Pyramid Flow Chart

As soon as the plan for the pyramid was approved, construction could begin. Write the steps listed below in the correct order on the pyramid.

*The men rolled the stone block onto a wooden sled. *Tunnels were dug into the face of the cliff. *The land was cleared. *The stone block was dragged to a waiting boat. *Scribes prepared a list of necessary stone. *The work gang's name was checked off the list once they reached the site. *Work orders and lists of stones were sent to the quarries. *Each block was cut and assigned to a work gang for delivery.
Building the Pyramids

Narrators 1–12
Sadah, the stonemason
King Zoser
Cabal, the surveyor
Wasat, the engineer

Imhotep, the vizier
King Khufu (Cheops)
King Menes
King Tutankhamen (Tut)
Factah, the foreman
Asashti, the architect
King Khafire

Narrator 1: The Egyptians were an advanced civilization of people highly knowledgeable in math, science, and the arts. Some of their most astounding skills can be seen in their magnificent architecture. Their most famous buildings include royal palaces, vast temples, and, of course, the pyramids. These stone giants were not conceived overnight. Many stages and years transpired before the first pyramid was ever built. Join us now for a walk through time as we visit some leaders and builders of Ancient Egypt. We begin with the first pharaoh of unified Egypt, King Menes.

Menes: We Egyptians go to a great deal of trouble to see that we pass on to the next world as easily as possible. One of the most important aspects leading to a happy afterlife is the tomb we are buried in. This is especially true for the pharaoh, or king, since he is also regarded as a living god. Egyptians believe that when the pharaoh dies, he joins the immortal gods. Some believe that his spirit, or ba, flies to the horizon in the shape of the hawk god Horus to be joined with the sun. Others believe his spirit joins those of his ancestors as a star in the sky or descends into the Underworld to rule as the god Osiris. Therefore, we believe that if we can keep his body safe for all eternity, his ba will be able to return to it, and his power will preserve Egypt.

Narrator 2: Starting with the first dynasty during the Archaic Period, the pharaoh, King Menes, was buried in a tomb called a mastaba, which in Arabic means bench. The mastaba was like a house with rooms. Later mastabas became grand structures containing a chapel and other rooms for ceremonies. The development of building these grand tombs for the pharaoh was taken a step further by King Zoser during the Old Kingdom—the age of the pyramids.
Zoser: Welcome to my land! I am the pharaoh of all Egypt. Now that I have come to the throne, I have decided that I shall be buried in a grand tomb that will last forever. Previous tombs, like the mastaba for King Menes, were made of mud bricks that crumble over time. To keep my ba content, I will be preserved in stone in a new manner befitting my status. For this, I call on my vizier, Imhotep.

Narrator 3: Imhotep was a man of great intellect and courage. Besides being the king’s chief architect, he also held the revered status of chief sculptor and chief carpenter. He was an astronomer, doctor, and advisor in the ways of the gods. Because of his great knowledge and talents, he had reached the second-highest office in the land—vizier to the pharaoh.

Imhotep: I hold my position of great power as an honor. Being the vizier is much like being a prime minister or president. I am a friend to the pharaoh and consult with him on matters of government, religion, and the people. I accepted the building of King Zoser’s tomb as a privilege and will design the greatest tomb the world has ever seen.

One way to accomplish this feat is to build upwards. The base will remain a mastaba, a complex of temples and other rooms. However, for the remainder of the tomb I have something more ambitious in mind. I will build five more mastabas, one on top of the other, with each succeeding mastaba being slightly smaller than the one beneath it. The six steps will reach a height of nearly 2,000 feet. I call my new style of tomb a step pyramid.

Narrator 4: No one knows for certain if Imhotep planned his design in advance or thought of it as the work progressed. It is also uncertain why he chose this particular shape. Some experts believe that the shape of Imhotep’s step pyramid created a stairway to heaven for the pharaoh’s ba. Most agree it is a very stable and strong shape, therefore having a good chance of lasting a long time. It is also a sensible shape since the majority of the stone is in the bottom half. Hence, the higher you go, the fewer stones you have to move.

Later pyramids would continue with Imhotep’s basic shape but with smooth sides. This was said to represent the rays of the sun shining down on the desert and creating a pathway to the sky. Other experts believe the shape to represent the ben-ben stone, or the first sacred mound of earth, which rose out of the waters and was used by the sun god to stand upon and create the universe.

Imhotep: The entire step pyramid complex will eventually include temples, chapels, other buildings, and courtyards. Like the other burial grounds, it will be on the west bank of the Nile, where the sun sets and leaves for other worlds. Each person’s ba must make the same journey. To assist, we build all of our tombs as close as possible to the spot where the sun leaves the earth.

Narrator 5: The Step Pyramid of King Zoser still stands today in Saqqara near the ancient capital of Memphis in northern Egypt. Although the base mastaba has crumbled, it is still an impressive sight and a tribute to early architecture. King Zoser began an age of pyramid building that would last for over 600 years. Pyramid building reached its height during the Old Kingdom period. More than 80 pyramids still exist today, reminders of the ingenuity and perseverance of these ancient people. King Khufu also decided to build a pyramid that would be bigger, better, and more magnificent than anything built before. We join him now during the reign of the Fourth Dynasty, about 2573 B.C.
Building the Pyramids
(cont.)

Khufu: My father, King Sneferu, built the first pyramid with smooth sides. It is in the desert at Dahshur, a few miles south of Saqqara. I will build my tomb at Giza, a few miles north of Saqqara. My pyramid will be so grand as to be truly worthy of my greatness and power. The plans for my Great Pyramid show it will cover 13 acres. Thousands of laborers will be needed, along with skilled craftsmen, stonemasons, carpenters, surveyors, foremen, engineers, and overseers to make sure everything is done correctly and the results are magnificent beyond anything anyone has seen before.

Cabal: I am the chief surveyor for the king. My tasks require knowledge of geometry and astronomy. Our first step in building the Great Pyramid is to select a proper site on which to build. It must be on the west bank of the Nile and above flood level but close enough to the water so that the huge building stones can be transported by ship from the limestone quarries across the Nile and then moved by sleds to the building site.

To begin, we need a solid foundation. All of the sand, gravel, and loose rock must be removed until the solid rock floor of the desert lays bare. It is also very important that the four sides of the pyramid face exactly in the four directions—north, south, east, and west. To do this we build a circular wall on the rock base. At night, I mark the place on the wall where a star rises in the sky. After the star sets, I draw another line on the wall. I then draw a line from both of my marks to the center of the circle. By bisecting this angle, I will be able to find true north. The foundation must also be perfectly level. I call on Wasat for this bit of engineering.

Wasat: When any sort of container is filled with water, the surface of the water is level. We use this principle on a huge scale. Once the four sides of the base have been marked out, we dig a vast network of trenches that crisscross the marked area. The trenches are then filled with water, and the water naturally finds its own level. The water line is marked, the water is drained from the trenches, and the land is excavated to the waterlines. We end up with a perfectly level site. I am very proud of the work that we do, for this is by far the largest site ever to be leveled. Now we are ready to square and measure the sides.

Narrator 6: How accurate were the Ancient Egyptians at measuring and leveling? The base of King Khufu’s Great Pyramid was off level by only five-eighths of an inch between the southeast and northwest corners.

Cabal: Once again I am needed to make sure the base is a perfect square. This is done using measuring cords made from flax fibers. We take a length of cord and divide it into 12 equal units. A knot is made at the third unit, the seventh unit, and at the end. The cord is then formed into a perfect right triangle and fitted into the corners. The length of each side can also be measured using these cords.

Narrator 6: The Egyptians’ use of geometry was astounding. Although flax stretched when it was used, the difference between the longest and shortest sides of the Great Pyramid was only 7.9 inches. Considering each side is more than 750 feet long, the error is remarkably small. Many experts believe that such accuracy could only have been achieved by the use of astronomy as well.
Sadah: While the site is being prepared and marked, I am hard at work at the limestone quarries, overseeing the cutting of the slabs. I am only one of hundreds of stonemasons working on the Great Pyramid. The only tools we use are metal chisels and saws and wooden mallets, hammers, and wedges.

My first task is to outline carefully on the slab where it will be cut. Then, using the mallet and chisel, I punch a number of cracks along the outline. Next, I drive wooden wedges into the cracks and soak them with water. The wedges absorb the water and expand, thus splitting the slab. We then lift the huge slabs with wooden levers, using a rock as a pivot, or fulcrum. With these simple tools and methods, we stonemasons will cut over 2,300,000 blocks of limestone, some weighing as much as 33,000 pounds!

Factah: As chief foreman, I have the responsibility of seeing that the slabs of limestone are placed exactly where the architects want them. The inside of the pyramid is made from limestone quarried in Giza, but the better-quality limestone for the outside comes from Tura, on the east bank. These blocks are put on logs and rolled to the edge of the Nile. There they are loaded onto barges and rowed down the river. This is done when the Nile is at its highest, during the inundation. During this time the Nile is only one quarter mile from the pyramid building site. Once at Giza, they are mounted on sleds and dragged into place along ramps, or inclined planes, that encircle the rising pyramid. Mud and mortar are used to help reduce the friction from the dragging sleds.

This is not an easy task. The laborers sometimes pull the slab over rollers to go up more difficult ramps. Although we try to be as careful as possible, there are still numerous accidents, and hardly a day goes by without some of the laborers being killed or injured. Eventually, one by one, the slabs are put into place.
**Building the Pyramids (cont.)**

**Khufu:** Many people believe that my pyramids are built by slaves, but that is only partly true. In addition to these workers, peasant farmers help out for three or four months every year when the Nile floods their fields. They are paid for their services with food, oil, and cloth. The farmers hope that by helping with my preparation for death, they will please the gods and be rewarded in the next world.

**Factah:** I have the greatest admiration for the architects. Most of the blocks fit together so well that no mortar is needed to hold them in place. Some of the joints between the slabs are so tight you can’t even slide the blade of a knife between them.

**Sadah:** The very last stone to be put into place is called the capstone. Its sides slope to end in a common point. The very top level of the pyramid has a hole. A plug is carved on the underside of the capstone. This plug fits into the hole and holds the capstone in place. When it is time for the capstone to be fitted, there is great rejoicing, for we know that the pyramid is almost finished. The sides of the Great Pyramid will be smoothed and polished. The stonemasons will work downwards from the top, removing the dirt ramps as they work toward the base. Finally, the work is complete. The pharaoh has his pathway to the gods, and we all believe that the fruits of our labor will last forever.

**Narrator 7: King Khufu’s Great Pyramid of Giza** is one of the Seven Wonders of the Ancient World. It stands 481 feet high, about the height of a 40-story building. It is reported that over 10,000 laborers worked every day for over 20 years to complete it. If you view the pyramid from the outside, it appears to be solid stone. But inside are many tunnels and rooms used for the burial.

**Asashhi:** I am the king’s chief architect. I work out the details for the tunnels and burial chambers. The interior contains three burial chambers, each intended at one time to be the final resting place for the king. One chamber, mistakenly called the Queen’s Chamber, was never intended for Khufu’s wife, who was, in fact, buried outside the Great Pyramid. King Khufu’s burial chamber, unlike many other kings’ burial chambers, is inside the pyramid itself and not hidden underground.

Originally planned on a much smaller scale, Khufu’s pyramid was enlarged as the king’s reign was prolonged, until the final burial chamber was established in the midsection of the pyramid at the end of a steeply ascending Grand Gallery. It is here in the burial chamber that the sarcophagus, or stone coffin containing the king’s body, will lie. The chamber walls are carved with descriptions of the changes that the king will go through until he becomes a god. It also contains false doors and openings to the outer world through which the king’s ba can pass.
Building the Pyramids (cont.)

**Narrator 8:** The Grand Gallery contains the most treasured possessions of the pharaoh for him to use in the afterlife. To prevent violation of the royal tomb, the passage leading to the Grand Gallery is sealed by plug stones. Workers slide the plug stones into place and make their way to the exit through an escape shaft. However, even the most secretive and complex plans can’t deter thieves, and the Great Pyramid failed to give the pharaoh’s mummy the protection intended. Many treasures and large quantities of gold were buried with each pharaoh. With so many people working on one phase of the pyramid or another, it was difficult to ensure security for such sought-after riches. In addition to stealing funeral items, robbers hacked away at the mummified body to steal the jewelry inside the wrappings. Sometimes they even set fire to gold coffins to melt off the metal.

**Khufu:** Still, the pyramid is only part of my entire funeral site. There is also a temple for the mummification rituals and a roofed causeway, carved with scenes from my life, that leads to the temple at the foot of the pyramid. This is where the priests will make offerings to feed my spirit. Also, near the base of the Great Pyramid, my “solar boats” are buried. My spirit will need these to move about the many lakes and rivers in the next world. Coming from a land so dependent upon the waters of the Nile, it is only logical that our heaven will also be filled with water.

**Narrator 9:** King Khufu is best known today by his Greek name, Cheops. Although King Khufu as the pharaoh was worshiped as a god-king, he was also a tyrant and oppressor who forced his people to build the Great Pyramid. He was disliked and even hated. When King Khufu died, his body was carried from his palace to Giza, the site of the Great Pyramid. It was prepared for burial, and his mummified body was placed on a funeral boat and pulled by workmen to the pyramid. Khufu’s son, King Khafre, had his pyramid built next to that of his father’s.

**Khafre:** I will follow tradition and build another pyramid. But I also want to leave a lasting memorial of myself in a way that no one else has. How do I create something different from anything seen before and protect my tomb at the same time? I know—I will have the likeness of my face carved in the form of a huge statue and place it before my tomb. This Great Sphinx will scare off thieves and protect my dead body.

**Narrator 10:** The Great Sphinx stands about 200 feet high. It was common for a deity to be represented by a huge statue or sculpture in Egypt. Usually the statue was of a human body with an animal head. The most popular animal was a lion, and there are statues with a lion’s head guarding many temples and tombs. The Great Sphinx differs in that it is so immense and its form is reversed. It has the head of a god—or, in this case, Khafre’s face—and the body of a lion. The word “sphinx” may have come from the Egyptian shesep ankh, which means “living image” or “statue.”

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Building the Pyramids (cont.)

Narrator 11: Not all the kings who built the pyramids enslaved their people in the way Khufu did. The third pyramid at Giza was built by King Khafre's son-in-law, Menkaure. Here was an honest, just, and compassionate ruler greatly admired and loved by his people. Of course, not all pharaohs built pyramids for their tombs, either. Building such a large burial tomb required vast amounts of work by hundreds of workers over many years. Sometimes the pharaoh would die before his pyramid was completed, leaving the royal family in quite a predicament. They also realized that the enormous cost of building did not ensure them a sacred and untouched burial. Therefore, pharaohs ruling after the Old Kingdom began hiding their tombs in the desert cliffs near Thebes. This region eventually became known as the Valley of the Kings. King Tutankhamen was just one of the many pharaohs of the New Kingdom to be buried in these sacred cliffs.

Tutankhamen: The tombs cut into the rock cliffs, with their underground tunnels and passageways, are more complex than the pyramids. A well, or shaft, is sunk in the main corridor of the tomb. In addition, a false wall is built on the other side of the shaft to make it look as if the tomb has come to an end. The tombs are also protected by strict laws. When thieves are caught, they are put on trial and forced to confess how they got into the tomb. The accused are then brutally executed by being thrust upon the points of sharp stakes stuck into the ground and left to die in agony.

Narrator 12: But the tomb thieves of Ancient Egypt were not even discouraged by this cruel form of punishment. All the royal tombs have been robbed except those of Tutankhamen at Thebes and Psusennes at Tanis. The Ancient Egyptians left so much behind for us to admire. Wonderful buildings, artifacts, art, and written texts have survived over the centuries. The most famous of these, however, are the pyramids, which truly represent some of man's greatest technological achievements and which helped make Ancient Egypt one of the great civilizations.
Science and Achievements

Building the Pyramids—Vocabulary and Comprehension

Write the following words on the chalkboard for students to copy on index cards for their picture dictionary. Remind them to research and write a complete definition, explanation, or example and draw a picture.

| King Zoser, Imhotep, and the Step Pyramid | mastaba | burial chamber |
| King Khufu and the Great Pyramid at Giza | sarcophagus | escape shaft |
| King Khafre and the Great Sphinx | Grand Gallery | Pyramid |
| Valley of the Kings | |

Use some or all of the following questions for whole-class discussion, small-group work, or individual written assessment. Allow students to refer to Building the Pyramids to answer them.

1. Name three different types of tombs used in Ancient Egypt. (the mastaba, the pyramid, and a tomb in the Valley of the Kings)

2. Describe the steps followed to build a pyramid. (First select a site. Then clear the foundation of loose sand, gravel, or rock. Next, find true north to ensure that the sides face exactly north, south, east, and west. Dig channels and fill them with water to ensure that the foundation is level. Drain the water and level the foundation. Make sure the base is exactly square. In the meantime, have large limestone slabs measured, cut, and transported across the Nile to the building site. Load them onto sleds, drag them up dirt ramps to position, and place them. When each stone is properly placed, fit the capstone onto the very top. Then, working from the top down, smooth and polish the sides. Remove the dirt ramps.)

3. Give at least two examples of geometry used by the pyramid builders. (using a circle to find true north and forming right triangles to make sure the base was square)

4. Give at least two examples of simple machines used by the pyramid builders. (wedge to split limestone slabs, lever to lift the slabs, inclined plane used to move the slabs to the proper place on the pyramid)

5. What people actually built the pyramids? Why? (slaves and peasant farmers during the flooding of their fields when they could not work on their farms) they hoped that by helping the pharaoh the gods would look upon them favorably)

6. What else is at Giza besides pyramids? (the Great Sphinx)

7. Why did pharaohs stop using pyramids for their burial tombs, and what did they do instead? (Pyramids were easily robbed and took too much time, effort, and expense to build. Later pharaohs were buried in the Valley of the Kings in tombs carved into cliffs.)
THE TOMB OF TUTANKHAMEN

Archaeologist Howard Carter had been digging in the Valley of the Kings for six long years. During that time, he and his Egyptian workers had sifted through mounds of rubble, dug endless trenches, and moved huge quantities of dirt. Other archaeologists believed he was a fool to think that he could find the tomb of Tutankhamen. In time, he too began to doubt that he would ever find the lost tomb. This day looked as if it would be like all the others, he thought, as he trudged down into the dusty valley in the early morning glare. Yet this was not to be a day like all the rest. After several hours of the usual hard work, he was surprised to hear shouts coming from the Egyptian workers. He ran down to see what had happened and stopped dead in his tracks. Before him lay the stone steps of a tomb just unearthed. After several more hours of clearing away soil, the door of the tomb was opened. A rush of dry, cold, ancient air met his face. When he cast his lamp into the darkness ahead, he beheld strange animals, breathtaking statues, and the glint of gold everywhere. At last he had found Tutankhamen's tomb.

Unlike the rest of the New Kingdom pharaohs, Tutankhamen's tomb eluded grave robbers, leaving it almost intact to be discovered by Carter in 1922. It remains as probably the world's most exciting archaeological discovery. It took Carter eight years to remove, catalog, and restore the more than 2,000 objects found in the tomb. The amount of wealth buried with the pharaoh was almost unbelievable. Yet Tutankhamen was a lesser pharaoh and would probably be almost unknown if not for the discovery of his tomb.

Upon Akhenaton's death, Egypt was thrown into turmoil for a few years. Finally, order was partially restored when Akhenaton's ten-year-old son-in-law was crowned pharaoh. He took the name Tutankhamen. Under the new king, the priests of Amon-Re re-established their authority. The worship of Aton was abolished and Akhenaton's city was abandoned. The temples to Aton were dismantled and the materials shipped across the river to build new temples to Amon-Re. The power of the Amon-Re priesthood was never again challenged. Tutankhamen's reign lasted only nine years, and he was buried, like the rest of the New Kingdom pharaohs, in the Valley of the Kings. The mummy of Tutankhamen reveals that he probably died from a blow to his head. In any case, his death was premature because he left no heirs. His widow, Ankhesenamun, desperately tried to maintain order by finding another husband. She appealed to the Hittite king Suppiluliumas to send one of his sons
to marry her and become pharaoh. The Hittite prince made it only as far as the Egyptian border where he was mysteriously murdered. Ankhnesnamun apparently lost control and a period of instability followed. Eventually, a new dynasty was established when a military commander named Ramses II seized the throne.

Tutankhamen's tomb reveals how a little-known pharaoh was equipped to enter the next world. How much more wealthy must have been the tombs of the greater pharaohs who followed Tutankhamen on the throne! These men oversaw the final glorious years of Egyptian civilization. Seti I launched military campaigns into Palestine and Syria to win back provinces lost during Akhenaton's reign. Ramses II completed the largest Egyptian temple ever built at Karnak, which covered 6,000 square yards. Ramses III successfully fought off a dangerous invasion of the so-called Sea Peoples, whom historians believe were probably early Greeks.

By the end of Ramses III's reign, however, Egypt was in decline. The costs of maintaining a huge army, building monumental temples, and keeping the priests of Amon-Re content were draining the pharaoh's treasury. Grave robbing had become so bad that a number of mummies from the Valley of the Kings had been removed and placed in a common tomb where they could be better guarded. After the death of Ramses III, eight more pharaohs ruled with the name Ramses as Egypt slid into chaos. Finally, a succession of foreign invaders swept into Egypt and battled amongst themselves for control. The Libyans were overthrown by the Nubians, who themselves were overthrown by the Assyrians. Egypt, the home of an ancient and magnificent civilization, by the eighth century B.C. was merely a province of somebody else's empire.
THE GLORIES OF EGYPT: 
THE PYRAMIDS AND 
THE SPHINX

Ask the average person today to name three things about ancient Egypt, and they will probably answer "pyramids, the Sphinx, and mummies." If asked why the Egyptians erected the colossal pyramids and the Sphinx and mummified the bodies of the dead, they might give a good answer. But if asked how it was done, they will be stumped because we can only guess about their methods.

The Egyptians were strong believers in life after death. They believed a complete body was needed to house the soul, or *ka*, so they developed a process to keep the body preserved. The bodies of the wealthier Egyptians were taken to the City of the Dead, where those trained in the procedure turned the body into a mummy. Those who knew the secret were not going to reveal their methods in writing because they did not want competition. The procedure was rather gruesome, and we have a good idea of how it was done, but the chemicals used to preserve the mummy remain a mystery. We know it was a long process because the time between death and burial was 70 days.

The great Sphinx sits proudly near the pyramid of the pharaoh Khafre and was built with blocks of stone remaining after that pyramid was completed. The lion body is 240 feet long, and the human head wearing the royal headpiece rises 66 feet above the base. It is certain that the features of the face are those of Khafre, and that the Sphinx was built to honor him. Later, pharaohs used the Sphinx as a symbol of their god-given right to rule. The Sphinx today suffers from abuse by man and desert sandstorms, but considering that it was built between c.a. 2575 and 2467 B.C., it reflects well on its builders.

The most massive projects of the Middle Eastern world were the pyramids. They were built to honor a pharaoh and provide him with a tomb worthy of his glory. Work on the pyramid began while the pharaoh was alive and continued many years after his death. Around the bases of the pyramids, large palaces, temples, and storerooms were built. Here priests would oversee the worship of the pharaoh's spirit long after he was dead. Outside the temple complex, much smaller pyramids for the queens were constructed, and beyond those were flat tombs called *mastabas* for the pharaoh's officials. In the Old Kingdom, an afterlife was reserved for only the pharaoh and his officials. The pharaoh was perceived as a god. He was considered the child of the Sun god Re. This god-king ruled over his realm according to the principle of *ma'at*, which meant order, justice, and truth.

The 80 pyramids of Egypt were located west of the Nile River and in the desert beyond irrigated land. Most of the large pyramids were built between the third and sixth
dynasties, in the period of the Old Kingdom, all within 20 miles of the ancient capital of Memphis at a place called Gizeh. Herodotus, the Greek historian, estimated that 100,000 men worked for 20 years in the seasons between Nile floods to complete the Great Pyramid.

The base of each was the same. All were square at the base. The so-called Great Pyramid built in honor of Khufu (Cheops) had a base 755 feet long and stood 481 feet tall. Construction was so precise that the measurements at the base were correct within six-tenths of an inch. The angles of the sides make an almost perfect triangle.

Construction involved some very difficult geometric calculations, all made without the aid of a computer. Consider the problems. Everything had to be built perfectly level, otherwise it would never look right. Using water in trenches to test levels, they were so accurate in building the Great Pyramid that the northwest corner stands only a half inch lower than the southeast corner. Then they had to find the rock to cut and move it from the quarry 600 miles away to the building site. Once there, groups of 18 to 20 men pulled the two-and-a-half-ton stone block up a ramp until it reached its proper spot on the pyramid.

Since the purpose was to create a place for the pharaoh’s body to lie in splendor, a burial chamber was built deep inside the pyramid. Included there were the Pyramid Texts, instructions to the pharaoh on how to guide his vessel through the underworld to the sky to Re, the Sun god. A passageway was constructed so the workers assigned to prepare the chamber could climb to the tomb. After their work was done, it was their route for leaving. To keep grave robbers out, stones were dropped in place when the workers left. These passageways created the threat of internal collapse that might bring down the whole structure. This required heavy granite slabs to be laid over the king’s chamber.

Not all pyramids looked exactly alike. The first one attempted was built for King Djoser and was designed by his brilliant architect, Imhotep. It was called the “stepped pyramid” because its sides resemble six steps climbing to the top. The pyramid of King Snefru is called the “bent pyramid” because the angle was steeper at the base than in the top half. The later pyramids also differed in size and the types of stone used.

The monuments of Egypt stand today as testimony to Egypt’s religion, knowledge of mathematics, skill in building huge structures, and the glory of the pharaohs.
THE STAIRWAY TO HEAVEN: ANCIENT SUMER

The smoke of the burnt offerings drifted down from the temple. Along with it came the voice of the priest calling on the god Utu to bless the people of Uruk and tell them what to do. When the sun reached its zenith overhead, the priest cut the liver out of the sacrificial lamb. He studied its shape and color. Through these the priest and people believed the god spoke to his people. The minutes passed. Below, the city leaders shifted uncomfortably in the bright sun. Eagerly, they awaited the priest’s announcement. At last, he emerged from the darkness of the temple. “We must attack our rivals. The god has spoken.”

The Sumerians were deeply religious polytheists (people who believe in more than one god). These powerful beings created and controlled everything. Utu was the sky-god, Enlil was the air-god, and Ishtar was the goddess of love and war, to name a few. Yet, they were anthropomorphic (they looked and acted like humans). Sometimes they were wise and at other times foolish. Each city constructed a temple where the dominant local god was believed to live. This was the ziggurat. It was usually the highest building and was located at the center of the town. Made of baked and glazed clay bricks, it was built in the form of seven ascending terraces with a temple on top. The ziggurat was supposed to be a stairway for the god or goddess to descend from heaven to earth. Those who tended the ziggurat controlled great wealth, so the priests, scribes, and temple officials were a major economic power along with the nobility.

Ordinary people usually rented land from either the temple or the nobles. Most were free peasants, but there were also a few slaves, originally captives from beyond the borders of Sumeria. Men and women worked side by side in the fields growing and harvesting dates, flax, wheat, barley, and possibly grapes. Still others worked together tanning hides, grinding grain, or producing pottery. Pottery had been in use since the early Neolithic Age. The invention of the potter’s wheel, however, allowed the Sumerians to mass produce new kinds of watertight pottery.

Pottery plays a major role in archaeology. On any archaeological site, the most numerous finds are clay drinking vessels, dishes, storage vases, and water jugs. They are almost always broken. Nevertheless, they are called the alphabet of archaeology. This is because each city had its own shape and decoration for pottery. Also, these characteristics changed over time. When an archaeologist finds a piece of pottery called a shard, he can
use his knowledge of where and when that type of pottery was produced to date any other artifacts found at the same level in the ground. In addition, he can often discover what kinds of things were traded and by whom.

One of the best clues to life in ancient Sumer is a wooden panel found in a 4,500-year-old grave in the city of Ur. It is known as the Standard of Ur. Here we can come face to face with the Sumerians. On one side, soldiers and chariots march to battle, fight, and lead away prisoners. On the other side, a procession of Sumerians bring gifts to a victory celebration. Here we can see nobles feasting while a harpist and singer perform. Below, the commoners drive pigs, goats, donkeys, cattle, and sheep to the celebration. Still others carry fish, jewelry, timber, and weapons. We can also study the way the Sumerians saw themselves. They are portrayed as short, squat figures with shaved heads and large eyes.

We know that Sumer was divided up into at least twelve proud and independent city-states. The geography encouraged independence because the cities were divided by desert and swampland. Even though they shared the same language, literature, and religion, they were rivals and often were at war with each other. The main source of conflict was the limited water supply offered by the Tigris and Euphrates Rivers. In times of peace they traded with each other as well as the outside world. From Oman or Sinai they acquired copper, and from Armenia and Nubia, gold.

At first the day-to-day affairs of each city-state were managed by a council of the wealthiest citizens and the temple officials. Less frequently, an assembly of the people met to make more dramatic decisions. Who was allowed to join the assembly and how much freedom of speech they enjoyed we don't know.

However, by the middle of the third millennium B.C. (2500 B.C.), the records begin to reveal the existence of a new force in the life of the city-state. This new force was called the lugal. Lugal means "big man." In time these men would rule as kings.