

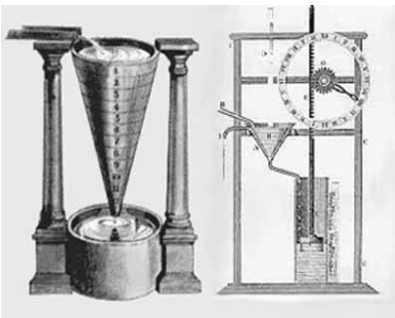
# GREAT INVENTIONS

## THE CLOCK



Yesterday I bought a new watch, it's analog, which means it shows the time with two hands, a long one for the minutes and a shorter one to indicate the hour. But watches weren't always this way. Want to know more about this great invention? Keep reading, friend.

Before clocks existed, time was measured by looking at the position of the sun. Egyptians invented shadow clocks called sundials about four thousand years ago. This type of clock measured time from the shadow cast by the sun, see the photo to the right.



Since sundials could only time during the day, the Clepsydra was invented. The Clepsydra was a water clock that indicated the time as liquid passed from one container to another. The oldest of these watches was found in an Egyptian temple and is more than three thousand years old.

Hourglasses, like the one on the right, were used during the 16th century to measure the length of church masses and worship services. They measured time by how long it took for sand to pass from one side to the other.



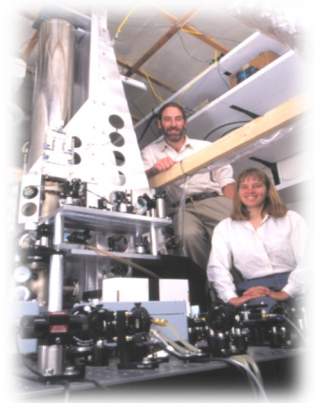
Pocket watches, like the one on the left, were invented in France in the mid-fifteenth century. By the beginning of the 16th century, they were mainly manufactured in Nuremberg, Germany. They had a strange, egglike shape which earned them the nickname Nuremberg eggs.

The first wristwatches, like mine, were manufactured in the last part of the 19th century. At first, wristwatches were only worn by women. Men would not wear them because they thought they looked too feminine. But during World War I, from 1914 to 1918, they became popular with soldiers because they were comfortable and easy to carry.



In 1927, Warren Alvin Marrison used quartz crystals in an electric clock; this led to the invention of the quartz watch. The quartz clock was more accurate than the electric clock because it only lost three seconds a year.

The most accurate clock, the Atomic Clock, began to be developed in 1946. The highest accuracy achieved so far is that of the last atomic clock developed by the National Office for Standardization, NIST, of the United States; the NIST-F1 launched in 1999. This clock is so accurate that it has a margin of error of only one second every 30 million years.



Impressive, right? Now every time you look at the time on your watch, you will realize everything that had to happen until that great invention came to your wrist.



Name \_\_\_\_\_

Date \_\_\_\_\_



# THE CLOCK

Answer the questions.



1. My watch has two hands, so it is \_\_\_\_\_.
  - a. digital
  - b. solar
  - c. analog
  - d. sand
2. The first clocks used \_\_\_\_\_ to show the time.
  - a. water
  - b. sand
  - c. quartz
  - d. the sun
3. The Clepsidra clock used \_\_\_\_\_.
  - a. water
  - b. sun
  - c. analogical
  - d. sand
4. How old is the water clock?
  - a. 4,000 years
  - b. 3,000 years
  - c. 2,000 years
  - d. 1,000 years
5. What was measured using the hourglass during the 16th century?
  - a. the duration of the day
  - b. the duration of the night
  - c. the duration of the masses
  - d. the duration of the sand
6. Where were pocket watches invented?
  - a. Egypt
  - b. Nuremberg
  - c. United States
  - d. France
7. What is my watch like?
  - a. a pocket-size
  - b. a bracelet
  - c. the sand
  - d. a wall
8. How much time do quartz clocks lose?
  - a. 1 second every 30 million years
  - b. 2 seconds every 30 thousand years
  - c. 3 seconds every year
  - d. 4 seconds every day
9. When was the most accurate clock in the world designed?
  - a. 1999
  - b. 1946
  - c. 1927
  - d. 1914
10. Why didn't men use wristwatches at first?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_