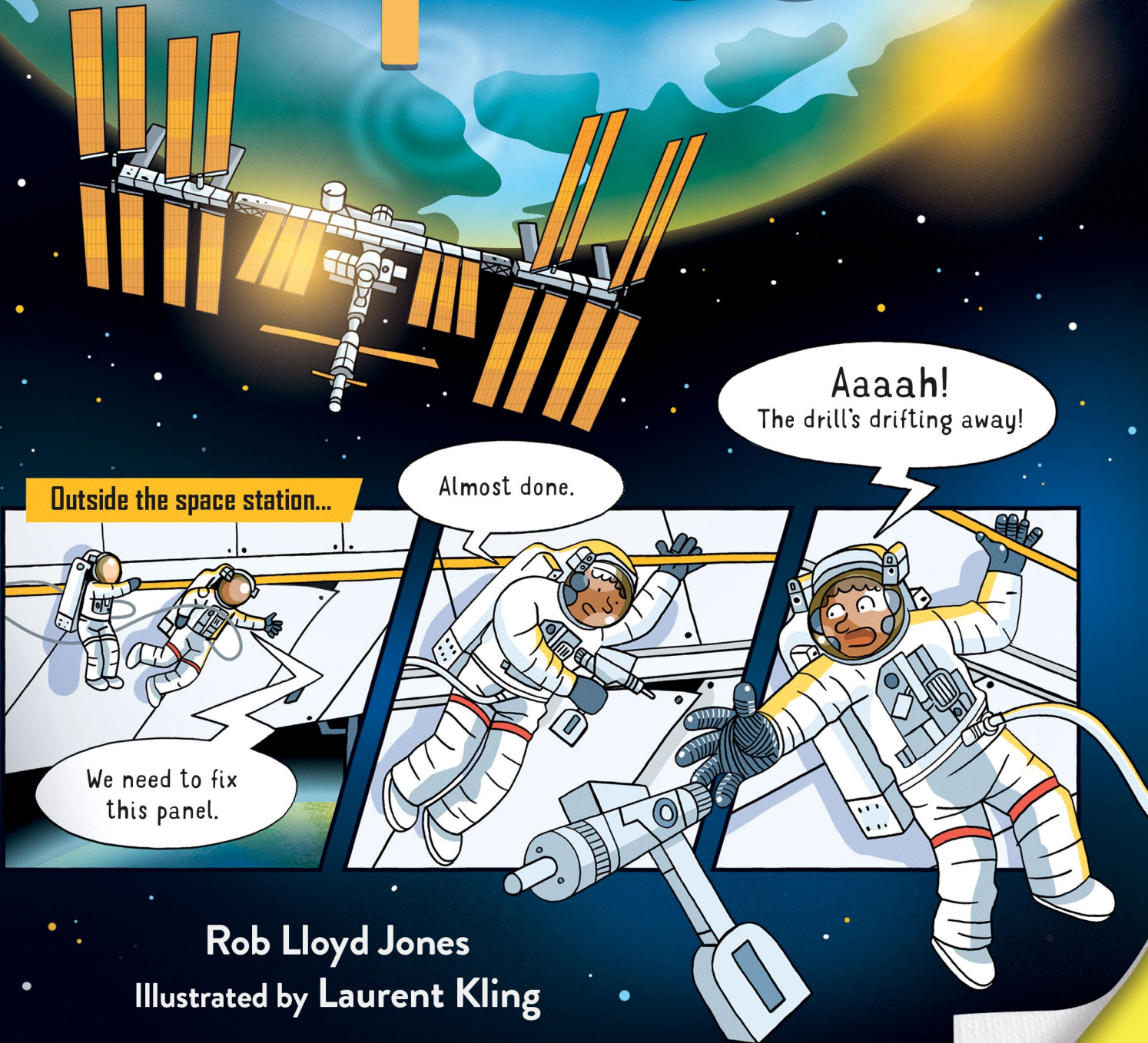


USBORNE

24 Hours in Space



In association with
UK SPACE
AGENCY



Outside the space station...

We need to fix
this panel.

Almost done.

Aaaah!
The drill's drifting away!

Rob Lloyd Jones

Illustrated by Laurent Kling

NOTES FOR TEACHERS

Ages 7+



24 Hours in Space

Notes for Teachers

Explore Themes of:

Forces and Motion ★ Gravity ★ Space and the Solar System ★ Creative Writing ★ Graphic Novels

Subject Checklist:

Science ★ English ★ Art and Design ★

These resources were developed for Usborne by Shapes for Schools.



About the Book

Join an astronaut for a day as she goes on her first ever spacewalk, and new crew members arrive. Find out how she trained for her mission and what it's like living and working in space. How do you eat and sleep in a space station? How do space toilets work? What are space suits designed for?



Read the Extract!

To complete the exercises in this pack, first read the extract taken from pages 12–15 of 24 Hours in Space.



24 Hours in Space

08:00-09:00

Every morning we meet to discuss our schedule for the day.

Today's going to be busy.

Really busy.

SCHEDULE:

- 08:00 Breakfast meeting
- 09:00 New crewmates arrive!
- 10:00 Showing new crew around the ISS
- 11:00 Science experiments
- 12:30 Lunch
- 13:00 Exercise
- 15:00 Spacewalk
- 19:30 Dinner
- 20:00 Free time
- 21:30 Bed time

Normally, we wouldn't do so much in one day, but we wanted to show you EVERYTHING we get up to.

YAA! There's an asteroid speeding straight for us!

Um, Sergey? That's not an asteroid, it's the new crew members arriving.

Oh... Ha... Yeah, I knew that.

12

See that spacecraft? It's carrying four astronauts to join our crew.

You're probably wondering how they got here from Earth.

Well, I'll show you...

Earlier on Earth: The astronauts prepare to board their spacecraft.

Excited but nervous smiles

Spacesuits

Astronauts sit in this capsule at the top of the rocket.

Fuel tanks and engines

24 Hours in Space



1. Lift Off!

Activities: Make a paper rocket.

Objectives: Understand how the forces of gravity and thrust act upon a rocket.

Make your own rocket like the one on page 13!

You will need: a drinking straw, sticky tape, paper, scissors, a pencil.



Instructions:

1. Cut out the paper rectangle above.
2. Wrap the paper rectangle around your pencil to make a 10cm long paper tube. Secure with sticky tape.
3. Remove the pencil and pinch one end of the paper tube together then secure it with tape so that no air can escape from this end of the tube. This is the body of your rocket!
4. Insert one end of your drinking straw into the rocket.
5. You are going to launch your rocket by blowing on the other end of your straw. 3,2,1 BLAST OFF! How far does your rocket travel?

Observations: The forces of thrust and gravity act upon a space rocket as it shoots upwards. Thrust is the upwards force created by a rocket's engines. Gravity is the force that pulls objects towards the Earth. To get a rocket into space, its engines must provide enough upwards thrust to overcome gravity. Can you use the words 'thrust' and 'gravity' to describe what happens to your rocket after you launch it? How do you think you could make your rocket travel further?

Experiments: How might you change the design of the paper rocket to increase the distance it travels? Look at the picture of the rocket on page 13 for ideas. Perhaps you could make a paper rocket with a pointed end to decrease air resistance? Maybe you could try adding fins at the base to improve stability? Or perhaps you could change the length or weight of your rocket? Experiment with different designs. What do you notice?

Credit - Activity inspired by this tutorial from NASA: www.jpl.nasa.gov/edu/learn/project/make-a-straw-rocket

3. A Space Walk

Activities: Label a spacesuit; illustrate a story about a spacewalk.

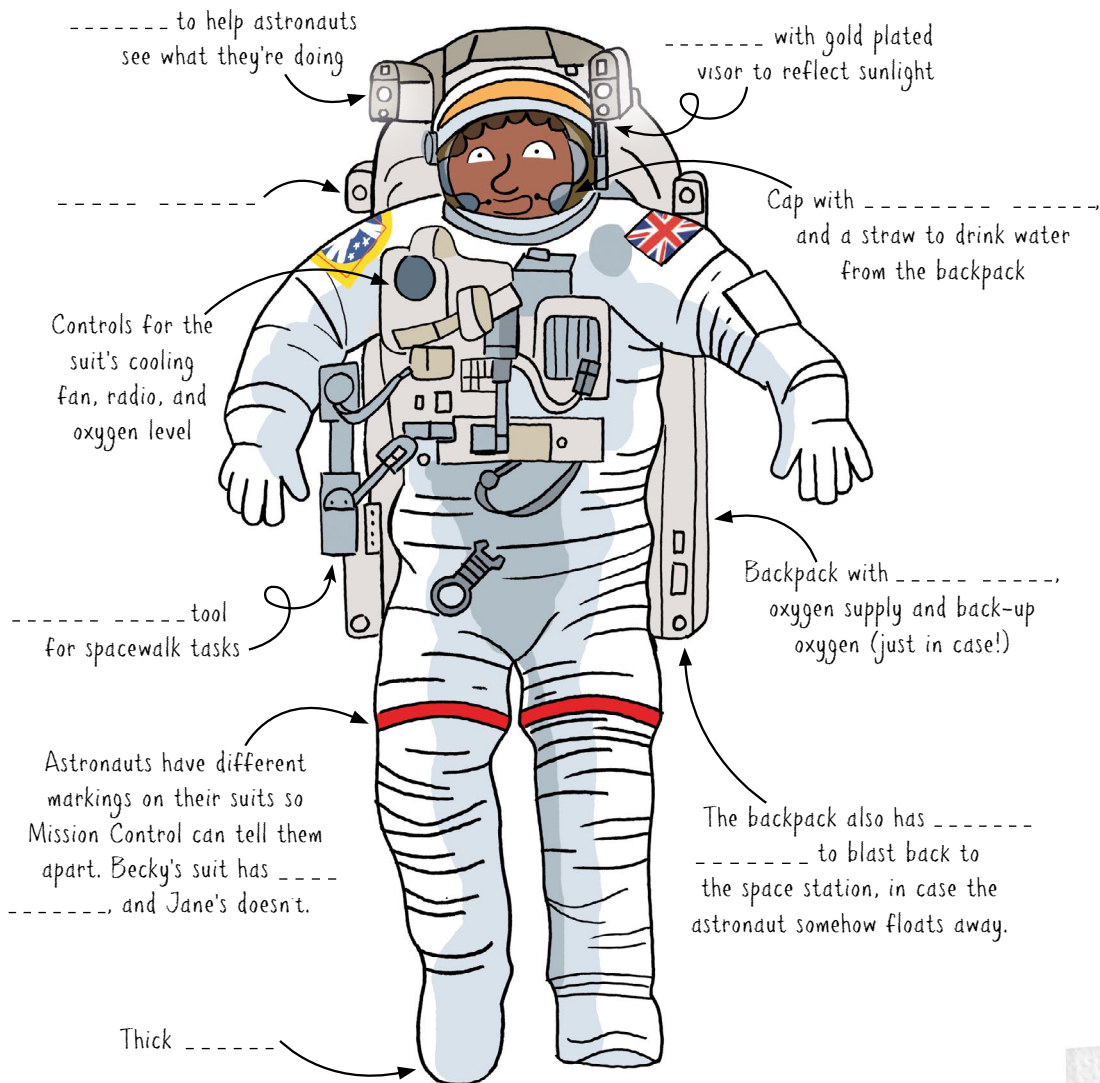
Objectives: Create a short story in graphic novel form.

Activity Part 1: Label a Space Suit

Sometimes astronauts have to go outside of the ISS to carry out a repair or install new equipment. This is called a 'spacewalk'. When an astronaut goes on a spacewalk, they wear a special spacesuit called an Extravehicular Mobility Unit (EMU). Have a look at the picture of an EMU from page 44 below. There are some words missing from the labels. Can you fill in the missing words?

Missing words:

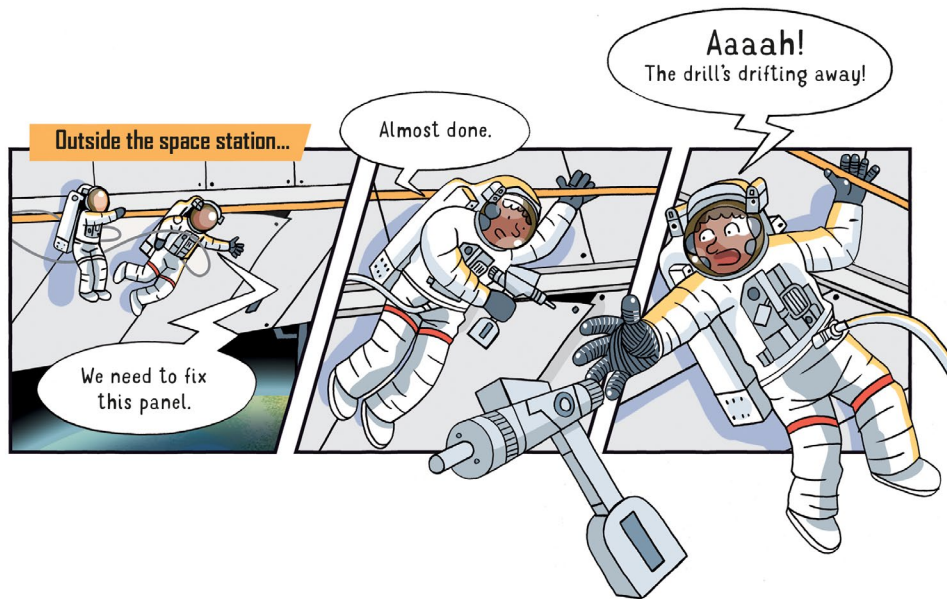
lights, helmet, microphone radio, water tank, rocket thrusters, boots, 'space drill', video camera, red stripes.



What do you think the risks of going on a spacewalk might be? Discuss with your class.

24 Hours in Space

Activity Part 2: Create a Graphic Novel Page about a Spacewalk!



In the illustrations on the front cover of the book, Becky is carrying out a spacewalk. What happens during her spacewalk? How do you think she feels? What do you think might happen next?

Make up a story of your own about a spacewalk! What problems might your astronauts encounter? How might they solve them? Create a graphic novel page of your story using the template below! You can use speech bubbles to show dialogue like the illustrator Laurent Kling does in the book.
