

Classroom Rocket Scientist

Intermediate (KS2+) version

1. Pick satellite type

Select your type of satellite

Navigation Satellite

Help people find their way



Communication Satellite

Help people communication with each other



Earth Observation Satellite

Monitor the Earth



Colour coded
(changeable
pallets for colour-
blind etc.?)

Title
Brief description
Icon

Navigation
arrow



2a. Pick a goal/objective (Nav)


Select the purpose of your satellite

Navigation
arrow

**Satellite Navigation
System**

Tell people their location

Cost: €100
Size: small



Title
Brief description
Budget
Size
Photo?

Map-making

Map the surface of the
Earth

Cost: €200
Size: medium

Navigation
arrow

Use "credits"
units for currency
by default
(always < €1000)

2b. Pick a goal/objective (Comms)

Select the purpose of your satellite

Same as above (different colour?)

Same as above
(different
colour?)

Satellite telephone system

Let people talk over the
phone using satellites

Cost: £100
Size: small

Satellite internet

Connect to the internet
using satellites

Cost: £200
Size: medium
=



Satellite TV

Provide satellite TV

Cost: £500
Size: large

2c. Pick a goal/objective (Earth Obs)

Select the purpose of your satellite

Build 	Weather forecasting Monitor the weather Cost: £200 Size: medium	Vegetation mapping Map the plants over the surface of the Earth Cost: £200 Size: medium	Build 
	Natural Disaster monitoring Study areas of natural disasters Cost: £500 Size: medium	Surface mapping Measure the height of land over the surface Cost: £500 Size: large	

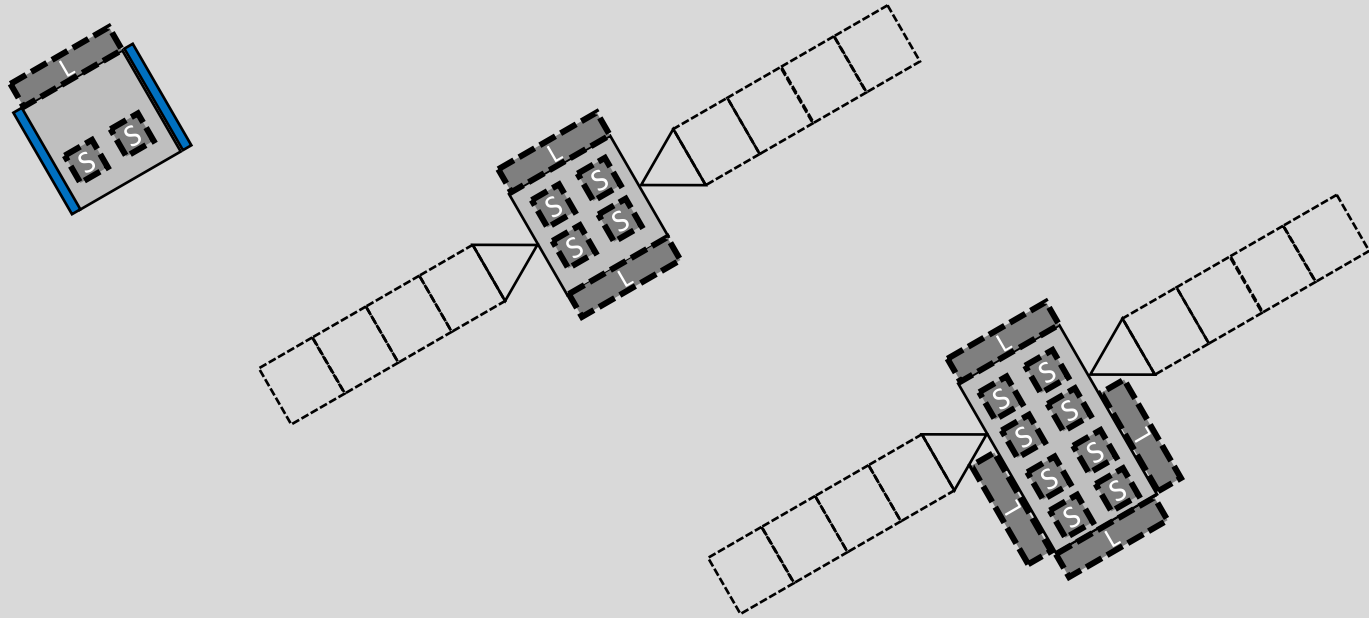
Same as above (different colour?)

Perhaps photos of example satellites?



3. Satellite size

Choose the size of your satellite

! ▼ Budget: ₹500



4. Orbit

  Budget: ₹500

Not in use for intermittent

5. Select your instruments

Diagram illustrating the "Build your navigation satellite" interface, showing instrument selection and requirements.

Interface Components:

- Title:** Build your navigation satellite (Title depends on selected type)
- Budget:** Budget: £500 (Arrow shows breakdown, but not total)
- Restart:** Restart button
- Space available:** Space available: Large: 1 ; Small: 2
- Requirements:**
 - ☒ Take pictures of the Earth
 - ☐ Radio dish to communicate
 - ☐ Requirement 3...
- Warning:** Requirements not met (Warning visible when requirements not met.)
- Choose your instruments:**
 - Camera:** Cost: £40, Size: S (Icon, Title, Cost, Size)
 - Large Radio dish:** Cost: £10, Size: L (Allows communication with the ground. Show/hide more info)
 - Video camera:** Cost: £50, Size: S
- Navigation only:** Navigation only shows if all requirements met

Annotations:

- Only show if over budget (Arrow pointing to the Budget section)
- Arrow shows breakdown, but not total (Arrow pointing to the Budget section)
- Navigation only shows if all requirements met (Arrow pointing to the Navigation only section)
- Check boxes automatically checked when completed. (Arrow pointing to the Requirements section)
- Warning visible when requirements not met. (Arrow pointing to the Requirements not met warning)

More complicated in
"Intermediate" view, with
batteries etc.

6. Select power

Add your solar panels

Budget: £500

Build

Rocket

Solar panels: 4

Cost: £100

Required power

Bar changes colour when over limit

Not enough power. Add solar panels or remove instruments

Error message

Only shows if all requirements met

The screenshot shows a rocket building interface. At the top, a black bar contains a red exclamation mark icon and the text 'Budget: £500'. Below this, the rocket is shown in a side profile. The rocket has a central body with two instrument icons (a camera and a radio) and a satellite dish at the bottom. On either side of the central body are two blue rectangular solar panels. The rocket is flanked by large black arrows pointing left and right, labeled 'Build' and 'Rocket' respectively. Below the rocket, there is a control for 'Solar panels' with a box containing the number '4' and '+' and '-' buttons. Below that, it says 'Cost: £100'. A horizontal bar represents the power status; the left portion is orange and labeled 'Bar changes colour when over limit'. A vertical line marks the 'Required power' level. At the bottom, a red box contains the text 'Not enough power. Add solar panels or remove instruments', with a red exclamation mark icon to its left. A red box to the right of this text says 'Error message'. A small red box on the right side of the rocket says 'Only shows if all requirements met'.

7. Select rocket

Build your rocket

Carousels for each stage

Power

Launch!

Budget: £500

Payload Bay

Medium Large Extra Large

Second stage

Small Medium Large

First stage

Spaceplane Small Medium

Your rocket

Satellite in payload bay

Required thrust

Bar changes colour when over limit

Schematic of chosen stages

(spaceplane may complicate it!)

Navigation only shows if launch is possible

Error message (if applicable)

- Payload bay too big for 2nd stage
- 2nd stage too big for 1st stage

8. Launch

Launch!



Animation of
launch. With
stages
dropping off?

Congratulations! Your satellite is now successfully
providing an internet service to Europe!