

# 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 requirements.

**Interface Elements:**

- Restart** (Vertical button on the left)
- Build your navigation satellite** (Main title)
- Slots used:** Large: 1/2 ; Small: 2/4
- Requirements:**
  - ☒ Take pictures of the Earth
  - ☐ Radio dish to communicate
  - ☐ Requirement 3...
- Requirements not met** (Warning message)
- Available 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.
- Budget:** £500
- Power** (Vertical button on the right)



**Annotations:**

- Arrow shows breakdown, but not total (Points to Budget: £500)
- Only show if over budget (Points to Budget: £500)
- Title depends on selected type (Points to Build your navigation satellite)
- Navigation only shows if all requirements met (Points to Available instruments)
- Check boxes automatically checked when completed. (Points to Requirements section)
- Warning visible when requirements not met. (Points to Requirements not met)
- Schematic of the size & slots (by mission) (Points to Slots used)
- instruments radio dishes etc. (Points to Slots used)

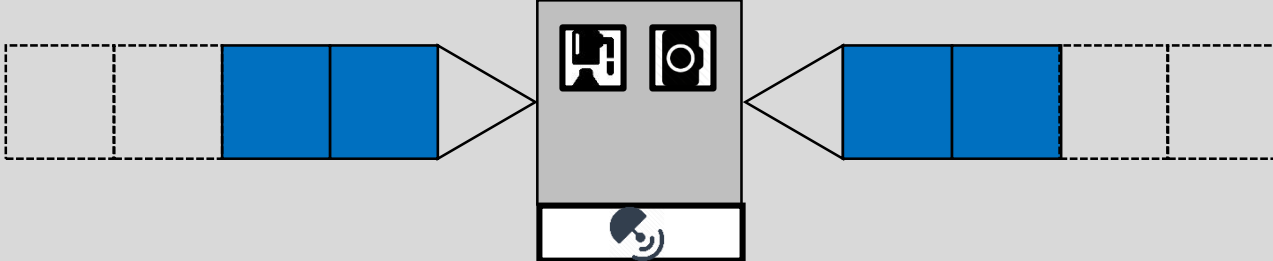
## 4. Select power

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

## Build your rocket

Carousels for each stage

Power

Payload Bay

Second stage

First stage

Medium Large Extra Large

Small Medium Large

Spaceplane Small Medium

! Budget: £500

Launch!

Required thrust

Satellite in payload bay

Bar changes colour when over limit

Schematic of chosen stages

(spaceplane may complicate it!)

Error message (if applicable)

Navigation only shows if launch is possible

- Payload bay too big for 2<sup>nd</sup> stage
- 2<sup>nd</sup> stage too big for 1<sup>st</sup> stage



## 6. Launch

Launch!



Animation of  
launch. With  
stages  
dropping off?

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