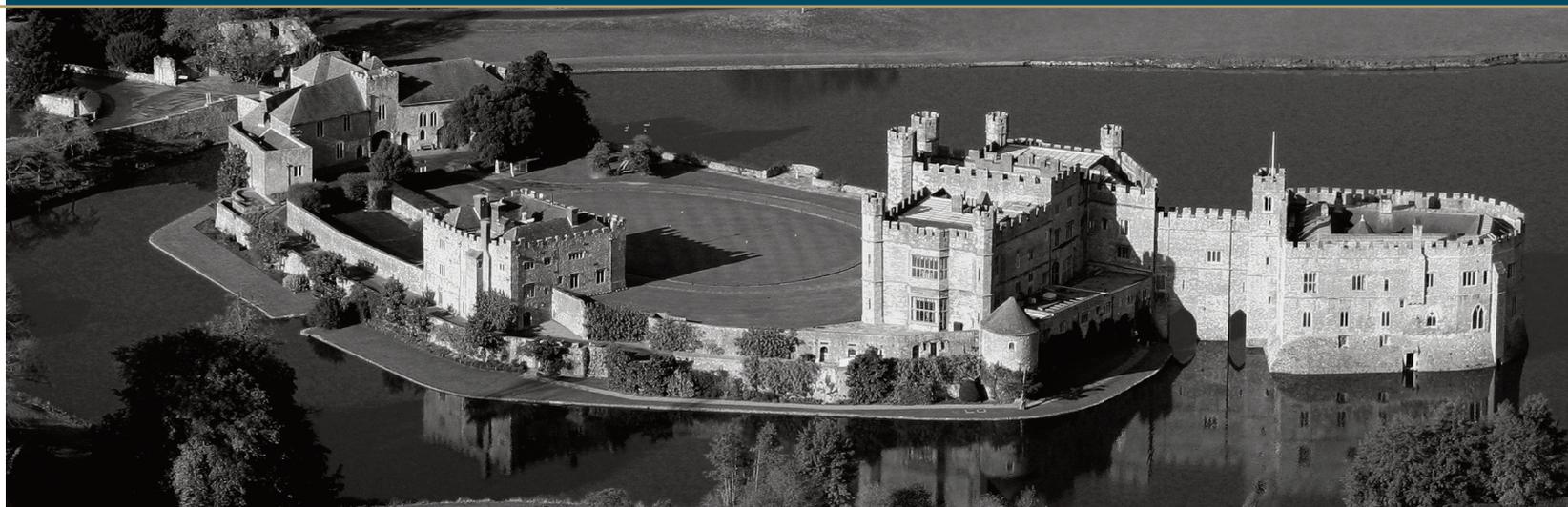




# LEEDS CASTLE

KENT ENGLAND

## Teacher's Education Resource Pack



## Castle Buildings



# Education Resource Pack

## Contents

This resource pack is divided into categories, each featuring an introduction; ideas to help prepare the children for their visit; key facts to highlight fundamental areas for investigation; onsite activities for pupils to participate in during their visit; and follow up ideas for back in the classroom.

Each category also has one or more worksheets on the subject, some for completion in the classroom, others to use during your visit.

Although this pack equips you with the facts, the emphasis is on discovery, investigation and decision-making.

- Castles – an introduction
- Building Leeds Castle
- How was Leeds Castle made?
- Leeds Castle – home or fortress?
- Investigating materials and their properties at Leeds Castle
- Leeds Castle – a plan of attack!

# Castles - an introduction

## Teacher's Notes

The Normans built the first castles in England after the Conquest of 1066. These were simple structures at first made of earth and wood, which could be built extremely quickly. Some castles were built to secure areas and control the local population, others were built as a show of strength and power of their owners.

During the 12th century many castles were improved and strengthened using stone instead of wood. Later, advancement in warfare technology changed the importance of castles and they became status symbols rather than centres of military importance.

Leeds Castle was first built in stone by a Norman Baron called Robert De Crevecoeur in 1119. Today all that remains of the Norman architecture is the base of the Gloriette and the vaulted cellar. In the cellar, the round archway leading up to a blocked staircase is typically Norman in style.

With each successive owner, the castle has been rebuilt and redeveloped over a period of nine centuries. The present day castle comprises a 13th century Gloriette, the 19th century bridge and corridors which lead to a 19th century castle, the Maiden's Tower is late Tudor, the revetment wall, gatehouse and the barbican are 13th century. Much of the interior contains clever replicas of Tudor architecture including ceiling beams and the wooden spiral staircase that were actually made in the 1920s.

To focus on different periods of architecture at Leeds Castle therefore may be confusing for some children but certain elements can be identified and linked to castle building, design, techniques and materials.



# Building Leeds Castle

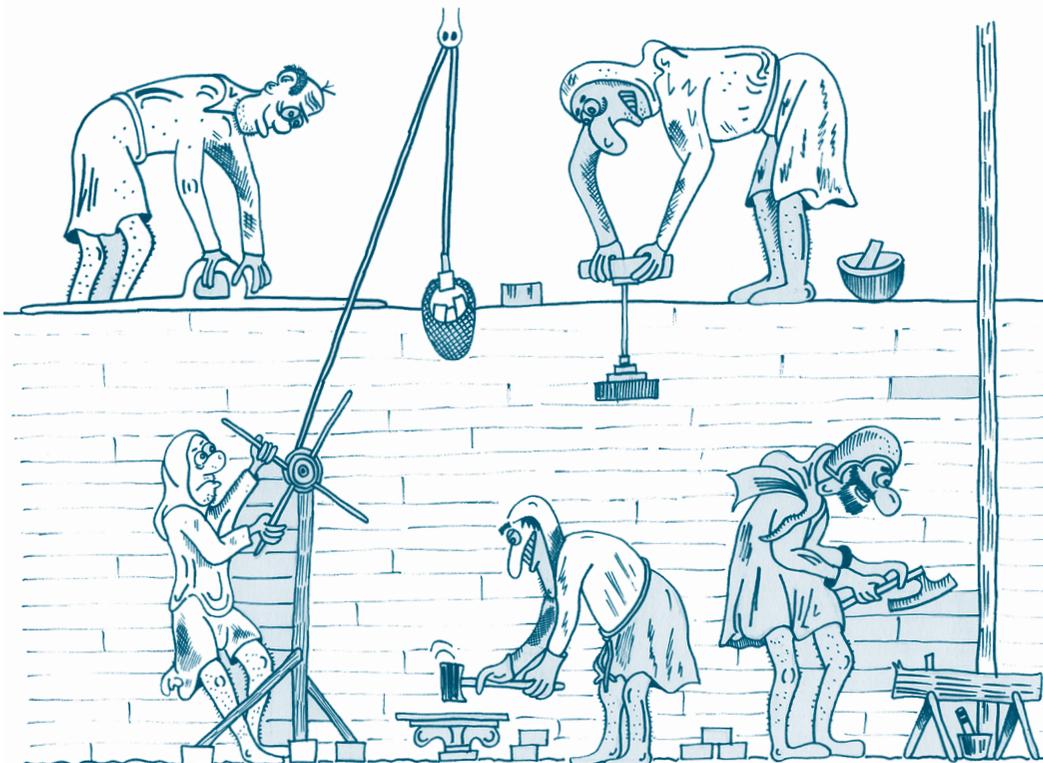
## Teacher's Notes

Organising and building a stone castle was a daunting task that involved enormous outlays of material, manpower, time and money. Stone was quarried as close to the site as possible, but decorative rock was often transported from special outcrops some distance away, increasing costs further. In addition, large amounts of timber were needed for construction of frames, flooring, ceilings and scaffolding. Other expensive materials included lead (for roofing), iron and tin.

At Leeds Castle, the main fabric of the buildings is Kentish Ragstone, which is a difficult material to work with. Some of the ornate mullioned windows are carved from Caen stone imported from France. Shortly after Queen Eleanor of Castile acquired Leeds Castle, her husband King Edward I started considerable building works. In 1284 the constable, John de Ponte, spent £51-9s-6d (approximately £27,000 in today's money) on wooden boards and lead for the construction and repairs. The following year a further £131-6s-6d (approximately £70,000 in today's money) was spent for the same purpose.

Labour costs could be enormous as skilled workers were required for stone castle buildings. Some of the specialists involved would have been the master mason, freemasons, quarrymen, woodcutters, smiths, miners, ditchers, carters and carpenters. Sometimes as many as 2,000 men were conscripted or hired to build a castle. Weekly wages for these workers averaged from four shillings (approximately £107 in today's money) for a master mason to six pence (approximately £14 in today's money) for a woman labourer.

Most of the skilled craftsmen were travelling craftsmen; only the less skilled workers were from the local area. Building work generally took place between February and November stopping in winter, as the cold temperatures would crack wet mortar. Some types of work such as stone cutting and tool making could continue through the winter months.



# How was Leeds Castle made?

## Teacher's Notes

### Aim

To introduce pupils to the craftsmen, materials and technology behind the castle.

### Preparation

#### **What was the castle made of?**

The starting point for this inquiry is to get pupils to identify the main building materials required to build a Norman castle. Once this has been established, discussion can develop to ask such questions as:

What is the oak/iron/stone made into?

Where do the oak/iron ore/stone come from?

Are they quarried/mined/forested?

By whom and using which tools?

How are these materials transported?

These questions will lead helpfully onto introducing the main craftsmen, materials and construction methods employed in building Leeds Castle.

### Key Facts

**Kentish Ragstone** is a hard limestone of the early Cretaceous age (120 million years old). It appears in layers or beds in the Maidstone and Medway areas of Kent where it has been quarried for centuries. Some of the layers contain fossil shells showing that the Ragstone formed in a shallow sea.

#### **Order of stone building work:**

1. Quarrymen used hammers, chisels and wedges to break the stone at its fissures.
2. Carters transported the rough stone by road on horse-drawn sledges or carts from Maidstone to the castle site.
3. Masons used saws, hammers and chisels to shape the stone into blocks.
4. Mortar-mixers mixed sand, ground limestone, animal hair and water to make mortar to join the stone blocks together. They brought the mortar to the part being built in leather buckets.
5. Labourers moved the stone blocks using wheelbarrows to the part being built. They used pulley systems to lift the stones up to high levels when required. They also pushed the wheelbarrows up wooden ramps supported by scaffolding.
6. The master mason supervised the building and checked that walls were straight and level.

**Iron ore** could have come from the nearby Weald of Kent where it was mined. It would have been used by the castle blacksmith to create hinges, bars, bolts, screws, nails and bars for the portcullis, as well as tools for other craftsmen such as carpenters and stonemasons.

#### **Order of iron working:**

1. Miners mined iron ore in pits.
2. Carters transported the iron ore to the foundry.
3. At the foundry the iron was extracted from the iron ore using the smelting process.
4. Carters transported the iron to the smithy at the castle site. The blacksmith would beat hot iron into shape at his forge using tongs, a hammer and his anvil to make the items needed at the castle.

**Oak** would have been forested locally in great quantities.

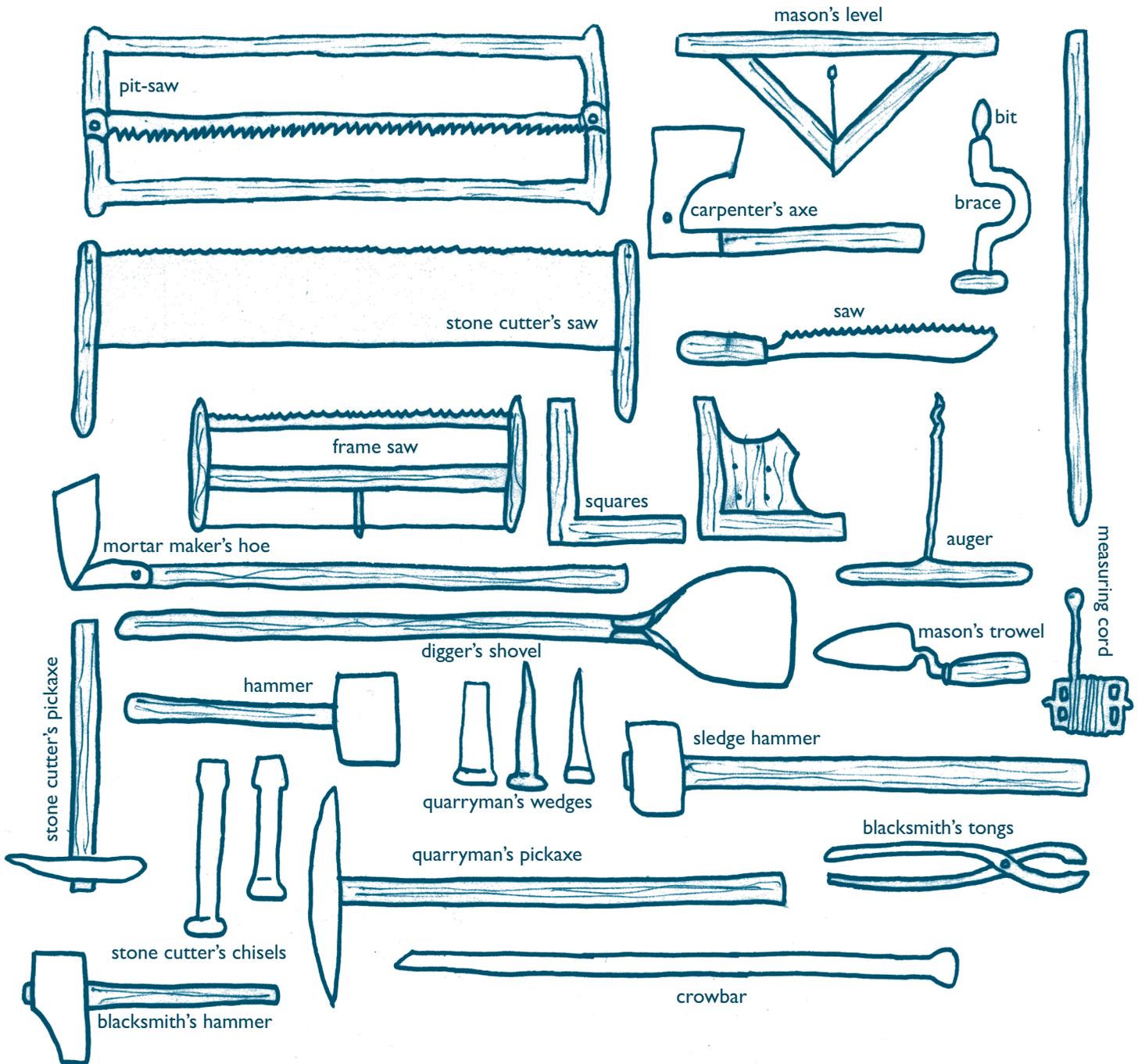
#### **Order of wood working:**

1. Woodcutters cut down oak trees in nearby forests using axes and a two handed saw.
2. Carters transported the trunks to the castle site.
3. Labourers would use a two handed saw to slice the trunk vertically to produce planks.
4. Carpenters and joiners used squares, measuring sticks and saws to cut the wood into the size and shapes required to make doors, shutters etc.

# How was Leeds Castle made?

## Teacher's Notes

### Workmens Tools



## Teacher's Notes

### Onsite activities

There are three worksheets each focussing on a different craftsman's contribution to the building of Leeds Castle. Divide your class into three groups and allocate each one a different trade. Ask each group to identify with their craftsman and view the castle from their point of view. Each worksheet requires pupils to observe, record evidence of their work and apply their knowledge of materials and technology to the questions.

### Follow up activities

1. Each group could report back to the class about their role at the castle and what parts they helped to build. Does one group think that their role is more important than another? Encourage debate about their roles and develop understanding that complicated projects such as castle building require teamwork and people with different skills. One craftsman without the other could not complete the task.
2. Ask the pupils how difficult it would have been to oversee all of the project; to budget for, supervise and keep to a timetable. Get the pupils to write an action plan of works in order of their completion e.g. cutting of trees, transporting to site, preparing boards, installing floors.
3. Get the pupils to write an account of a day in the life of a particular craftsman whose identity they assumed during their visit to Leeds Castle. Encourage them to use the tools sheet and draw the tools that they would have used in their diary entry.
4. Investigate the pulley mechanisms, wheelbarrows and other methods of moving heavy quantities of stone and other materials. Contrast medieval building methods with methods used today. What has changed? What technological discoveries have brought about these changes? e.g. electricity.
5. Ask the pupils to bring pictures of their homes, or houses from magazines, to class and discuss different building materials that are used today. You may want to investigate modern 'green' or energy efficient building materials and use of renewable sources such as replanted trees.

# How was Leeds Castle made?

My Name is:



## The Blacksmith

You are a blacksmith working at Leeds Castle.

Your job is to make everything needed out of iron for the castle: hinges, bolts, screws, nails, bars for the portcullis, weapons, armour and all of the tools used by the carpenters and stonemasons.

You are working with iron - a very important raw material used by man since 1100BC.

1. Look at the picture of you at work. What tools are you holding?

2. How would you feel after working in the forge all day?

3. Go to the main gate and look at the large heavy doors. Tick which work listed below is yours.

Hinges       Nails       Lock       Key   
 Doorframe       Door       Doorknocker

4. Which animal's face is the castle doorknocker?

5. Which craftsman worked with you to make the door?

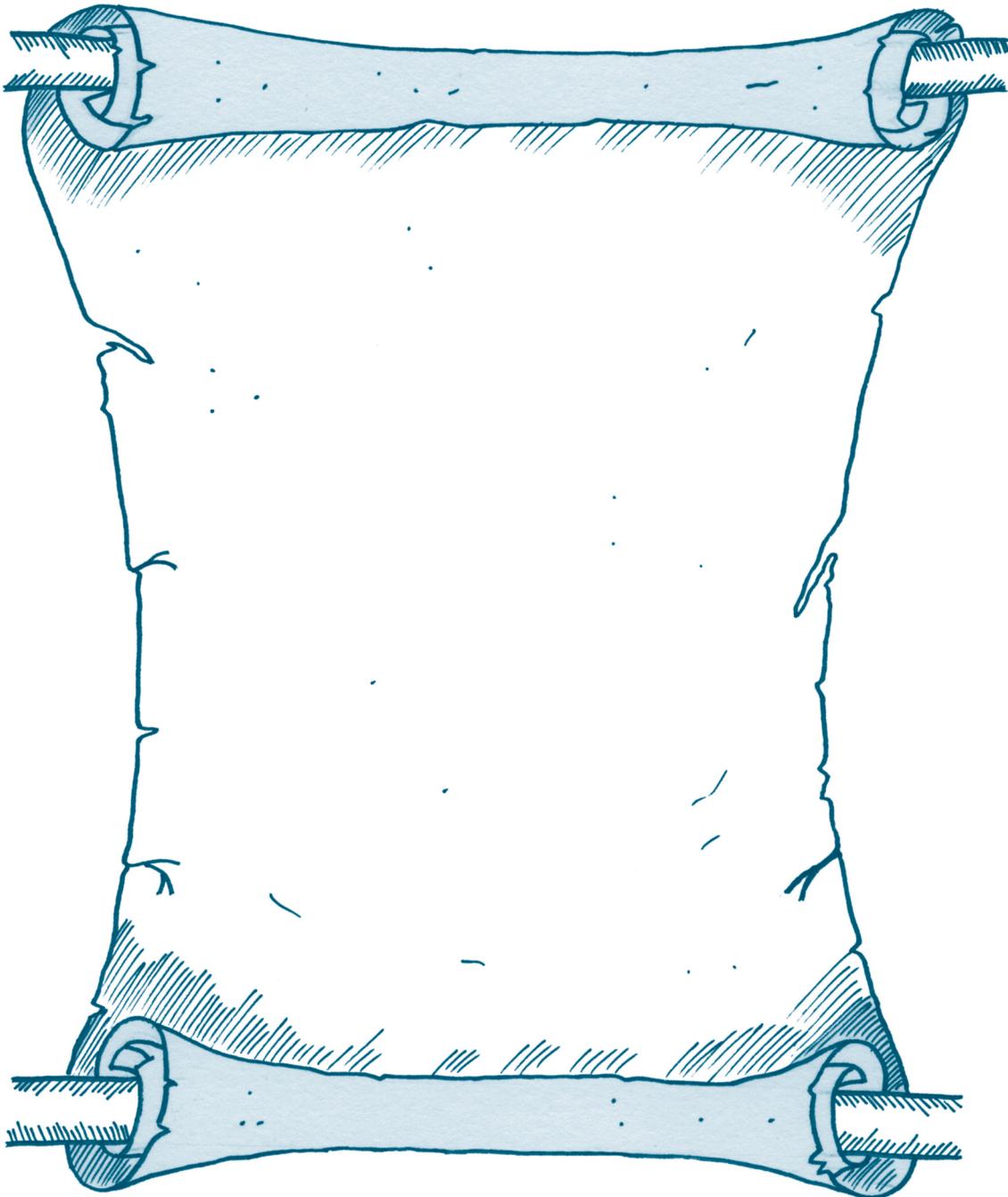


## The Blacksmith



Look around the castle making notes either by naming or drawing some of the objects you have made. Remember many people have lived in and changed the castle since you were here. Not everything you made is still here. Look at the building, windows and doors for clues.

7. What things did you make for Leeds Castle? Write a list and draw some of the objects in the scroll below.



# How was Leeds Castle made?

My Name is:



## The Carpenter

You are a carpenter working at Leeds Castle.

Your job is to make all the doors, shutters, roof beams, floorboards, scaffolding and ladders for the castle.

You are working with wood, mostly oak which grows in the woods nearby.

1. Look at the picture of you at work. What are you making?

2. Where does your raw material come from?

3. Go to the main gate and look at the large heavy doors. How tall do you think the doors are?

4. How many pieces is the right hand door made of?

Now enter the castle via the cellar.

5. What objects are made from wood in here?

6. What would they have contained?

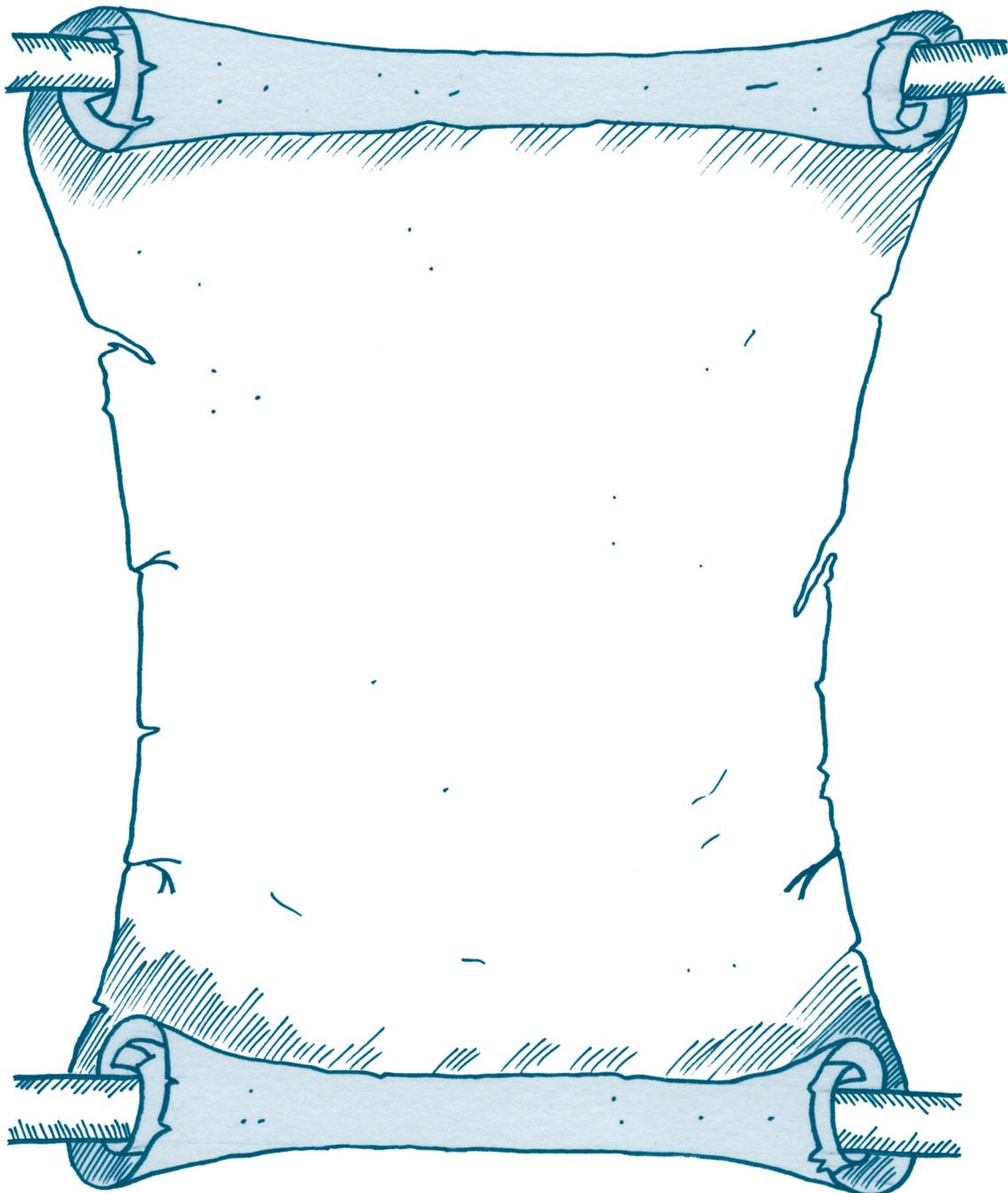


## The Carpenter



Look around the castle making notes either by naming or drawing some of the objects you have made. Remember many people have lived in and changed the castle since you were here. Not everything you made is still here. Look at the building, windows and doors for clues.

7. What things did you make for Leeds Castle? Write a list and draw some of the objects in the scroll below.



# How was Leeds Castle made?

My Name is:



## The Stonemason

You are a stonemason working at Leeds Castle.

Your job is to cut the stone into blocks so they can be used to build walls. You also carve stone into window and door frames.

1. Look at the picture of you working. What are you doing?

2. Go to The Gatehouse. What did you build here?

3. Look at the walls in The Gatehouse. Are the walls made from one block of stone or many?

4. How are all the blocks joined together?

Now enter the castle via the cellar.

5. How do the stonewalls make the room feel? (tick one box)

Hot

Cold

Bright

Stuffy

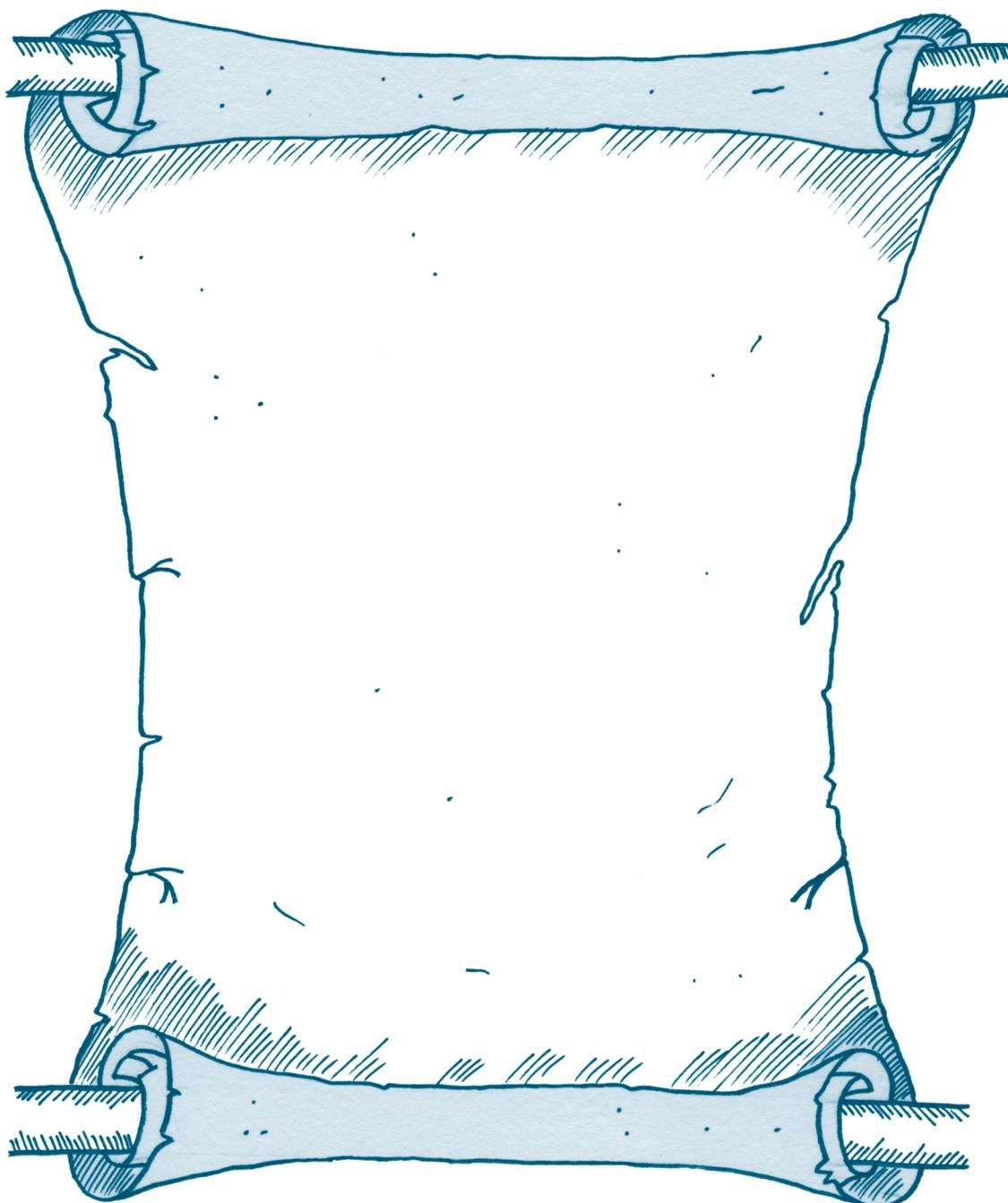
6. Why was this important? (clue: think about what was stored in the cellar)



## The Stonemason

Look around the castle making notes either by naming or drawing some of the objects you have made. Remember many people have lived in and changed the castle since you were here. Not everything you made is still here. Look at the building, windows and doors for clues.

7. What things did you make for Leeds Castle? Write a list and draw some of the objects in the scroll below.



# Leeds Castle - home or fortress?

## Teacher's Notes

### Introduction

Leeds Castle has evolved over its 900-year history from being a Norman stronghold, royal residence, prison and aristocratic family home. Part of the castle was even used as a hospital during the Second World War. The aim of this section is to focus children's attention on the function of different parts of the castle, and on the way the castle's appearance and role has changed.

### Preparation

1. Different functions of a castle - discuss the different roles the castle has had over the last 900 years, fortress, royal residence, prison, family home, hospital and now heritage site. Discuss how each role influenced that design of the castle. Next ask the children to identify features that would appear because of the past use of the castle.
2. Castle chronology - introduce the idea of buildings being changed over time by discussing with the class any extensions or alterations that the school or their own houses have had.

### Onsite activities

Pupil worksheets focus on looking at evidence of changes made to the castle, and asking them to decide if a part of the castle is defensive or domestic in its function.

### Follow-up activities

Taking the four main roles of the castle, as fortress, prison, home and heritage site, ask them to design a poster showing features of these four aspects of the castle's history.

The class could put together a display board with two headings 'defensive features' and 'domestic features'. Pupils could contribute sketches of features of the castle under the appropriate category.



My Name is:

Castles were fortresses built first and foremost to be safe places and keep the enemy out. They were also homes for the Lord, his family and household.

You are going to decide which parts of this castle were built to keep the enemy away and which parts were built for the Lord to live in.

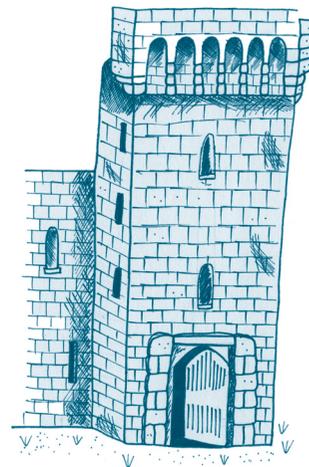
Leeds castle was built over hundreds of years, new parts were added and old parts changed at different times.

Things that make Leeds Castle a **HOME**...



Fireplaces were put in the castle for Henry VIII to keep him warm.

Things that make Leeds Castle a **FORTRESS**...



Machicolations - boiling hot oil or water was poured down them onto attackers below.

# Investigating materials and their properties

## Teacher's Notes

### Introduction

Leeds Castle offers a wide range of natural and man made materials and the opportunity for pupils to study them in context. The castle can be used to introduce children to materials such as Kentish Ragstone, limestone, cobble-stones, mortar, plaster, iron, oak, tarmac, glass and a huge range of furnishings and fabrics within the castle rooms. Pupils can investigate materials in a multi-sensory way looking closely at them, touching them (but not the furnishings!), comparing them and then recording their observations. Back in school they can extend their research.

Children can see how various materials have been worked and used. Kentish Ragstone and limestone have been used as large building blocks, as well as being carved into the more ornate window frames and fireplaces. In the maze, children can see how a range of shells, minerals, wood and other materials has been used to create a magical grotto. Inside the castle, sumptuous fabric has been used to adorn selected walls instead of wallpaper and some of the furniture is made from unusual materials; such as the sharkskin covered dressing table in the Catherine of Aragon bedroom.

They can also see examples of modern materials replacing more traditional ones and explore the technical discoveries behind these changes. For example they can compare the cobble-stones of the gateway with the tarmac of the causeway nearby and think about some of the reasons why one has succeeded the other as a choice of material for paving.

In the field of conservation, there is evidence of chemical change caused to materials, for example by mosses, algae and lichen living in the cracks of the ragstone. The acids they release chemically weather the minerals in the stone. Pupils will be able to find many other examples of weathering on site. They could be asked to write a condition report, comparing damage and deterioration of various materials, noting down the position and direction of each. They could question why some buildings have survived better than others, for example the old mill is now in ruins and fell into disuse around 1600 when it became cheaper to buy bread than make it. Children could also question why certain materials last longer than others, for instance the wooden water mill no longer survives yet the fortified walls do.

### Building Materials at Leeds Castle

Kentish Ragstone	Limestone (from Caen in France)	Oak	Iron
Mortar	Plaster	Cobble-stones	Gravel
Glass	Lead	Tarmac	
		Other metals	

### Preparation at school

Pupils will gain maximum benefit and enjoyment from their investigation of the castle materials if they have done a short preparatory activity at school before their visit. The activity requires children to understand terms such as texture, appearance, shape and use. They need to have been introduced to thinking about reasons why certain materials are chosen to meet a particular requirement. A table like the one below could be used to investigate their school building materials. Alternatively, the children can cut out the words on page 18 and place them around the classroom on materials they think match the word.

Building material	Colour	Texture	Appearance	Use	Reasons for choice
Bricks					
Steel					
etc..					



## On-site activities

1. Survey of materials - see worksheet. A table listing main materials with categories for pupils to fill in some vocabulary included as support. The aim of activity is to encourage close observation and recording of materials, and to encourage consideration of materials and their uses.

Where to do the survey - the best place for children to carry out their survey is around the gatehouse and revetment walls surrounding the castle. The buildings in the Fairfax courtyard are made from brick and offer examples of more modern building methods. The children may also like to investigate the elaborate use of shells in the grotto. This can only be accessed via the Maze - so allow time for getting lost!

2. Photographic recording of castle materials - nominate photographers to photograph as many different materials as they can, these could be used back at school as quiz cards to reinforce the children's understanding of materials. Alternatively they could be used as part of a labelled wall display which could be extended each time a class member finds a new material.

3. Recording physical evidence - children could take 'rubblings' from some of the building materials using plain paper and a soft pencil. Rubbings show uneven surface texture and any patterns that might be difficult to see otherwise.

## Follow up activities

1. Ask pupils to use their survey findings to compare materials used to build the castle with those used to build the school. This could evolve into a discussion on why some traditional materials have been replaced with modern ones. This also has a relationship to the decline in traditional craft skills such as stonemasonry.

2. Using descriptions, rubbings and photographs of materials at the castle, get children to quiz each other and guess the material by its description. Do a blind fold quiz to guess the materials of different objects from around the school or home.

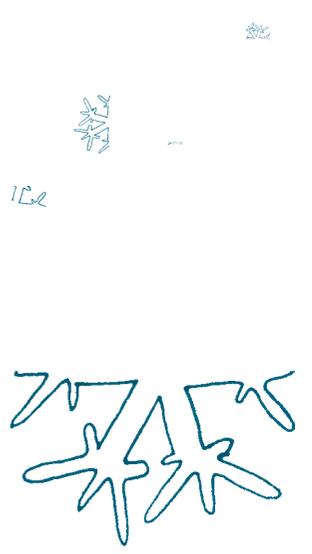
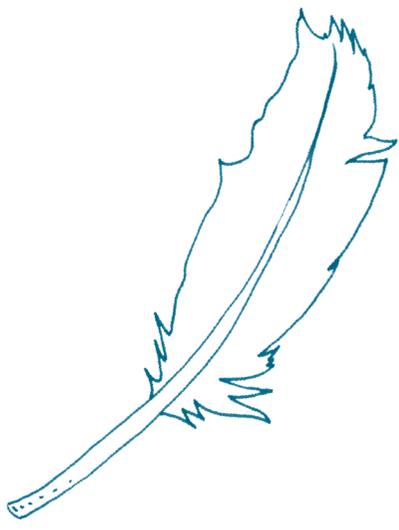
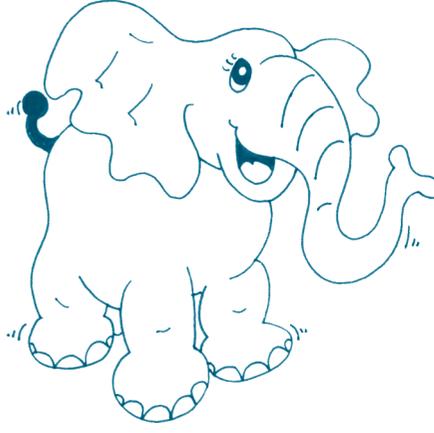
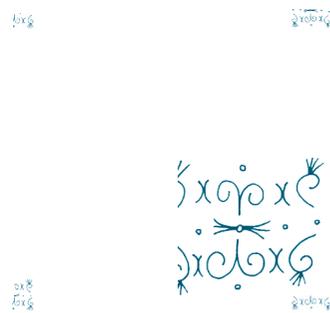


# Investigating materials



## Picture word association

Cut out the words below and use them to describe different materials.

<p><b>cold</b></p> 	<p><b>old</b></p> <p><b>warm</b></p> <p><b>new</b></p> <p><b>smooth</b></p>	<p><b>light</b></p> 
<p><b>heavy</b></p> 	<p><b>plain</b></p> <p><b>rough</b></p> <p><b>soft</b></p> <p><b>hard</b></p>	<p><b>patterned</b></p> 

# Investigating materials and their properties



My Name is:

Complete the table below.

You may find the following words and phrases useful:

*soft - hard - warm - cold - smooth - rough - plain - patterned - crumbly - bumpy - new - old - shiny - dull - dark - pale - transparent (see through) - clear - light - heavy - strong - lasts a long time - local - foreign - easy to work with - decorative - easy to find - looks nice*

Material	Colour	Texture - what it feels like?	Appearance - what it looks like?	Use - what is it used to make?	Reasons why this material was used?
Kentish Ragstone					
Limestone					
Mortar					
Wood					
Iron					
Glass					
Cobble-stone					
Brick					

# Leeds Castle - plan of attack!

## Teacher's Notes

### Introduction

The aim of this section is to focus children's attention on the defensive structures of different parts of the castle, and the way the castle's appearance and role has changed over its 900 year history. Children will need a little imagination to re-create a medieval scene but should be able to identify strong and weak points for attack and investigate how Leeds Castle's situation provides a natural defence.

### Preparation

1. Research fortifications of castles from the early medieval period to about 1600. Discuss what Leeds Castle may have been like at this time and why.
2. Research weaponry from the early medieval period to about 1600. Discuss what may have been used at Leeds Castle.
3. Use maps to work out and draw routes that attackers may have taken. Take account of the strategic location of Leeds between Dover and London.

### Onsite activities

Pupil worksheets focus on looking at evidence of castle defences, and ask them to decide which parts of the castle are weak to attack. Taking on the character of a medieval spy, pupils will carry out their investigations, record their findings and write a secret message in code.

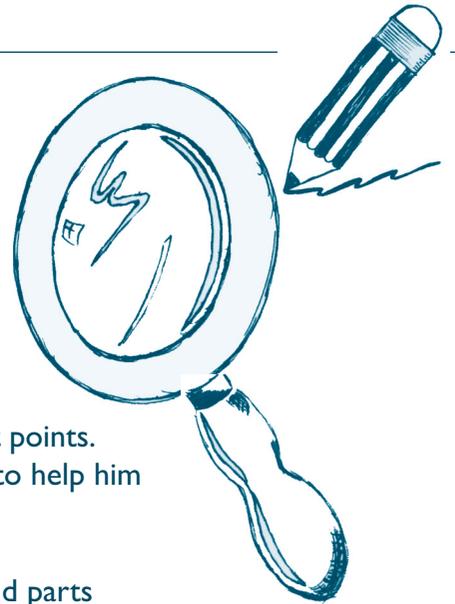
### Follow-up activities

1. Pupils could make a scale model of the castle and re-enact a siege.
2. Write a poem or story about the feelings of a sentry on night duty.
3. Devise a board game about attacking the medieval Leeds Castle, taking into account the actual features of the castle and its surrounding landscape.





My Name is:



You are a medieval spy who has been sent on a mission...

You must explore the castle defences and identify its strongest and weakest points. Then using a special code, you must write a message to send to your Lord to help him plan an attack.

Leeds castle was built over hundreds of years, new parts were added and old parts changed at different times. Try to look at the fabric of the buildings, the walls, windows and doors for clues.

Start your visit outside the gatehouse. Look up at the holes in the front of the stone gateway. These are called machicolations. Look out! Soldiers poured very hot water through these on people attacking the castle.

1. Where else could you approach the castle to attack it?

2. What tools would you need?

3. Look at the doors. Circle the words you would use to describe them:

Light Heavy Solid Strong Thin Small Big Thick Weak

4. How are they different to the front door of your home?

Go through the archway and out in front of the castle. Now turn to your right and look at the bits of stone sticking out of the gatehouse wall. It looks like a climbing wall but is actually the remains of the inner incendiary wall.

5. How thick do you think the wall was?

6. How would attackers have scaled this wall when it was still there?



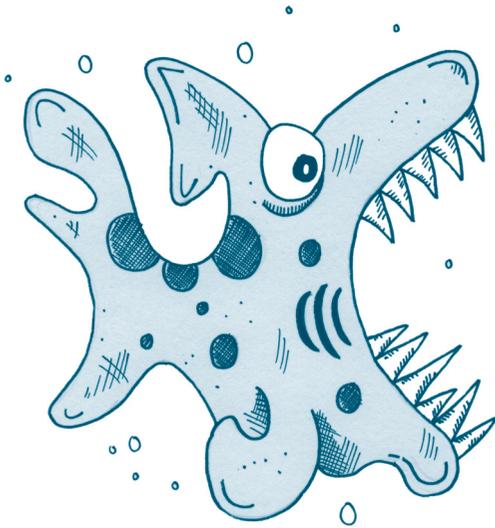
# Leeds Castle - plan of attack!

## Worksheet

Now follow the signs to enter the castle. Look up closely at the outer revetment wall as you walk by the edge of the moat.

7. How high do you think the outer wall is?

8. What would you need to climb the wall?



Look across the moat.

It is very deep and has large fish with sharp teeth in it!

It would not be wise to swim this moat.

9. How else could you cross it?

Look at the smaller island called the Gloriette. The stone passage between the islands used to be two wooden drawbridges. The drawbridges would be pulled up to keep the people on the small island safe.

10. Imagine that the drawbridge is up. How would you get into the Gloriette?

Now enter the castle via the cellar. There are two staircases in here.

11. One of the staircases is blocked. Where would it have led to?



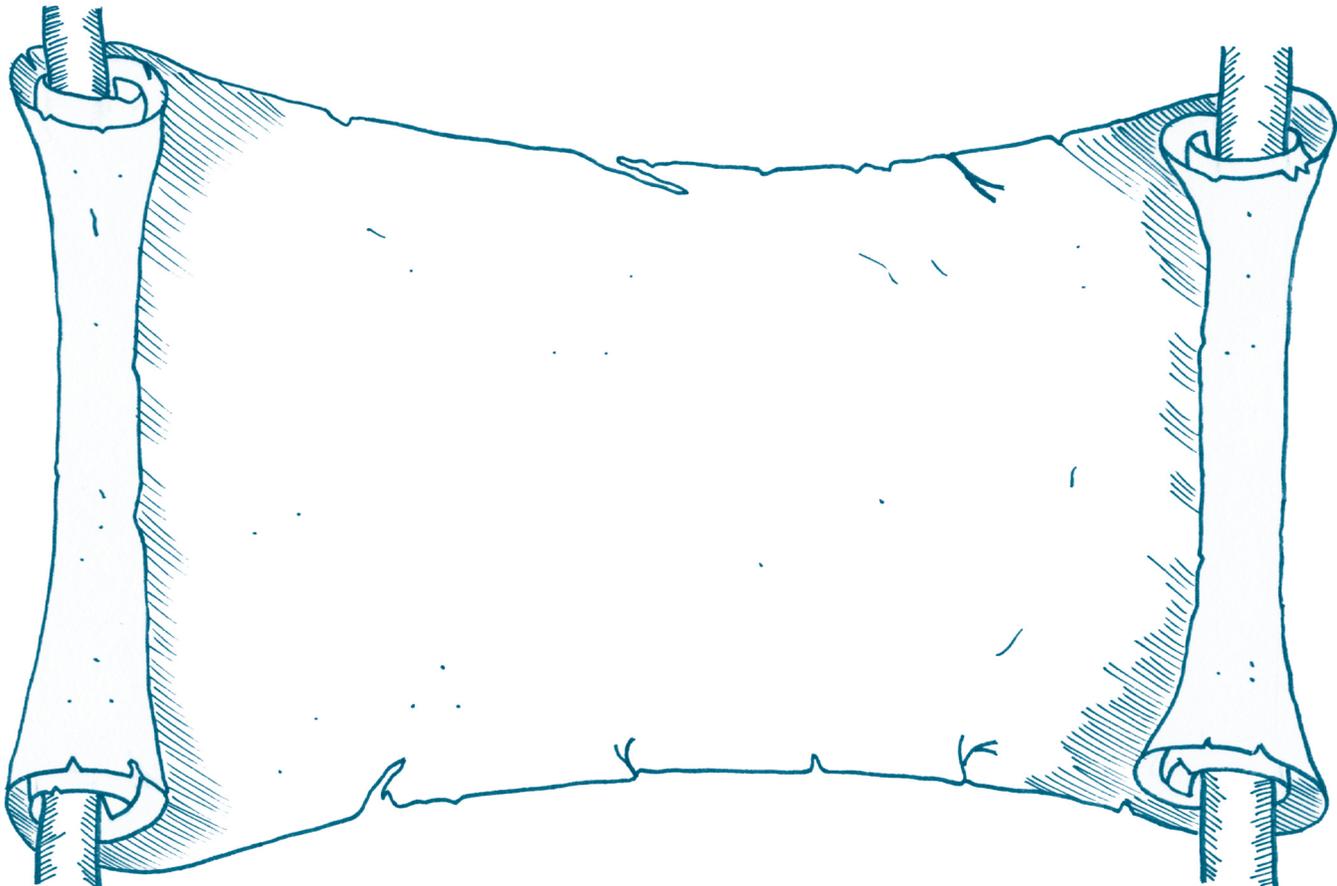
Now climb the open stairs and quietly enter the castle. Remember you are a spy so don't draw attention to yourself! Explore the castle rooms looking at doors, windows and other parts that might be useful to you.

12. Note them down here so that you don't forget them!

13. Look at the symbols and their matched letter underneath.

▼	♏	⊙	♍	↙	□	◆	☼	II	↑	♈	⊠	♎
a	b	c	d	e	f	g	h	i	j	k	l	m
■	→	↖	+	✧	♥	○	∂	⊥	♂	⊗	Σ	↓
n	o	p	q	r	s	t	u	v	w	x	y	z

Use this code to write a simple message to your Lord identifying the places to attack the castle. Keep your message short and to the point. When you have finished, swap messages with someone else and try to de-code their message.



# Orientation Map

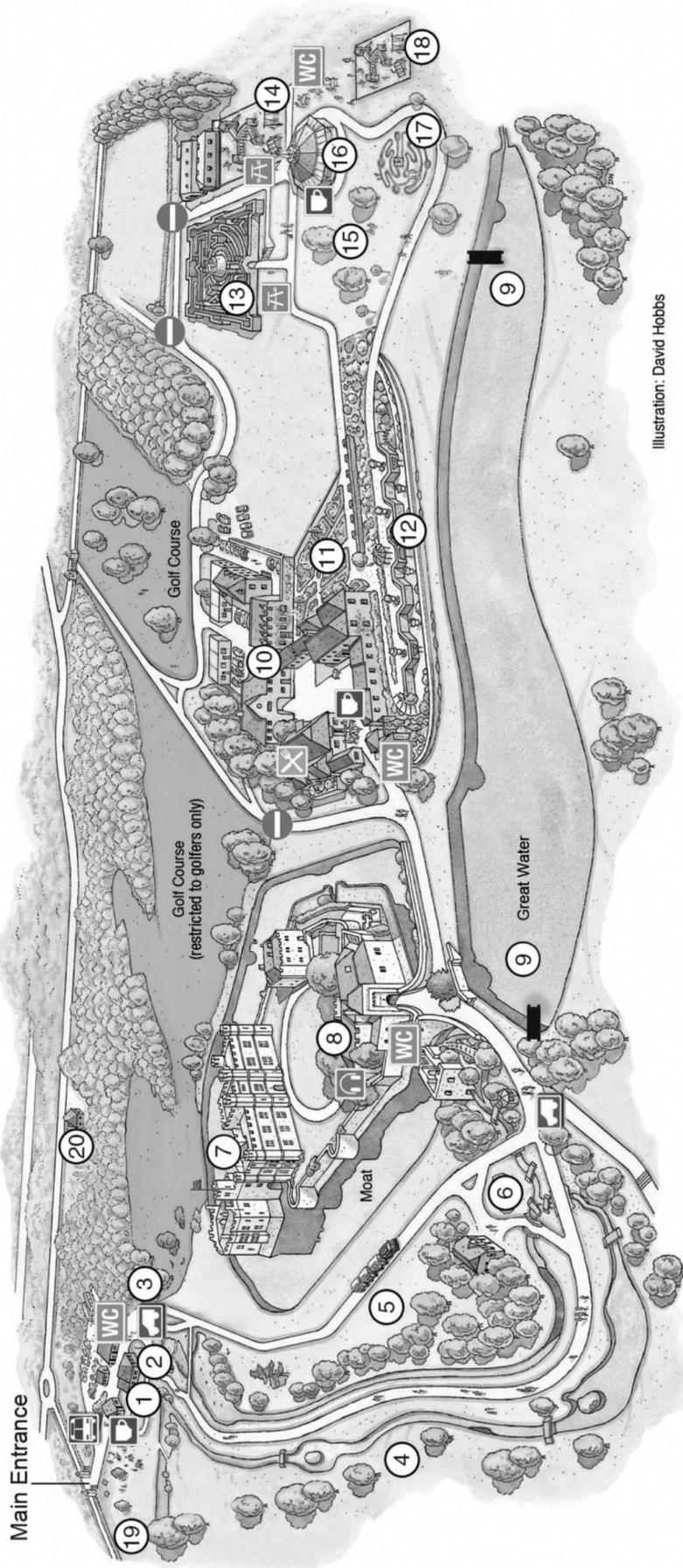


Illustration: David Hobbs

- 1 Ticket Office
- 2 The Leeds Castle Shop
- 3 Segway Tours
- 4 Wood Garden
- 5 Cedar Lawn
- 6 Pavilion Lawn
- 7 Castle
- 8 Castle Shop
- 9 Black Swan Ferry (Seasonal)
- 10 Education Centre and Exhibition Centre

- 11 Culpeper Garden
- 12 Lady Baillie Garden
- 13 Maze and Grotto
- 14 Knights' Realm Playground
- 15 Falconry Shows (Seasonal)
- 16 Maze Café (Seasonal)
- 17 Turf Maze
- 18 Squires' Courtyard Playground
- 19 Go Ape!
- 20 Golf Shop (Accessible from A20 only)

- Toilets
- Land Train & Mobility Vehicle Stop (Land Train seasonal)
- Picnic Area / Rest Area
- Audio Tour Hire
- Catering & Ice Cream Outlets
- Fairfax Hall Restaurant
- No Access for Visitors
- Coach Park

