

# *Chatsworth's Garden*



Welcome to the garden

We hope this resource will help you to get the most from your group's visit to Chatsworth.

We recommend reading this before your visit and adapting it to support your needs.

Chatsworth's beautiful garden can provide a unique and informative cross-curricular learning experience for pupils and we have provided a 'Spotter's Sheet' near the end of the pack for you to use with your class if you wish.

You may also find the map on the back of this pack useful in your exploration.

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# The Glasshouses – map ref 1

The glasshouses are a vital part of the garden at Chatsworth. We have 3 main glasshouses in this area of the garden. We also have a **Glasshouses** resource covering these in more detail.

1. The Conservative Wall – 1848
2. The Display Greenhouse – 1970
3. The First Duke's Greenhouse – 1699

As you explore the glasshouses ask your pupils to think about how old they think each of the glasshouses is. Try and list them starting with the newest...

In the **Conservative Wall** we grow peaches, nectarines, apricots and camellias. In the middle section there are 3 young Camellia plants – one *Camellia japonica* 'Alba Plena' in the middle, and two *Camellia reticulata* 'Captain Rawes' on either side. The two original 'Captain Rawes' were planted in 1850 but died in 2000 and 2002. Their skeletons can be found in Flora's Temple. Did you see them as you entered the gardens? Thankfully the young plants were propagated, or bred, from them by the previous Head Gardener Ian Webster in 1988.



The **Display House** offers a fantastic opportunity to see how different plants are adapted for varying climates. The glasshouse is subdivided into: -

1. Temperate
2. Mediterranean
3. Tropical

**Can your group think of any countries that may have these climates?** For example, Britain has a temperate climate!

The **First Duke's Greenhouse** is a long, low building with ten arched windows and a temple-like centerpiece and was built to grow lemons, oranges and myrtles; plants which symbolised ancient mediterranean classical culture.

**Can your pupils think of any famous people or events from the Ancient Greeks and Romans?** For example; Alexander the Great, The Olympics and Julius Ceaser. **Why do they think that the First Duke may have wanted to refelct or glorify such Ancient Civilisations in the late 17<sup>th</sup> century?**



Nowadays the First Duke's Greenhouse contains camellias and mimosa. In front of it is the Rose Garden, created in 1939, by Mary, wife of the 10<sup>th</sup> Duke, and is planted mostly with hybrids teas. The garden was originally laid out as a formal parterre in 1812.

**Can your pupils find two chairs made from coins near the First Duke's Greenhouse?** These were made by sculptor and artist, Johnny Swing. Can they tell what coins they are made from?

# The Cottage Garden – Map ref 2

**Ask your pupils what they think a cottage garden is.**

The cottage garden is a distinct style of garden that uses an informal design, traditional materials, dense plantings, and a mixture of ornamental and edible plants.

The concept of the cottage garden changed in the 1870s in reaction to the more structured and maintained English estate gardens that used formal garden designs and mass plantings of brilliant greenhouse annuals.

In modern times, the term 'cottage garden' is used to describe any number of informal garden styles, using design and plants very different from their traditional English cottage garden origins.



Our Cottage Garden was created in 1989 with topiary 'rooms' and 'furniture' created out of box, privet and yew. It has a formal 'front garden' and a pair of vegetable plots at the back.

**Ask your pupils to think about the idea of a 'cottage' and what a cottage may have in it whilst they are looking at the Cottage Garden.**

The Cottage itself is built on two levels. A stout wall was built against the back of the ground floor and a yew 'staircase' to lead to the bedroom above. Downstairs are two upright chairs and a dining table of privet, the latter covered with a seasonal cloth of red and white begonias, and a golden privet sofa, fire surround and mantelpiece.

Upstairs is a four-poster bed with a bedspread planted to look like chintz and the pillows are begonias in squares. At the foot of the bed is a forsythia chaise-longue and lamps on the bedside table. There is a dressing table with an ivy looking-glass and the carpet is made out of thyme.

Behind this 'Cottage' is its own vegetable patch, reminiscent of when the cottage garden was purely to provide for the people who lived there. We use this to demonstrate what can be grown in a small space. It produces a range of food, from rhubarb and strawberries, to beans, peas and herbs. In 2014 it was planted using species that would have been available in wartime Britain to help commemorate the centenary of World War I.

These vegetable patches are planted by Chatsworth's two annual trainees as part of their project work.

**Ask your pupils what they would plant in their own cottage garden and how they would design their own vegetable patches.**

# The Kitchen Garden- map ref 3

Chatsworth has grown its own food for centuries, and the kitchen gardens have had various homes over the years. They are currently situated to the east of the stables (now the restaurant).

The entrance to the Kitchen gardens is marked by a series of woven sculptures made by the artist Laura Ellen Bacon and commissioned by the current Duke.



The series of willow sculptures is called Forms of Growth. **Can you guess what they might symbolise from the changing shape?**

This ground was originally called the Paddocks because it was where the carriage horses were released to graze.

The greenhouses were already in position, but until the early 1990s it was a dreary, featureless patch. The 11th Duke and Duchess Deborah thought that the new enthusiasm for growing fruit and vegetables merited an investment to make the place more interesting and open for all to see.

It was laid out during the winters of 1991/2 and 1992/3. The necessary drains were laid, raised beds were built from old bricks and some new paths were bordered with railway sleepers. Iron arches were installed to support fruit trees.

All manner of fruit, salad, cut flowers and vegetables are grown here, including 'mummy peas', rumoured to be grown from peas discovered in Tutankhamun's tomb in 1922. The house is supplied with produce from the kitchen garden and surplus is sold in the Stables courtyard and Farm Shop.

Beyond a beech hedge at the lower part of the garden is a small orchard. Here we grow a range of fruit bred in Derbyshire, including the apple variety 'Beeley Pippin'.

**Can your pupils spot the mirror diamond in the middle of the Kitchen Garden?** This was designed by Toby Pickering and was presented by the Rotary Clubs of Derbyshire to mark the Diamond Wedding Anniversary of the 11<sup>th</sup> Duke and Duchess in 2001.

It reflects light and will also distort your own reflection, similar to a hall of mirrors.



# The Sensory Garden – map ref 4

There's often more to plants than simply looking pretty and the Sensory Garden, which was created in 2003 at the instigation of Lord Burlington, the 12th Duke's son, demonstrates this well.

The plants in the sensory garden were chosen for their impact on the five senses. **Can your pupils name these?**

**Sight – Consider how contrast can be achieved in planting designs (through colour combinations), on surfaces (art work, painted markings on hard surfaces, textures) and in art materials.**

Patterns can provide fascinating effects. Regular patterns can be provided by things like brick work, paving, fencing, dandelion clocks and pine cones. More irregular patterns can be seen on natural materials such as tree bark and variegated leaves.



**Scent – How many different types of scent can you think of?**

Scents that fill the air and can be smelt without touching the plant (e.g. mock orange, roses, winter honeysuckle, curry plant, cut grass, hay); Intimate scents where the flowers need to be investigated (violet, primrose, some Narcissus); Activated scents which are released when plant parts are crushed (most culinary herbs, scented geranium).

There are many other scented materials that have distinctive and interesting smells. Including a range of familiar smells (pond water, wood shavings, autumn leaves, cut grass). The effects of water on smells can be interesting, such as fresh rain on dry soil or a tarmac path.

**Sound – Consider both sounds that occur naturally and those that can be activated by people.**

Natural sounds include: leaves rustling in the wind; birds singing; and water trickling, dripping, splashing, and rain on an overhead cover.

**Touch – Leaves vary between plants: from rough to smooth, furry to spiky. Each texture has a purpose. Can your pupils name a texture and then think what the purpose may be?**

**Try to find the Lamb's ears plant in the sensory garden – its downy leaves resemble the ears of a lamb and are very soft to touch!**

**Taste – There are so many delicious plants that we use everyday in our cooking that are present in the sensory garden.**

**Can your pupils name any tasty plants that they like? See if they can find them in our sensory garden.** We do ask that you do not try them to ensure there are still plenty left for our other visitors to come and see.

A sensory garden is a great addition to any school grounds. Not only is it beautiful to look at but it can also provide a rich and varied learning resource for children.

# The Cascade – map ref 5

The original Cascade, designed by a French hydraulics engineer with experience in decorative waterworks for Louis XIV of France, took two years to build and was completed in 1696.

This preceded the Cascade which exists today and was a shorter and, in some ways, more complicated design.

The Cascade House was built at its summit, designed by Thomas Archer. The building continued the established tradition of using water in amusing ways, to surprise and delight visitors, one of whom, in 1725, reported how jets within the building “throw up several streams and wet people” (the spouts in the floor are still there).

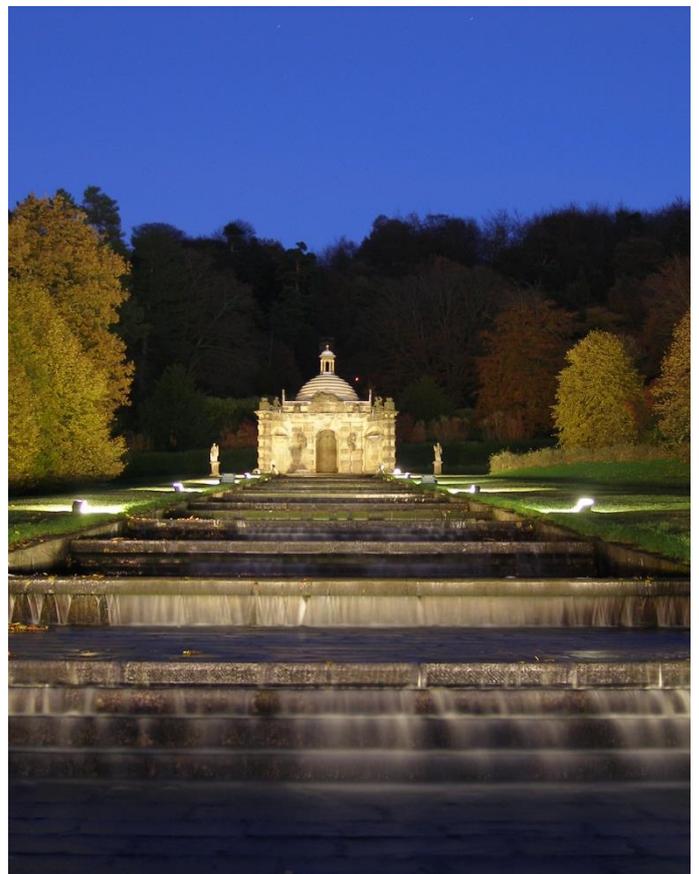
The remodelling was largely completed by 1708, and work on the supply pond, the Cascade Pond, which lies a little higher up the hill, continued until 1712. The new Cascade was nearly twice the length, and substantially wider, than the original.

## Try to complete all of these questions without getting too wet!

1. How many individual steps are there? The steps vary in height to create a range of sounds – if you listen carefully can you hear them?
2. What is the height of the largest step?
3. What is the height of the shallowest step?
4. If it took two years to build the twenty-four series' of steps how many were constructed on average per month?

**The Cascade was originally constructed in 1696 and has been rebuilt in 1703, 1826 and 1997.**

5. How long ago was the Cascade originally constructed?
6. What is the longest period of time between constructions?



# Willow Tree Fountain and Rockery – map ref 6



The **Willow Tree Fountain** is an 'artificial tree of brass' originally created in 1695. It was first placed in the centre of Ring Pond and has been remade twice.

The present-day fountain is an early 19th century copy to replace the original which had become decayed.

It was called the **squirting tree** by a delighted Princess Victoria when she visited in 1832 and was one of her favourite features of Chatsworth.

In 1844, the Willow Tree Fountain was given a new lease of life and moved to the northern edge of the Rockery. It remains a firm favourite with children today.

The **Rockery** was built as a reminder of the 6th Duke's visit to the Alps during the Grand Tour of Europe. **Ask your pupils to think of their most recent holiday and what they would build to recreate their holiday.**

Rock gardens were fashionable with the Victorians, but few were built on such a scale as this, another achievement of Paxton's in the garden. Work began in 1842 and the stone was used from the Estate.

**How do your pupils think the stone was moved and put into place?**

Paxton actually invented a steam-powered apparatus with which to move and place the giant boulders that you see. The 6<sup>th</sup> Duke noted *'the spirit of some Druid seems to animate Mr Paxton in these bulky removals.'*

Can your pupils spot the tree in this picture? This is the **Wellingtonia** and is one of the oldest living tree species dating back some 3,400 years in its native California. It was discovered in 1852, the year that the Duke of Wellington, victor of the Battle of Waterloo, died.

The largest construction in the Rock Garden has another link to the Duke of Wellington. This is the Wellington Rock which stands at nearly 14m high and has a waterfall running down it. There is a maze of paths threading round and beneath the rocks.

**If your pupils look carefully into the face of the rock, can they see a face carved into it?**



In 2007, the present Duchess planted a collection of dark or black flowers in a border called the **Dark Side**, at the northern entrance to the Rock Garden.

**Can your pupils find this colourful border?**

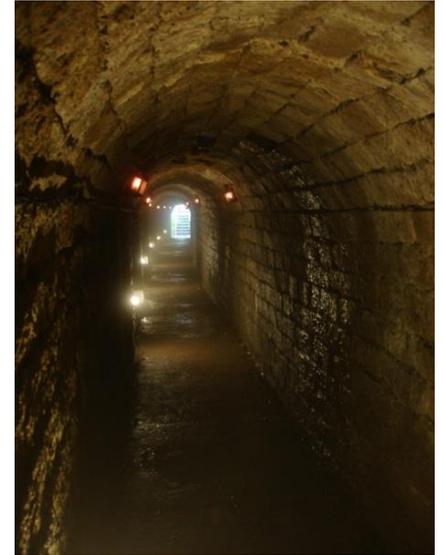
# Coal Tunnel and Maze – map ref 7

If you follow the signs to the **Coal Hole** through the Rockery you will come to a rather deep pit with a tunnel cut through the ground. There is a handrail and lights.

**When you get to the end ask your pupils what they think the tunnel was dug out for.**

It was actually built to transport coal to the Great Conservatory (a very large glasshouse originally on the site where the maze is today) without the coal having to be transported in plain sight in the garden. There would have been tracks for wagons all the way down it.

**Ask your pupils to describe what the coal tunnel must have been like to work in.**



If you continue along to the **Maze** you will come across the site where the Great Conservatory once stood, you can find out more about this interesting structure in our **Victorian** and **Wartime** Teacher's Packs.

The Maze was established in 1962 within the walls of the former Great Conservatory by the 11th Duke.

**What do your pupils think the maze is made from?** It is actually created from 1209 English yews!

During the 1980s, the 'Hundred Steps' were created. This long, straight ascent runs uphill from the Maze and is aligned on the centre of the Maze. Halfway along it is interrupted by a lone Monkey Puzzle tree.

**Can you find the human sundial at the north end of the Maze?**

It is a flat stone with the names of the months cut into it. You stand on the relevant month and your shadow falls on the time of the day, which is engraved on bricks at the proper angle.



# The Arboretum – map ref 8



From the maze you will be able to see a lot of steps leading up a bank, these are aptly named the **Hundred steps** and will take you to the Arboretum.

If you decide to take this route, **why not ask your pupils to count the number of steps up before revealing the name?**

To the right of the steps you will be able to see the remains of the flue leading from the Great Conservatory to the chimney hidden out of site in Stand Wood.

The steps offer a fantastic view across the Estate – taking in the traditional parkland designed by Capability Brown.

Halfway up the steps you will come across the **Monkey Puzzle tree** or Chile pine, a great favourite with the Victorians.

- Although it was discovered in 1782, it wasn't until 1844 that the first viable seeds arrived in Britain.
- Because of the great age that these trees can live to they are sometimes referred to as living fossils because, once established, they can live for 1,000 years!
- Its conservation status was changed to **endangered** in 2013 due to its declining abundance.
- It is also sacred to some members of the Mapuche Native American tribe.



If you carry on up you will enter the Arboretum. At Chatsworth we have both an Arboretum and a Pinetum.

- An **Arboretum** is a collection of trees.
- A **Pinetum** is a collection of pines.

The Arboretum (1835) was one of Paxton's greatest contributions to the Chatsworth landscape, a systematic succession of trees in accordance with botanical classification. **Forty acres were planted with 1,670 species!** Few traces of the original planting survive and what we call the Arboretum today are those eastern areas of the garden where trees and shrubs are dominant. As in the rest of the garden, this area has recently been cleared of *Rhododendron ponticum* revealing new views.

# The Grotto and Pond – map ref 9

The Grotto was originally constructed in the late 1790s for Duchess Georgiana, **have your class heard of the film, *The Duchess*, starring Keira Knightley?**

It is built of massive boulders and contains a rectangular room decorated with stalactites.

**Ask your pupils how stalactites are formed?** Stalactites are formed by the dripping of percolating calcareous water.

The 6<sup>th</sup> Duke described it as the warmest place in the garden and if you visit in Autumn, the colours around the Grotto Pond are spectacular and you can begin to understand what he may have been meaning.

**There are a couple of interesting plants for you to find around the Grotto:**

**Witch Hazel** - The name *Witch* in witch-hazel has its origins in Middle English *wiche*, from the Old English *wice*, meaning "pliant" or "bendable".

**Old Man's Beard** – The fruits of this plant have long silky appendages which, seen together give the characteristic appearance of *Old Man's beard*.

It was used to make rope during the Stone Age in Switzerland. In Slovenia, the stems of the plant were used for weaving baskets for onions and also for binding crops. It was particularly useful for binding sheaves of grain because mice do not gnaw on it. It is also widely considered in the medical community to be an effective cure for stress and nerves.



The Grotto Pond was probably constructed at a similar time to Morton's Pond (1700) and was designed to supply the new Canal Pond.

In 1992 the overflow from the stream leaving the Grotto Pond was turned into a water feature, the 'Trough Waterfall', using a series of stone drinking troughs gathered from the nearby fields and farm steadings.

The Drummer (1989-90) by Barry Flanagan is situated at the north end of the Grotto Pond and was acquired by the present Duke and Duchess to commemorate their coming to live at Chatsworth in 2006. For more information about Barry Flanagan please see our sculpture resource available from [www.chatsworth.org/education](http://www.chatsworth.org/education)

# Pinetum – map ref 10

This is the furthest point in the garden and so if you have made it here you have done very well!

The Pinetum is very special because it contains rarities such as the **Hinoki cypress** one of the most revered of the five sacred trees of Japan. In the Shinto religion of Japan, nature is sacred. To be in contact with nature is to be close to the gods, and natural objects are worshipped as sacred spirits, or *kami*. The timber from the Hinoki cypress is used to build temples and shrines in Japan because it is highly rot-resilient.



It was created in 1829 when the Sixth Duke enclosed eight acres of the park and introduced approximately 200 conifers, many of which were new to this country.

As you explore the Pinetum you may come across some very old oaks. These are the outliers of Sherwood Forest. Ask your pupils to imagine just how big that forest must have been to stretch all the way to Chatsworth.

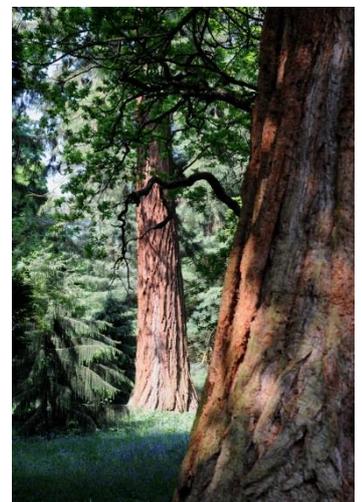
It is hoped that in the future the Pinetum can be somewhat expanded to the east and north and an even wider selection of coniferous trees be added to the present selection.



In 2009, the sculpture 'Forms that Grow in the Night' was made by David Nash especially for this site in the south-east of Pinetum. You will find more information on our sculpture resource sheet available from: [www.chatsworth.org/education](http://www.chatsworth.org/education)

The Pinetum includes a range of Pine trees many of which have fantastic bark patterns. **Try taking rubbings of the bark to identify the trees when you get back to school.**

The Pinetum also offers a fantastic view across the Estate and into the Old Park. The Old park is a Site of Special Scientific Interest (SSSI) and as such is maintained differently to the gardens and parkland open to the public. For example, some decaying trees may be left as habitats for insects and wildlife.



# Ravine and Azalia Dell – map ref 11

After the hardships that World War I brought to the estate and the the general deterioration of the garden in these war years due to money and labour shortages. Things began to recover on the Chatsworth Estate in the early 1930s. The 9th Duke's wife Evelyn, who was a great lover of gardenening, was inspired to create the Ravine and the Azalea Dell in the south of the garden. These areas of planting were clearly in the 'woodland garden' fashion

**Ask your pupils what they think to this area compared to the more formal gardens they have seen.**



Duchess Evie took whoever she could to this spot in the garden, she was so proud of her creation, one tour of this area reportedly took two hours! She was also once asked 'how many gardeners are necessary to keep the park so beautiful?' To which she replied "we used to have 70, now we manage with 40. We have to be economical."

Today the garden is managed by 20 gardeners, 2 trainees and 25 volunteers. Most our volunteers work one day a week.

**Ask your pupils to discuss the changes in staff numbers in the garden throughout time and why they think this might be.** Below is a picture of the garden staff in the 1890s.



This area was neglected during the Second World War and nearly all traces of Duchess Evie's work were eliminated by nature. However, in the 1980s it was partly restored by Duchess Deborah.

Twice a year the shrubs in the Azalea Dell give a memorable performance. In late May the solid mass of Double Ghent azaleas and Rhododendron luteum combine to make a heady aroma and in the autumn the leaves colour very well.

# Emperor Fountain and Canal Pond – map ref 12

The Canal Pond was dug between 1702 and 1703 and is set a few inches higher than the South Lawn, so when it is viewed from the south end of the pond, the house appears to rise from the water.

**Can you find what was formerly the Ice House on the far side of the Canal pond?** It was previously known as an 'earthe house' and was built and thatched in 1728. It was used until the 1920s to supply ice to the house kitchens. **Can your pupils work out how many years it was used for?**



There has been a fountain playing at the north end of the Canal since the pond was dug. The fountain was originally known as the Great Fountain.

The Emperor Fountain, engineered by Joseph Paxton, replaced the Great Fountain as the main spectacle in the Canal Pond 1844 (for more information on Paxton, please see our **Victorian Teacher's Pack**)

Although the Great Fountain, installed by the 1st Duke, was the highest in this country, the 6th Duke put Paxton's engineering skills into action to create a new record-breaking gravity-fed fountain

When it became known that Tzar Nicholas, Emperor of Russia, might visit Chatsworth the following year, 1844, the idea of welcoming the Tzar with a higher fountain than that at the Tzar's palace in N.E. Russia, appealed to the Duke.

Unfortunately the Tzar never visited Chatsworth, but the new fountain was still named after him. It is on record as having reached the height of 90m (300ft). It is powered by the pressure of water dropping 122m, through a 40cm iron pipe. The 6<sup>th</sup> Duke and the Tzar remained close, with the Tzar gifting the Duke Russian cottage.



# Ring Pond and Serpentine Hedge – map ref 13

The Ring Pond is a survivor from the 17th century gardens. It originally lay in the middle of a formal plantation of trees, with the Willow Tree Fountain at its centre.

**Can your pupils see the big pipe in the pond?** When the water is clear you can see the 16 inch (40 cm) diameter pipe which feeds water from the Emperor Lake, high in the woods, to the Emperor Fountain.

The *herms* (stone busts on columns) were designed by William Kent in the 18th century and were only placed here in 1893. In Ancient Athens they were common as boundary markers and signposts.

**Discuss with your pupils what you think the herms might be saying – where are they directing you?**



**Can your pupils see the duck fountain?** The pond is often called the 'sick duck' pond. **Can you guess why?** It is because of the water that spouts from its beak.



To the side of the Ring Pond you can see a curving hedgerow. This is called the **Serpentine Hedge** and is made of beech. It was planted in 1953 to give the bronze head of the 6<sup>th</sup> Duke at the far end an approach of importance and the design was inspired by the 'crinkle crinkle' wall at Hopton Hall.

**Which name do your pupils prefer? Can you think of any other quirky names given the hedges shape?**

The bust of the 6<sup>th</sup> Duke sits on a column made up of four blocks of marble found on the beach below the Temple of Minerva at Sunium (Minerva was the Roman Goddess of wisdom and sponsor of arts, strategy and trade) and was brought home by the 6<sup>th</sup> Duke's half brother.

Can you see the patch of ground with some saplings growing between the Serpentine Hedge and the Maze? These are **The Millenium Oaks** – 43 different varieties of oak have been planted in this area. For many years this area in the middle of the garden was a wilderness until inspiration came to plant it with the tree historically associated with England; 'Heart of Oak' was played on HMS Victory as she led the attack at the Battle of Trafalgar in 1805.



# Salisbury Lawn – map ref 14

Before you walk down the Broadwalk and away the Canal Pond, look back down the path and you will see a vase standing proudly at the end of the Broadwalk. This vase was placed here by the Sixth Duke in memory of his beloved niece, who died at only 28 years. There is a picture of it on the front of this resource pack.

As you walk back down the Broadwalk you will pass the huge lawn that is in front of the house. This is called the Salisbury lawn, presumably after the Plain, and is divided by a broad gravel path. The lawn to the north of this path is called Great Salisbury and covers just less than **three acres**. The lawn to the south is called Little Salisbury and is just over **two and a half acres**. Together they total **5.57 acres**.

The creation of the Salisbury Lawns and the removal of the old formal gardens occurred most likely in the 1730s during the time of the 3rd Duke, possibly under advice from William Kent. Kent advocated laying out gardens in a less formal, more natural way.



**Can you find examples of the rich variety of grasses, mosses, sedges, wildflowers, fungi and mycorrhiza growing here.** Because of these there are no weedkillers or fertilisers used, and the only maintenance that is carried out on these 280 year-old lawns is mowing.

The deer were excluded from the garden in the early 19<sup>th</sup> century and the grass was mown first by horse drawn mowers and then by motor mowers. Today it takes one man just over 7 hours to mow the lawn, which previously took nearly 30 man days to scythe.

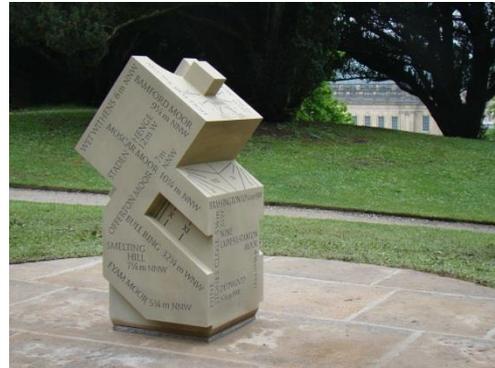
**Can your pupils see our weather station?** Daily records of wind, rainfall, sunshine and cloud cover have been kept since the 18<sup>th</sup> century.

**Ask your pupils to walk round the station and find out when the sunniest day was and when the wettest day was.**



# The garden spotters' sheet

As you explore our garden, why don't you see if you can find these sculptures?



We hope that you have found this pack useful and that you have enjoyed your visit.

For further resources, please see our website [www.chatsworth.org/education](http://www.chatsworth.org/education)

Below is a map of the garden which shows the areas of the garden focussed on in this pack.

**Chatsworth Garden Map**

