

IGCSE Physics (9-1) Specification 8(b)

(b) Motion in the universe

Students should:

8.2 know that:

- the universe is a large collection of billions of galaxies
- a galaxy is a large collection of billions of stars
- our solar system is in the Milky Way galaxy.

8.3 understand why gravitational field strength, g , varies and know that it is different on other planets and the Moon from that on the Earth

8.4 explain that gravitational force:

- causes moons to orbit planets
- causes the planets to orbit the Sun
- causes artificial satellites to orbit the Earth
- causes comets to orbit the Sun.

8.5 describe the differences in the orbits of comets, moons and planets

8.6 use the relationship between orbital speed, orbital radius and time period:

$$\text{orbital speed} = \frac{2 \times \pi \times \text{orbital radius}}{\text{time period}}$$

$$v = \frac{2 \times \pi \times r}{T}$$