

LOCATION:	TARGET AGE GROUP:
Classroom	KS2
TARGET GROUP SIZE:	DURATION:
10-20 (scale resources for larger group)	Min. 1 hour (ideally 1.5 hrs)

PLPS CITY SCIENCE STARS

Fixture 2: Space Olympics

SUMMARY:

Pupils will learn about the role of spacesuits in space exploration and how these can be made more athletic by adapting ideas from athletic wear to design their own 'SportSuits'. The pupils will then engage in a fact-finding activity to investigate what it would be like to perform different sports on different planets in our solar system. The pupils will then learn about the importance of fitness and exercise for astronauts and they will discuss possible sports that could be played on the International Space Station.

LEARNING OBJECTIVES:

1. To learn about the role of spacesuits in space exploration
2. To learn about the different environments of our solar system's planets
3. To learn about how sports and activities would be different in space and on other planets
4. To learn about the importance of health and fitness for humans, especially astronauts

PRIOR LEARNING AND LINKS TO KS2 NATIONAL CURRICULUM:

- ✓ Pupils will be learning about the planets of our solar system.
- ✓ Pupils will be learning that gravity is a force that pulls people and objects towards the Earth.

PREPARATION AND RESOURCES (ASSUMING GROUP SIZE OF 16):

- ✓ This workshop works best with the use of a computer and projector or a computer-linked smartboard to display the 'SPACE OLYMPICS' PowerPoint slides. If none are available, printouts could be used instead, but these will be less engaging and less environmentally friendly.
- ✓ 4 planet factsheets (Venus, Mars, Saturn, Neptune) and 4x Earth factsheets, pens and pencils, coloured pencils. Print sufficient copies for each group of 3/4 pupils to have one Earth factsheet and one planet sheet. Some planets may be replicated, but ensure each planet is considered by at least one group.

LOCATION:	TARGET AGE GROUP:
Classroom	KS2
TARGET GROUP SIZE:	DURATION:
10-20 (scale resources for larger group)	Min. 1 hour (ideally 1.5 hrs)

ACTIVITY PLAN:

Introductory activity (individual)

1. Briefly discuss the role of spacesuits in space exploration, using the moon landings as an example. Highlight the careful design of a spacesuit to overcome dangers of space.
2. Ask the students to design their own SportSuits for athletic activities in space, noting and labelling key features.
3. Discuss their ideas and write them on the board. Talk about real spacesuits.

Main activity (small groups of 3/4 students)

1. Explain that the Space Olympics Committee is looking to host sporting events on a number of planets in our solar system and would like to know how various sports will be different on each of the planets, taking into account gravity, water state etc.
2. Split the students into small groups and assign each group a planet sheet. Ask the students to read the facts about their planet's environment and write down how the four sports may be different on that planet compared to Earth and why (e.g. easier than on Earth because of lower

gravity or harder due to constant stormy weather). After about 5 minutes, ask the students to pass on the sheets to the next group and do the same for the next planet. Repeat until each group has had a turn with each planet.

3. Ask the questions on the PowerPoint slides and have students use the notes they have made to answer these together in groups and then share their group ideas with the class. Explain each answer and summarise the result of the activity.

Plenary activity

1. Briefly explain why astronauts need to exercise in space and what happens to their bodies if they don't.
2. Ask the students to suggest sports they could play on the International Space Station (ISS), keeping in mind the weightlessness and small spaces involved.
3. Show the clips of the astronauts performing a range of sports on the ISS.
4. Briefly review the learning objectives and propose the take-home challenges.

TAKE HOME CHALLENGE IDEAS:

- Children could tell parents/family what they have learned today and describe/show their SportSuits.
- Prompt them to research about the achievements of Helen Sharman (first British astronaut) with their parents/family.

LOCATION:	TARGET AGE GROUP:
Classroom	KS2
TARGET GROUP SIZE:	DURATION:
10-20 (scale resources for larger group)	Min. 1 hour (ideally 1.5 hrs)

TASK/ASSESSMENT DIFFERENTIATION:

✓ Minimum student goals:

- Identify why spacesuits are needed to survive in space
- Identify effects of different temperatures, gravity and weather on one sport

✓ Target student goals:

- Identify how spacesuits could be improved for sport
- Identify effects of different temperature, gravity and weather on all 4 sports

✓ Further goals:

- Encourage tracking of weekly growth with a ruler and by counting number of blades
- Suggest other sports that might be different on each planet

PUPIL MONITORING AND EVALUATION:

- For the introductory activity, ask the students to provide ideas that can be noted down and shared.
- Gauge student understanding of the planets with the short quiz at the end of the main activity.
- Supervise the tasks and monitor student progress and understanding of the work by asking them questions.

DELIVERY NOTES AND ADDITIONAL SCIENTIFIC INFORMATION:

Key spacesuit talking points

- Pressurised suit to protect astronauts from vacuum of space (causes gas in lungs to expand)
- Visor to protect astronauts' eyes and faces from the strong light and UV rays from the sun
- Maximum Absorbency Garment (space nappy) as there are no toilets in space/on the Moon

Vocabulary:

- Pressurisation, visor, atmosphere, oxygen, vacuum, gravity, ultraviolet, radiation.