

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 3: Be A Sport

SUMMARY:

Pupils will learn about how shared and differing characteristics can be used to classify things scientifically, by sorting and grouping sports. Pupils will then develop this into decision trees and classification keys to demonstrate different ways in which things can be classified. Pupils will draw on these ideas by working together to design and play their own table-based sport using limited time and equipment, and then discuss how their own sports are similar or different to the sports they grouped and sorted earlier.

LEARNING OBJECTIVES:

1. To group and sort subjects based on shared or distinct characteristics
2. To learn why classification is a useful tool for many scientists
3. To discuss opinions and justify them with evidence
4. To produce a classification key/decision tree with linked yes-or-no questions
5. To work collaboratively to design and test a playable game with rules

PRIOR LEARNING AND LINKS TO KS2 NATIONAL CURRICULUM:

- ✓ Pupils will likely be familiar with sports but perhaps not all of the sports included in the resources.
- ✓ Pupils will be learning how to classify living things based on observable similarities and differences.
- ✓ Pupils will be learning to work scientifically and to make decisions based on evidence.
- ✓ Pupils will be learning about materials and how this affects their flexibility, strength, hardness etc.

PREPARATION AND RESOURCES:

- ✓ This workshop works best with the use of a computer and projector or a computer-linked smartboard to display the 'BE A SPORT' PowerPoint slides. If none are available, printouts could be used instead, but these will be less engaging and less environmentally friendly.
- ✓ Sports cards
- ✓ Decision tree cards
- ✓ Dry erase pens
- ✓ Sport resources (examples listed below)
 - Balls of various hardness (e.g. table tennis balls, squash balls and golf balls), compostable paper straws, playdough, pipe cleaners

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ACTIVITY PLAN:

Introductory activity

1. Discuss what a "sport" is and ask what the pupils think counts as a sport (e.g. chess and eSports).
2. Hand out the sport cards and ask the pupils to sort them into two or three separate piles based on a shared characteristic, such as whether it is a ball sport or not. Then ask the pupils to sort them again using a different characteristic.
3. Demonstrate, with an interactive example, how things can be classified using yes-or-no questions to form a series of 'branches' in a decision tree.
4. Hand out the decision tree cards and ask the pupils to make their own decision trees using five of the sport cards.

Main activity (small groups of 3/4)

1. Outline the challenge of children designing their own table-based sport using limited time and resources.
2. Ask the groups to nominate one pupil to come and collect the resources for making the sport.
3. Allow them to pick one type of ball initially but make it clear that the ball can be swapped for another sort if it doesn't suit the sport they are designing. Also explain that

while initial resources are strictly limited, the teams can ask for a small amount of additional resources provided they can explain why they are essential to their game. If the request is reasonable, well explained and it will clearly improve the game, then a few additional resources can be granted as the idea is to challenge them but not to limit their creativity.

4. Give approximately 10 minutes to design the game, with an extra 2 or so minutes for testing and alteration.
5. Ask the pupils how they found the challenge, and if they found it difficult to work as a team or to produce a clear set of rules. Compare this experience to working on a scientific experiment, where groups of researchers will work together to test something and then write down what they did so it can be repeated by others.

Plenary activity

1. If there is time, allow each group to briefly summarise their sport's rules.
2. Ask each group to explain how their new sports are similar or different to the sports that they assessed earlier.
3. Briefly review the learning objectives and propose the take-home challenges.

TAKE HOME CHALLENGE IDEAS:

- Recreate and develop their sports at home with their family using household objects and recycled materials.
- Prompt children to discuss with their families what makes a sport and to ask them their thoughts (e.g. chess?).
- Prompt them to research about the achievements of Carl Linnaeus ("father of modern taxonomy") with their parents/family.

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TASK/ASSESSMENT DIFFERENTIATION:

✓ Minimum student goals:

- Group the sports into two categories with one question
- Create a decision tree with three of the sports
- Produce a sport with simple rules (e.g. "You score a point by blowing a ball through a goal.")

✓ Target student goals:

- Group the sports into two or three categories with a few different questions
- Create a decision tree with all five sports
- Produce a sport with clear rules (e.g. includes team rules, clear endpoint, restrictions, etc.)

✓ Further goals:

- Add an additional sport to the tree, which will require a new question to classify it separately.

PUPIL MONITORING AND EVALUATION:

- For the introductory activity, ask the students to provide ideas that can be noted down and shared.
- During the plenary activity, ask the students how they could classify the sport that they have designed.

DELIVERY NOTES AND ADDITIONAL SCIENTIFIC INFORMATION:

Vocabulary:

- Classification, characteristics, attributes, hardness, flexibility, collaboration, materials, accuracy.