

Off-field Curriculum Guide - Year 5-6

MODULE 2
(Session 1, 2)



Ball Bounce

CONTEXT

Bouncing the football (when running with the ball, AFL players are required to bounce the ball every 15 metres.

MATERIALS REQUIRED

- AFL Footballs (Sherrin)
- Chalk
- Basketballs and/or soccer balls
- Tablet computers or phones with a camera
- Rulers
- Protractors

AFL footballs are ovoid in shape, and may bounce at different angles, depending on the part of the ball that strikes the ground. When running with the ball, ideally players want to bounce it so that it returns to their hands. This means that they need to choose carefully how the ball is oriented immediately before the bounce.

This activity requires students to use photography and their knowledge of angles to investigate how to orient the ball before the bounce so that it returns to the player's hands when running.

STEP 1

Take the students to an outdoor area with a hard surface, such as a basketball or tennis court. Arrange the students in groups of at least four. Each group should make a chalk mark on the ground. Ask the students to bounce the Sherrin on the ground, so that the ball hits the mark from different ball orientations: on the sharpest point, on a flatter section, and on a more curved section. Compare the bounce of a Sherrin with that of a round basketball or soccer ball. What do they observe?

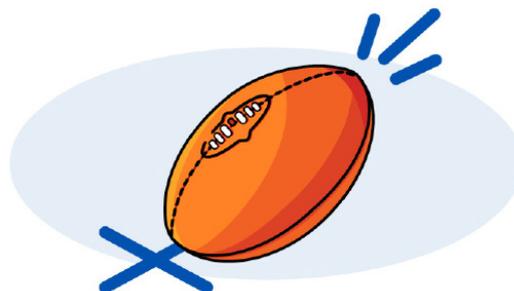
STEP 2

Having practiced bouncing the Sherrin, students use the tablet computers or phones to take photographs of the balls as they bounce. They need to:

- ensure that the ball strikes the marked spot in the different ball orientations;
- allow for the fact that the player is moving forward as the ball is bounced, so the ball should be thrown forward (slightly);
- take the photographs front-on and side-on; and
- check their photos and take more, if needed, to be sure that they get some good shots.

TEACHER TIP

Students may need to take many photos to ensure that they capture the moment just after the bounce. They should be able to draw one line from the player's hands to the spot marked on the ground and a second line from the marked spot to the position of the ball, straight after it hits the spot.



STEP 3

Students should pick the best photographs of each type. After printing these photographs they can use a ruler to draw straight lines on the photograph to track the ball on the downward and upward paths (or use an app that can draw on the photo electronically). Students should use protractors to measure the angle between the straight lines.

STEP 4

Students should prepare a table in their books with three columns that (a) records the part of the ball that hit the ground and the angles at which the ball bounced when viewed (b) from the front and (c) from the side. Students should use this table to predict how a ball will bounce when different parts of the ball strike the ground.



Ask the students to advise an AFL or AFLW player about the best way to bounce the ball. They need to remember that the player is moving forward as he/she bounces the ball. Confirm their findings by viewing some video clips of AFL or AFLW players bouncing the ball during a game. If their findings are incorrect, they should try to explain what went wrong (the most likely explanations are experimental or measurement errors).

How Far?

CONTEXT

Lengths of kicks and handballs (two important skills of AFL)

MATERIALS REQUIRED

- AFL Footballs (Sherrin)
- Markers to show each end of measured lengths of the school grounds
- A range of devices for measuring length such as ruler, metre stick, pacing, trundle wheel, tape measure (at least 15m long).

This activity is intended to determine the best device and units of length to use for Steps 2 to 5. After considering the lengths involved, practicality and required accuracy for each section, students might conclude that:

- For the 2 m length: a metre stick or tape measure is best and the units should be centimetres (although builders would use millimetres for this length);
- For the 10 m length: a tape measure is best and the units should be metres (and possibly centimetres, depending on the accuracy needed); and
- For the 80+ m length, a trundle wheel is best and the units should be metres.
- These devices and units should be the ones selected for Steps 2 to 5.

TEACHER TIP

This activity is about length and could be combined with a PE lesson.



STEP 1

Use markers to mark three straight lines on the school oval (approximately 2 metres, 15 metres and 80+ metres long). Allow groups of students to use a range of measuring devices to measure each section and decide which device is the most suitable for measuring each section. Also ask students to determine which is the most suitable unit of measurement (mm, cm, m or km) to use to show the length of each section. The discussion should give reasons for the students' choices.

STEP 2

Find a straight line in the school grounds (such as a line in a court or playing field or the edge of a paved area) from which the students can kick a Sherrin. Allow the students to practice kicking the Sherrin for a few minutes.

STEP 3

Working in groups of four, students should measure and record the lengths of their kicks, as follows:

- Student A: kicks the ball from the line;
- Student B: marks where the ball first hits the ground (if it is less than two metres, then the student can have another attempt);
- Student C: measures the distance from the line to the marker; and
- Student D: records the measurements.

Students should rotate these roles within the group. Each student should kick the ball 3 times and select their longest kick.

STEP 4

Students should use the Internet to find the length of the AFL playing area at the Sydney Cricket Ground (home of the Sydney Swans) and Tom Wills Oval (home of the Greater Western Sydney Giants). If possible, measure the length of the local AFL oval or the school oval.

TEACHER TIP

This step is intended to find the length of an AFL oval. Note that there is no standard length for an AFL oval, so these measurements are all likely to be different.



STEP 5

Students should calculate how many kicks they would need to move the ball from one end to the other of each of these three ovals. Which do they think would be better for an AFL player: many kicks or fewer kicks? They should explain their decision.

TEACHER TIP

Most people would argue that the ability to kick or handball a longer distance is better, but more important than the answer is the student's reasoning.

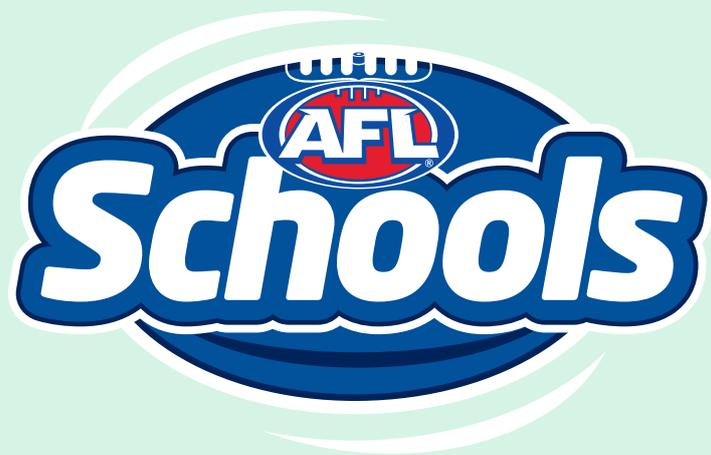


Repeat Steps 2 to 5, this time handballing the Sherrin instead of kicking it.



Curriculum Links

| SESSION | ACTIVITY | LEARNING INTENTION | CURRICULUM LINK | | |
|---------|-------------|---|--|--------------------|--|
| | | | AUSTRALIAN | NSW | VIC |
| 1 | Ball Bounce | Compare angles and classify them as equal to, greater than, or less than, a right angle, Estimate, measure and compare angles using degrees | ACMMG089 ACMMG112 | MA3-16MG | VCMMG174 VCMMG202 |
| 2 | How Far? | Choose appropriate units of measurement for length, area, volume, capacity and mass. Convert between common metric units of length, mass and capacity. Solve problems involving the comparison of lengths and areas using appropriate units | ACMMG108 ACMMG135 ACMMG136 ACMMG137 | MA3-9MG MA3-9MG | VCMMG195 VCMMG222 VCMMG223 VCMMG224 |



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