

Pearson Year 7 Term 2 Engineering

The Great Pyramid of Giza

The **Great Pyramid of Giza** is the oldest and largest of the pyramids in the Giza pyramid complex in Greater Cairo, Egypt. It is the oldest of the Seven Wonders of the Ancient World, and the only one to remain largely intact. Egyptologists conclude that the pyramid was built as a tomb for the Fourth Dynasty Egyptian pharaoh Khufu and estimate that it was built in the 26th century BC during a period of around 27 years.

Initially standing at 146.5 metres (481 feet), the Great Pyramid was the tallest man-made structure in the world for more than 3,800 years. Throughout history the majority of the smooth white limestone casing was removed, which lowered the pyramid's height to the present 138.5 metres (454.4 ft). What is seen today is the underlying core structure. The base was measured to be about 230.3 metres (755.6 ft) square, giving a volume of roughly 2.6 million cubic metres (92 million cubic feet), which includes an internal hillock.

The Great Pyramid was built by quarrying an estimated 2.3 million large blocks weighing 6 million tonnes total. The majority of stones are not uniform in size or shape and are only roughly dressed. The outside layers were bound together by mortar. Primarily local limestone from the Giza Plateau was used. Other blocks were imported by boat down the Nile: White limestone from Tura for the casing, and granite blocks from Aswan, weighing up to 80 tonnes, for the King's Chamber structure.

- **1.** Egypt is a transcontinental country, with most of its land mass in Africa and a small proportion in Asia.
- **2.** Taj Mahal in India, Great Wall of China, Machu Pichu in Peru, The Colosseum in Rome, Christ the Redeember in Rio de Janero and Petra, Jordan.
- 3. Pharaoh means God on Earth.
- **4.** Before Christ and this was 2021 years ago.
- **5.** The pyramid is taller (the Cathedral is 123m tall).

- **6.** The white limestone casing was removed, which made it shorter.
- **7.** 2,600,000
- **8.** The Mediterranean sea.
- **9.** A tomb is a large vault for burying the dead.
- **10.** 1000kg = 1 tonne.





Year 8 Term 2 Engineering



The Great Wall of China

The **Great Wall of China** is an ancient wall in China. The wall is made of cement, rocks, bricks, and dirt. It was finished in 1878 and it was meant to protect the north of the empire of China from enemy attacks. It is the longest structure humans have ever built. It is about 21,196 kilometers long, 9.1 metres (30 feet) wide and 15 metres high. The earlier sections on the wall are made of compacted dirt and stone. Later in the Ming Dynasty they used bricks. There are 7,000 watch towers, block houses for soldiers and beacons to send smoke signals.

Nineteen walls have been built that were called the Great Wall of China. The first was built in the 7th century BC. The most famous wall was built between 226–200 BC by the first Emperor of China, Qin Shi Hong (Qin Pronounced as Chin), during the Qin Dynasty. Not much of this wall remains as people have been stealing from it. It was much farther north than the current wall. The current wall was built during the Ming Dynasty.

It was made over the course of hundreds of years, the wall was built by over 6 different Chinese dynasties, and is over 2,300 years old. The wall was built to help keep out northern invaders like the Mongols. Smaller walls had been built over the years, but the first Emperor of China, Qin Shi Huang, decided that he wanted a single giant wall to protect his northern borders. The most well-known sections of the wall were built by Ming Dynasty. Genghis Khan, the founder of the Mongol Empire, was the only one who breached the Great Wall of China in its 2,700-year-history.

- 1. It was finished in 1878, which is 243 years ago.
- **2.** It is 21,196km long, which is 21,196,000 metres.
- **3.** It was built as a defence against invaders from the North.
- **4.** 7000 watch towers.
- 5. The building of the wall started in the 7th century BC.
- **6.** A line of hereditary rulers of a country.

- 7. Qin Shi Hong
- **8.** Genghis Khan was the founder of the Mongol empire, and he established the largest land empire in history.
- **9.** He breached, or broke through the Great Wall.
- **10.** The sections built by the Ming dynasty are the most famous, and people steal pieces of the wall as a souvenir.

The Colosseum

The Colosseum is an oval amphitheatre in the centre of the city of Rome, Italy, just east of the Roman Forum. It is the largest ancient amphitheatre ever built, and is still the largest standing amphitheatre in the world today, despite its age. Construction began under the emperor Vespasian (r. 69–79 AD) in 72 and was completed in 80 AD under his successor and heir, Titus (r. 79–81). Further modifications were made during the reign of Domitian (r. 81–96). The three emperors that were patrons of the work are known as the Flavian dynasty, and the amphitheatre was named the Flavian Amphitheatre by later classicists and archaeologists for its association with their family name (Flavius).

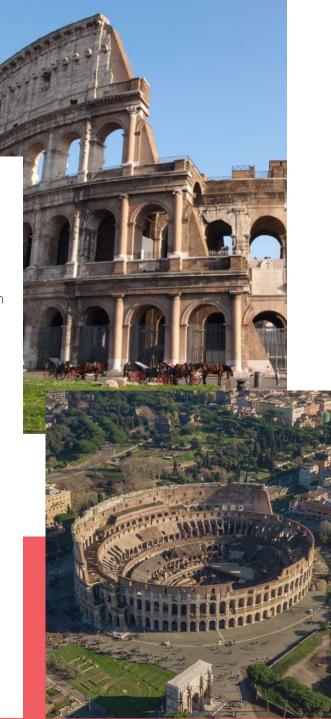
The Colosseum is built of travertine limestone, tuff (volcanic rock), and brick-faced concrete. The Colosseum could hold an estimated 50,000 to 80,000 spectators at various points in its history having an average audience of some 65,000; it was used for gladiatorial contests and public spectacles including animal hunts, executions, re-enactments of famous battles, and dramas based on Roman mythology, and briefly mock sea battles. The building ceased to be used for entertainment in the early medieval era. It was later reused for such purposes as housing, workshops, guarters for a religious order, a fortress, a quarry, and a Christian shrine.

Although substantially ruined because of earthquakes and stone-robbers, the Colosseum is still an iconic symbol of Imperial Rome and was listed as one of the New 7 Wonders of the World. It is one of Rome's most popular tourist attractions and also has links to the Roman Catholic Church, as each Good Friday the Pope leads a torch lit "Way of the Cross" procession that starts in the area around the Colosseum.

The Colosseum is also depicted on the Italian version of the five-cent euro coin.

- **1.** Correct drawing.
- Construction started around 69 AD. AD means Anno Domini, which is Latin for the 'Year of the Lord'.
- **3.** Around 11 years.
- Rome, in Italy.
- Because modifications were made during the Favian dynasty.

- **6.** An estimated 50,000 to 80,000 spectators.
- 7. Animal hunts, executions, re-enactments of battles, plays and dramas.
- **8.** Earthquakes and stone-robbers.
- 9. Imperial Rome means the period when Rome had power of many different parts of the world.
- 10. It is a torch-lit procession around the Colosseum, and takes place every Good Friday.





Year 10 Term 2 Engineering



Brooklyn Bridge

The Brooklyn Bridge looms majestically over New York City's East River, linking the two boroughs of Manhattan and Brooklyn. Since 1883, its granite towers and steel cables have offered a safe and scenic passage to millions of commuters and tourists, trains and bicycles, pushcarts and cars. The bridge's construction took 14 years and cost \$15 million (more than \$320 million in today's dollars). At least two dozen people died in the process, including its original designer. Now more than 125 years old, this iconic feature of the New York City skyline still carries roughly 150,000 vehicles and pedestrians every day.

John Augustus Roebling, the Brooklyn Bridge's creator, was a great pioneer in the design of steel suspension bridges. Born in Germany in 1806, he studied industrial engineering in Berlin and at the age of 25 immigrated to western Pennsylvania, where he attempted, unsuccessfully, to make his living as a farmer. He later moved to the state capital in Harrisburg, where he found work as a civil engineer. He promoted the use of wire cable and established a successful wire-cable factory.

On May 17, 1884, P. T. Barnum led 21 elephants over the Brooklyn Bridge to prove that it was stable.

Meanwhile, Roebling earned a reputation as a designer of suspension bridges, which at the time were widely used but known to fail under strong winds or heavy loads. Roebling addressed these problems by combining structural elements from previous bridge designs—including cable arrays and stiffening trusses. Using this model, Roebling successfully bridged the Niagara Gorge at Niagara Falls, New York, and the Ohio River in Cincinnatti, Ohio.

- 1. New York, USA which is in North America.
- 2. Manhattan and Brooklyn.
- **3.** 1883, 138 years ago.
- **4.** \$320,000,000
- 5. John Augustus Roebling.
- **6.** P. T. Barnum was a showman who founded a circus, which is why he had elephants.
- **7.** The weight of the bridge is supported by vertical ca-bles suspended from further cables that run between towers.



- **9.** He used structural elements from other designs, i.e. cable arrays and stiffening trusses.
- **10.** Ontario in Canada.