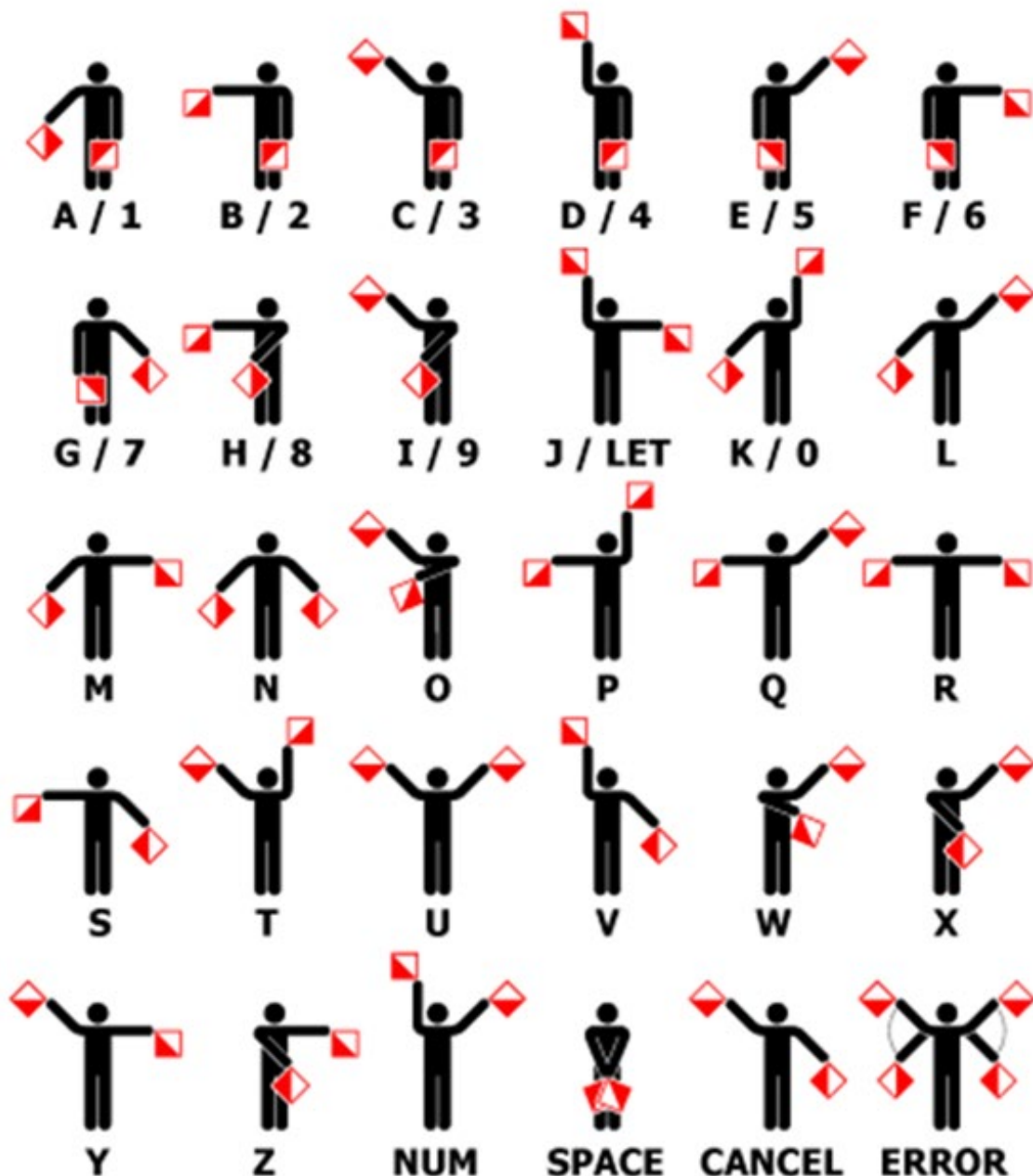
The Admiralty was the name of the ministry which controlled the British Royal Navy. In 1963 the independent War Office, Admiralty and Air Ministry were joined to create the Ministry of Defence which controls all of the British Armed Forces.



Board of Admiralty in 1810

## Semaphore signals – become a signals officer!

Today, semaphore is usually done using two hand flags, or even just your arms. Take a look below at the different signals for each letter of the alphabet. Why not see if you can signal a message with your arms to someone staying with you and see if they can decipher (say *dee-sigh-fer*) it using this code? Note the special signals to say if you're transmitting numbers or letters or make a mistake. We've given you an extra copy of the code at the back of this section so you can each have one. Or you could try drawing the different arm positions onto some paper and give them the message that way.





## Rock Cakes

Don't worry – they aren't made with actual rocks, they are just called that because their cracked surface looks like a rock!

Here's a simple recipe for you to try. You might need the help of an adult.

225g self-raising flour	150g dried fruit
75g caster sugar	1 egg
1 tsp baking powder	1 tbsp milk
125g unsalted butter	2 tsp vanilla extract

Preheat the oven to 180°C: gas: 4, fan: 160°C

- Line a baking tray with baking parchment
- Mix flour, sugar and baking powder in a bowl and rub in the butter until mixture looks like breadcrumbs. Then mix in the dried fruit
- In a clean bowl, beat the egg, milk and vanilla extract together
- Add egg mixture to the dry ingredients and stir until the mixture comes together as a thick, lumpy **dough** (say *doh*)
- Place golf ball size spoons of mixture onto the baking tray. Leave a space between them as they will flatten and spread during cooking
- Bake for 15-20 minutes, until golden brown. Allow to cool for a few minutes and then put them on a wire rack to cool
- Enjoy whilst they are still slightly warm – yum!







## Design your own tower

Imagine you've been asked to design a line of Semaphore Towers. Would you make them all the same, or would you make some taller than others like Chatley Heath's semaphore tower . In the box below design your towers – or you can chose to focus on just one tower if like.



**Colour in this picture of George IV...**



