# How was Blenheim designed?

1. Blenheim Palace was designed by **Baroque** architect Sir John Vanbrugh.

## Here are buildings designed by **Sir John Vanbrugh.**



Castle Howard



Seaton Delaval Hall



Kings Weston House

## Here are buildings designed by other **Baroque architects**.



St Peter's Basilica, Rome



Church of Santa Susanna, Rome



Church of Quattro Fontane, Rome



St Paul's Cathedral



Christ Church Spitalfields

Buildings can de designed by one or many architects. Find out the main architects for each of these buildings.

Describe what these buildings have in common with Blenheim Palace.

Shape

Colour

Pattern

Material

2. Baroque buildings were designed to be symmetrical to achieve balance and to promote a continuous flow of features.

Design a non-Baroque building.

# How was Blenheim built?

1. Blenheim Palace was built purely with human force.
   There was no mechanical / electrical / electronic help.

Can you associate the profession with the right job description?

| Profession | Job description |
|---|---|
| | A person works with stone. |
| | A person works with wood. |
| | A person who works with metal. |
| | A person works with glass. |

Carpenter  Glazier  Mason  Smith

2. Blenheim Palace was built with natural resources.
   Look inside and outside the Palace.

What materials can you see?

| Material | Object |
|---|---|
| Stone | |
| Metal | |
| Wood | |
| Glass | |

**3.** Can you see other materials?

| Material | Object |
|---|---|
| | |
| | |
| | |

# Geography of natural resources

1. The three types of **stone** used in the original building of the Palace are Cotswold stone, Portland stone, and Plymouth stone.

Locate the Cotswolds, Portland, and Plymouth on the map.



2. Most **iron** ore is found in Australia, Brazil, and China.

Locate these countries on the world map.

3. Different types of trees will grow best in different climates. **Oak** trees grow mostly in the northern hemisphere. **Mahogany** trees grow in South America and the West Coast of Africa. **Beech** trees grow mainly in North America and Western Europe.

Locate these locations on a world map.

Locate these countries on a world map.



4. More than half the world's supply of **silver** comes from Mexico, Peru, and Chile. China, Australia and Russia are the other large suppliers. **Aluminium** is found in China, India, Russia and Canada.

# Evolution of technology

The art and science of building houses have evolved with the Industrial Revolution.

1. Look at the different features of the Palace and think about the **practicality of the design** of the house.

| Things designers didn't consider then | Things designers consider now |
|---|---|
| Height of ceilings. Rooms with high ceilings are difficult to keep warm because heat travels up. | Most homes have low ceilings, but if high ceilings are designed, then appropriate heating should be considered. |
| | |
| | |

2. Look at the different characteristics of the Palace and think about the **practicality of the materials** used in building the house.

| Things designers didn't consider then | Things designers consider now |
|---|---|
| Iron cramps that joined stone together, they rust. | Stainless steel cramps are now used. |
| . | |
| | |

# Measuring land

In Britain, the Imperial System was used until 1965. Today, we use the International System of units to indicate different measurements.

| Imperial System | Decimal System |
|---|---|
| 1 inch = 2.54 cm | 1 centimetre = 10 millimetres |
| 1 foot = 30.48 cm | 1 metre = 100 centimetres |
| 1 yard = 91.44 cm | 1 kilometre = 1,000 metres |
| 1 mile = 1,609.34 km | |

1. There were a lot of straight lines in 18th century designs. How did they measure straight lines then?

They used a **Gunther's Chain**. It was a chain made up of 100 links.

1 chain = 100 links. Each link measured 7.92 inches.

Can you work out how long a **link** is in centimetres?

Then can you work out how long was a **chain** in metres?

10 chains = 1 furlong.

The word furlong comes from "a furrow long" in Anglo-Saxon times, which refers to the distance that an ox could plough without a rest.

Can you work out how long a **furlong** is in metres?

80 chains = 1 mile.

The concept of a mile comes from *mille passus* in the Roman times, which refers to the distance of 1,000 paces. It means a "thousand steps."

Can you work out how long a mile is in links?

2. The Blenheim Estates cover about 12,000 acres of land.

The land that a man and eight oxen could plough in one day. It means "field."

1 acre = 1 furlong in length and 1 chain in width.

Can you work out what an **acre** is in square metres?

## Lichen on the Palace Walls

There is a large **community** of lichens growing on the walls at Blenheim, and they're often mistaken for normal plants. But the truth is that they're so much more than this. In fact, many scientists now think they are more like complex ecosystems than single living organisms.

1. What is a **lichen**?

A lichen is a symbiont. Like plants, lichens need water, light and a suitable temperature to grow. A lichen is made of fungi, algae and cyanobacteria. Fungi provide moisture (water) and shelter (habitat) for the algae and cyanobacteria.
The algae or cyanobacteria provides food (nutrients) for the fungi.

Draw a picture to show a fungus and an alga or a fungus and a cyanobacteria joining together in symbiosis to form a lichen. Label the different parts.

2. Why does it **grow on the stonework**?

The lichens that grow on the stonework at the palace are known as **saxicolous** lichens. The walls act as their **habitats** and provide the things they need to grow. The types of lichens that grow (and how well) depends on the stone present (its type, roughness, porosity, pH), how much water is available, whether any mortars are there and what the architecture is like (in terms of aspect, surface slope, exposure etc.).

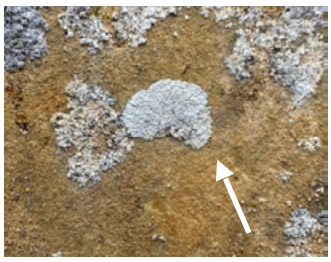
3. Why are lichens important?

Lichens play a very important role in our ecosystems. Lichens help turn carbon dioxide into oxygen during photosynthesis.

Choose one side of the palace and illustrate the stonework with lichens. Include water, light, suitable temperature.

Lichens have different colours. The number of colours can help us determine how many types of lichen are present.

Can you count the types of lichen? Where are they mostly living? Why?



☐ *Diploiscia canescens*



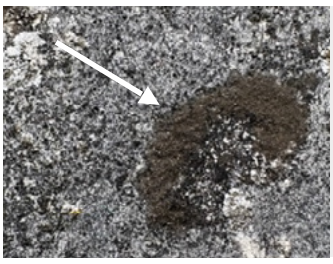
☐ *Caloplaca flavescens*



☐ *Aspicilia calcarea*



☐ *Xanthoria calcicola*



☐ *Verrucaria macrostoma*

Can you spot these saxicolous lichens on the Palace walls? Which ones are most common?

Words and photographs by Dr Nicholas Carter/Blenheim Palace

# Heritage protection

We are undertaking major conservation and restoration projects. We wish to protect our legacy for future generations.

1. The Palace is over 300 years old. Why should we keep an old house?

Because this old house is a **historic building**. Blenheim Palace has a **historical value**, which is more valuable than the intrinsic value of the materials that were used to build it. Preserving history in all its shapes and forms helps people tell the story of the nation.

What stories do you think Blenheim Palace can tell?

2. Restoration is very expensive. Why could we just not build another one?

Because this historic house tells stories that a new house could not tell. Keeping a historic building supports the **local economy:** it creates jobs, it attracts tourists, and it is a way of telling the nation's story to the tourists.

Can you think of a famous historic building and the stories it can tell?

3. What benefits does an old grand house give to people's lives?

Preserving a historic building is preserving a **community's heritage** and **culture**. A community's culture gives its people a **sense of identity**, a **sense of unity,** a **sense of continuity**, and a **sense of belonging.** **Historic preservation** is important to people because it helps connect to the past, understand the roots of our family trees.

Are there historic buildings around your school or your home?

Understanding where we come from helps us appreciate where we are today and where we are going tomorrow.

# World Heritage Site

Blenheim Palace became a World Heritage Site in 1987.

1. What is a **world heritage site**?

It is a cultural and/or natural site that is considered to be of **'Outstanding Universal Value'.**

There are 33 World Heritage Sites in the UK. Look them up. Which ones have you heard of?

2. What is Blenheim's **outstanding universal value**?

Blenheim's value is the diversity of its architectural style from the 18th, 19th, and 20th centuries and its association with a significant event in human history.



ARCHITECTURE

Blenheim is an example of different architectural styles reflecting three centuries of artistic influences: Vanbrugh and Wises' Baroque formal style, Capability Brown's Romantic natural style, and Duchene's formal revival style.

HISTORY

Blenheim was built for the 1st Duke of Marlborough as a reward for his military exploits. He was also a Prince of the Germanic Holy Roman Empire, an Empire that collapsed at the end of the First World War.

There are 10 selection criteria that a site must meet to become a World Heritage Site.

Blenheim meets criterion II and criterion IV.

Find out what are the other eight criteria.

1. .....

2. .....

3. .....

4. .....

5. .....

6. .....

7. .....

8. .....

3. Why is it **special** to be a World Heritage Site?

It is special to be a World Heritage Site because it means that **the site is important to everyone in the world**. Heritage sites tell the stories of humanity.

There are over 1,000 World Heritage Sites in over 160 countries.

Find out about these sites and explore how and why they have been designated World Heritage Sites.

A quote from the United Nations Educational, Scientific and Cultural Organization:

*"Heritage is our legacy from the past, what we live with today, and what we pass on to future generations. Our cultural and natural heritage are both irreplaceable sources of life and inspiration."*