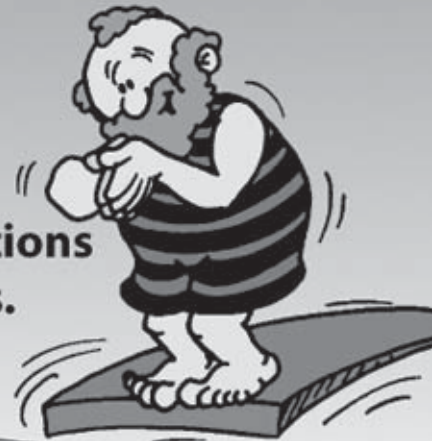


Maths In Sport

Applying mathematics to situations involving a variety of sports.



SAMPLE

Activity 3 Finishing Time

Kim, Lee and Robin ran a 150 metre race. The record for this race was 19.87 seconds. Their times were: Kim - 20.21 seconds, Lee - 19.93 seconds, Robin - 20.34 seconds. Who won? Was the record broken? The fastest time was by Lee, with 19.93 seconds. Robin was second. Kim ran the slowest. The record was not broken, because 19.93 is slower than 19.87. It is slower by 0.06 seconds. For the results listed below, write the list in order of finishing. Was the record broken? If so, by what fraction of a second?

Heat 1			Heat 2		
Lane	Name	Time	Lane	Name	Time
1	Sandy	21.25	1	Kerry	20.86
2	Lee	20.86	2	Pat	19.84
3	Kim	20.41	3	Lennie	21.36
4	Jay	19.88	4	Bobby	20.80
5	Stacy	19.97	5	Nicky	20.11
6	Sam	20.22	6	AJ	20.34
7	Kelly	22.65	7	George	21.65
8	Robin	23.84	8	Janice	21.65

The eight fastest qualifiers will run a final race. Write their names here in order.

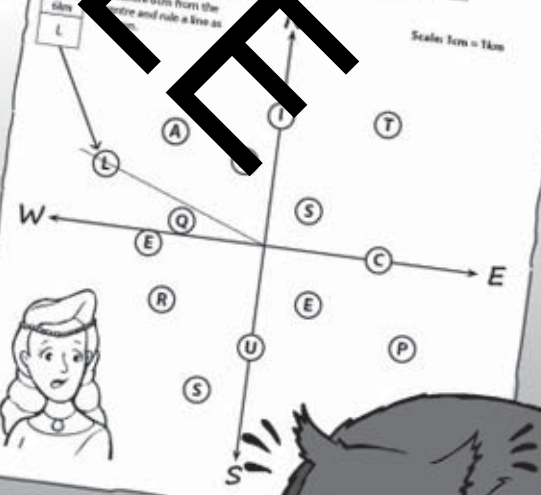
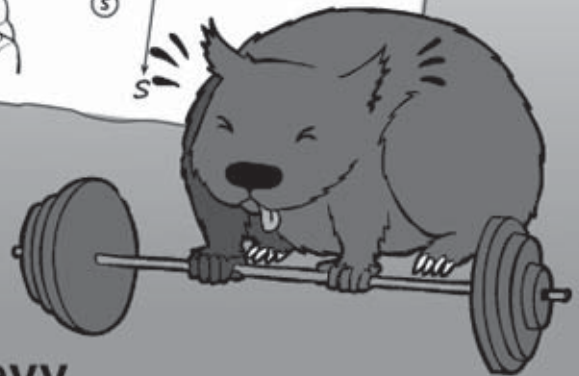
Activity 4 Secret Code 6

Only a few members of the British royal family have ever competed at an Olympic Games, but who was the first. Use your ruler and protractor to measure the clues and so find the letters. Then use them to work out who it was, and in what sport.

1	SSW	N	NNE	E	SE	NE	SSE	SW	WSW	SSW	SE
2	4.5km	4km	4km	2.5km	2km	5.5km	5km	3km	4km	2.5km	4km
3	SSW	SSW	SSE	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW
4	4km	5.5km	4km	4km	4.5km	5km	4km	4km	4km	4km	4km

e.g. Start at L and go 70° to the West. Measure 6cm from the centre and rule a line as shown.

Scale: 1cm = 1km

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A Note to Teachers:

The activities in this book are based on a variety of sports, and each involves a mathematical skill. Some activities are designed to test curriculum material, some are extensions or applications, while others are just for fun.

Many activities are open-ended, and have the potential to be applied to situations in the school or community. Some suggestions are made with this in mind. It is recognised that teachers of mathematics in schools fit many descriptions - some are mathematics teachers, some are teachers who have mathematics classes thrust upon them, and yet others are physical education teachers who teach mathematics. With that in mind, there is something for everyone in this book.

*To assist the teacher in selecting an activity of suitable difficulty, a rating has been given which may be helpful, ranging from *(easy) to ***(hardest).*

Thank you for choosing this book. It is hoped that you and your students will derive a great deal of enrichment and pleasure from its activities.

Skills

Long multiplication, preferably without calculator.

Teaching Points

Locate answers in the code boxes. Fill in letters to decipher the coded message.

$226 \times 14 =$	3164	B	$136 \times 22 =$	2992	S	$632 \times 8 =$	5056	D
$132 \times 10 =$	1320	E	$495 \times 6 =$	2970	H	$317 \times 28 =$	8876	O
$95 \times 18 =$	1710	C	$145 \times 14 =$	2030	W	$141 \times 23 =$	3243	M
$44 \times 71 =$	3124	A	$501 \times 4 =$	2004	N	$449 \times 18 =$	8082	K
$402 \times 15 =$	6030	U	$365 \times 12 =$	4380	T	$307 \times 26 =$	7982	Y
$395 \times 20 =$	7900	F	$249 \times 21 =$	5229	L	$121 \times 64 =$	7744	I

B	E	C	A	U	S	H	E	
3164	1320	1710	3124	6030	2992	1320	2970	1320

W	A	N	T	E	D	T	O	M	A	K	E
2030	3124	2004	4380	1320	5056	4380	8876	3243	3124	8082	1320

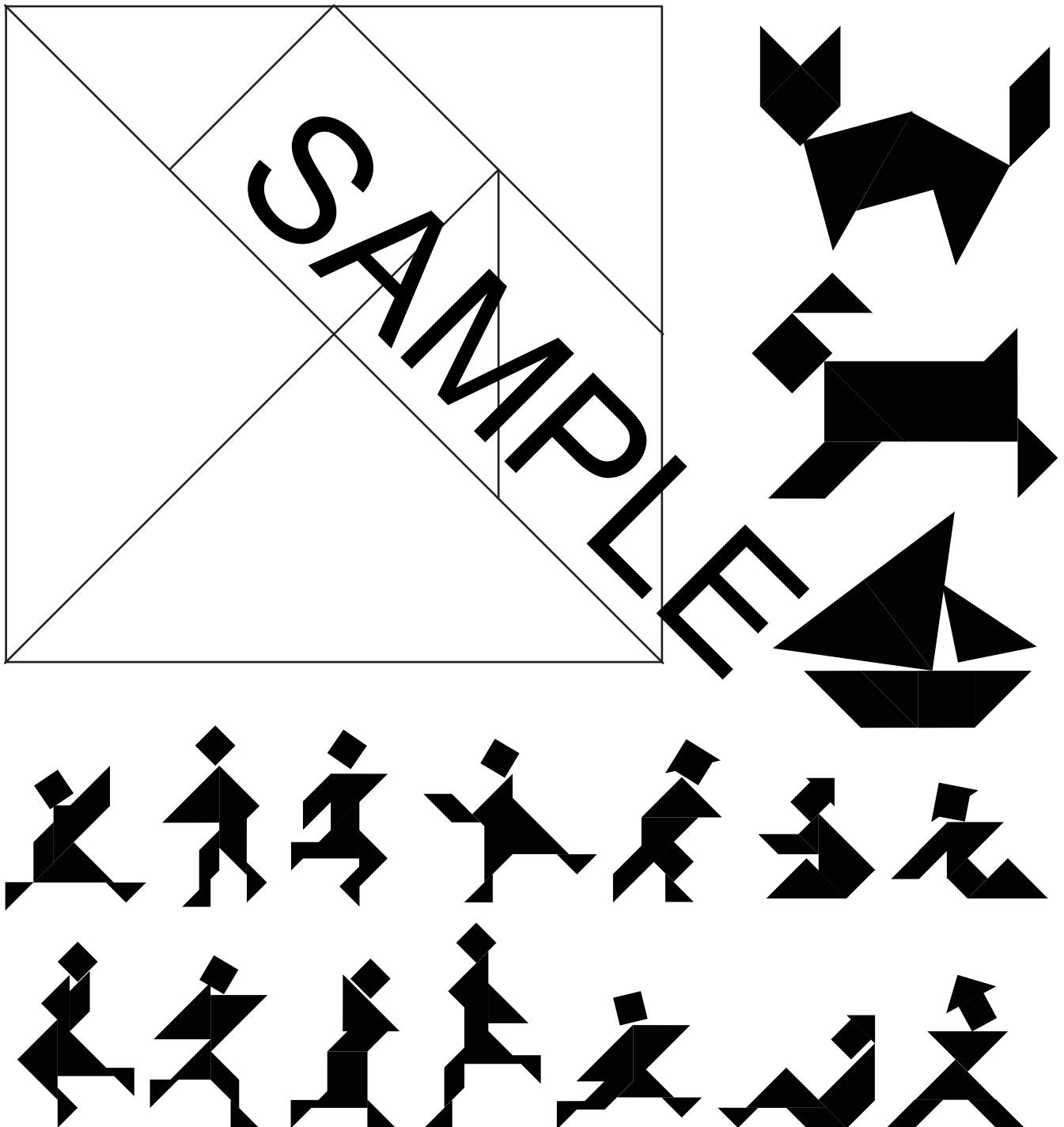
T	I	M	E	F	L	Y
4380	7744	3243	1320	7900	5229	7982



The tangram is a fascinating geometric puzzle dating back hundreds of years - the first books on it were published in China in 1813. Napoleon is known to have passed time playing it during his exile and imprisonment.

Carefully cut out the game pieces. Then use all seven pieces to construct each of the designs shown.

Enjoy playing the game, but be warned - it can be addictive!



Activity

Finishing Times

Kim, Lee and Robin ran a 150 metre race.
The record for this race was 19.87 seconds.

Their times were: Kim - 20.21 seconds Lee - 19.93 seconds Robin - 20.14 seconds.

Who won? Was the record broken?

The fastest time was by Lee, with 19.93 seconds. Robin was second. Kim ran third.
The record was not broken, because 19.93 is slower than 19.87. It is slower by 0.06 of a second.

For the results listed below, write the list in order of finishing.

Was the record broken? _____ If so, by what fraction of a second? _____

Heat 1

Lane	Name	Time
1	Sandy	21.25
2	Lee	20.86
3	Kim	20.41
4	Jay	19.88
5	Stacy	19.97
6	Sam	20.22
7	Kelly	22.65
8	Robin	23.84

Lane	Name	Time
1		
2		
3		
4		
5		
6		
7		
8		

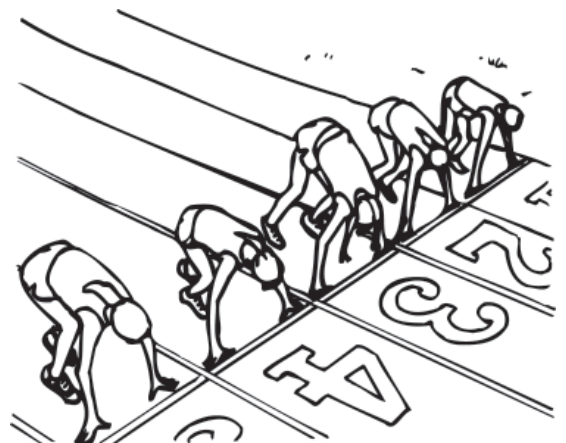
Heat 2

Lane	Name	Time
1	Kerry	20.86
2	Pat	19.84
3	Leslie	21.36
4	Bobby	20.80
5	Nicky	20.11
6	AJ	24.01
7	Ginger	20.74
8	Jackie	21.65

Lane	Name	Time
1		
2		
3		
4		
5		
6		
7		
8		

The eight fastest qualifiers will run the final. List them here in order.

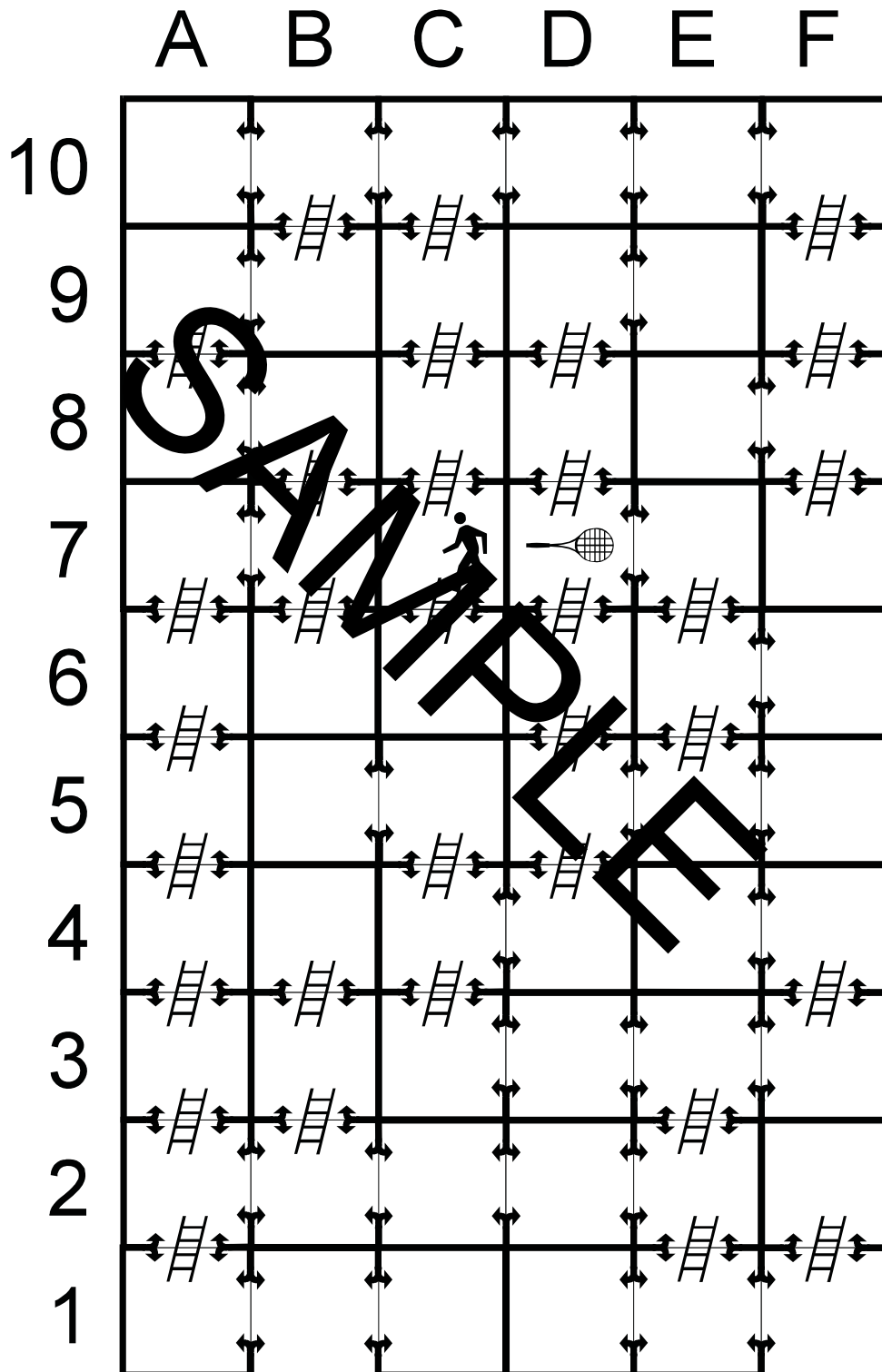
Lane	Name	Time
1		
2		
3		
4		
5		
6		
7		
8		



Maddy's Maze

Maddy is in room 7c of this very strange hotel, and she remembers that she left her tennis racquet next door in room 7d.

- Help her find the shortest way through the maze so she can retrieve it.



- List Maddy's path here: _____

Football League Ladder

- Halfway through last season, the results for the Birdsville Football League were:

Team	Win	Draw	Loss	Points
Magpies	12	0	3	
Hawks	10	2	3	
Swans	5	4	6	
Eagles	4	2	9	
Falcons	4	3	8	
Turkeys	2	5	8	

- Teams are given 2 points for a win, 1 point for a draw, 0 points for a loss. Calculate the points won by each team, and write them in the table above.

Results for the second half of the season were as follows:

Team	Win	Draw	Loss	Points
Magpies		2	6	
Hawks	17	1	3	
Swans	8	0	7	
Eagles	6	2	6	
Falcons	1	6	8	
Turkeys	4	4	7	

- Combine the two halves into one table, to get the seasons results.

Team	Win	Draw	Loss	Points
Magpies				
Hawks				
Swans				
Eagles				
Falcons				
Turkeys				

- In the table below, list the Teams in descending order of Points won for the season.

Team	Points

□ Results of the cross-country event are as follows:

Place	Name	Minutes	Seconds
1	Tom	18	25
2	Fred	18	42
3	Leo	19	48
4	Nick	19	55
5	Andy	20	12
6	Paul	20	42
7	Tony	21	49
8	Mark	22	02
9	David	22	19
10	Ian	23	48
11	Ken	25	10
12	Rob	29	06



a) The course record was 18 minutes 25 seconds. By how much was this record beaten?

b) How much time separated first and last places?

c) How much slower was Ian than Fred?

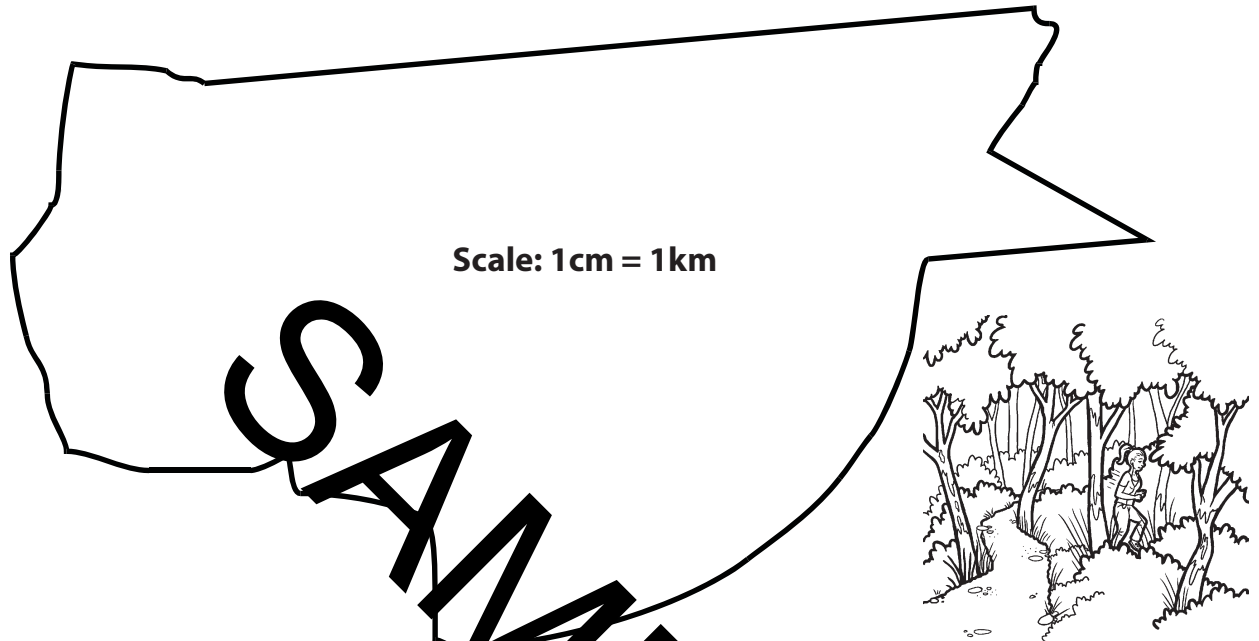
d) Mark was how much slower than Tony?

e) Which two runners were exactly four minutes apart at the finish?

f) David hoped to finish the course in 19 minutes 30 seconds. By how much did he miss out? _____

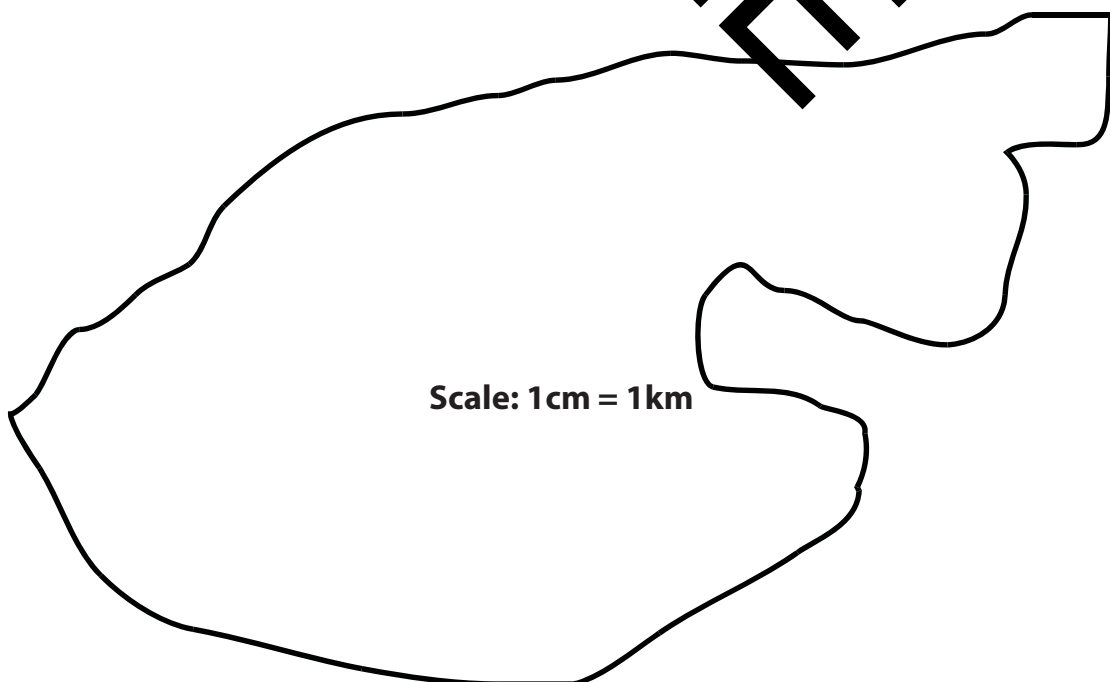
g) Two runners (not consecutive) finished 1 minute 50 seconds apart. Who were they?

- There are two marathon courses shown on this page. As you can see, there is a scale of 1cm represents 1km. But how long are the courses in kilometres?
1. Take a piece of string or fine chain, about half a metre long. Carefully lay it around the track, and then measure with a ruler or tape measure.



Then convert the length from centimetres to kilometres.

- Distance around course 1 = _____
2. Divide the track map into approximately straight sections, and measure them with a ruler. Add the lengths together, then convert from centimetres to kilometres.



- Distance around course 2 = _____

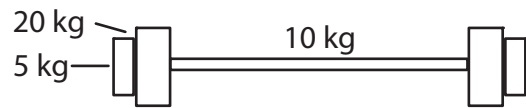
Activity

Pumping Iron

On a weightlifting bar, the weights must be equal on both ends.

Assume the bar weighs 10kg.

To lift 60 kg, (which includes the 10 kg bar), you would need 25 kg on each end.



Find the weight you need on each end of these, to lift:

70kg

100kg

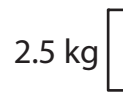
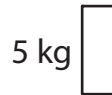
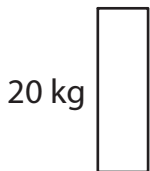
110kg

45 kg

130kg

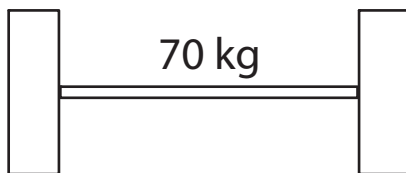
155kg

The weights come in standard sizes. They are

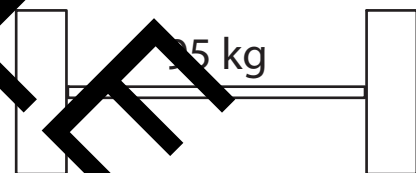


You have a supply of each.

Draw the weights on the ends of each bar. Use the smallest number of weights possible each time, and remember, they must be equal on both ends!



120 kg



150 kg



You will need more room for these!

Draw these weights on another piece of paper:

A. 180 kg

B. 135 kg

C. 190 kg

D. 200 kg

