

# Super Sundials and Wonderful Water Clocks

It's **TIME** to have some fun



People have been marking the passing of time for thousands of years.

**60** is the basis for our time system (60 seconds in a minute and 60 minutes in an hour). The earliest known civilization, the *Sumerians*, followed this practice around 4000 years ago.



## Super sundials

The sundial was one of the first devices people used to tell the time. The earliest sundial is approximately 3500 years old and was found in the *Valley of the Kings* in Egypt.



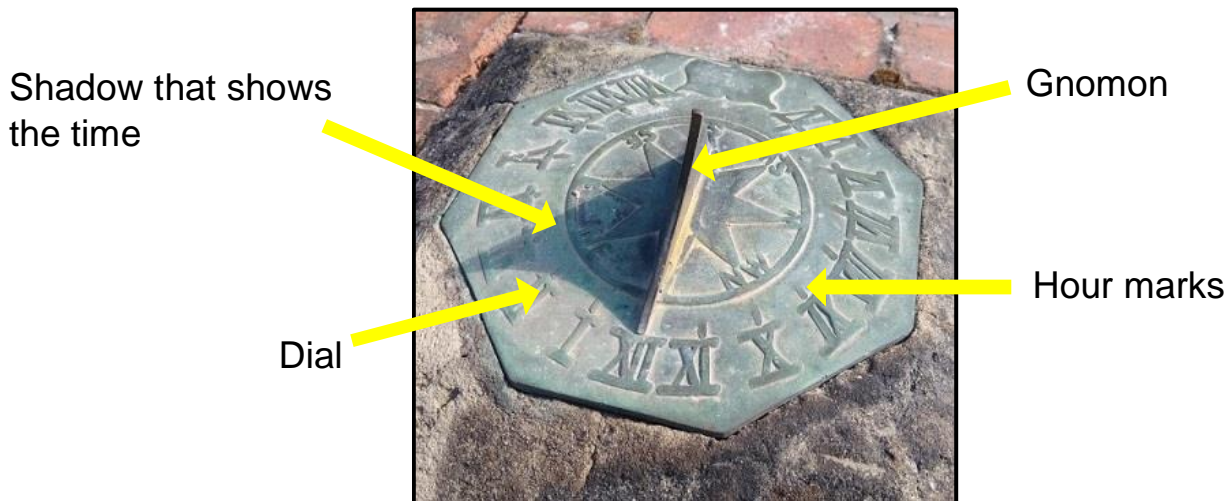
*The world's earliest known sundial found in the Valley of the Kings, Egypt.*

To tell the time a stick, called the gnomon (pronounced '*nomon*') would have been placed in the hole. The gnomon would cast the sun's shadow and the time could be read from marks on the base.



The possible remains of an Anglo-Saxon sundial can be seen in the fabric of St George's Church, Arreton.

# The Parts of a Sundial



*Sundial on the corner of Newport Rd and Arctic Rd, Cowes.*

## How to make a sundial

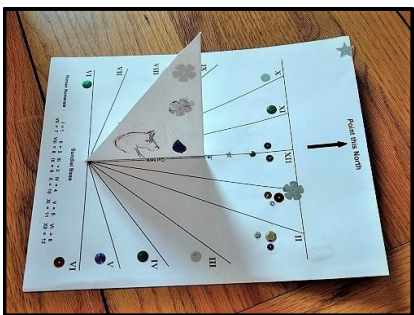
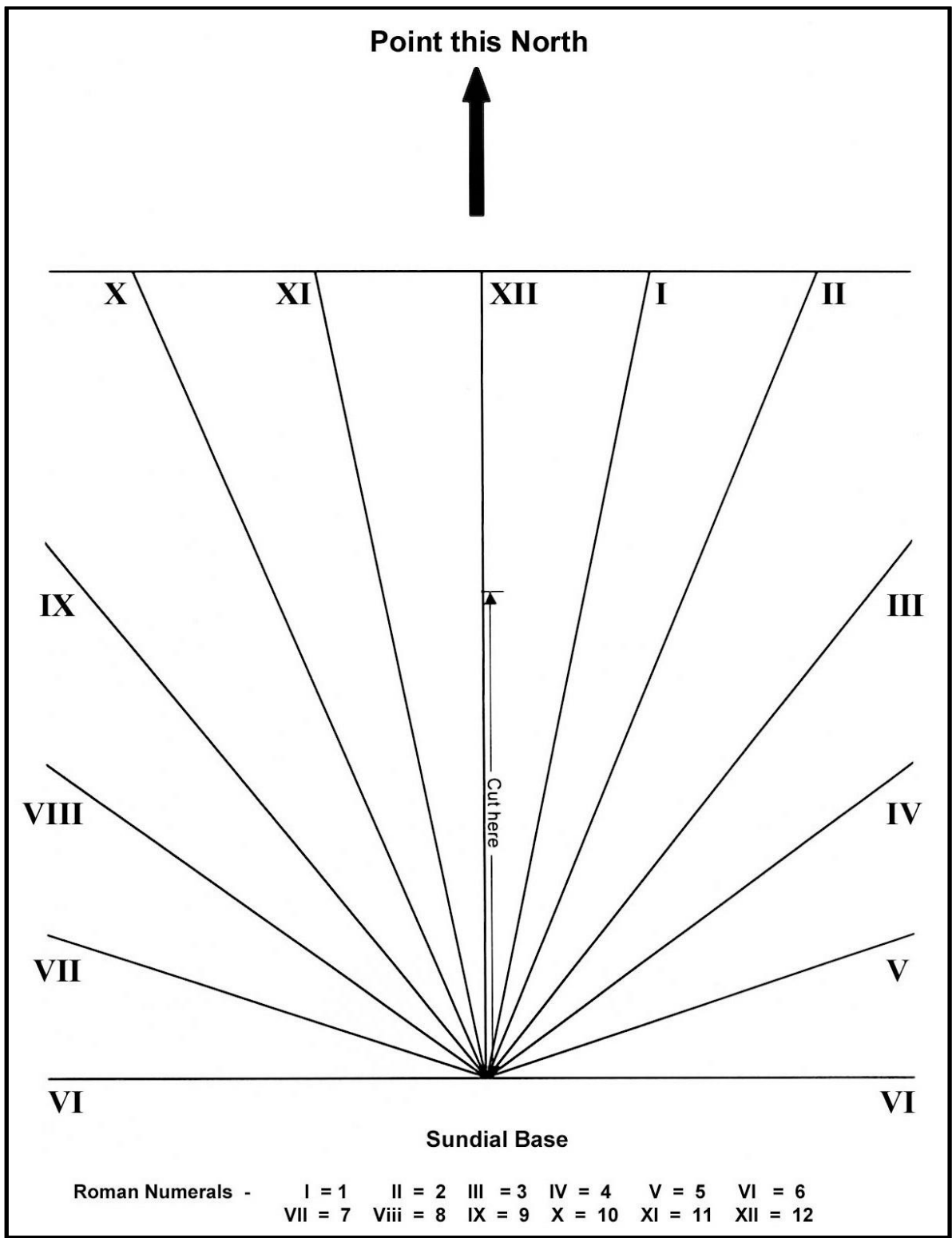
1. Print out the template and cut out the sundial base and the gnomon. Or you can draw your own, using a protractor to measure out the 15-degree intervals between lines.
2. Cut a slot into the sundial base (along the marked line).
3. Fold the gnomon along the line and insert into the base from below. You can stick or tape the gnomon into place if you wish.
4. Make sure the gnomon is standing upright at  $90^\circ$  to the base. (To strengthen the sundial, you can stick it onto a piece of card).

## How the sundial works

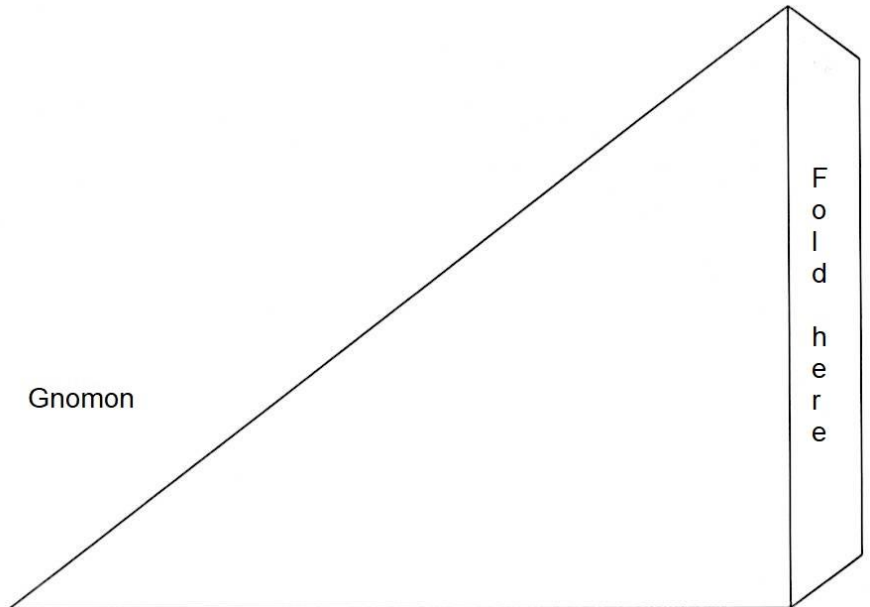
Take your sundial outside on a sunny day, put the sun dial on a flat surface and point the arrow towards the north. The gnomon will cast a shadow.

The shadow slips past each of the hour lines rather like a clock hand.

When the sundial is properly aligned it will tell the local solar time. This may have to be adjusted to find local clock time due to longitude, season, and daylight savings time.



Once complete you can decorate your sundial.



# Wonderful water clocks

How could you tell the time at night? You could not use a sundial in the dark! The most accurate way of keeping time in the ancient world was the water clock, or *clepsydra* as it was known in ancient Greece. These clocks simply used the flow of water to tell the time.

One of the earliest was found in the tomb of the Egyptian pharaoh *Amenhotep I* who lived around 3500 years ago. These clocks told priests, in the temples, when to perform their different tasks.

**How to make a water clock.** The drip, drip, drip of time.

## What you will need:

A large plastic bottle with top.

Scissors.

A permanent marker pen.

Clock with seconds hand or you can use a stopwatch on your mobile phone (but be careful not to get your phone wet).

## Instructions:

1. Mark a line about one third of the way down the bottle and cut along it so you have two parts. Ask an adult to help with this and be careful of any sharp edges.



2. Make a small hole in the middle of the cap (please ask an adult to help you). Screw the lid tightly on to the top of the bottle.





3. Make a mark 2cm from the cut end of the bottle. Keep your finger over the hole and fill the bottle with water. Stop filling at your mark (2cm from the top).



4. Get the other half of the bottle, this will catch the water. Remove your finger from hole in the lid and place the top of the bottle into the base, start your timer. The timer should start as soon as you remove your finger.



5. After one minute (60 seconds) make a mark of the water level on the bottle and do this every minute until the water runs out.

Congratulations you have made your own water clock.



## Counting Clocks

All of these timepieces belong to the collections of the Isle of Wight Heritage Service. Find out more about them at [Collections](#).





Our favourite clock is this one, it is called an Act of Parliament Clock and it is over 200 years old.

In 1797 the Prime Minister put a tax on clocks to raise money. People had to sell their clocks as they could not afford to pay the tax.

Large clocks like this one would have remained in taverns so people could still tell the time. The tax was very unpopular and was stopped after 12 months.

How many of each timepiece can you find?



*"Time is the most valuable thing a person can spend."*

*Theophrastus* c. 371–287 BCE Greek philosopher.

# Be a time detective

Explore the collections of the [Science Museum](#) Can you find?

- One of the oldest clocks in the world.
- A replica of a Saxon sinking bowl. How was this used? Can you make your own? (please get permission first).
- A pocket sun dial. Why do you think they often had a compass attached?

Phone 01983 823433

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Web - [www.iwight.com/museums](http://www.iwight.com/museums)

**Isle of Wight Council Heritage Service**

