

# A Mathematical Project for Students

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## **INSTRUCTIONS TO STUDENTS**

- The purpose of this unit of work, based on the theme "In Training for the Olympics", is to help you to revise your mathematics in the context of a problem-solving activity.
- Diagrams in this book are not drawn to scale. Use the measurements on each of the diagrams in your calculations.
- Use the answers to the clues to complete the crossword on the last page of this book.

# A NOTE TO TEACHERS AND PARENTS

• It has been found that this activity occupies a Junior Secondary student for approximately one week including class time and homework.

#### Five good reasons to use this project with your students.

- Bring mathematics to life with this project
- Introduce new topics and revise work
- Provide extra work for mathematically gifted students
- Give a sense of achievement to students who find mathematics difficult
- Classroom trials show that students love doing this project

#### Knowledge needed to train for the Olympic Games

- fractions addition, subtraction, multiplication, division square pyramid
- measurement centimetres, metres
- perimeters and areas of triangles and rectangles
- angles acute, obtuse, right
- angles in a straight line = 180°
- sum of the angles in a triangle = 180°
- plotting positive values on the X and Y axes
- like terms
- substitution
- addition and subtraction of pronumerals
- cube
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- isosceles triangle
- triangular prism
- hexagon
- cuboid
- percentage
- column graphs
- number puzzles
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| Mv | name | is |  |
|----|------|----|--|
| -/ |      |    |  |

| • | I set | out to | discover | some | Olym | pic | facts |
|---|-------|--------|----------|------|------|-----|-------|
|---|-------|--------|----------|------|------|-----|-------|

| at (time)_ |  | <br> |
|------------|--|------|
|            |  |      |
| on (day)   |  | <br> |

| date |
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|------|

• I found the names of the cities that have hosted the Olympic Games

| at ( | time) |  |
|------|-------|--|
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on (day)

date \_\_\_\_\_

• The time taken to solve the problems and to complete the crossword was

Solve the clues 1 - 6 and find the name of a city that has hosted the Olympic Games.

#### CLUE 1.

What fraction of the following diagram is shaded?

.....

Write the answer you have found in the box below.

#### CLUE 2.

The largest fraction out of  $\frac{2}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{6}$ ,  $\frac{7}{12}$  is

.....

.....

.....

Write the answer you have found in the box below.

Did you know that the first recorded Olympic Games took place at Olympia in Greece in 776 BC?





CLUE 2

CLUE 1

CLUE 3.  $\frac{5}{6} - \frac{2}{3}$  equals

Write the answer you have found in the box below.

#### CLUE 4.

$$\frac{3}{8} \times 1\frac{5}{9}$$
 equals

.....

Write the answer you have found in the box below.

Did you know that Australia won only one medal at the 1936 Olympic Games? It was a bronze medal won by Jack Metcalfe for the triple jump.





CLUE 4

#### CLUE 5.

$$1\frac{1}{3} \div 5\frac{1}{3}$$
 equals

------

Write the answer you have found in the box below.

CLUE 5

#### CLUE 6.



| •••••  |   |   | ••••••       | ••••• |
|--------|---|---|--------------|-------|
|        |   |   |              |       |
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|        |   |   |              |       |
| •••••• | • | • | •••••••••••• | ••••• |

Write the answer you have found in the box below.

CLUE 6



Did you know that the East Germans dominated women's swimming at Montreal by winning 11 gold medals from 13 events?

- The answer to Clue 1 can be represented by the letter . . . .  ${f U}$
- The answer to Clue 2 can be represented by the letter  $\ldots T$
- The answer to Clue 3 can be represented by the letter  $\ldots$  .
- The answer to Clue 4 can be represented by the letter  $\ldots$  .S
- The answer to Clue 5 can be represented by the letter . . . . L
- The answer to Clue 6 can be represented by the letter . . . . **I**

Complete the following table to find a city that has hosted an Olympic Games.

| $\frac{7}{12}$ | $\frac{2}{3}$ | $\frac{1}{4}$ | $\frac{1}{6}$ | $\frac{5}{16}$ | 2 | $\frac{7}{12}$ |
|----------------|---------------|---------------|---------------|----------------|---|----------------|

- This is the solution to **4 across** in the Olympic Crossword at the back of this book.
- Fill in **4 across** in the Olympic Crossword.



Did you know that the men's Decathlon is a contest made up of ten athletic events - 100 m, long jump, shot put, high jump, 400 m, 110 m hurdles, discus, pole vault, javelin and 1500 m?

|     |    |     |     |     |    | 1. |     | 2.  |     |     |     |     |  | 21. |  |
|-----|----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|--|-----|--|
|     | 3. |     |     |     | 4. |    |     |     |     | 5.  |     |     |  |     |  |
|     |    |     |     | 6.  |    |    |     |     |     |     |     |     |  |     |  |
|     | 7. |     | 8.  |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    |     | 9.  |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    |     |     |     |     |     | 10. |  |     |  |
|     |    |     |     |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    | 11. |     |     |     |     |     |  |     |  |
|     |    |     |     |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     |     | 12. |    |    |     |     |     |     | 13. |     |  |     |  |
|     |    |     |     |     |    |    |     |     |     | 14. |     |     |  |     |  |
| 20. |    |     |     |     |    |    |     | 15. | 16. |     |     |     |  | 17. |  |
|     |    |     |     |     |    |    |     |     |     |     |     |     |  |     |  |
|     |    |     | 18. |     |    |    |     |     |     |     |     |     |  |     |  |
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|     |    | 19. |     |     |    |    |     |     |     |     |     |     |  |     |  |
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