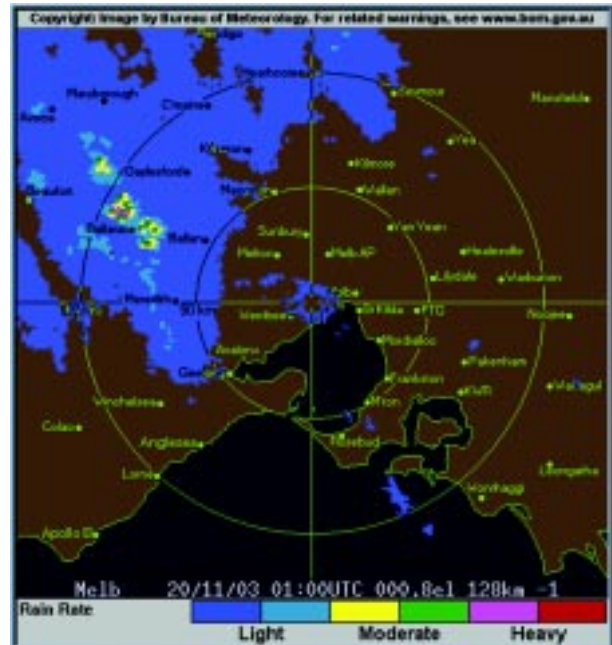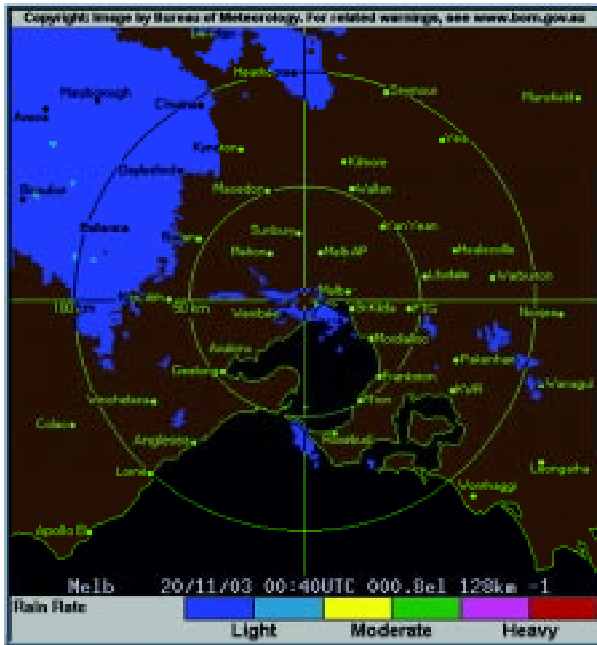# Rialto

## @ LEVEL 55

1. Using the Observation Deck's Weather Station, write down today's Weather Report: (include air temperature, cloud cover, precipitation, wind strength and direction).

2 a) As Melbourne's weather tends to move in from a generally _____ direction, compare the two radar images below. The image on the right is recorded 40 minutes after the left image. Spot the differences in the weather pattern.

2 b) What does the most recent radar image on this page indicate will happen in the next two hours in the city?

2 c) Radar Images provide warning of oncoming cloud and rain. Check the radar image at the computerised weather station at the Observation Deck. If it shows any precipitation within 128 kilometres of Melbourne, look out the window in the appropriate direction to see the actual weather pattern. The distance from the horizon to the deck is 58 kilometres.





**Remaining sturdy is a breeze for the Rialto**

• Record wind speeds – 253kph. Find out how the winds in a cyclone blow.

• Tower sways 250mm at a wind speed of 240kph.

• Whistling noise heard on Level 55: result of air being driven up the lift shaft by the lift, which acts like a piston in a cylinder.

# A PANEFUL PROBLEM

1 a) Count the number of windows on Level 55.

1 b) Calculate how long it takes to clean each window if it takes seven hours to clean the whole floor level.

1 c) As the Rialto has 13,000 windows, how long does it take to clean the entire building?

2. Using the information below, for each floor, work out the average number of staff, stairs, lift doors, windows, and lift travelling distance to the next floor.



Window cleaning equipment was located on Level 55, prior to it being built into an Observation Deck which opened in 1994.

## Tall Tales

- 1450 stairs in the building
- 1254 stairs to the Observation Deck.
- 4000 people work in the tower at any one time.
- Towers stand on 75 huge concrete caissons (legs) attached to rock 20 metres below the building.
- If a kilogram block was dropped from the roof it would take 7.9 seconds to hit the ground at 250 kph.
- Soars 253 metres (823 ft) and is the tallest office building in the Southern Hemisphere.
- Enough carpet to cover the M.C.G four and a half times.
- The building was oriented on an angle to the street to minimise heat gain on the northern face.

## Elevated to new heights

- Approximately 40 seconds to Level 55 in our speedy lifts.
- Speed – 25kph.
- Travels 7.1 metres per second.
- 36 passenger lifts in total in the Rialto Towers.
- 95 kilometres of lift cables.
- 706 lift door openings.

# RIALTO ROOFTOP

1. The rooftop contains radio satellite equipment, Police communications and Channel 7 television's relay station. Discuss with others, then explain what each of these do without repeating the underlined words.

2. Estimate the direction and straight line distance from the Observation Deck to the following places: *(answers below)*

| Landmark and its function | Direction from the Deck | Estimated straight line distance (in kilometres) |
|---|---|---|
| Victorian Arts Centre Spire | | Km |
| Princes Bridge | | Km |
| Spencer Street Station | | Km |
| Melbourne Central | | Km |
| Birrarung Marr | | Km |
| Melbourne Cricket Ground | | Km |
| Law Courts | | Km |
| Shrine of Remembrance | | Km |
| Westgate Bridge | | Km |
| Federation Square | | Km |
| *Your choice no. 1:* | | Km |
| *Your choice no. 2:* | | Km |

# RIALTO'S SCHOOL PROGRAMS

Many school groups include a visit to the Melbourne Observation Deck in their annual curriculum as a way for students to get their bearings.

For further information contact contact the Rialto at:
525 Collins Street Melbourne,
Victoria, Australia 3000

Phone: (03) 9629 8222
Fax: (03) 9614 8231
Email: ob.deck@rialto.com.au
Website: www.melbournedeck.com.au

**Answers to Question 2 above:**

| | | |
|---|---|---|
| Victorian Arts Centre Spire | South | 1 kilometre |
| Princes Bridge | South East | 900 metres |
| Spencer Street Station | West | 350 metres |
| Melbourne Central | North | 1 kilometre |
| Birrarung Marr | South East | 1.2 kilometres |
| Melbourne Cricket Ground | East | 2.5 kilometres |
| Law Courts | North East | 0.5 kilometres |
| Shrine of Remembrance | South East | 2 kilometres |
| Westgate Bridge | West | 5 kilometres |
| Federation Square | East | 0.9 kilometres |

# Telstra Dome

## SCHOOL ACTIVITY SHEET- MATHS- CSF II LEVEL 5



**1. Using the following features of Telstra Dome, select the appropriate unit of measure for each.** (MAMEM 501)

• The area of Telstra Dome's arena is 19, 000 _____.

• Teams like to arrive for a match approximately two _____ and
  30 _____ beforehand to allow for warm-up exercises and preparation time.

• At Telstra Dome, players submerge their bodies in wheelie bins filled with iced water for
  20 _____ to assist with muscle recovery.

• The volume of concrete used in the construction of Telstra Dome is 80, 000 _____.

**2. You are a groundsman who has been asked to show on paper the <u>exact placement</u> of the line markings for an AFL match.** (MASPS 505/ MASPL 503)

The measurements for the markings of an AFL football match at Telstra Dome are below. Using a scale of 1:1000, on a piece of A4 paper accurately mark each of these measurements. Note: Show the dimensions to scale. It is not necessary to draw the lines, only the reference points.

Distance goal to goal = 159m

Width at centre wing = 148m

Size of centre square = 50m x 50m

Distance between arc and goals = 50m

**3. You have been given the task of organising a Rugby League tournament at Telstra Dome.** (MAALE 503/ MARSS 503)

It will take the format of a round-robin where each team plays each other team once. There are two divisions (A & B) and there are seven teams in each division. The winner of each division will play in a final to determine the overall winner of the tournament.

How many games will need to be scheduled for each division?


How many games will need to be scheduled overall?


Show your workings.


# SCHOOL ACTIVITY SHEET - MATHS - CSF II LEVEL 4

**1. Using your map of Telstra Dome and the information on the ticket below, write down the directions for a visitor coming from Spencer Street Station to enable them to find the closest gate entry to the aisle indicated on the ticket.** (MASPL401)



**2. Using a protractor, from each of these points measure the angle required to kick a goal.** (MASPL401)

A _____
B _____
C _____
D _____
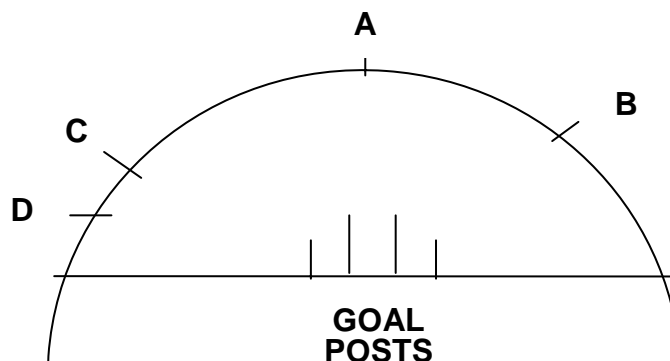
**3. Using a Melways (Maps 2A- 2T) give the reference points for these sporting grounds:** (MASPL405)

Telstra Dome _____

North Melbourne Cricket Ground _____

Melbourne Sports & Aquatic Centre _____

Whitten Oval _____

MCG _____

Victoria Park _____

**4. Fill the gaps in these AFL footy scoreboards.** (MANUN 401/ MANUC 402)

(Goal = 6 points)

| Goal | Point | Total |
|------|-------|-------|
| 4 | 6 | |
| 12 | | 78 |
| | 5 | 71 |
| 5 | 7 | |

| Goal | Point | Total |
|------|-------|-------|
| 13 | 5 | |
| 6 | | 44 |
| 10 | 7 | |
| | 8 | 62 |

**5. Select the appropriate unit of measure for these statistics:** (MAMEM 401)

1. Telstra Dome's roof weighs 4000 _____.

2. Each beer keg holds 50 _____ of beer.

3. The distance between the Southern and Northern goals is 159 _____.

4. The temperature of the fridges is between three and five _____ for drinks to stay cold.

**6. Looking at the centre square of Telstra Dome and with the help of your map, estimate how many centre squares would fit onto the arena.** (MAMEM 402)

**7. Activity:** (MANUN 401)

Doing the weekly stocktake of the fast-food outlets after an event has produced the following results for pie stocks:

| Outlet | Quantity used (box of pies) | Quantity remaining (box of pies) |
|---|---|---|
| A | 7.3 | |
| B | 6.4 | |
| C | | 4.9 |
| D | 7.8 | |
| E | | 5.2 |
| F | | 0.4 |

| Outlet | Quantity used (box of pies) | Quantity remaining (box of pies) |
|---|---|---|
| G | 4.9 | |
| H | | 3.4 |
| I | | 8.7 |
| J | 13.8 | |
| K | | 7.8 |
| L | 14.7 | |

a) Given that 15 boxes of pies are required in each outlet per game, fill in the gaps of the table above.

b) If 130 boxes of pies are needed for a game of football and we always have an extra 42 boxes available, how many full boxes will you need to distribute into each outlet to make sure that we won't run out? Show your workings.

c) Assume each outlet is now fully stocked with 15 boxes of pies. To fill all the fridges after cleaning takes 45 boxes of pies. Each box holds 50 pies. Work out how many pies it would take to fill all the fridges and then work out how many would be used per outlet.

**8. The following table shows figures for Telstra Dome tours over a 12 month period. Using these figures draw a graph to show the trends.** (MACDS 501/ MACDS 502)

From your results, determine the best month to run an advertising campaign to increase attendance for each group. You may run one campaign for all groups in a particular month, or may choose separate campaigns to be run in separate months. Explain your reasoning. You may like to use a bar graph.

**PUBLIC**                                **GROUP BOOKINGS**

| | Adult | Concession | Child | Adult | Concession | Child |
|---|---|---|---|---|---|---|
| July | 128 | 74 | 21 | 24 | 584 | 143 |
| August | 133 | 80 | 9 | 5 | 741 | 162 |
| September | 84 | 82 | 7 | 33 | 541 | 113 |
| October | 139 | 79 | 37 | 13 | 647 | 235 |
| November | 103 | 70 | 9 | 27 | 270 | 405 |
| December | 32 | 34 | 5 | 11 | 42 | 113 |
| January | 167 | 61 | 52 | 18 | 60 | 17 |
| February | 91 | 78 | 22 | 2 | 145 | 93 |
| March | 27 | 71 | 12 | 71 | 271 | 98 |
| April | 76 | 58 | 24 | 4 | 221 | 113 |
| May | 106 | 100 | 11 | 2 | 474 | 364 |
| June | 76 | 73 | 7 | 95 | 471 | 345 |

**9. As the event manager for Telstra Dome, you need to predict the size of the crowd and how many gates to open for an event.** (MACDC 502/ MARSR 503)

You are to run a simulation, by rolling a pair of dice, to work out how many gates should be open. This will determine how many staff to roster on the gates for that event.

**These factors should be considered when running the simulation:**

• Each visitor takes one minute to enter through the gates.
• If there is more than one gate open, people will spread themselves evenly across the open gates.
• To reduce staffing costs and remain within staffing budget, you will need to have the minimum number of gates open.

**Use the grid with examples below to assist you:**

| Minute | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number arriving (Sum of dice) | 4 | 3 | | | | | | | | |
| Number waiting | 0 | 3 | 5 | | | | | | | |
| Number admitted each minute | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Number outside ground | 3 | 5 | | | | | | | | |

a) Complete the first row. Now using these figures, complete the rest of the table. In this simulation what is the minimum number of people to arrive each minute?

b) What happens to the number outside the ground as time passes? Why?

c) What is the average number of people outside the ground per minute?

d) How many booths would you open to reduce the number outside the ground? Why?