

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 5: Match Fit

SUMMARY:

Pupils will learn about the physical and mental skills that footballers and astronauts have in common. They will see an interview with astrophysicist Dr Suzie Imber talking about her astronaut training during the BBC's "Astronauts: Do You Have What It Takes?" television programme. Pupils will then collect data from themselves performing similar astronaut training activities that test skills such as balance, patience and resilience. Pupils will then analyse their data together in groups and as a class to pull out statistics such as minimum, maximum and mean average values. They will also learn about the different types of information that can be collected (numeric vs. descriptive) while discussing their findings.

LEARNING OBJECTIVES:

1. To learn the names and achievements of astronauts, including British astronauts
2. To learn about the physical and mental skills that are shared by athletes and astronauts
3. To work on improving these skills by practising and rethinking their strategies
4. To act as both researcher and participant in a data collection exercise
5. To learn about different types of information and how to analyse these

PRIOR LEARNING AND LINKS TO KS2 NATIONAL CURRICULUM:

- ✓ Pupils will be working scientifically, recording accurate measurements and analysing the results.
- ✓ Pupils will be learning about the importance of physical exercise for health and fitness.

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 'MATCH FIT' PowerPoint slides. If none are available, printouts could be used instead, but these will be less engaging and less environmentally friendly.
- ✓ Skill test equipment (see examples below).
 - Balance boards, buzzwires, goalkeeper gloves, small cubes, stop watches, flexible tape measure, Stroop test cards, rulers, blindfolds or 'upside-down goggles'.
- ✓ Calculators for averaging results
- ✓ Data recording sheet in their lab books

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ACTIVITY PLAN:

Introductory activity 1

1. Ask the pupils if they can name a footballer, then ask them if they can name an astronaut.
2. Briefly talk with them about a few British astronauts (e.g. Helen Sharman, Tim Peake etc.) and show the children the interview with Dr Suzie Imber regarding her time on the BBC 'Astronauts: Do You Have What It Takes?' TV programme.
3. Ask the pupils what kinds of physical and mental skills they think that footballers and astronauts would need to be successful at their respective jobs, and which skills that they have in common.

Main activity (small groups of 3/4)

1. Explain the types of skills tests that the pupils will be taking part in and emphasise that they will need to take accurate personal measurements of each activity.
2. Give each group enough time to complete the activities and then rotate the groups around and make sure that everyone is collecting data as they perform the activities.
3. Ask each group to fill out the data table with their own measurements from each activity.
4. Ask them to think about the different types of information they can gather from this exercise, namely numerical information in the form of their measurements, but also descriptive information in the form of which activities they found easiest or hardest.

5. Ask the groups to analyse their data by calculating the minimum, maximum and mean average results for their group, and then to work out which activities they found to be most difficult.

Plenary activity

1. Ask each group to share any patterns they have found in their data with the rest of the class and to suggest explanations for these.
2. Review the learning objectives and propose the take-home challenges.

TAKE HOME CHALLENGE IDEAS:

- Prompt the children to think about other activities that could be used to test their skills and try them at home.
- Prompt them to research about the achievements of other astronauts (e.g. Yuri Gagarin and Mae Jemison) with their parents/family.

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TASK/ASSESSMENT DIFFERENTIATION:

✓ Minimum student goals:

- Take part in the activities and record some of their measurements (may need assistance)
- Calculate the minimum and maximum values within their group

✓ Target student goals:

- Take part in the activities and record all of their measurements
- Calculate the minimum, maximum and average values within their group

✓ Further goals:

- Discuss the other types of averaging that could be used (mode and median, as well as mean)

PUPIL MONITORING AND EVALUATION:

- During the main activity, monitor the progress of the students and ask them to show you their data.
- During the plenary activity, review the data collected by the pupils and quiz them on which activity was designed to test which skills.

DELIVERY NOTES AND ADDITIONAL SCIENTIFIC INFORMATION::

Vocabulary:

- Numerical, descriptive, qualitative, quantitative, information, resilience, determination, cooperation, communication, accuracy, precision, average, minimum, maximum, statistics.