Hands On Learning
with Reading Museum Service

READING MUSEUM SERVICE

MEASUREMENT S2



How often do you find out your height or weight? In the box are lots of different objects used for measuring. Measuring size, weight or pressure is important to individuals, scientists and companies.

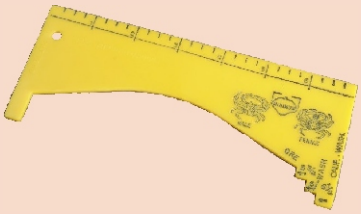


Above: Scientists measuring a giant clam.

Above: A fisherman measuring his catch.

Crab gauge

Crab fishing is popular in the United States of America. This gauge measures the size of caught crabs.





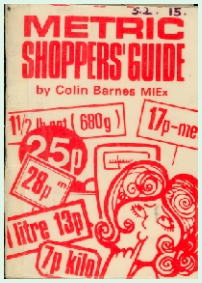
The markings on the ruler are very important. The 'Calif-Wash' tells us that this ruler is used by fishermen in the west of the country. This is where the states of California, Oregon and Washington are. Fishers in Oregon can only legally catch crabs that are bigger than 5 ¾ inches (14.6 cm). In Washington it is 6 inches (15.2 cm). The sketches show the difference between male and female crabs. It is illegal to catch female crabs.



The tight restriction on the size and sex ensure the crab can reproduce and maintain their number. This is called sustainable exploitation and stops them becoming extinct.

Booklet

Measurements can be given in either imperial or metric forms. This booklet shows how to change imperial measurements into metric. In Britain, distance is measured in miles but in many other countries it is kilometres.



Reading Borough Council

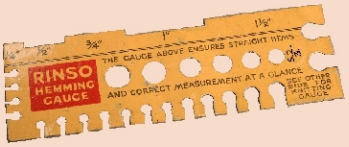
Heritage Lottery Fund

Hands On Learning
with Reading Museum Service

READING MUSEUM SERVICE

MEASUREMENT S2

Knitting needle gauge



The gauge helps a knitter find the size of their knitting needle. Larger sized needles make bigger stitches. Most needles have the size written on them but with a lot of use the label often wears off.

Needle gauges are usually made of metal or plastic, with holes of various sizes. The knitter passes the needles through the holes to find which they fit best.



Above: A giant pair of knitting needles.

Optic measure

Optic measures are used for pouring alcoholic drink. Usually it is a spirit such as whisky or vodka. People who go to a pub have their drink measured. A pint of beer is measured into a pint glass. But, spirits are drunk in small measures because they are very high in alcohol. Drinking too much can cause long term damage to a person's health.





Spirits were measured in small thimbles like those in the picture. The drinker could see clearly how much the bar staff were serving.

This optic measure serves a spirit quicker and more accurately than the thimble. An optic is put in the top of the bottle instead of a lid. The bottle is then attached upside down to the wall as those pictured. Bar staff pour a drink by holding the glass to the optic measure and pushing against it. The drink filters into the bulb where it is held until the optic is released. It then pours out of the small valve and into a glass.



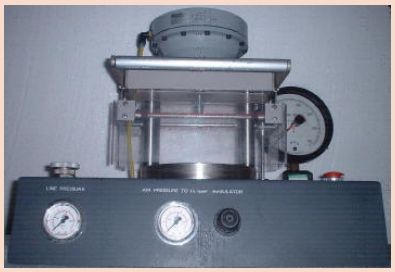
Hands On Learning
with Reading Museum Service

MEASUREMENT S2

Pressure gauge



This particular gauge is called a Bourdon. It measured the pressure required to burst objects. It would have been attached to a coiled tube. When the pressure increased the tube began to uncoil. This turned the needle and gavesa reading of the amount of pressure.



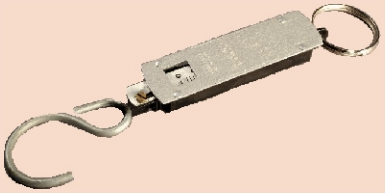
Many companies test products to ensure they are safe before being sold. It would be used on products made of material such as rubber where resisting high pressure is required.

Barometer



A barometer measures atmospheric pressure. It predicts whether the weather will be dry or wet. High pressure means the weather is likely to be dryer but when it is lower then it is wetter. The barometer became common in richer homes as interest in weather forecasting and scientific knowledge increased during the nineteenth century. Weather forecasters now use a more sophisticated device to do the same job.

Spring balance



Hold the balance by the keyring. An object can be hung on the hook and it will measure the force in Newtons. Larger versions are used to weigh heavy loads such as trucks.

Hands On Learning
with Reading Museum Service

MEASUREMENT S2

External callipers



A calliper measures the diameter of circular objects. The tips are placed at either end. When the calliper is removed the distance between the tips is measured. The example on the left is from the army. They used to measure the size of cannonballs with callipers. This ensured they would fit in the cannon. These callipers have two arms that are hinged so that they slide freely over each other. This allows the steel tips to point either inwards to indicate the diameters of the cannonball, or outwards to measure the size of the cannon mouth, known as the bore.



Vernier callipers



This calliper has different ways of measuring. The small sharp points find internal dimensions. The thin points give a more accurate reading than the larger jaws. What would you measure with this?

The longer jaws measure the outer dimensions of objects. These are called the lower jaws. Here the straight edge is on the inside of the clamp. On the smaller jaws it was on the outside. A straight edge is needed to get an accurate measurement. The object is locked between the jaws and the measurement can be read that way.

Tape measure



Do you like making things? Joiners and carpenters use measuring tapes to find out the length of a piece of material or the size of a gap. The tape is stored, rolled in the box and is easy to pull out and use. A clip on the back lets it be worn on trousers.



Hands On Learning
with Reading Museum Service

MEASUREMENT S2

Clinometer



This strange looking item measures angles. It is shaped a bit like a gun. Pointing the tip of the barrel's nose at an object and holding down the trigger lets the wheel move. When the wheel has stopped the person lets go of the trigger. The wheel then stays in place. An arrow points to an angle on the wheel. This is the measurement of the angle between the person and the object.



Hat gauge

How would you get the right size hat for a special occasion? This gauge measures hat size. The metal band is placed around the inside of the hat. Where the inner band finishes there is a number. This is the hat size. It is like having a shoe size.



Weight

Have you ever used scales at home? If someone wanted 8 ounces (227 grams) of sugar the weight would be put on one side of the scales and the sugar added to the other side until they balanced. By balancing it showed the weight of the sugar was equal to the 8-ounce weight.





The markings on the weight show that a company called Crane from Wolverhampton made it.