

Your challenge is to try to give an answer to that question

- in the sport of your choice

or

- across a number of sports.

The electronic files and links provided will help you to explore how much sport depends on mathematics. Use the list of suggested mathematical topics as a guide. Start your exploration in the National Sports Museum itself!

## Australian Football

|                      |                 |
|----------------------|-----------------|
| The game             | Home and away   |
| Scoring              | Finals series   |
| Simulation           | Famous players  |
| Ladder calculations  | Height and mass |
| The League and clubs | Using team data |

## Athletics

|                   |                  |
|-------------------|------------------|
| Track events      | Speed            |
| Speed vs distance | Staggered starts |
| Field events      | High jump        |
| Long jump         | Triple jump      |
| Pole vault        | Throwing         |

## Basketball

|                   |                       |
|-------------------|-----------------------|
| Australian teams  | Scoring               |
| Slam dunk         | Penalty goal shooting |
| Movement on court |                       |

## Cricket

|                         |                                       |
|-------------------------|---------------------------------------|
| Cricket Hall of Fame    | Women's Cricket                       |
| Batting                 | Bradman                               |
| Run rate                | Batting averages                      |
| Bowling                 | Fast bowling                          |
| Bowling averages        | Spin bowling                          |
| Warne                   | Fielding                              |
| Cricket grounds         | Wagon wheels                          |
| Fielding reaction times | Throws and catches in the 'out-field' |
| Scoring                 | Two tied matches                      |

## Cycling

|                              |                       |
|------------------------------|-----------------------|
| Tour de France (Cadel Evans) | Hubert Opperman       |
| Speed and distance           | Velodrome geometry    |
| Bicycle frame geometry       | Gears, cadence, speed |

## Horse racing

|                    |                         |
|--------------------|-------------------------|
| Melbourne Cup      | Pharlap                 |
| Carbine            | Scobie Beasley (jockey) |
| Cummings (trainer) | Handicapping            |
| TAB                | Bookmakers              |

## Swimming

|                            |                         |
|----------------------------|-------------------------|
| Famous Australians         | Distance, times, speeds |
| Wins, records, gold medals |                         |

## Golf

|                           |                  |
|---------------------------|------------------|
| Famous Australian golfers | The golf ball    |
| Choice of club            | Putting          |
| Magnus effect             | Hooks and slices |

## Soccer

|                           |                       |
|---------------------------|-----------------------|
| National Australian teams | World Cup             |
| Goalie                    | Angle kicking at goal |
| Soccer ball geometry      | Famous players        |

## Tennis

|                      |                          |
|----------------------|--------------------------|
| Famous Australians   | Scoring                  |
| Sets and matches     | Serving - angles, speeds |
| Serve swing and kick | Shot angles              |
| Drive, smash, volley |                          |

## SOME MATHS THAT YOU MAY USE

... in life, sport or in school subjects

|                                    |  |                             |
|------------------------------------|--|-----------------------------|
| Add or subtract whole numbers      | Use decimals (\$ or measurements)      | Estimate answers            |
| Use averages                       | Use ratios or rates                    | Order numbers               |
| Use ratios                         | Use proportion                         | Read percentages            |
| Calculate percentages              | Use common fractions                   | Find fractions of something |
| Convert fractions to decimals or % | Use scientific notation                | Use formulas (with letters) |
| Solve equations (mentally/symbols) | Read algebraic graphs                  | Use length measurement      |
| Use time units                     | Use areas                              | Use volume units            |
| Estimate time                      | Estimate speed                         | Estimate capacity           |
| Use mass units                     | Use speed units                        | Estimate distance           |
| Read statistical data              | Calculate statistics (e.g. means)      | Read statistical graphs     |
| Draw statistical graphs            | Understand chance and odds             | Use chance or probability   |
| Use angles or bearings             | Read a map or plan (length, direction) | Create a map or plan        |
| Use a map or plan scale            | Enlarge or reduce a shape              | Find unknown lengths        |
| Read a 2D picture of 3D objects    | Draw a 2D picture of 3D objects        | Use symmetry in design etc. |