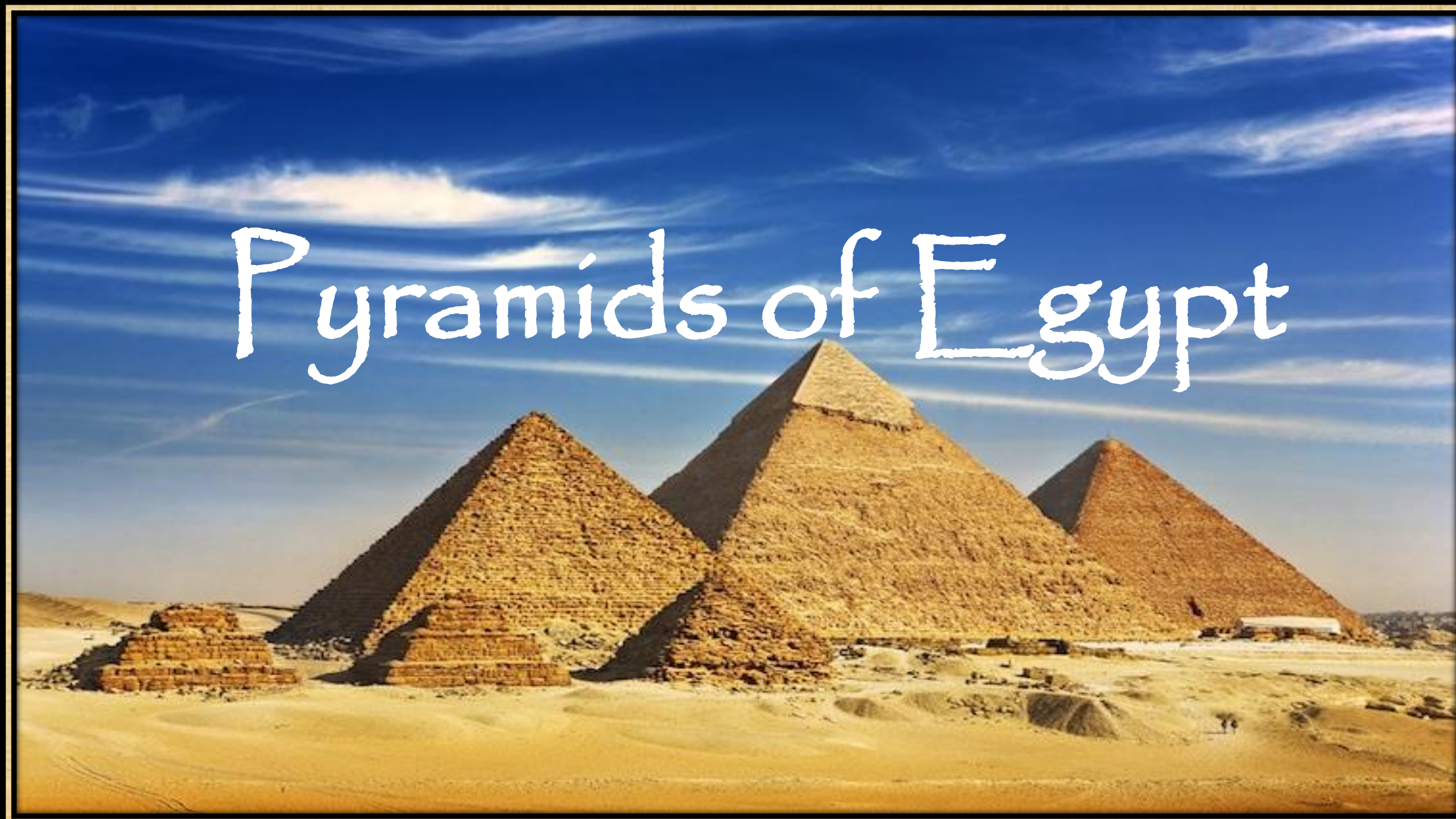


Pyramids of Egypt



Essential Question:

How did the pyramids develop over time?



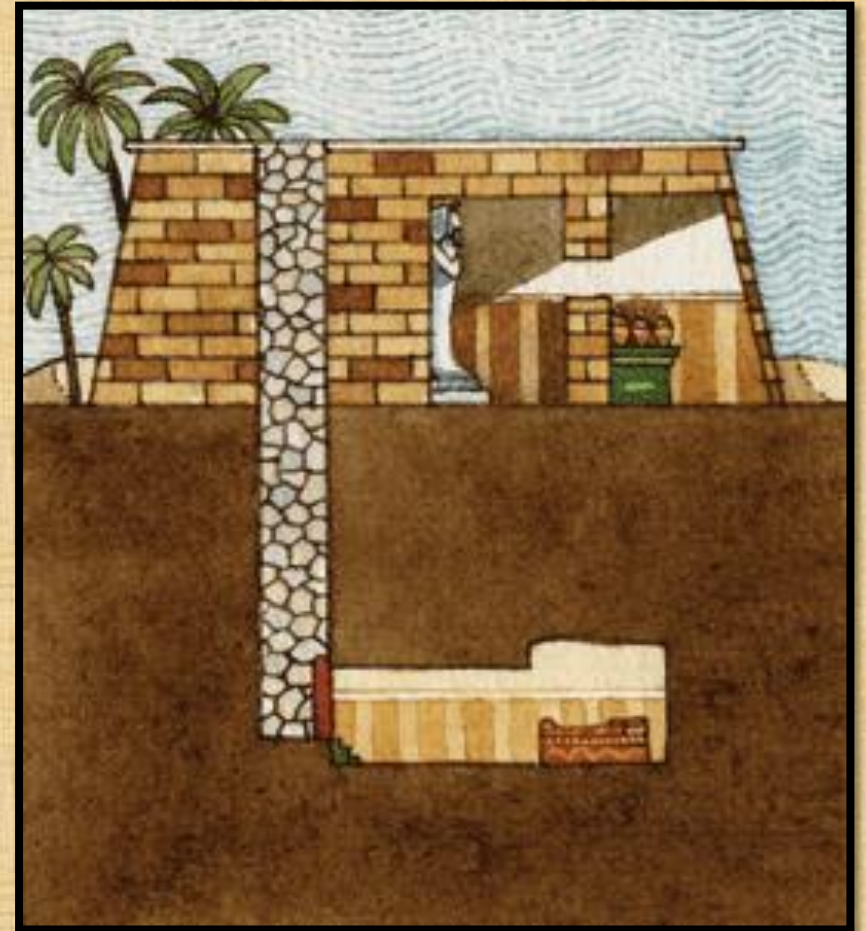
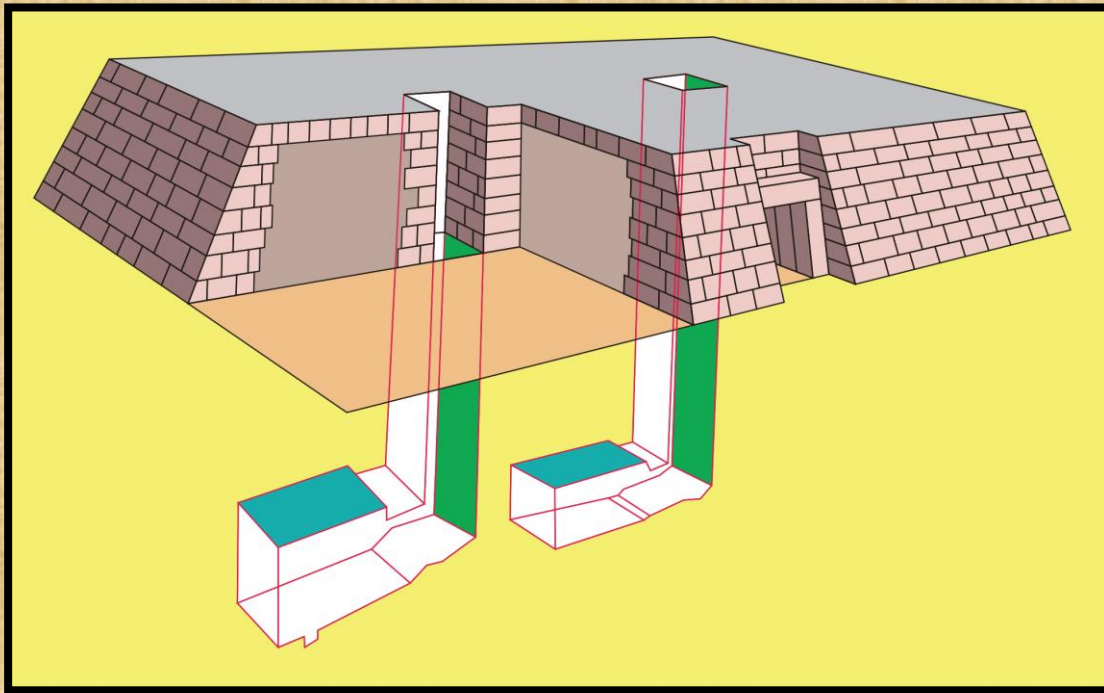
How did the first pyramid develop?

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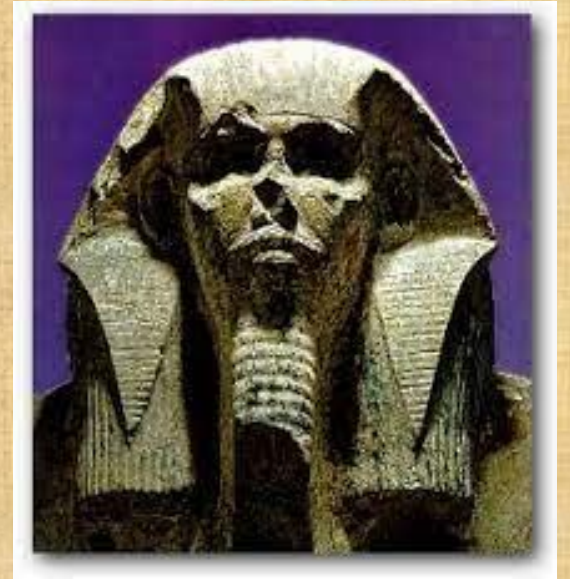
- The earliest Egyptians buried their dead in the **SAND**
- When the winds blew, the sand was blown away, exposing the body, jackals would find and eat the bodies, so they started digging into the bedrock below the sand.
- The burials evolved into large, **UNDERGROUND** tombs.
- Stones were placed on top of the burial sites to keep the sand from blowing away and to mark where the body was buried
- These large, rectangular stones, were called **MASTABAS**, meaning 'bench' in Greek



- Over time, these mastaba became larger and larger, with the bodies being buried in a cut out tomb underneath the mastaba.
- The entrance would be in the mastaba, with a passageway heading down **BELOW** the stones.



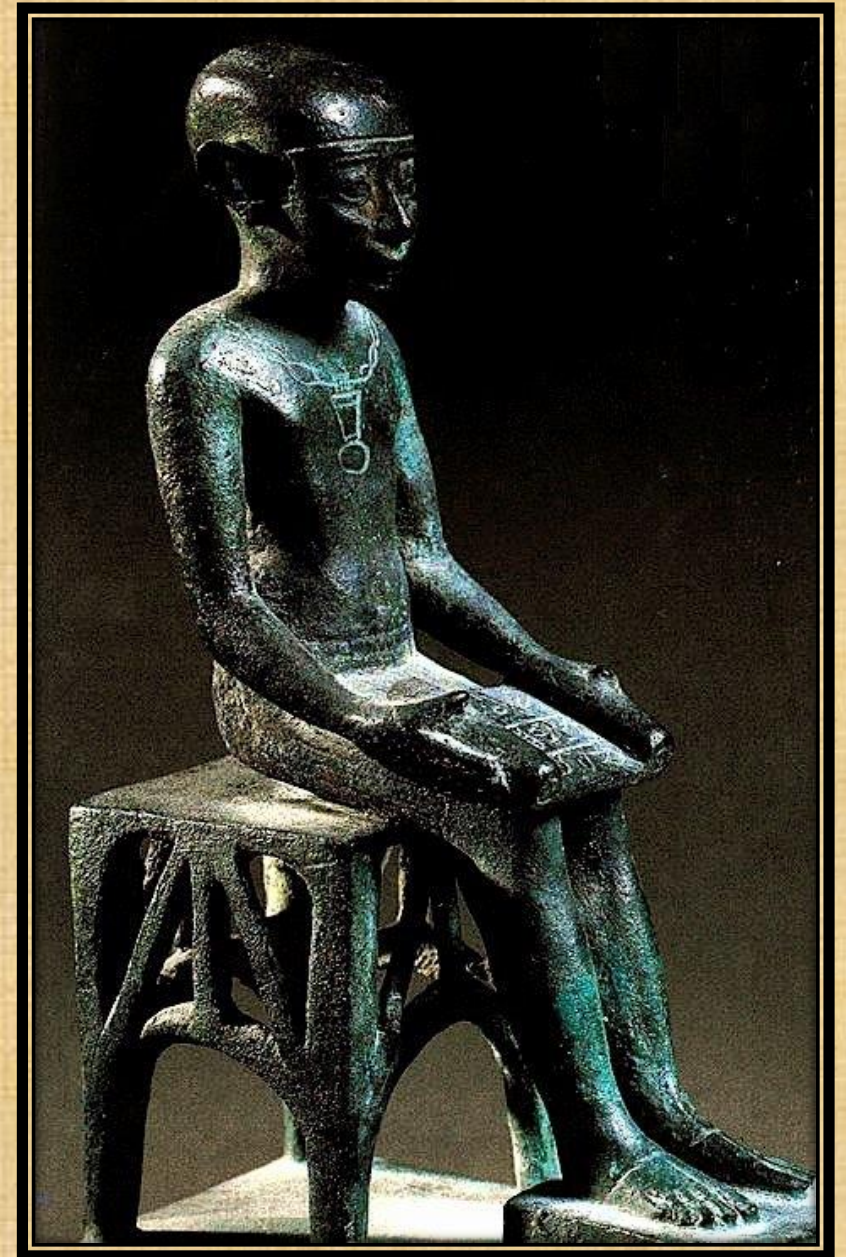
- Djoser (**ZOSER**) was a Pharaoh from the 3rd dynasty of ancient Egypt (2686-2649 B.C.). His architect, Imhotep, decided to make the Mastaba for Djoser extra special
- He made a mastaba the size of a football field, then he placed a second, smaller mastaba on top, then a third and fourth and fifth.
- This was the world's first pyramid, it is known as the **STEP PYRAMID**
- This was the tallest structure of the time



- Zoser then built an entire **COMPLEX** around the pyramid
- Zoser had a smaller room built near his pyramid with a statue of himself placed inside.
- Stone chapels were built for religious ceremonies
- This was the first time anyone had built in **STONE**, so they imitated what they had seen built out of wood or papyrus reeds
- Doors were made from stone, but they were too heavy to move, just decorative
- The columns looked like bundles of papyrus reeds wrapped together, because this is what they had made columns out of before.



- The architect who designed and built the first pyramid, **IMHOTEP**, was also a physician. The Egyptians deified him, making him into a god.
- The tomb of Imhotep has never been found.

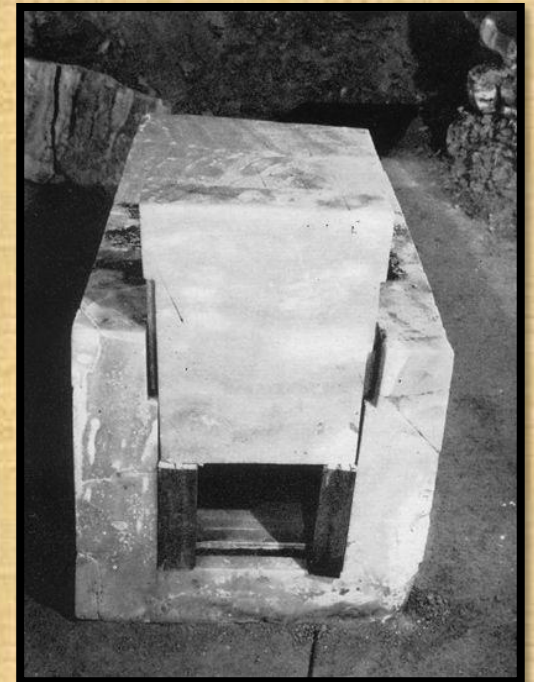


How did the first pyramid develop?

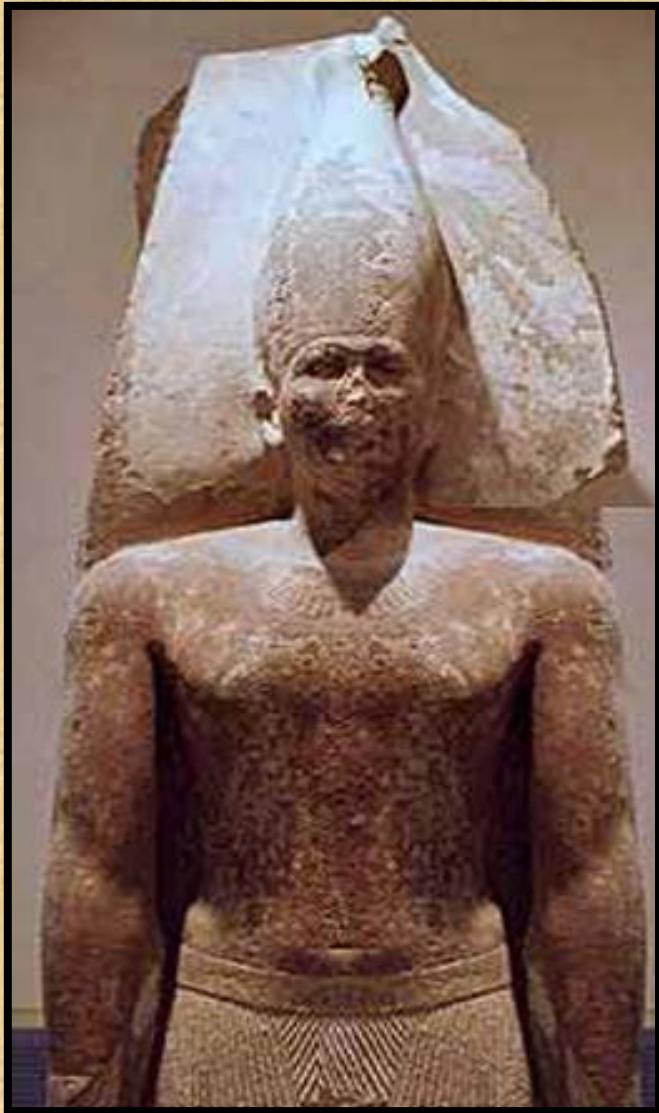


What problems did Snefru have with his pyramids?

- Horus Sekhemkhet was King Zoser's successor. He wanted to expand upon what King Zoser had done.
- He had a step pyramid built, he died before it was completed, and it was only a few meters high. This pyramid was discovered in 1951, with the burial chamber sealed and intact.
- Gold was found inside, but the sarcophagus was empty. His real tomb is yet to be found.



Snefru (2613-2589 B.C.)



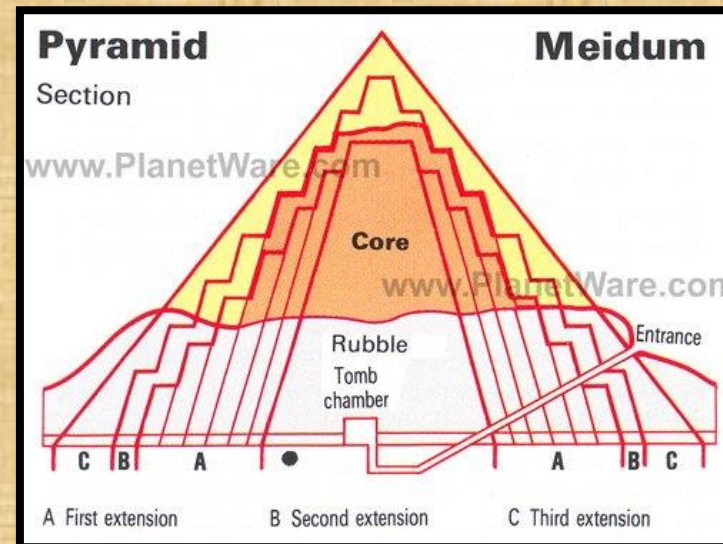
- Snefru was the first king of the 4th dynasty, he reigned for 24 years
- **SNEFRU** built several pyramids, he made Egypt into an international power, and set the artistic standards that would last for thousands of years.
- He was the first pharaoh to carve his name in a cartouche
- The pyramids were a trial-and-error process, Snefru's first two pyramid attempts **FAILED**



- Snefru's first pyramid is known as the **MEDIUM** (pronounced My-Doom) Pyramid, it looks more like a tower.
- It was a **STEP PYRAMID** first, then he tried to fill in the steps with limestone. This became unstable. It was **ABANDONED**
- He also had a causeway built down to the valley, where the body would have been mummified



- This was the first pyramid with the tomb **ABOVE GROUND**. The entrance takes you down below the bedrock, below the pyramid, then steeply up into the pyramid.
- This led to a huge problem, how do you roof over an area the size of a living room, with millions of pounds above it?
- Development of **CORBELLED** ceiling
- Each layer of stone moves in just a little bit, like an inverted pyramid, this is known as corbelled ceiling.
- Eventually, the stones started slipping on the outside, and the pyramid was abandoned



The Bent Pyramid

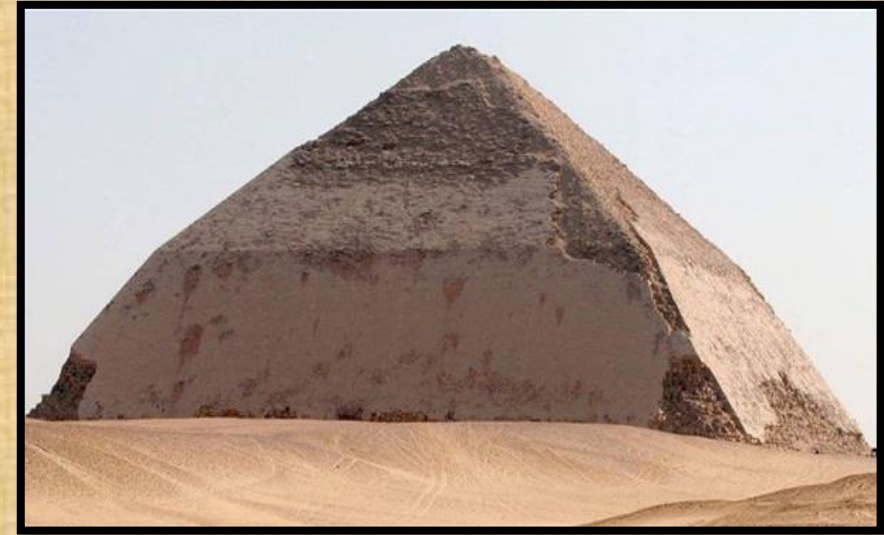
Snefru tried a second time. His next pyramid is known as the **BENT PYRAMID**. It is almost as high as the great pyramid

The corners were not built on bedrock, so the **WEIGHT** caused it to move on the sand

The burial chamber is 55 feet high,

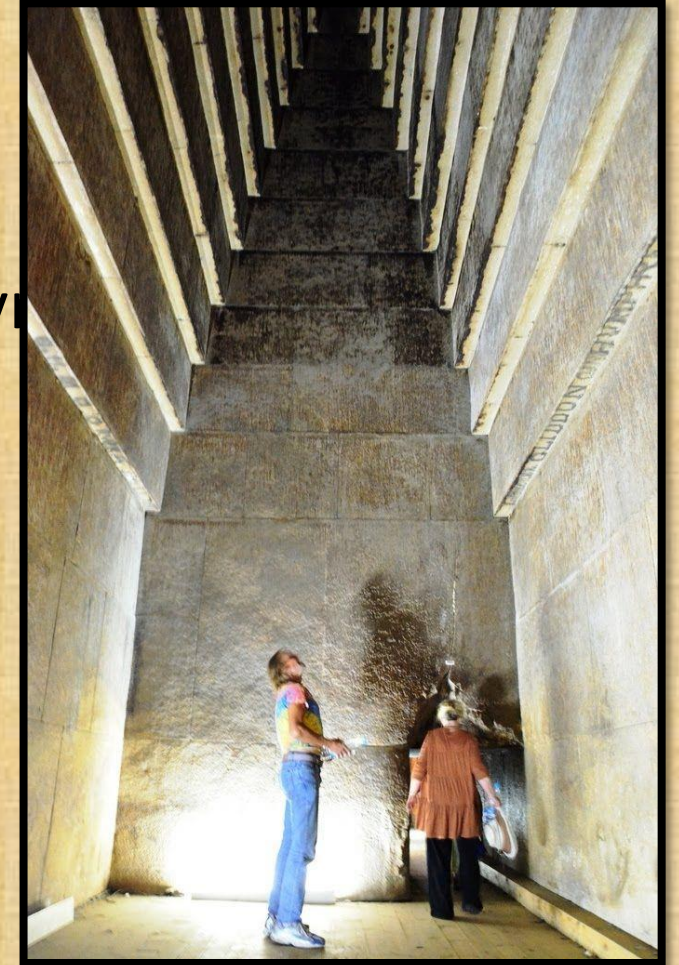
The chamber is filled with wooden cedar **BEAMS**, trying to hold the walls and ceiling and keep them from collapsing.

The finished it quickly, but it bends near the top. This pyramid was abandoned too.



The Red Pyramid

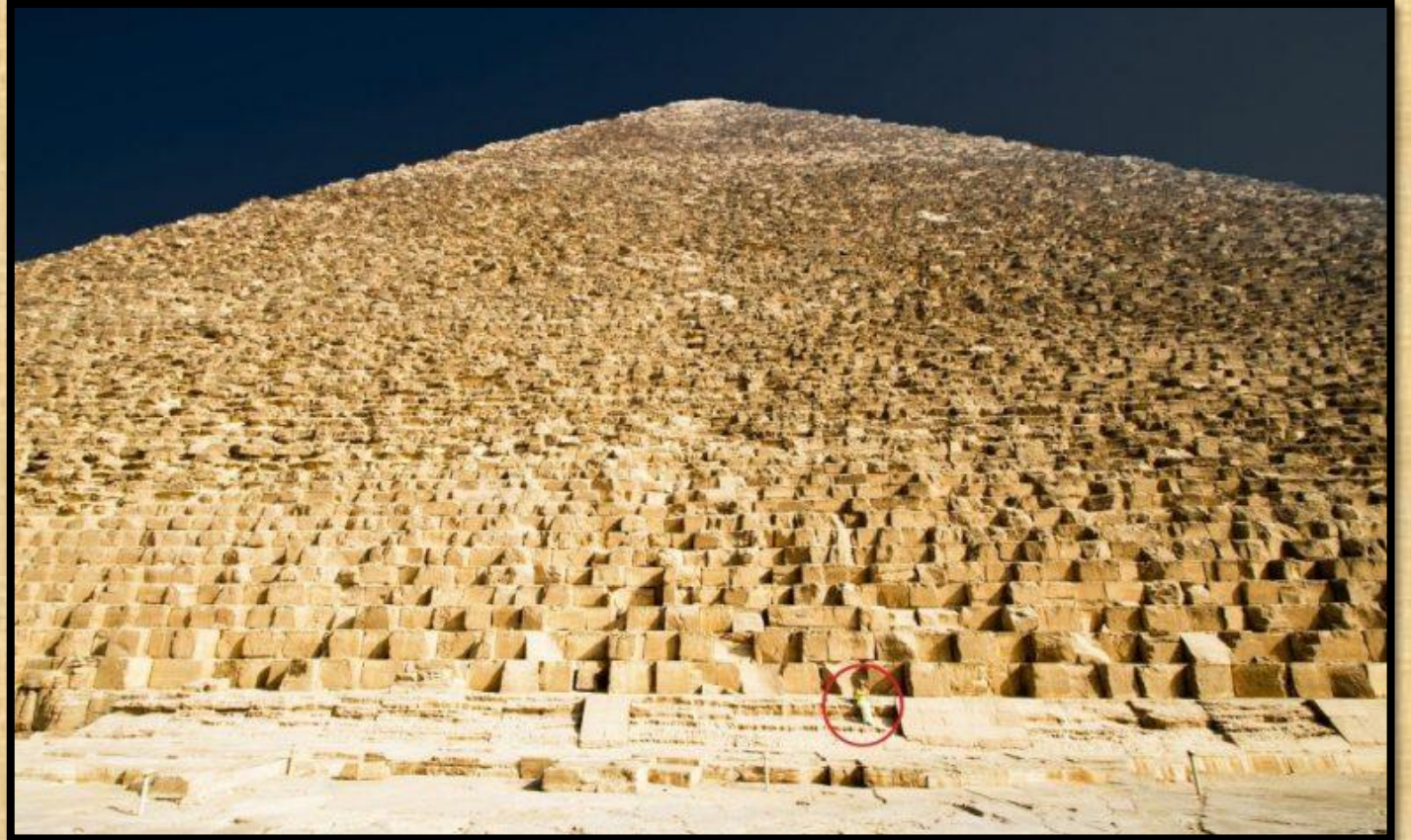
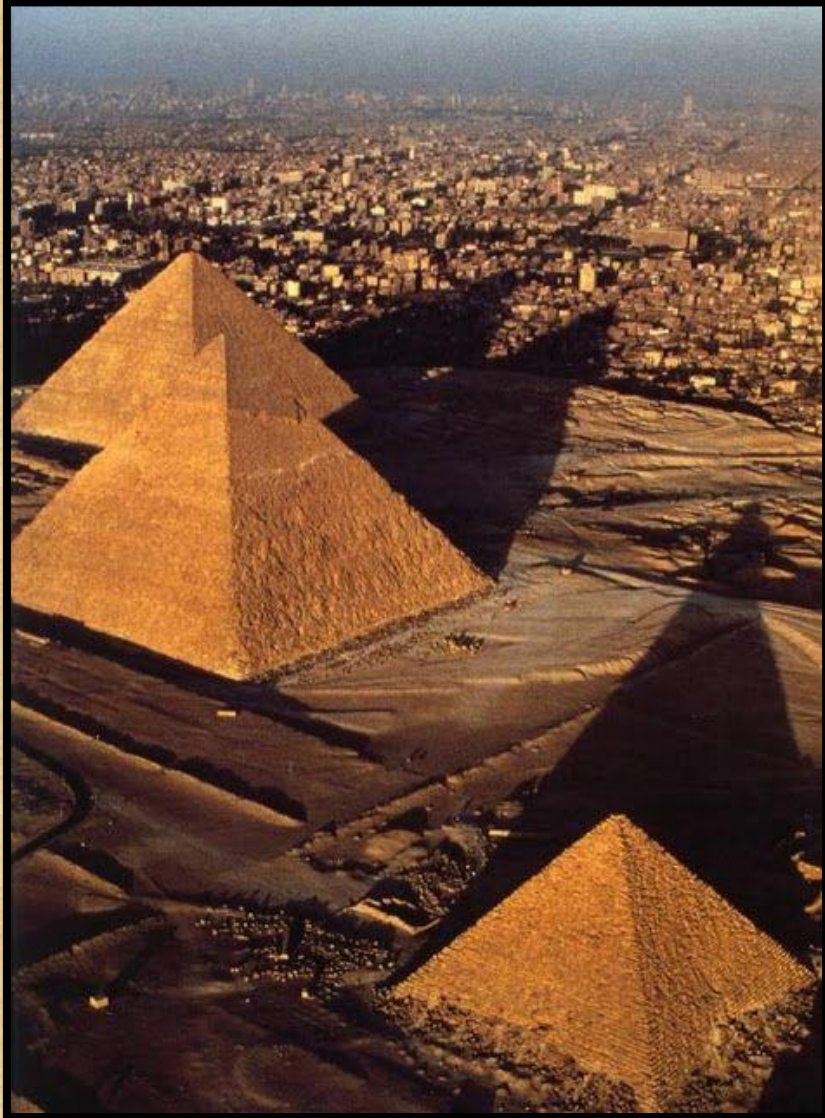
- Snefru's third pyramid was the **RED PYRAMID**. Called this because the sun shines on it in such a way that it appears red.
- It is 341 feet tall
- This was the first **TRUE PYRAMID**
- Snefru's son, Khufu, would go on to build the Great Py



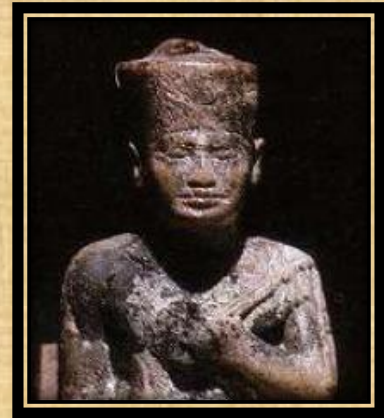
What problems did
Snefru have with his
pyramids?



Who were the Great Pyramids built for?



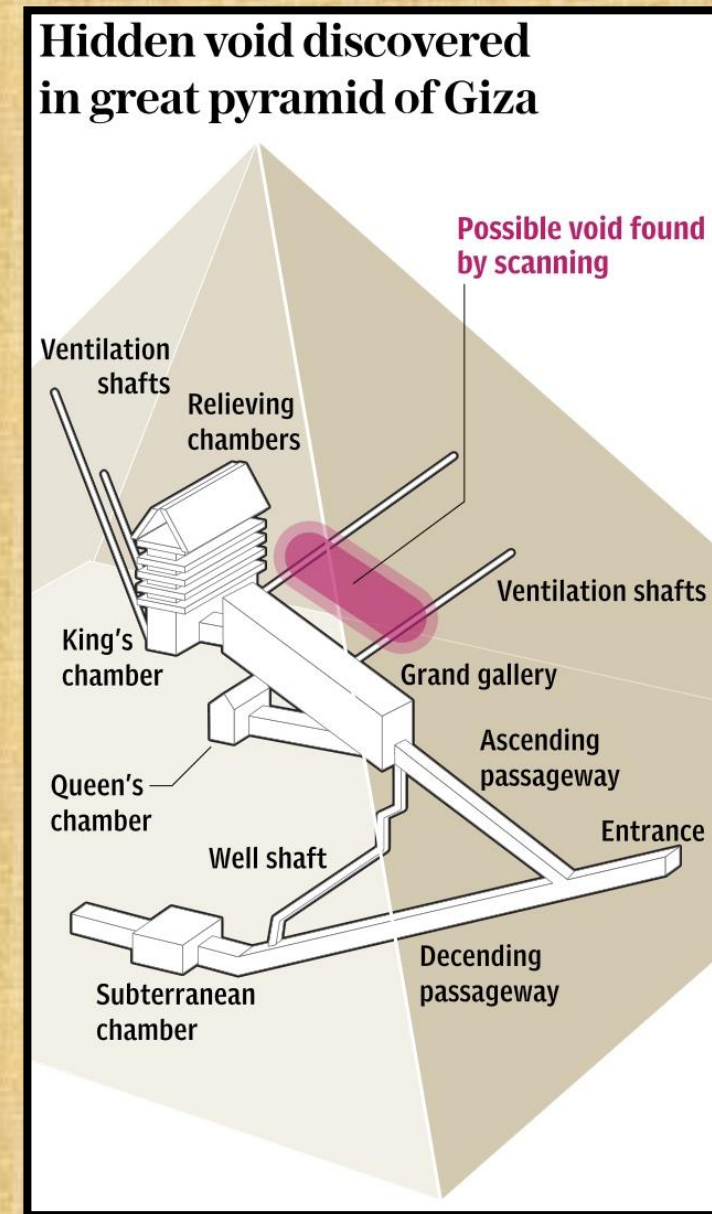
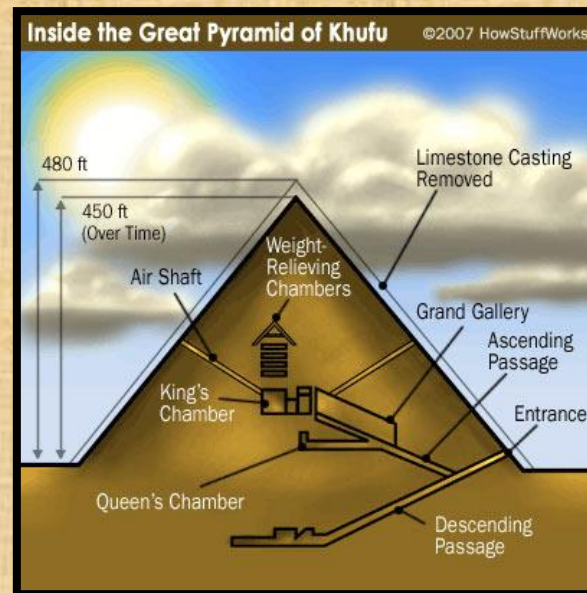
KHUFU (Called Cheops by the Greeks)



11

- Son of Snefru. He was the 2nd king of the 4th dynasty
- Built the **GREAT PYRAMID** of Giza (near Cairo)
- Largest pyramid ever built, 481 feet high, the largest structure on earth until the Eifel tower.
- Over two **MILLION** blocks of stone, about 2.5 tons (5,000 pounds) each.
- There was originally going to be an underground burial
- They changed it to above ground inside the pyramid, there is a Grand Gallery that leads to the burial chamber, it is 28 feet high and 10 feet wide, it leads to the burial chamber.
- The stone sarcophagus is inside, nothing else has been found, the sarcophagus is wider than the chamber doorway, it must have been placed inside before the pyramid was complete.

- The roof is big slabs of **GRANITE**, with relieving chambers above to distribute the weight
- Sides of the pyramids are aligned with the directions, north, east, west, and south
- Built in about 20 years
- The Pyramids were originally covered with white **LIMESTONE**, they would have been very reflective of the sunlight
- The top point of the pyramids were originally capped in **GOLD**





KHAFRE (Chephren) 2558-2532 B.C.

- Successor to Khufu
- His pyramid is the **CENTER PYRAMID**.
- The causeway was built from the pyramid to the valley, when they were excavating the causeway, they ran into a large rock.
- Instead of removing the rock away, he decided to turn it into the **SPHINX**
- It has the head of a **MAN** (Khafre) and the body of a **LION**.
- Symbolizing the intelligence of a man, and the power of a lion
- It is wearing a headdress, which only the pharaohs wore.
- The sphinx was an accident, it was not planned.
- The nose fell off over a thousand years ago, due to erosion
- It used to have a false beard, that would have been attached to the pharaoh with chin straps, these can be seen on the sphinx
- Pharaohs were clean shaven, but wore false beards as a sign of authority



MENKAURE (Mycerinus)

- The third pyramid was built by Menkaure
- The outer casing of his pyramid was red granite, it was never completely finished
- His pyramid was **SMALLER**
- His was the last of the great pyramid building age on the Giza plateau

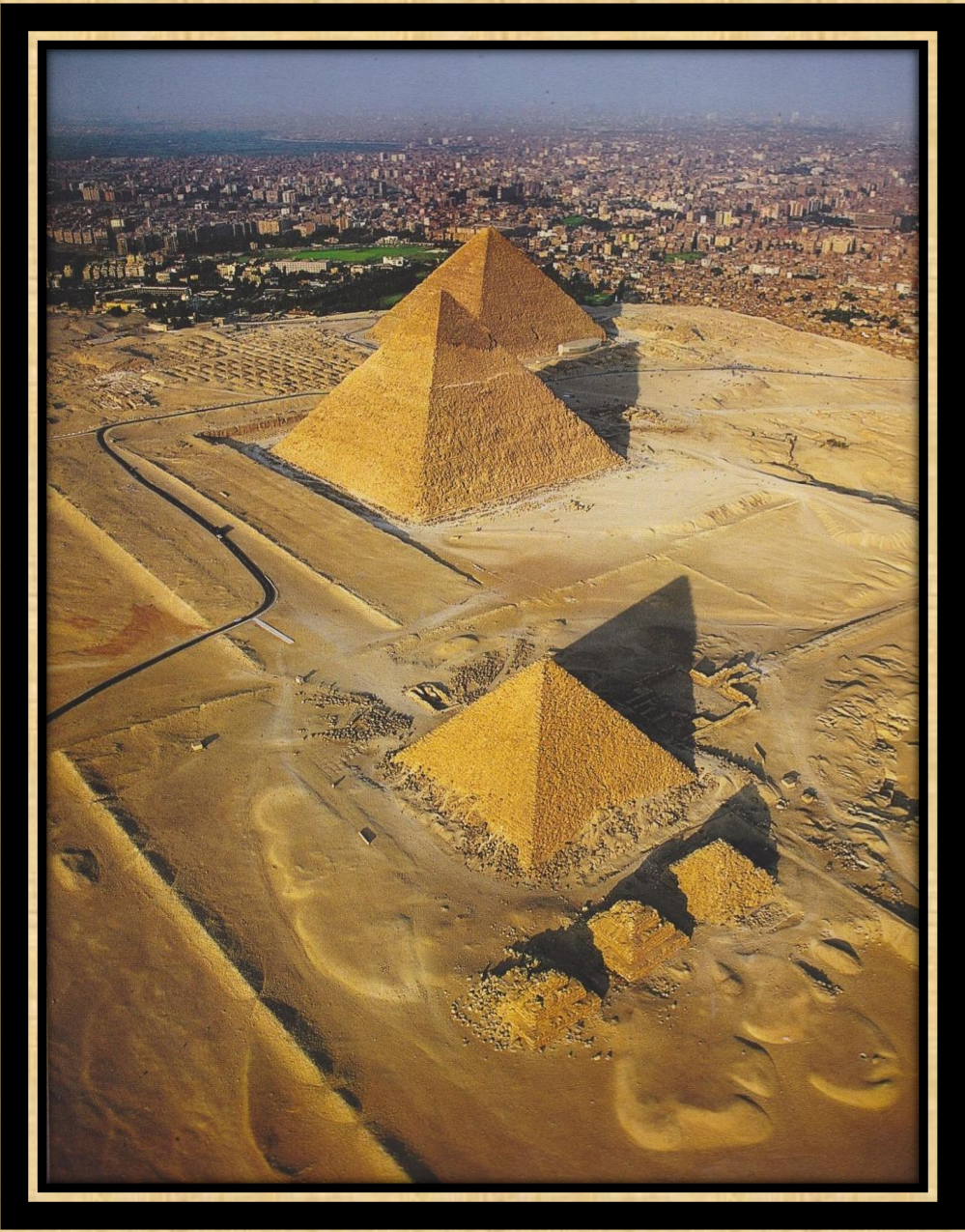


Pyramid of Menkaure

Pyramid of Khafre

Pyramid of Khufu





Who were the Great
Pyramids built for?



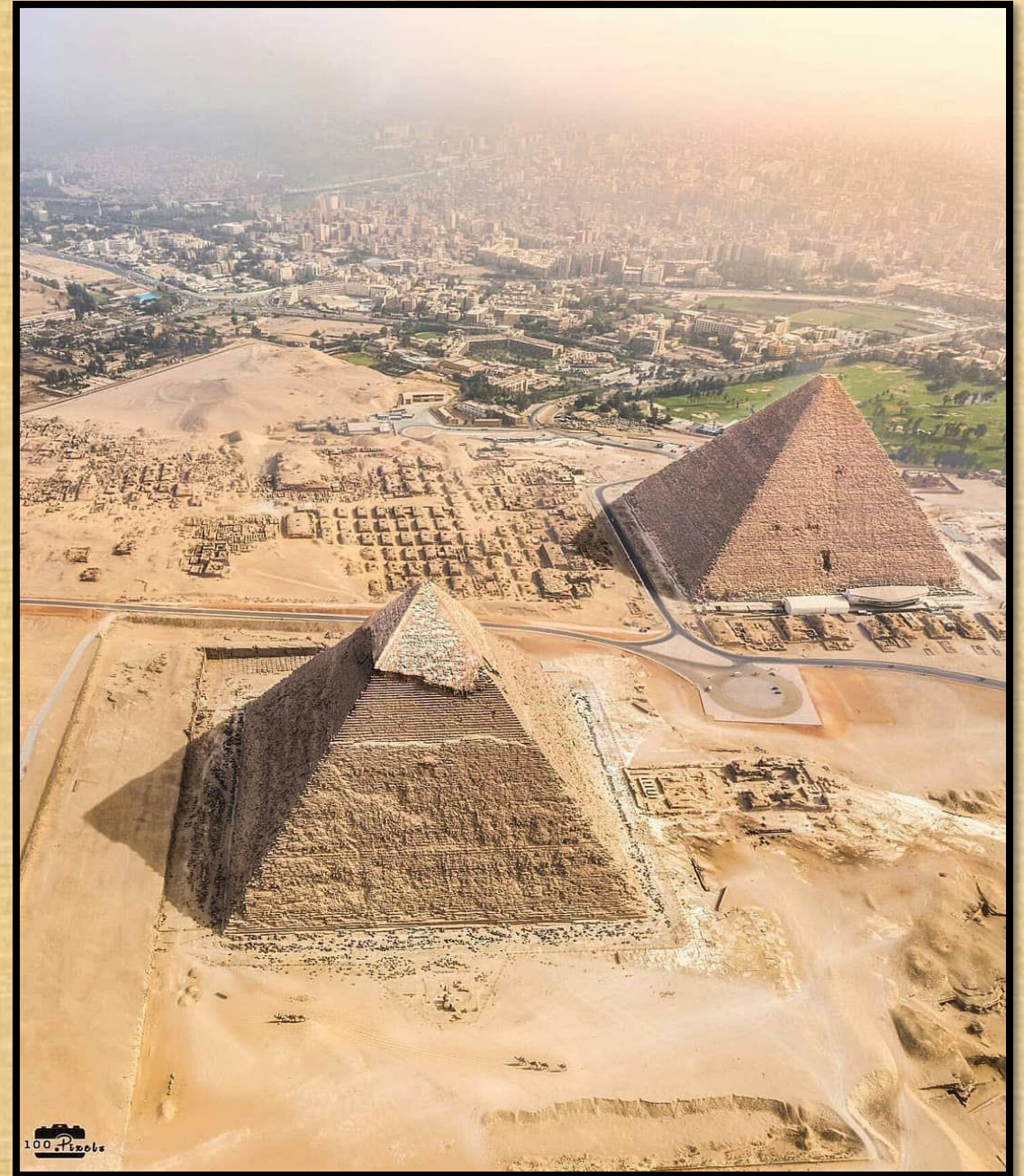
How were the pyramids *most likely* built?

- The Egyptians never **WROTE DOWN** anywhere how they constructed the pyramids. We can only make guesses as to how they were built based on what tools we know they used and what they had available to them
- The Greek historian Herodotus, who visited Egypt in 450 B.C., said the pyramids were built by machines
- Upwards of 90,000 men could have been working on the pyramids. They most likely would have worked during the three months of the year when the land was **FLOODED**
- With the Pharaoh having complete control over all the people, it would have been easy to mobilize huge numbers of people to work together.

Preparing the site

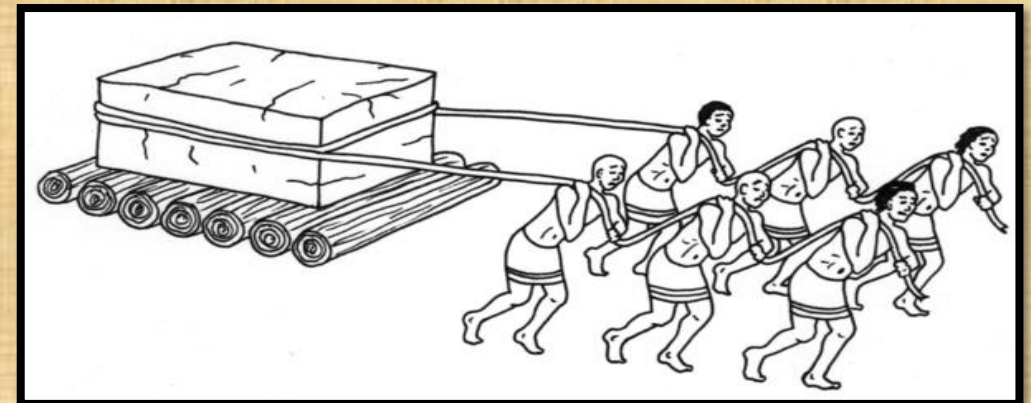
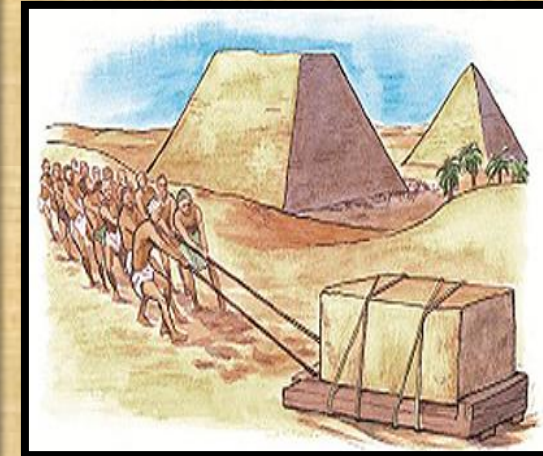
- Previous pyramids had **COLLAPSED** because the weight of the stones caused the sand to shift underneath.
- To solve this problem, the Egyptians dug down in the sand until they came to the bedrock. Then they chipped and chiseled away at this until the entire area was **LEVEL**.
- This was most likely done by cutting grooves into the rock, like a grid system, then pouring water into the grooves.
- Wherever the water drained out was the lowest area.
- The base of the Great Pyramid is 13 acres, from one corner to the other it only varies by about 2 inches in height.
- Egyptians were precise!

- Most of the stones from the Great Pyramids came from a nearby **QUARRY**, right next to the pyramids, so the workers did not have to travel far with the stones.
- They were chiseled out of the quarry and moved to the building site, where they were further chiseled and made smooth
- Much of the quarry can still be seen today



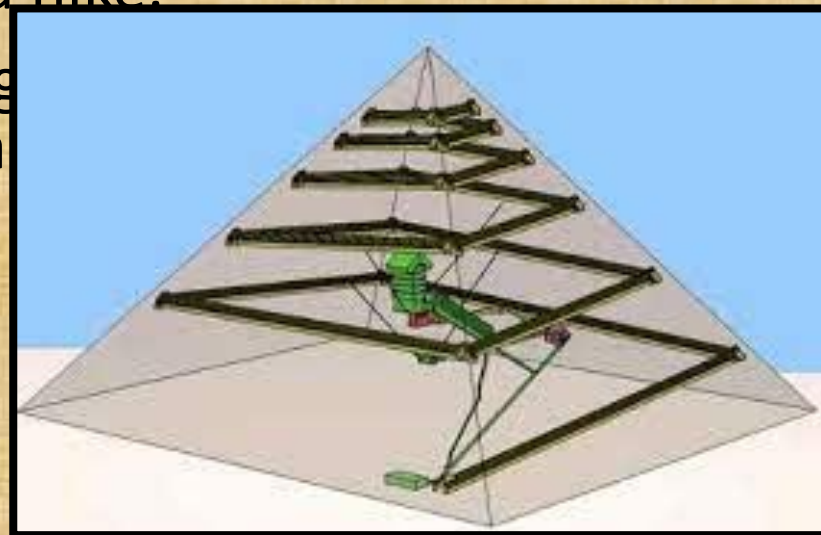
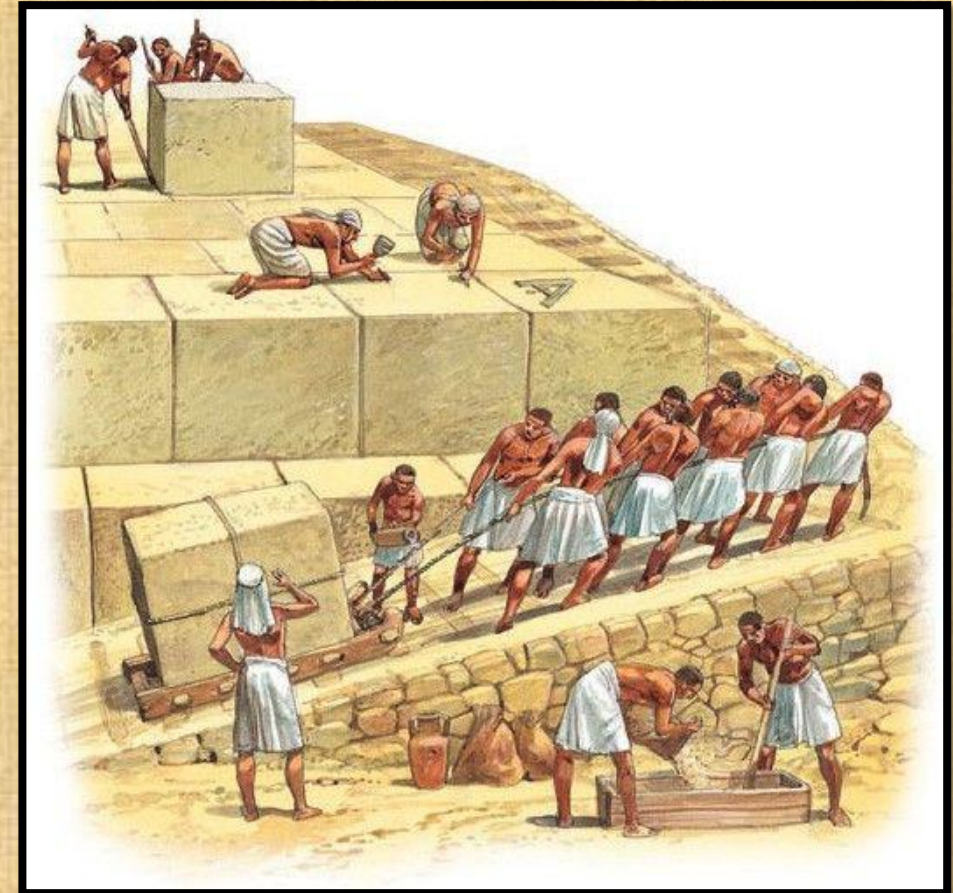
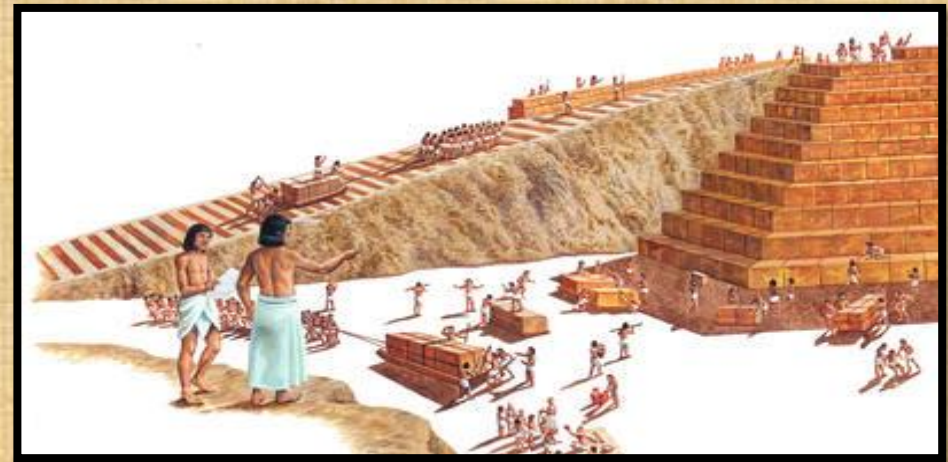
Moving the stones

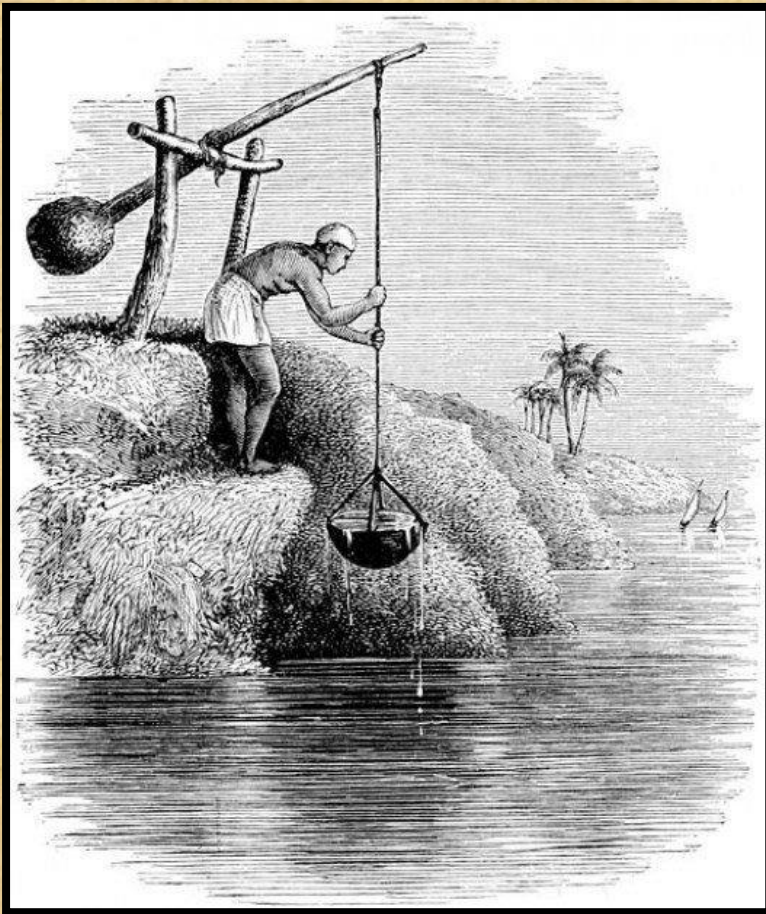
- The stones were incredibly heavy and large, weighing on average 2.5 **TONS**.
- Several theories on how the stones were moved across the sand
- Scientists have found that by **WETTING** the sand, moving a large object becomes much easier
- The stones could have been rolled using large **LOGS**
- Placing the stones on wooden 'sleds' and then pulling these might also have been used.



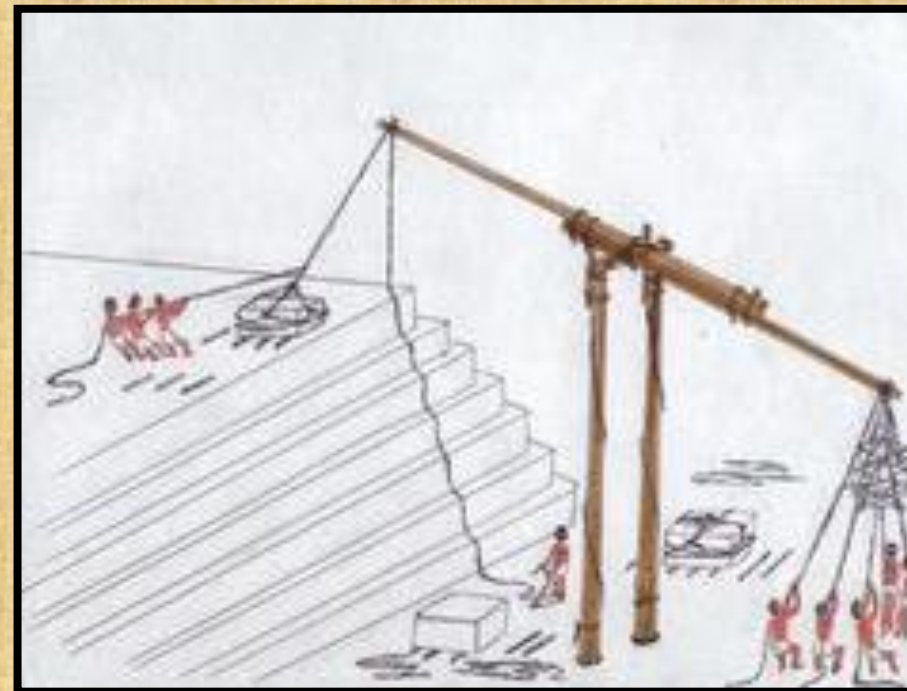
Lifting the stones into place

- Several theories exist as to how the stones were moved or lifted into place.
- One theory suggest that huge **RAMPS** of sand were built up the sides of the pyramids, with the stone being pushed and pulled up the massive ramps
- Another theory suggests that the ramps wrapped around the pyramid, similar to switch back trails on a hike.
- One theory sug inside the pyra





- Other theories suggest that the Egyptians used a device called a **SHADUF** to lift the heavy stones.
- This device was a common machine for Egyptians, they had used these to move water from the **NILE** river to the irrigation canals during the seasons when the Nile water was low



- [Google maps video 2 min](#)

How were the pyramids
most likely built?



Essential Question:

How did the pyramids develop over time?



The End

