Cube Sats

Parikshit Task-1
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Type of miniaturized satellite for space research

They are made up of multiples of 10×10×10 cm cubic units.

Weight - 1.33kg per unit.

Payload is the mission equipment that is carried by the rocket or spacecraft like satellite, scientific instruments

cube sats ride along as secondary payloads on larger missions

This makes space more accessible to educational institutions and smaller organizations

Features:

Modular Design: These could be 1U, 2U, 3U which are standard sizes used to describe how big a cube sat is

1U (10×10×10)cm 2U (10×10×20)cm
↳ two 1U cubes stacked

Standardization: All cubesats follow a common size rule so, they can easily fit into deployment systems like Poly-Pico Satellite Orbital Deployer (P-POD)

PPOD is a device that holds cube sats inside a rocket and pops them out into space when its time.

Therefore they are cost effective

Applications include:

- Scientific Research
- Educational Projects
- Technology Demonstration

Notable missions include MarCO (first cubesat to operate beyond earth orbit, providing real time communication) Light Sail (A project demonstrating solar sail propulsion)

Can Sats

They are the educational tools that simulate real satellite missions within the volume and space of a standard soda can (66 mm in diameter and 115 mm in height)

Features:

Compact Size: They fit within the size of a soda can making it ideal for classroom projects

Educational Focus: Provides students with hands on experience in designing, building and testing satellite systems.

Can Sats are sent up into the sky using small rockets or balloons. They go a few 100 m high then come back down using a parachute while performing their mission (like collecting data).

Applications include STEM Education

European Space Agency (ESA) hosts CanSat competitions, encouraging innovation and teamwork among students

	Cube Sat	Can Sat
Size	10 × 10 × 10 cm per unit	standard soda can dimensions
Altitude	low Earth orbit	A few 100 metres
Duration	Months to years	Minutes
Cost	Tens to hundreds of 1000's of dollars	Relatively low
Purpose	Scientific, commercial, educational	Primarily educational
Complexity	High	Moderate