

Classroom Rocket Scientist

Primary (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

Natural Disaster monitoring

Study areas of natural disasters

Cost: £500

Size: medium

Vegetation mapping

Map the plants over the surface of the Earth

Cost: £200

Size: medium

Surface mapping

Measure the height of land over the surface

Cost: £500

Size: large

Same as above
(different colour?)



Build

Perhaps photos of example satellites?

3. Select your instruments

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

Interface Components:

- Header:** "Build your navigation satellite" (Title depends on selected type).
- Budget:** "Budget: £500" (Arrow shows breakdown, but not total).
- Instrument Selection Panel:** "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.
- 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).
- Navigation:** "Navigation only shows if all requirements met".
- Restart:** "Restart" button.
- Power:** "Power" button.



Annotations:

- Diagram of the size & slots (by mission).
- Check boxes automatically checked when completed.
- Only show if over budget.

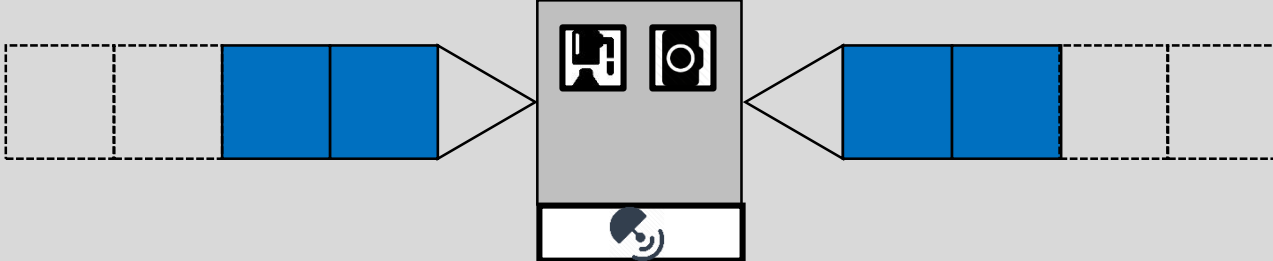
4. Select power

More complicated in
“Intermediate” view, with
batteries etc.

Add your solar panels

  Budget: £500

Build



Rocket

Solar panels:


+


-

Cost: £100

Required power

Bar changes colour when over limit



 Not enough power. Add solar panels or remove instruments

Error message

5. Select rocket

More complicated in
“Intermediate” view, caring about
thrust etc.

Build your rocket

! ▼ Budget: £500

Carousels for each stage

Power

▲

▼

Payload Bay

Medium Large Extra Large

Second stage

Small Medium Large

First stage

Spaceplane Small Medium

Launch!

Your rocket

Satellite in payload bay

Schematic of chosen stages
(spaceplane may complicate it!)

! • Payload bay too big for 2nd stage
• 2nd stage too big for 1st stage

Navigation only shows if launch is possible
Error message (if applicable)

6. Launch

Launch!



Animation of
launch. With
stages
dropping off?

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