



Smallest...

You could fit the **smallest country** into the **smallest continent** nearly 175 million times. But can the **smallest cat** that ever existed really have been four times smaller than the **smallest police dog**? And what is the **smallest unit of length** in the universe? GWR presents a whistlestop tour of relative size, from stellar to sub-atomic.

< 150,000 km



Star
119,640 km

The smallest known star is 2MASS J05233822-1403022, observed 40 light years from Earth. It has a diameter of around 119,640 km (74,353 mi), around 0.086 times that of the Sun (top).



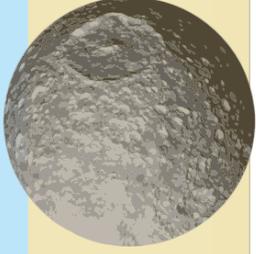
Continent
4,000 km

Some sources argue that Oceania, or Oceania/Australasia, is the smallest continent, but the definitions of what territories this includes vary widely. For most sources, including GWR, the record holder is Australia, with a west-to-east width of some 4,000 km (2,485 mi) and an area of 7.69 million km² (2.96 million sq mi). It is also the sixth largest country.



Extrasolar planet
1,930 km

An extrasolar planet (or exoplanet) is one that orbits a sun other than our own. Kepler 37b orbits the star Kepler 37, around 210 light years from Earth in the constellation of Lyra. Its discovery by NASA's Kepler spacecraft was announced on 20 Feb 2013. Kepler 37b is only around 1,200 mi (1,930 km) across, smaller than the planet Mercury.



Spherical world
396.6 km

Mimas, one of Saturn's moons, is just 396.6 km (246.4 mi) across. It is the smallest known body whose shape has been rounded owing to its own gravity. Mimas is also the 20th largest moon in the Solar System.



Country
0.44 km²

The smallest independent country is the State of Vatican City or Holy See (Stato della Città del Vaticano), an enclave within the city of Rome in Italy. It has an area of 0.44 km² (0.17 sq mi) and is smaller than the Pentagon - itself the world's largest office building.

< 5 m



Pressurised manned spacecraft
3.34 x 1.89 m

The Mercury spacecraft was used for six NASA manned missions between 1961 and 1963. It carried a single astronaut inside a conical capsule that was 3.34 m (10 ft 11.5 in) high and 1.89 m (6 ft 2 in) in diameter.



Aircraft
2.69 m

Designed and built by Robert H. Starr (USA), the biplane *Bumble Bee II* was 8 ft 10 in (2.69 m) long, with a wing-span of 5 ft 6 in (1.68 m), and weighed 179.6 kg (396 lb) empty. It could accommodate one person.

Roadworthy car
63.5 x 65.4 x 126.3 cm

Created by Austin Coulson (USA), the most diminutive roadworthy car measures 63.5 cm high, 65.4 cm wide and 126.3 cm long (25 x 25.75 x 49.75 in). It was measured in Carrollton, Texas, USA, on 7 Sep 2012.



Woman (ever)
61 cm

Pauline Musters, known as Princess Pauline, was born in Ossendrecht, Netherlands, on 26 Feb 1876 and measured 1ft (30 cm) at birth. She died of pneumonia with meningitis on 1 Mar 1895 in New York City, USA, at the age of 19. A post-mortem examination revealed her height to be 2 ft (61 cm).



Man (ever)
54.6 cm

Chandra Bahaadur Dangi (NPL) was 54.6 cm (21.5 in) tall when measured at CIWEC Clinic Travel Medicine Center in Lalchaur, Kathmandu, Nepal, on 26 Feb 2012.



< 50 cm



Dinosaur
39 cm

The feathered *Microraptor zhaoianus* measured 39 cm (15.3 in) long, of which 24 cm (9.4 in) was its tail. A fossil specimen found in China in 1999 has been dated to 110-120 million years ago.

Police dog
28 cm

Chihuahua/rat terrier cross Midge is 28 cm (11 in) tall and 58 cm (22.8 in) long. She worked as an official Law Enforcement Work Dog (or "Police K9") with her owner, Sheriff Dan McClelland (USA), at Geauga County Sheriff's Office in Chardon, Ohio, USA. Midge passed her Ohio Certification as a Narcotics Dog on 7 Nov 2006 and retired, along with Sheriff McClelland, on 1 Jan 2017.



Arcade machine
12.4 x 5.2 x 6 cm

In 2009, computer engineer Mark Sievinsky (CAN) built a fully playable arcade machine measuring 12.4 x 5.2 x 6 cm (4.88 x 2.05 x 2.36 in). He wrote his own operating system, FunkOS, to program its *Tetris*, *Space Invaders* and *Breakout* clones.



Cat
7 cm

Tinker Toy, a male blue point Himalayan-Persian, measured 7 cm (2.75 in) tall and 19 cm (7.5 in) long when fully grown (aged 2.5 years). His owners were Katrina and Scott Forbes of Taylorville, Illinois, USA.



Bird
5.7 cm

Male bee hummingbirds (*Mellisuga helenae*) of Cuba and the Isle of Youth measure 5.7 cm (2.24 in) long, half of which is taken up by the bill and tail. Males weigh 1.6 g (0.056 oz), but females are slightly larger.

< 5.5 cm



Revolver
5.5 cm

The CTST is a working revolver 5.5 cm long, 3.5 cm high, 1 cm wide (2.1 x 1.3 x 0.4 in) and weighing 19.8 g (0.7 oz). It is made by SwissMinigun (CHE).

100%



Comic book
2.58 x 3.7 cm

Written by Martin Lodewijk (NLD) and published in Jun 1999, a special issue of *Agent 327* entitled "Dossier Minimum Bug" measured just 2.58 x 3.7 cm (1 x 1.4 in). A total of 2,000 copies of the 16-page, full-colour comic were produced and sold with a free magnifying glass.

100%

Working drill
17 x 7 x 13.5 mm

The smallest cordless drill measures 17 x 7 x 13.5 mm (0.66 x 0.27 x 0.55 in) and holds a twist drill that is 11.75 mm (0.46 in) long. The 3D-printed tool was designed and produced by Vance Oberwey (NZ) on 21 Mar 2016.



100%

Commercially available stitched teddy bear
9 mm

Cheryl Moss (ZAF) hand-crafted a teddy bear that measures just 9 mm (0.35 in) tall. She has been making "Microbears" for several years and selling them in specialist teddy-bear stores.



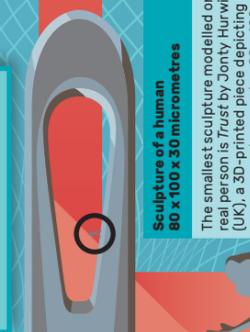
100%

Human bones
2.6-3.4 mm

The stapes or stirrup bone, one of the three auditory ossicles in the middle ear, measures 2.6-3.4 mm (0.1-0.13 in) long and weighs 2-4.3 mg (0.03-0.066 grains).



< 1 mm



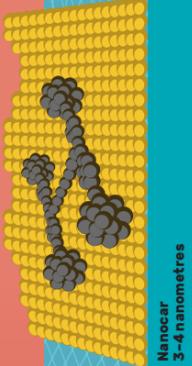
Sculpture of a human
80 x 100 x 30 micrometres

The smallest sculpture modelled on a real person is *Trust* by Jonty Hurwitz (UK), a 3D-printed piece depicting a woman and measuring 80 x 100 x 30 micrometres. The statue, inspired by the artist's first love 27 years after they met, was verified on 13 Feb 2015 at the Karlsruhe Nano Micro Facility in Germany.



Replica guitar
10 micrometres

A guitar based on a Fender Stratocaster and carved from a block of silicon is 10 micrometres long. It was the thinnest of its thickness. Funding for it was provided by the artist's parents at Cornell University, New York, USA. Each of its strings was 0.05 micrometres thick, equivalent to a line of 100 atoms.



Nanocar
3-4 nanometres

In 2005, scientists at Rice University, USA, led by James Tour, revealed a "car" made from a molecule of mostly carbon atoms that contains a chassis, axles and four wheels made from buckyball molecules. The entire assemblage measures just 3-4 nanometres across - slightly wider than a strand of DNA.



Man-made object
1 atom

By using field ion microscopy, the tips of probes of scanning tunnelling microscopes have been shaped to end in a single atom. The last three layers constitute the world's smallest man-made pyramid, consisting of seven atoms, three atoms and one atom.

Unit of length
1.6 x 10⁻³⁵ m

The smallest measurable length in the universe is the Planck length, which is 1.6 x 10⁻³⁵ m across. It is equivalent to around a millionth of a billionth of a centimetre across (a decimal point followed by 34 zeroes and one). This is the scale at which quantum theory holds that space-time is composed of infinitesimally tiny regions in which new dimensions come into being and vanish at incredible speed, rather like foam bubbles. These quantum foam bubbles are tiny compared even to atomic nuclei.