The Smallpeice Trust

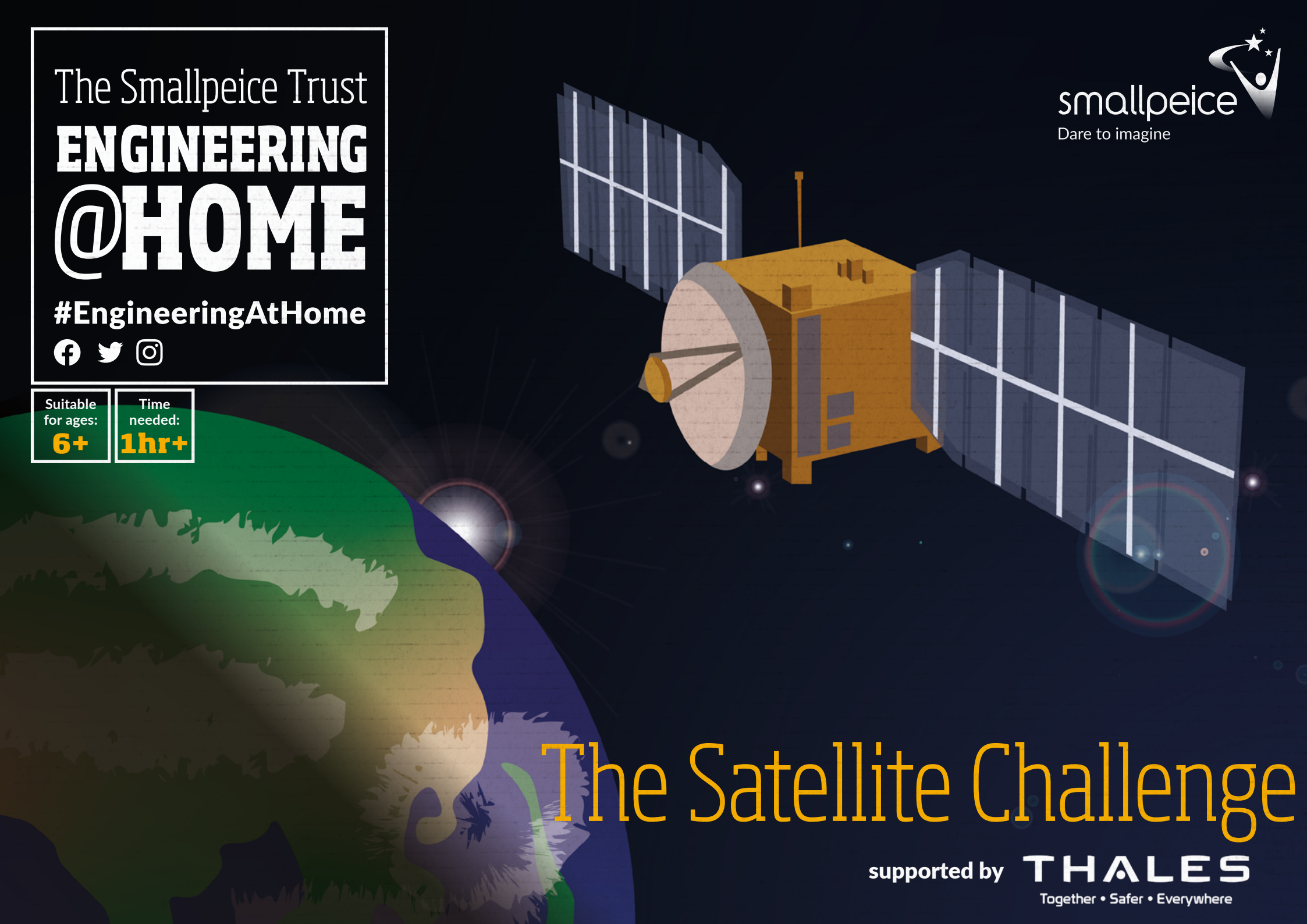
ENGINEERING @HOME

#EngineeringAtHome

smallpeice
Dare to imagine

Suitable for ages: 6+

Time needed: 1hr+



The Satellite Challenge

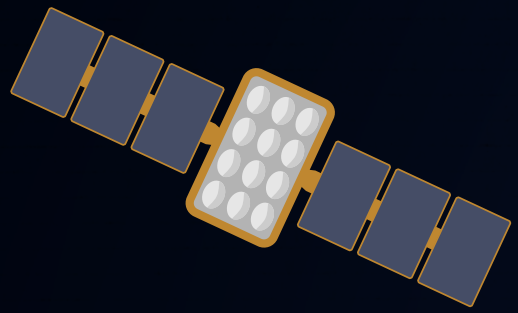
supported by THALES
Together • Safer • Everywhere

smallpeice

Dare to imagine

As it's half term, our Smallpeice team have put together five extra-special Engineering@Home challenges, perfect to complete as a family. This is number 4 in the series.

4



Objectives

Create your own model satellite.

Create a space scene.

Research satellites and create skills cards for your designs.

Submit a competition entry for a chance to win a prize.

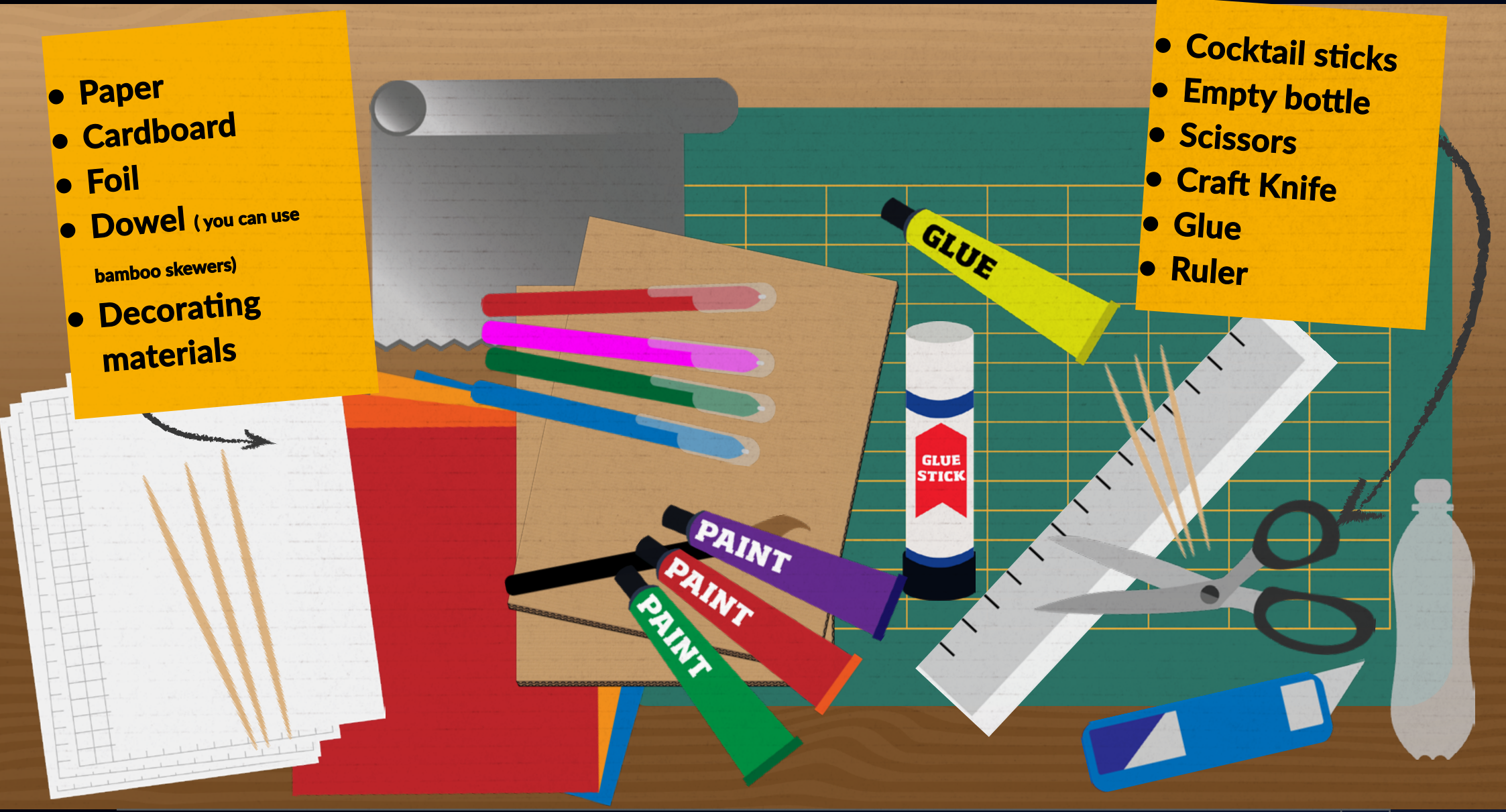
Engineering Themes

SATELLITES
https://youtu.be/03pZdYVacaM

THALES
https://youtu.be/RcK5XJDbDEA

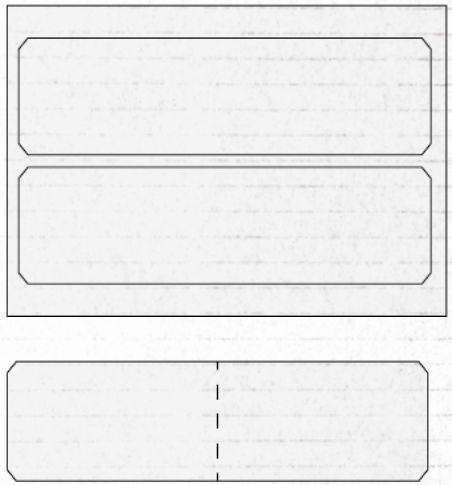
ELECTROMAGNETISM
https://youtu.be/tfRBxgNfbdk

These are the tools and materials and tools we used. If you're missing any items, why not substitite them with something similar? Have a look in your recycling.



STEP 1: MAKE YOUR SOLAR PANELS

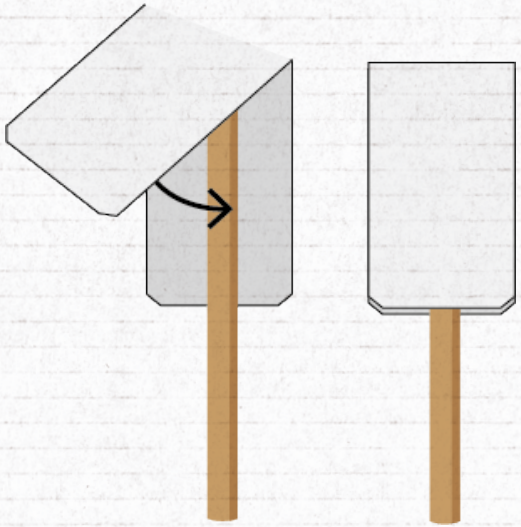
1



Draw your solar panel shapes on paper or card.

Carefully cut them out using scissors.

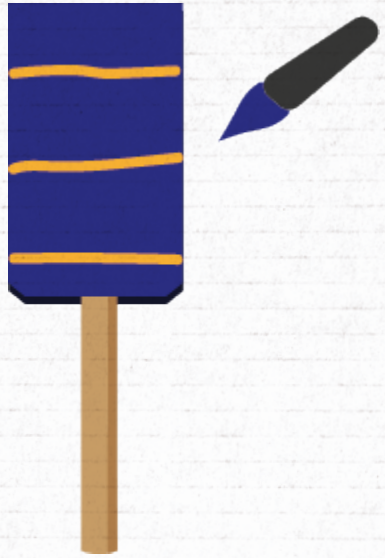
2



Fold your solar panel template in half.

Stick a dowel or bamboo skewer into the centre.

3

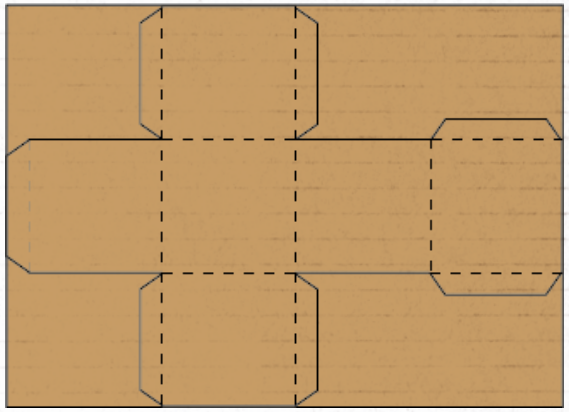


Decorate the solar panels using any materials you like.

You may want to look for some design inspiration online.

STEP 2: CREATE THE MAIN BODY

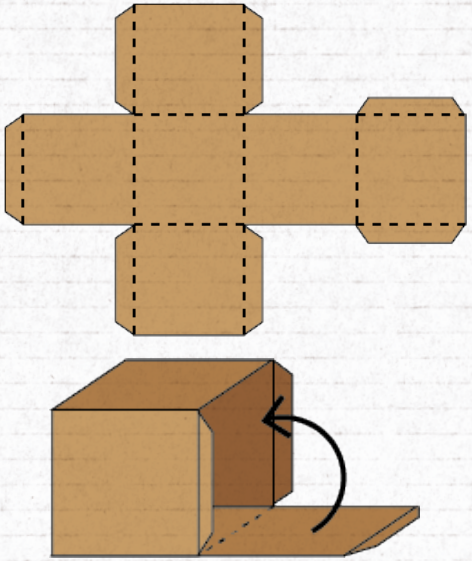
1



Draw a cube net onto a piece of carboard.

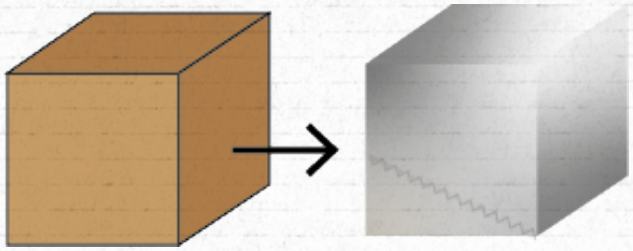
Carefully cut it out using scissors or a craft knife.

2



Fold along the hashed lines to form a cube shape.

3

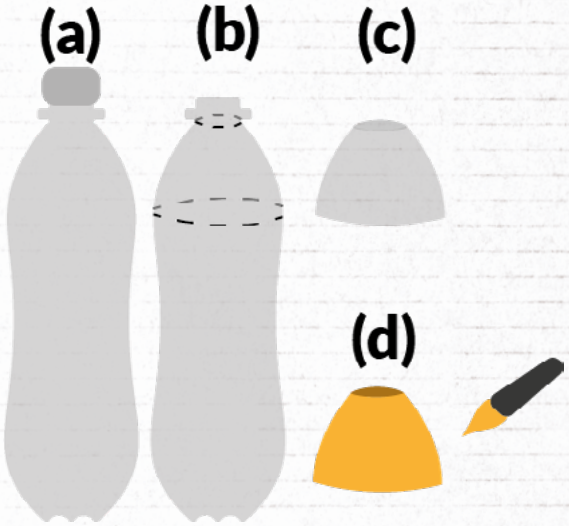


Coat the outside in a reflective material (we used tin foil).

Alternatively, you could paint the outside.

STEP 3: CREATE THE DISH & ANTENNA

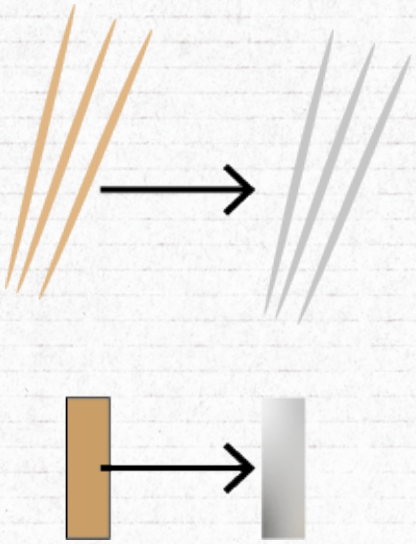
1



Carefully cut the neck of a plastic bottle to create the dish shape.

Decorate in your chosen space theme.

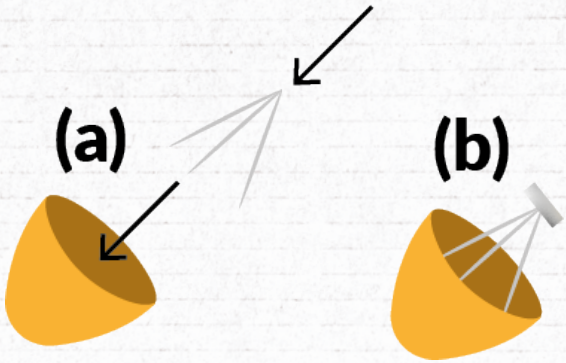
2



Create the antenna by taking three cocktail sticks and coating them in foil (you could paint them instead).

Take a left over square of card and coat it in foil.

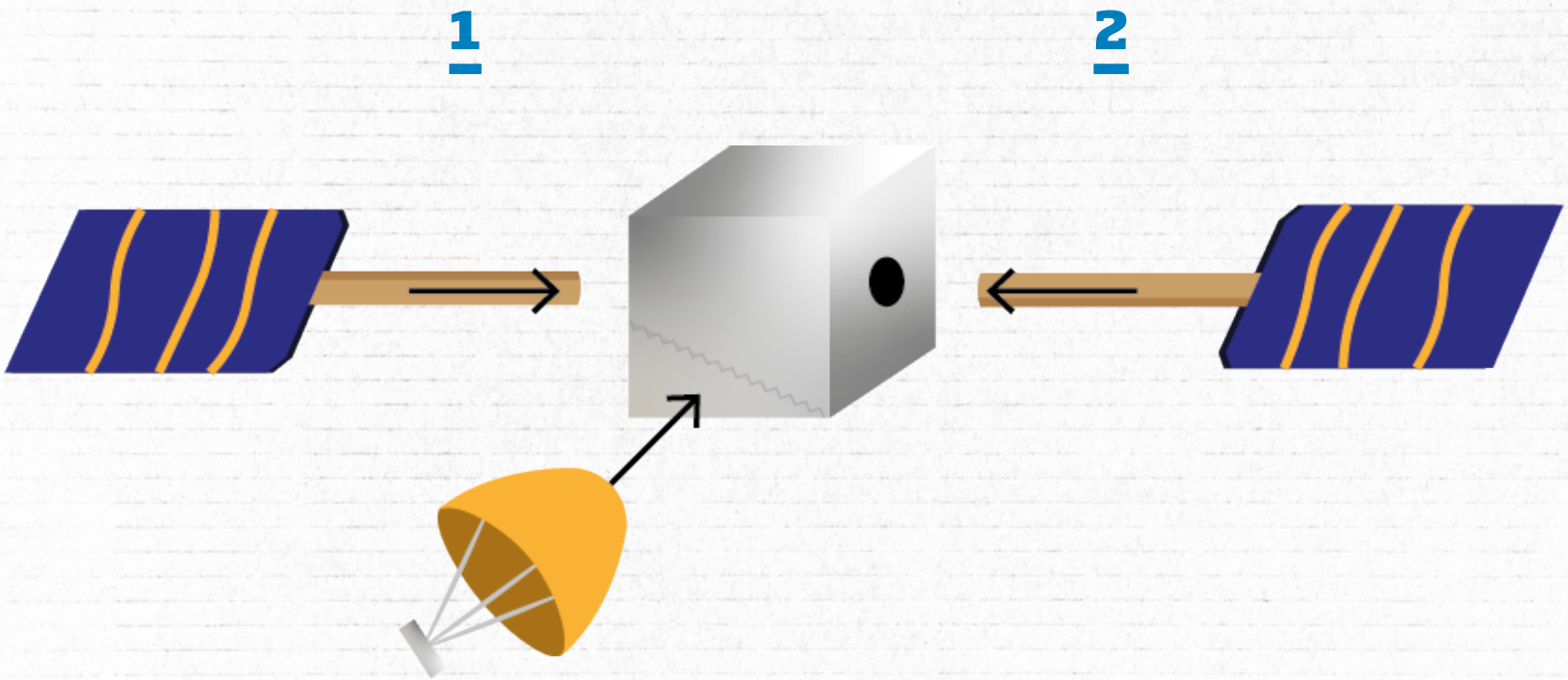
3



Once dry, carefully stick the dish and antenna together.

You could use PVA, all purpose glue (with adult supervision) or tape.

STEP 4: ASSEMBLE IT ALL

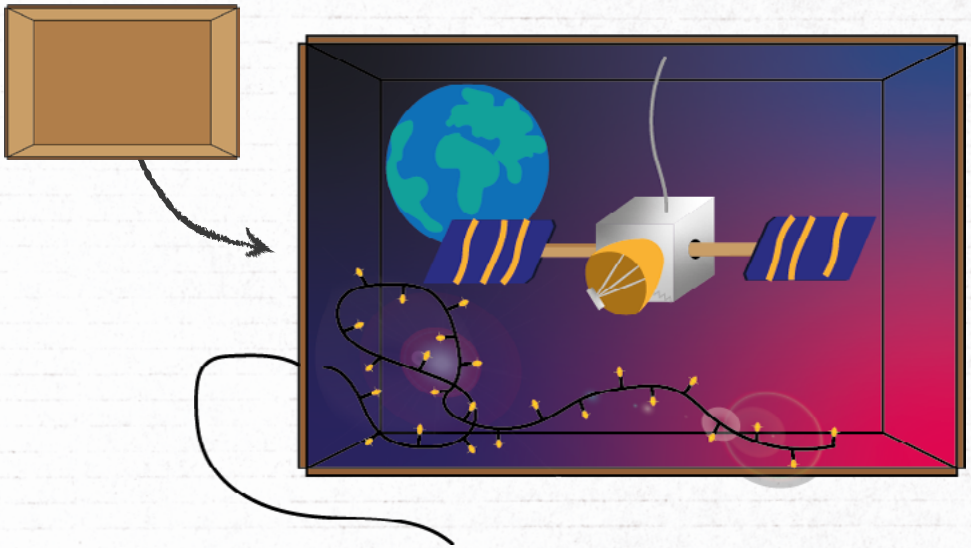


Carefully make holes in both sides of the main body.

Fix the solar panels through the holes and attach your dish.

STEP 5: CREATE A SPACE SCENE AND SKILLS CARD

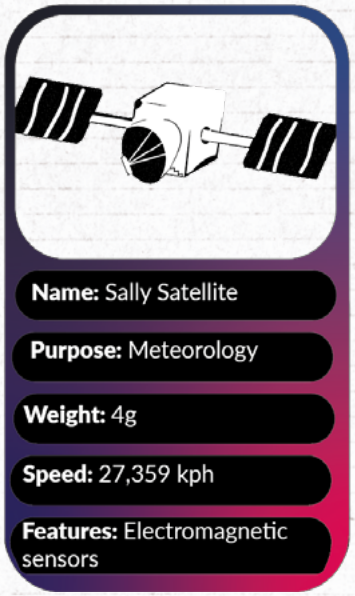
1



Create your space scene, using as many materials as you can.

Be creative here!

2



Design and create a skills card for your satellite.

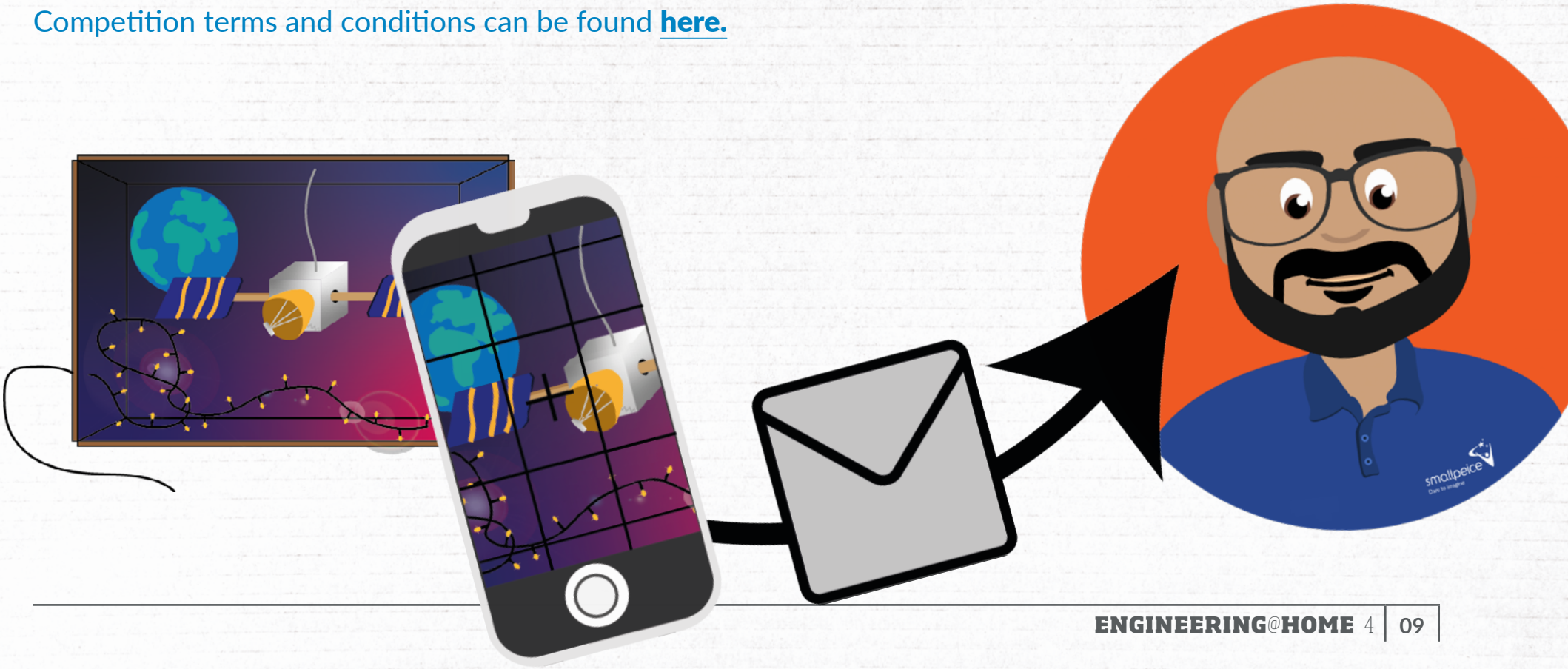
Research different types of satellite to help with this part.

SUBMIT A COMPETITION ENTRY

We'd love to see your designs come to life. Simply make your own satellite out of materials you find around your house, give it a name and some special abilities then take a photo and send it in to us for a chance to win an Amazon voucher and STEM goody bag, courtesy of Thales.

To submit a competition entry, email your pictures of your Space Scenes and Skills Cards to **jonnie.bowmer@smallpeicetrust.org.uk** by 16th November.

Competition terms and conditions can be found **here.**



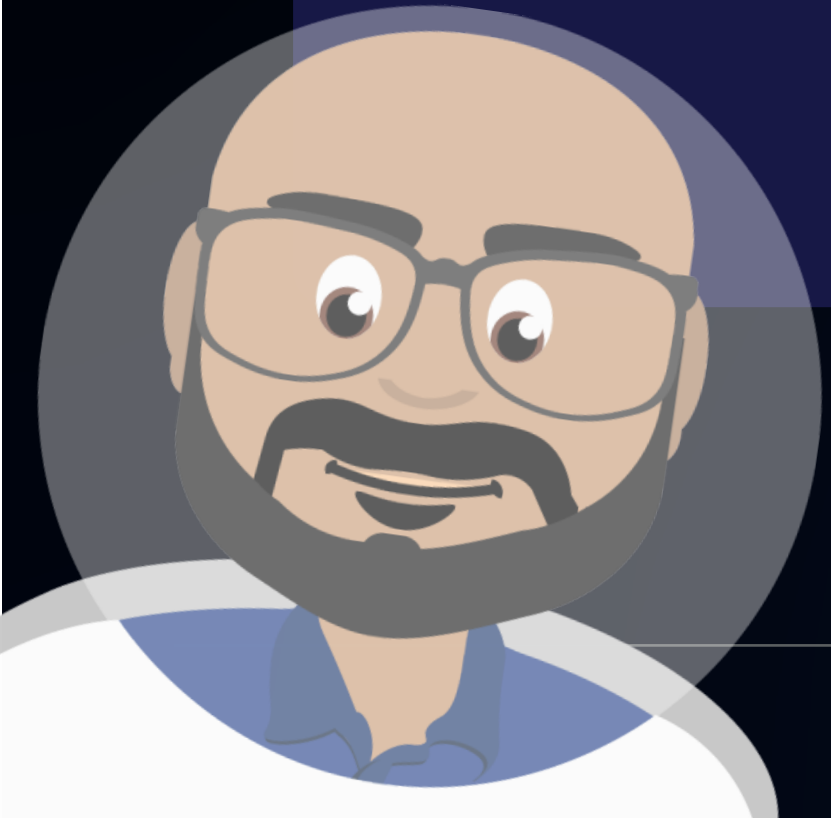
Need a Challenge?

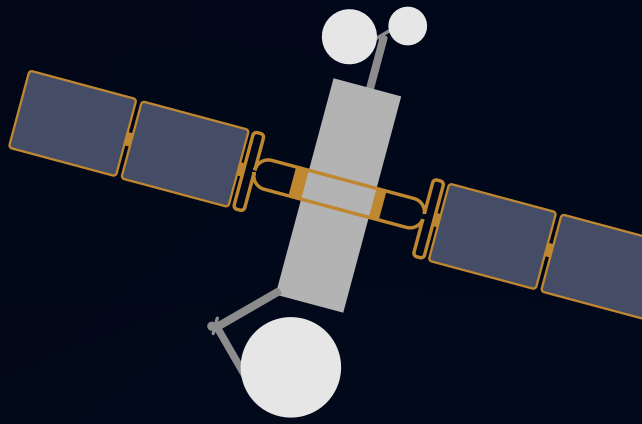
If you want to challenge yourself further

1. Test your satellite's resilience to heat.

   Place a piece of chocolate in the centre of the satellite and heat the outside with a hairdryer on its lowest temperature. Record how long it takes to melt.

2. Build a parachute to help your parachute return safely to earth. Use episode 3 of series one of Engineering@Home for inspiration.





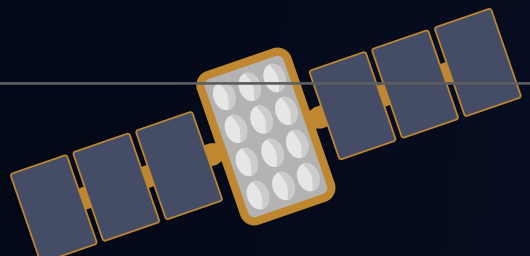
Once you've got your space scene, film it in action and share your video on:

www.facebook.com/TheSmallpeiceTrust

www.twitter.com/SmallpeiceTrust
Use the hashtag **#EngineeringAtHome**

www.instagram.com/TheSmallpeiceTrust

Don't forget your competition entry!



Thanks again to THALES for supporting this challenge.

Together • Safer • Everywhere

Thales is a global technology leader in the Aerospace, Transportation and Defence & Security markets.

In 2019, the company generated sales of €18.4 billion with 80,000 employees in 68 countries. With its 30,000 engineers and researchers, Thales has a unique capability to design, develop and deploy equipment, systems and services that meet the most complex security requirements. Thales has an exceptional international footprint, working with customers and local partners around the world.

Thales in the UK is a team of over 6,500 experts, including 4,500 highly skilled engineers, located across 9 key sites.

Find out more about Thales at www.thalesgroup.com/en/countries/europe/united-kingdom

@thalesgroup

@thalesgroup