Build a Satellite Model

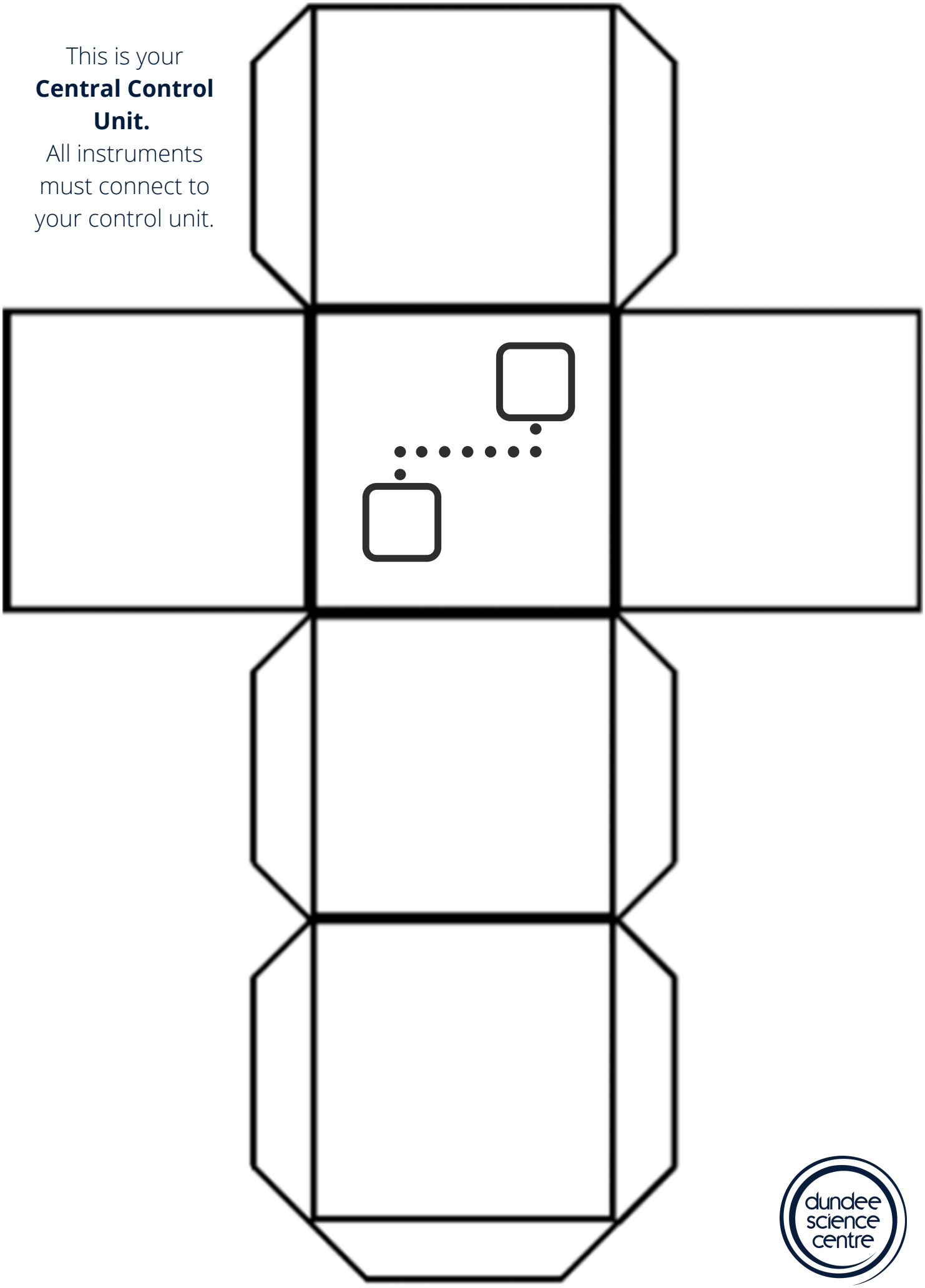
Design a satellite to go to space and observe changes on the Earth. You will need:

- Enough solar cells to power your chosen instruments
- Instruments to use in space (listed below)
- 1 Central control Unit (1 kg)
- 1 Communication antenna (your choice from below)

For an extra challenge, your satellite should not weigh more than 60kg

Instruments	Use	Mass (kg)	Number of solar cells needed
High Resolution Camera	Capture close-up images	25	2
Near Infrared Camera	Capture images given off by near infrared light	10	1
Radar	Uses radio waves to detect ships, oil spills, monitor forests, soil moisture, ice cover, etc.	3	0.5
Lidar	Uses infrared, visible, or ultraviolet waves to measure glacier size, clouds, winds, and atmospheric components	1	0.5
Spectrometer	Identify surface features by chemical composition	12	2
Altimeter	Map surface features by determining heights	2	2
Microwave Radiometer	Measures water content in atmosphere, must also have altimeter	17	1
Solar Cells	Collect energy from the Sun to power instruments	1	n/a
High-gain Communication Antenna	Receive commands from and return data to Earth (high speed)	5	1
Low-gain Communication Antenna	Receive commands from and return data to Earth (slow speed)	2	0.5

This is your **Central Control Unit.** All instruments must connect to your control unit.



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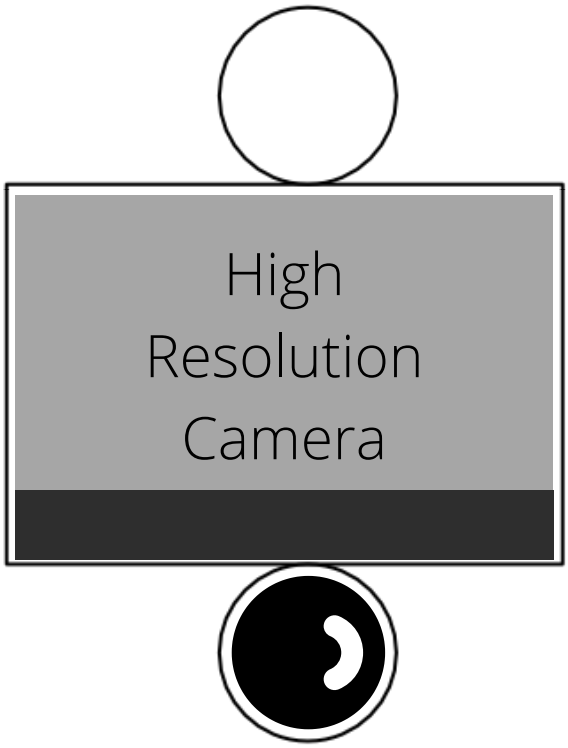
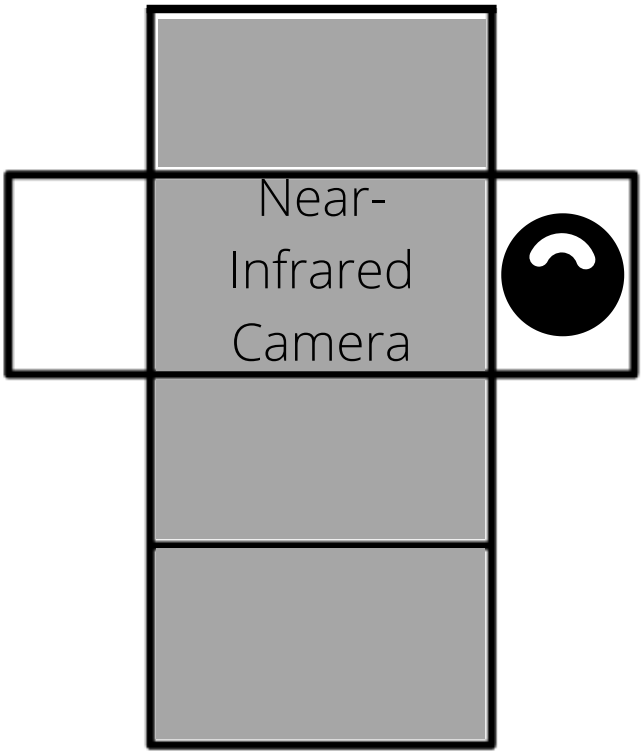
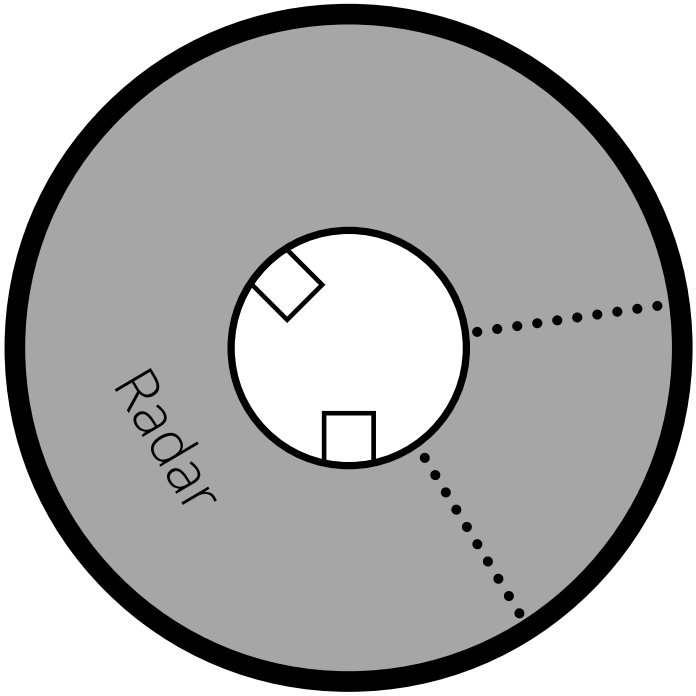
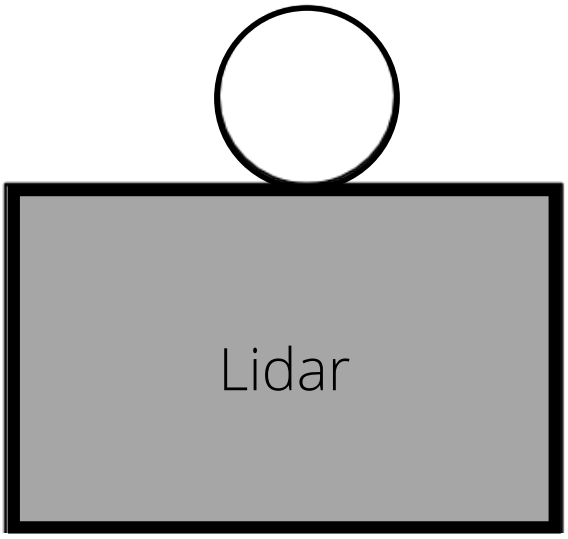
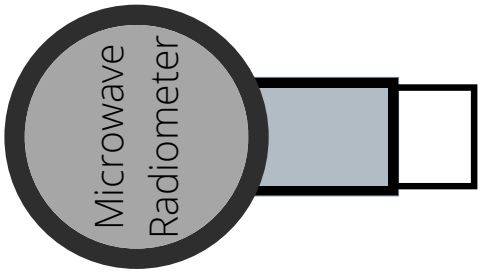
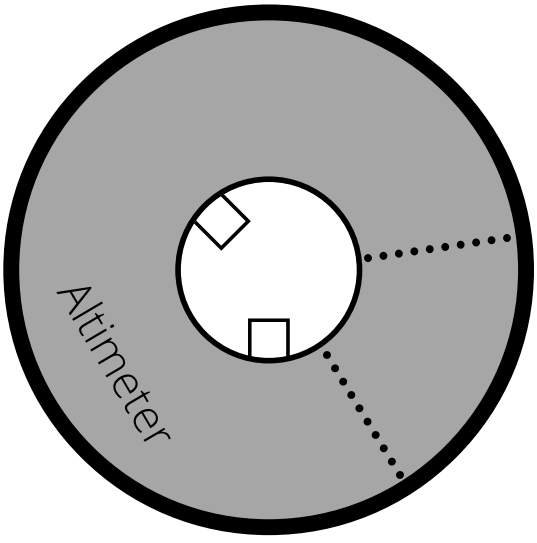

High
Resolution
Camera

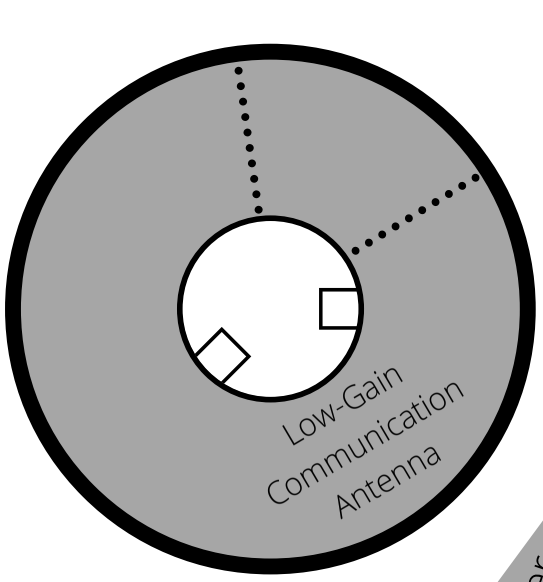

Near-
Infrared
Camera

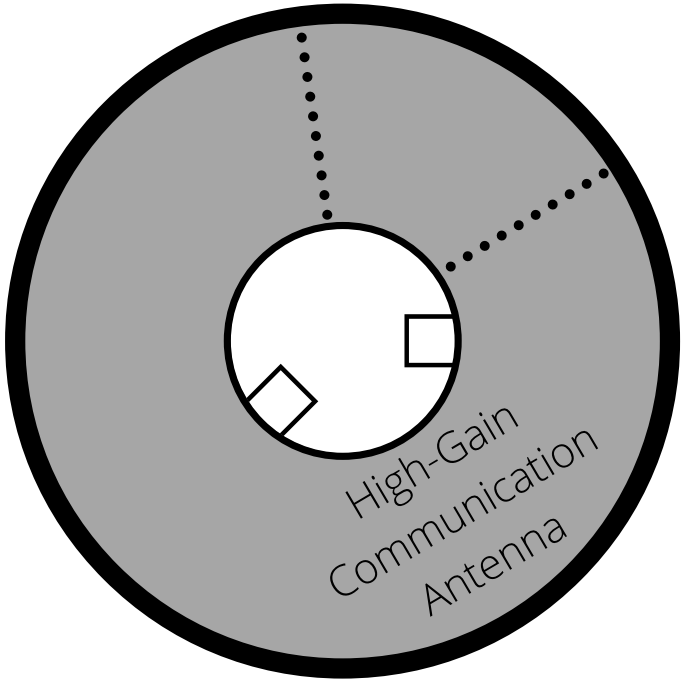

Radar

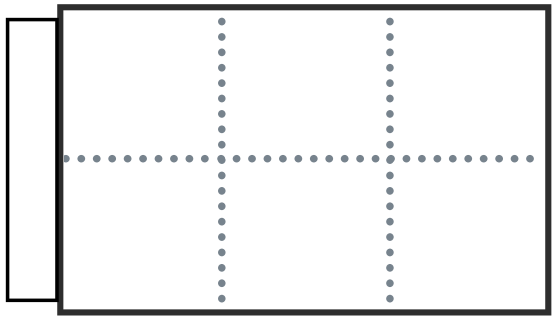

Lidar


Microwave
Radiometer


Altimeter







Solar Panels (Glue Solar Cells in Rows)