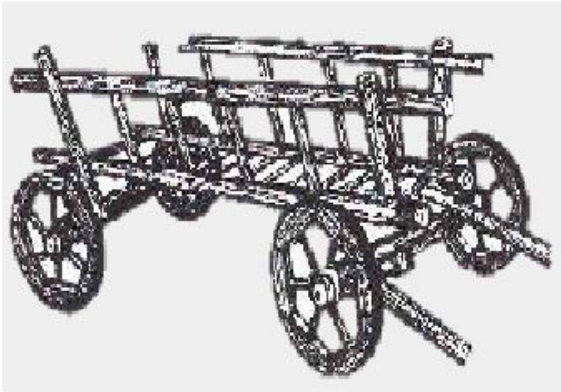
MACHINES THEN AND NOW

THE FIRST MACHINES

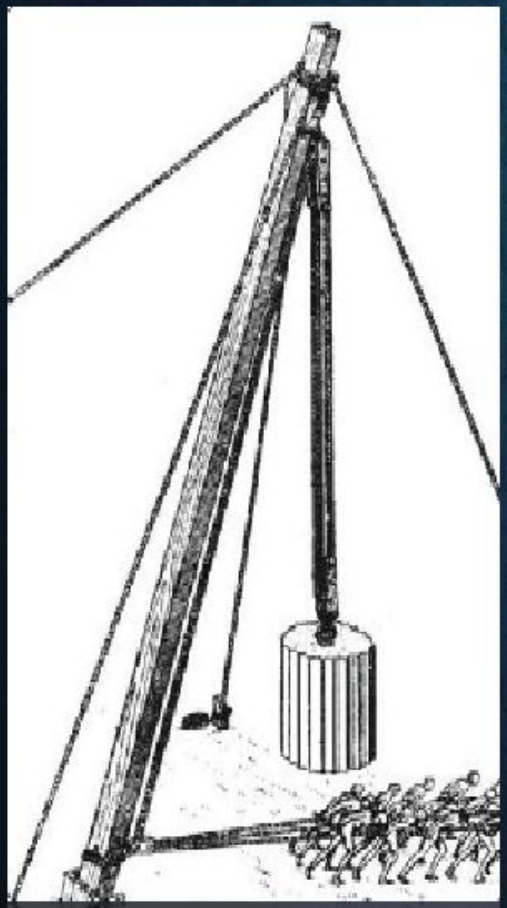
About 7,000 years ago people started farming for food. They invented new machines, like plows, and used animals to make work easier. Some farmers used long levers to get water from rivers. They also built canals to get water for their plants. About 5,000 years ago people started making metal tools. These tools were better than stone or bone tools.

ROUND AND ROUND

The wheel is one of the most important inventions in history. About 51500 years ago potters used the first wheels to make clay pots. They put wet clay on a wooden wheel. Then they turned the wheel to make a nice round pot. Before people had wheels to move heavy objects, they used rollers. The rollers were made from tree trunks. Then people made carts and chariots with wooden wheels. They connected the wheels with a long bar called an axle.



CRANES



About 21500 years ago the Ancient Greeks used big cranes to build temples. The cranes were made of wood, and they had many ropes and little wheels called pulleys. First the workers tied a rope to a block of stone. Then they put the rope around the pulley. They pulled the rope and lifted the block. The work was easier with cranes. so the Greeks didn't need as many workers as the Egyptians.

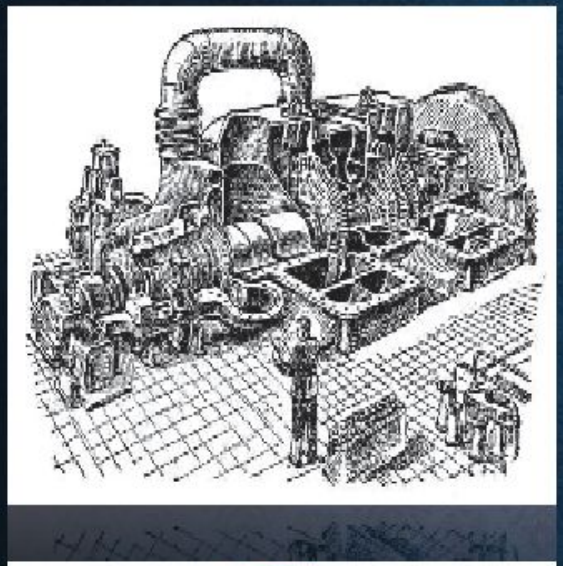
WIND

Windmills use energy from the wind. Hundreds of years ago people started using windmills to make flour. Windmills have long arms with big sails. The wind pushes the sails and turns the arms. Inside the mill, an axle turns a millstone. Windmills are useful in places that don't have big rivers, but they only work when it's windy!

TELLING THE TIME

About 11000 years ago people invented mechanical clocks with metal gears. Some mechanical clocks have a pendulum to move the parts. Others have metal springs. Today many many clocks are digital. They show the time with only numbers. Digital clocks work with electricity. They usually have electrical cords or batteries. Computers and cell phones have digital clocks, and many people wear digital watches.

ENGINES AND ENERGY



People used steam engines to power vehicles like trains and boats. Many factories used steam engines to power their machines. This was the beginning of modern industry.

Then people invented new engines that used fuels like oil, gasoline, and diesel. Now we use these engines for vehicles like cars, buses, planes, or helicopters. They can carry enough fuel to travel long distances.

FLYING MACHINES

Today we can fly all over the world, but 200 years ago planes didn't exist. Some people flew in hot-air balloons. These balloons had no engines so they were slow and hard to control.

Today there are many types of plane. Some planes have propellers and others have jet engines. Some planes carry freight and others carry passengers. Some modern planes carry more than 850 passengers.

COMMUNICATIONS

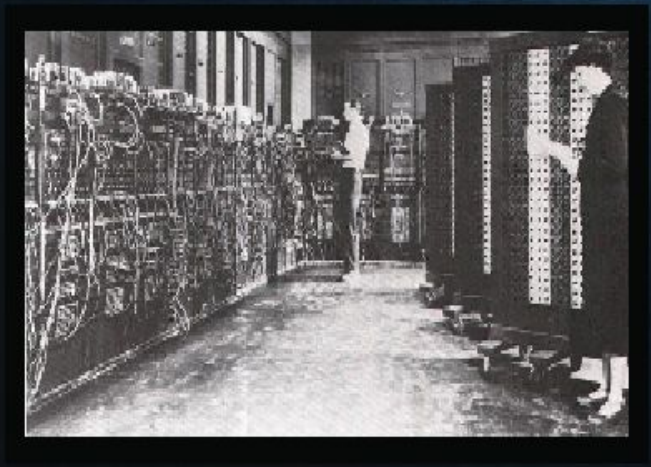
For a long time, people sent messages on paper. Then people invented new machines to communicate more quickly and easily.

Communications today are very different. We talk on cell phones that transmit sounds with no wires. We can send text messages, photos, and videos. Many cell phones are also music players, and they can connect to the Internet!

COMPUTERS

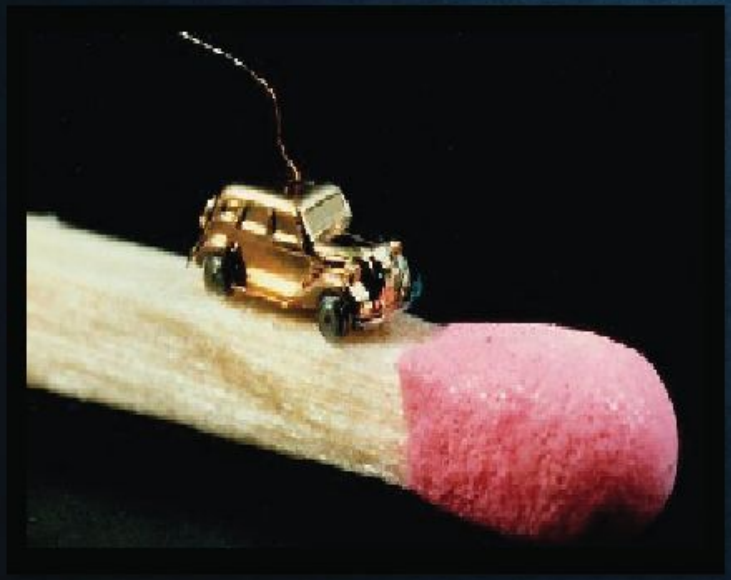
One of the first computers was called ENIAC. It was built in about 1946. ENIAC was big and heavy. It weighed about 30 metric tons! It was also expensive - it cost about 500,000 dollars!

Computers today are very useful. You see images on a monitor and you use a keyboard to type words. You use a mouse to move the cursor and click on buttons. To connect to the Internet you use a modem.



BIG AND SMALL

The Bagger 288 is a mining machine. It's 96 meters high and 240 meters long. It's one of the world's heaviest land vehicles. It weighs 13,500 metric tons.



The DENSO Micro-Car is one of the world's smallest machines. It's about 4.8 millimeters long and 1.7 millimeters high. It's smaller than a finger! The car can move, but its top speed is only 180 meters per hour. In the future people will use micro-machines like this to repair other machines from the inside.

DICTIONARY

- Plow- Плуг
- Potters- Гончары
- Axle- Ось
- Pulleys- Шкивы
- Flour- Мука
- Sails- Паруса
- Millstone- Жернов
- Pendulum- Маятник
- Cord- Шнур
- Steam- пар
- Modern- Современный
- Gasoline- Бензин
- Exist- Существовать
- Carry- Нести
- Transmit- Передавать
- Mining- Добыча
- Inside- Внутри