THE SOLAR SYSTEM · PART 7 OF 9 · AGES 11–16

Solar System Myths

Eight things many people believe about the Sun, the Moon and the planets, and what scientists have found instead.

✕ MYTH **It is summer when Earth is closest to the Sun.** 1

✓ FACT Seasons come from Earth's 23.4° tilt. Earth is closest to the Sun in early January, during northern winter. The hemisphere tilted towards the Sun gets more direct light and longer days.

✕ MYTH **The Sun is yellow.** 2

✓ FACT Sunlight mixes all colours, which look white, as astronauts see from space. Air scatters blue light out of the beam, so the Sun looks yellow from the ground. 'Yellow dwarf' is just its class of star.

✕ MYTH **The Moon has a permanent dark side.** 3

✓ FACT The Moon spins once per orbit, so we always see the same side. The far side gets just as much sunlight: at new moon it is fully lit while the side facing us is dark.

✕ MYTH **Space is completely empty.** 4

✓ FACT Space is almost a perfect vacuum, but the Sun constantly blows out the solar wind, charged particles that pass the planets at about 400 km/s. There is also dust, light and cosmic rays.

✕ MYTH **Pluto was 'demoted' because it is too small to be a planet.** 5

✓ FACT In 2006 the IAU said a planet must orbit the Sun, be nearly round and have cleared its orbital zone. Pluto shares its zone with many Kuiper Belt objects, so it is a dwarf planet.

✕ MYTH **The asteroid belt is packed with rocks, so spacecraft must dodge them.** 6

✓ FACT The belt is mostly empty space. All its asteroids add up to only 3–4% of the Moon's mass. NASA's Lucy spacecraft never needs to fire its thrusters to avoid one while crossing it.

✕ MYTH **There is no gravity in space, which is why astronauts float.** 7

✓ FACT At the Space Station's height, Earth's gravity is still about 90% as strong as on the ground. Astronauts float because they are in free fall, falling around Earth with their spacecraft.

✕ MYTH **One day the Sun will explode like a supernova.** 8

✓ FACT The Sun is not massive enough to explode. In about 5 billion years it will swell into a red giant, then shrink to a white dwarf, a small, dense, slowly cooling star.

⚠ **Never look at the Sun**

Even though the Sun is really white, never look straight at it, through sunglasses, binoculars or a telescope. Its light can permanently damage your eyes in seconds.

NEXT IN THE SERIES
8. Solar System Key Terms

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