



# 2018 GNOMONS

20/08/2018



The experimental devices used to measure the angle of the sun are analysed and the results compared to the theoretical values.

They are classified, and evaluated.

The issues are identified, and solutions are proposed to improve the measures

Gnomon of about 1m, fixed on a base, laid on the ground

Gnomon of about 1m, fixed the side of the base

Gnomon of about 1m, with spirit level or triangle

Gnomon : About 1 meter plumb line

Gnomon of about 1m, held with hand

Large base and thin top gnomon

Gnomon of about 1m, planted in the ground

Small height gnomon

Direct measure of the angle with a protractor

Gnomon with stable and wide base

Gnomon fixed on a board

Spirit level used as gnomon

Ready made gnomon

Lego gnomon

Artistic gnomon

# Gnomon of about 1m, fixed on a base, laid on the ground

Verticality 👍

Origin of shadow 👍

Precision 👍👍



Rionegro  
COLOMBIA



Kuantan  
MALAYSIA



Ioannina  
GREECE



Medellin  
COLOMBIA

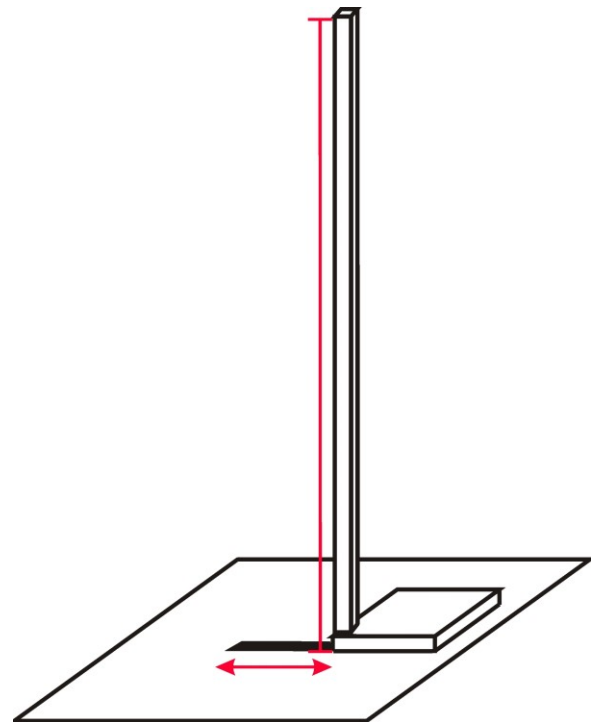


# Gnomon of about 1m, fixed the side of the base

Verticality 👍

Origin of shadow 👍👍

Precision 👍👍



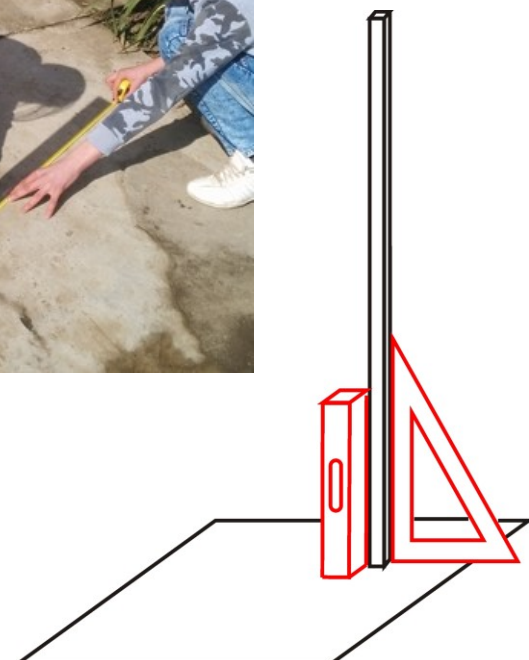


# Gnomon of about 1m, with spirit level or triangle

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍



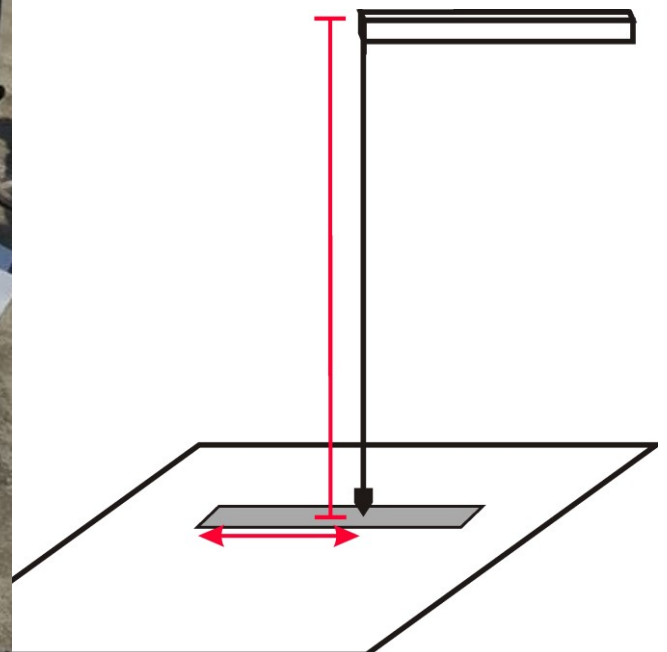


# Gnomon : About 1 meter plumb line

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍



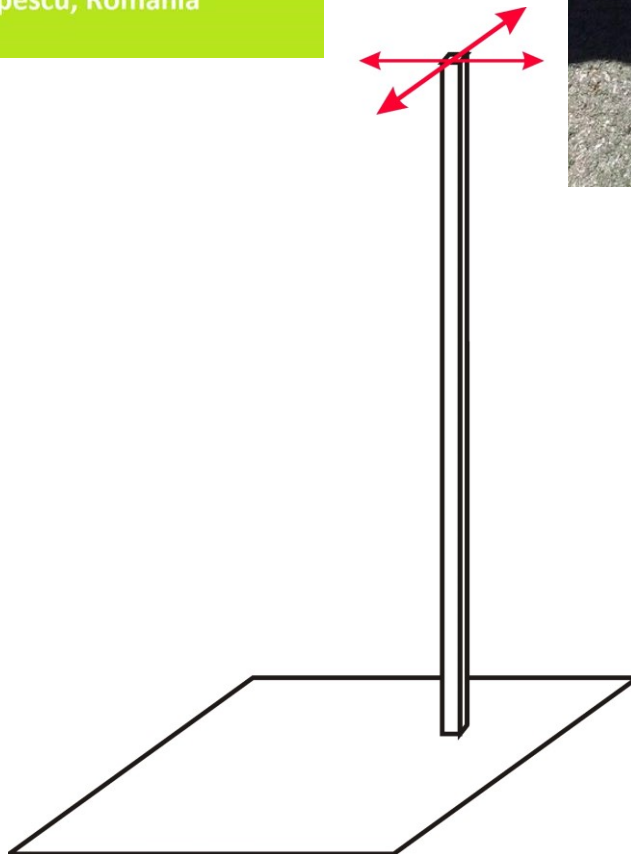
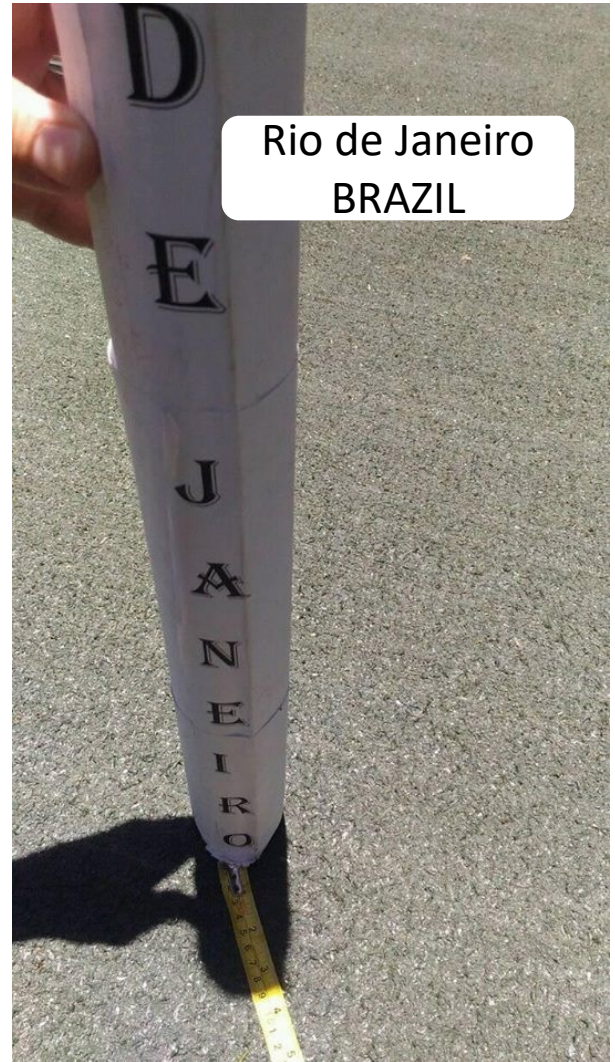


# Gnomon of about 1m, held with hand

Verticality 👎👎

Origin of shadow 👍

Precision 👍👍



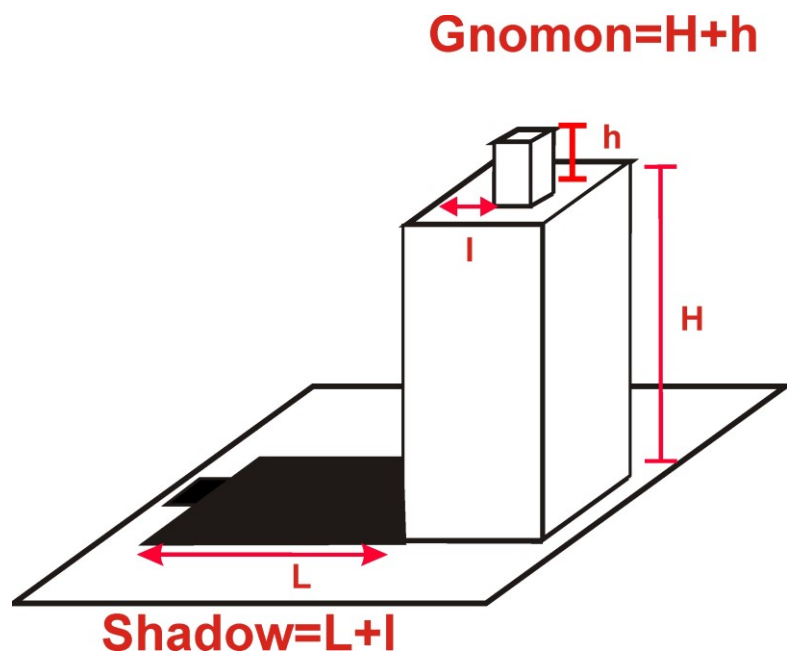


# Large base and thin top gnomon

Verticality 👍

Origin of shadow 🙅🙅

Precision 👍



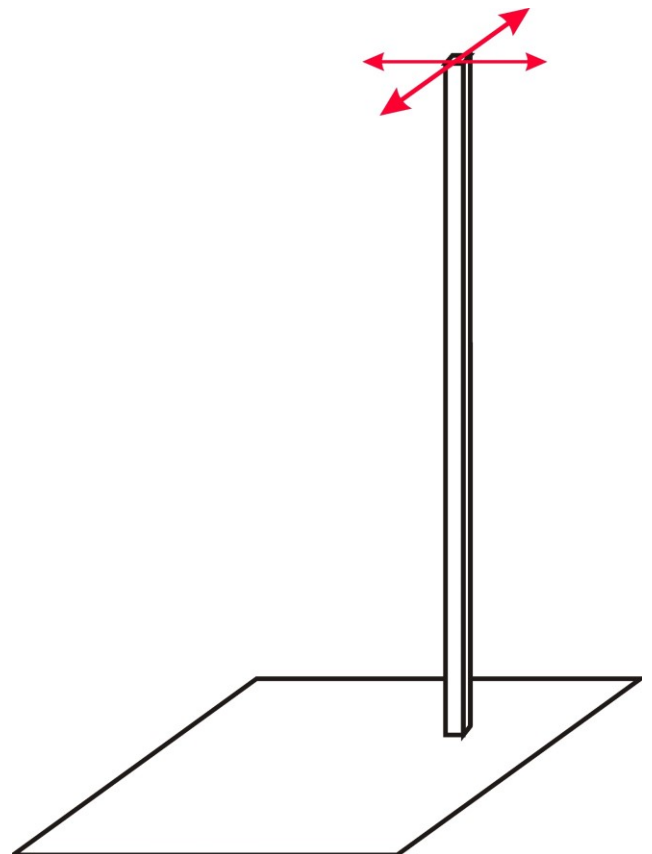


# Gnomon of about 1m, planted in the ground

Verticality 🖐️

Origin of shadow 🖐️

Precision 🖐️🖐️



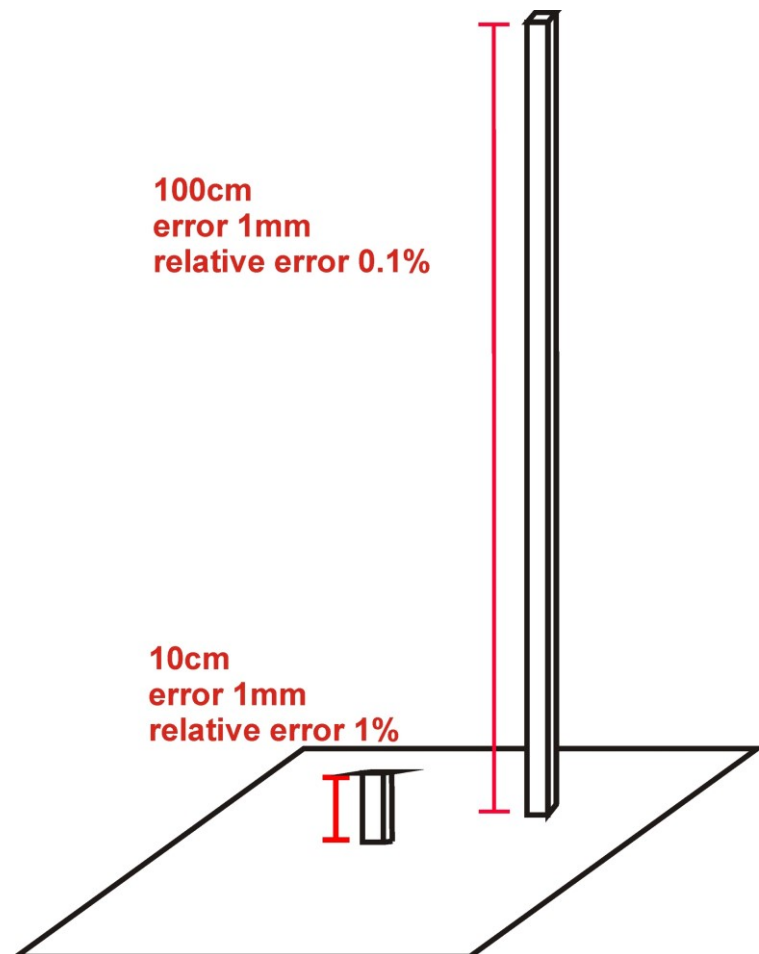


# Small height gnomon

Verticality 👍

Origin of shadow 👍👍

Precision 📏



# Direct measure of the angle with a protractor

Verticality 👍

Origin of shadow 👍

Precision 📏

Calculation with  $\tan^{-1} = \text{shadow/gnomon} : +/- 0,1^\circ$

Measure with protractor : +/- 0,5°



Margineni  
ROMANIA



Athens  
GREECE



Guarne  
COLOMBIA



Piraeus  
GREECE



Ioannina  
GREECE



# Gnomon with stable and wide base

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍



Bizerte  
TUNISIA



Petroupoli  
GREECE



Hô Chi Minh City  
VIETNAM



Ioannina  
GREECE



Rm Valcea  
ROMANIA



Alta Gracia  
ARGENTINA



# Gnomon fixed on a board

Verticality 🍑🍑

Origin of shadow 🍑🍑

Precision 🍑🍑





# Spirit level used as gnomon

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍



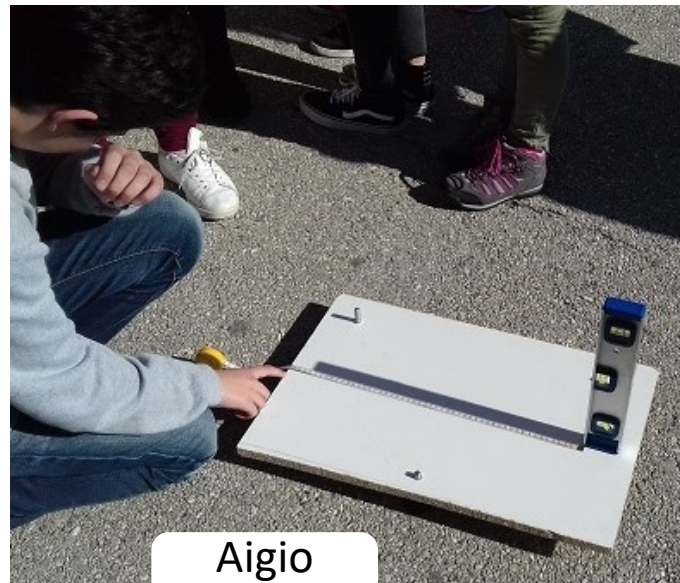
Ilion  
GREECE



Ilion  
GREECE



Andritsaina  
GREECE



Aigio  
GREECE

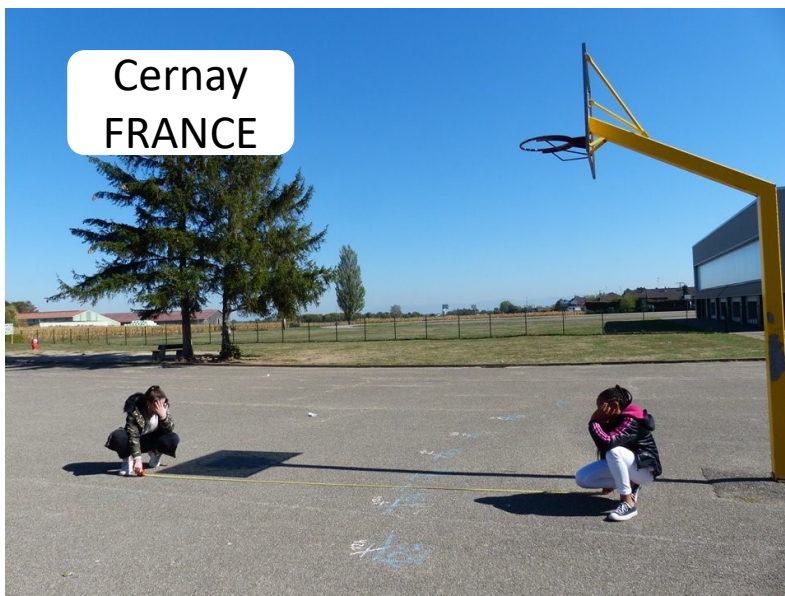


# Ready made gnomon

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍



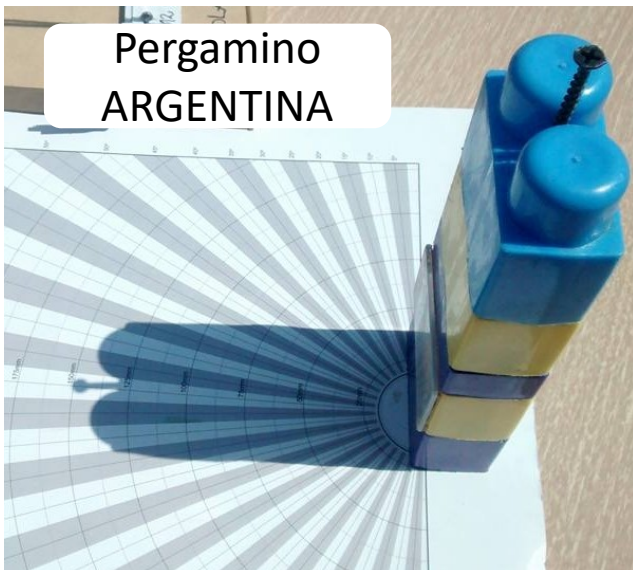


# Lego gnomon

Verticality 👍👍

Origin of shadow 👍👍

Precision 👍👍





# Artistic gnomon

Verticality 👍

Origin of shadow 👍

Precision 🙇





