Crossword Maths Vol 1

Intelligent Australia Productions

This book is dedicated to:
Max

Intelligent Australia Productions is committed to raising standards
in Literacy and Numeracy in Australian schools.

- <u>Postal Address</u>

IAP
PO Box 670
Hillarys, WA
Australia 6923

- <u>Email</u>

iap_books@yahoo.com

- <u>Telephone</u>

(08) 9307 8365   Int'l (618) 9307 8365

- <u>Fax</u>

(08) 9402 2339   Int'l (618) 9402 2339

Intelligent Australia Productions is committed to raising standards in Literacy and Numeracy in Australian schools.

Teachers' Notes

Over hundreds of years, across many lands, Crosswords have combined successful learning with fun.
The sense of achievement in solving a clue is surpassed only by the successful completion of the crossword itself.

The puzzles in this book -designed to reinforce mathematical terms, concepts and skills- provide a fun alternative to traditional maths revision activities.

The book provides students with a new, effective method of consolidating maths concepts that cover a broad spectrum of the curriculum.
There is a crossword to consolidate almost every Maths concept.

There are 16 puzzles, designed to cater for students of all abilities.
The puzzles are of varying degrees of difficulty:
easy ★   medium ★★   challenging ★★★   very challenging ★★★★

There are crosswords on Problem Solving where students are required to use their higher thinking skills (sequential and logical) in order to arrive at the correct solutions.
Fraction, Decimals and Percentages, with conversions between each, feature prominently.
Other crosswords cover Order of Operations, Space, Time, Money and Measurement.

Solutions to all puzzles are included.

Mathematical strands covered by the Crosswords in this book.	
• *Problem Solving*	• *Fractions, Decimals and Percentages*
• *Money*	• *Time*
• *Roman Numerals*	• *Measurement*
• *Space Plane Shapes*	• *Order of Operations*
• *Squares and Square Roots*	• *The Four Operations*
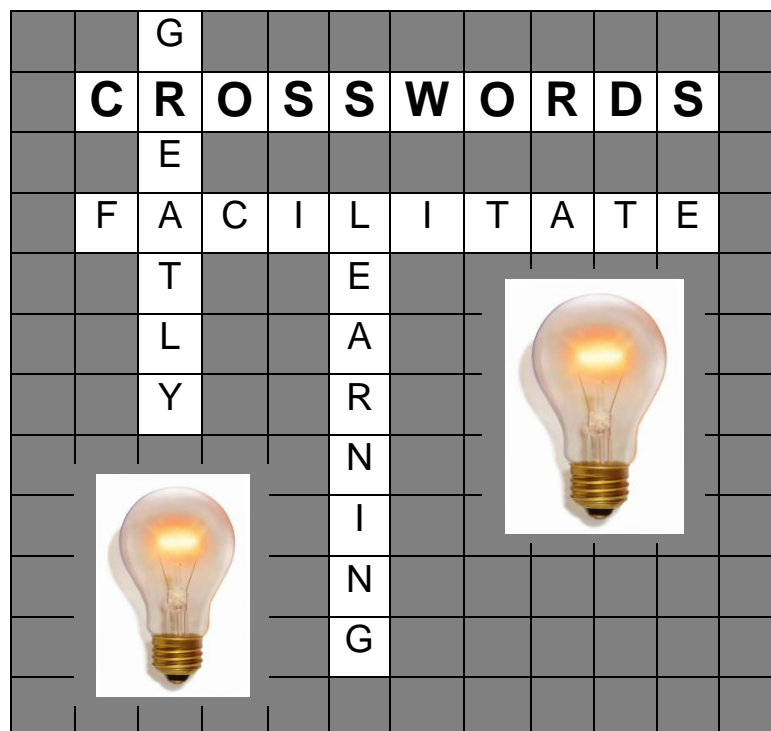
Learn well. Have fun!

The Editors,
Intelligent Australia Productions

Contents

About 'Some Real Testers'

Description:

'Some Real Testers' is a 44-clue problem-solving crossword covering many maths topics and concepts.
Some of the questions are very challenging and will test even the most able students.
Many questions require the student to think logically.
This crossword cannot be completed quickly; an entire maths lesson may be required for its completion.

Which students will benefit most from doing this crossword?:

Students who have learned all the concepts shown on the following page.
Also suitable for capable/ gifted students who may not have covered all these concepts. Excellent revision for older students.

Level of Difficulty:

Very challenging

10 Concepts/Topics Covered in 'Some Real Testers'

Squared numbers

Cubed numbers

Fractions

Percent

Ratio

Your students will encounter each of these concepts/topics in the crossword.

Roman Numerals

Mass

Linear Measure

Money

Time
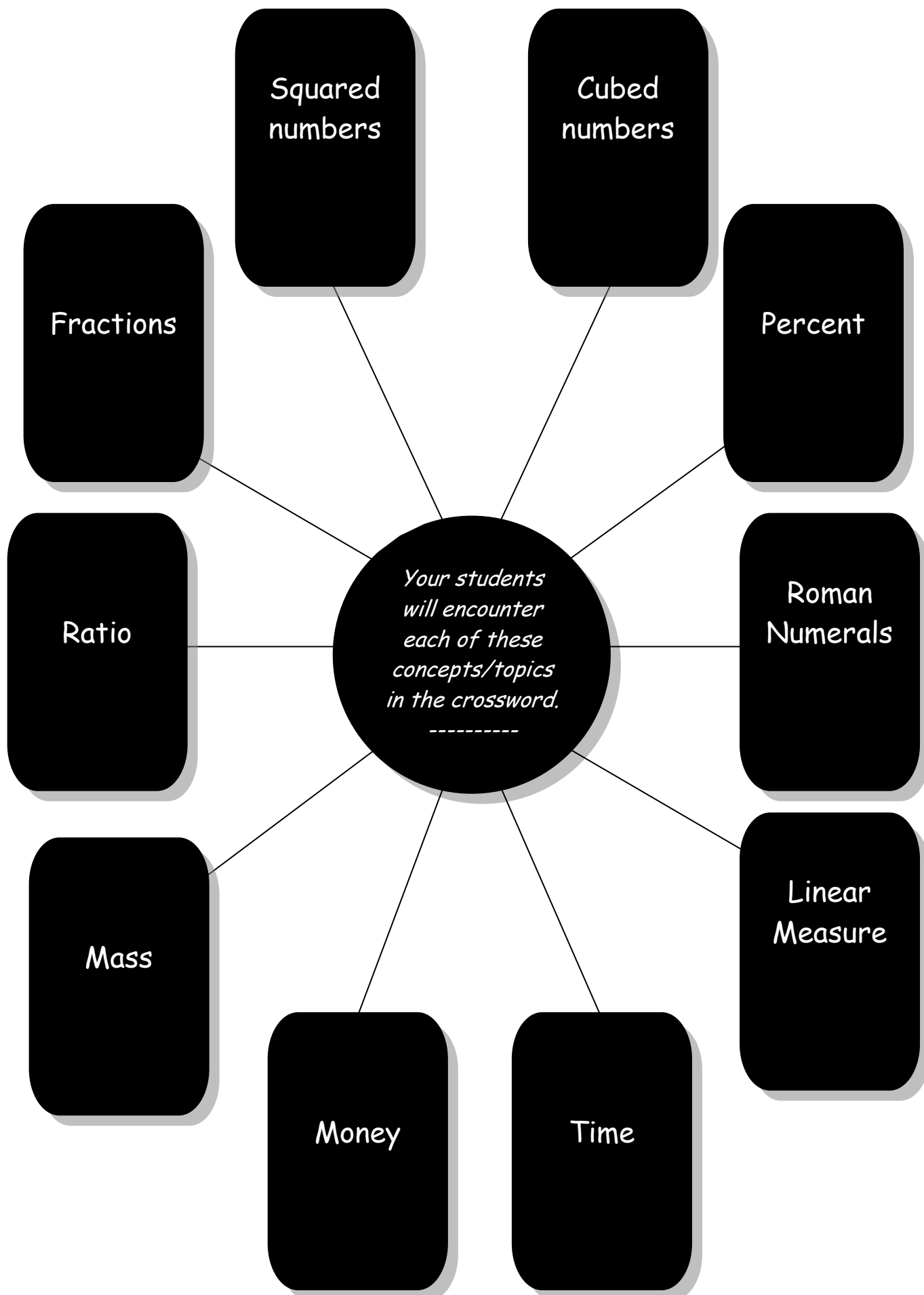
Some Real Testers

Level of difficulty ★ ★ ★ ★
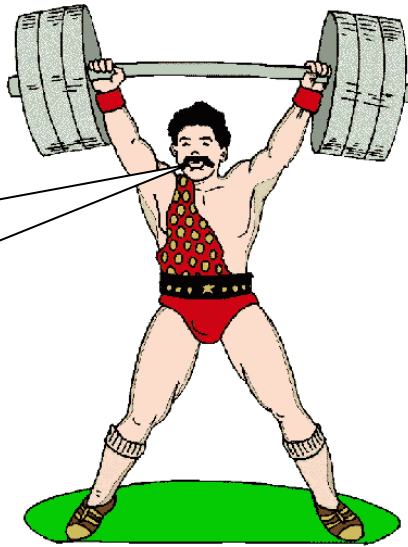
There are some weighty ones here!

Across

1) Harry has half as many comics as Lisa who has a quarter as many as Tom. Tom has 16 comics. How many comics does Harry have?

2) James, Peter and Danny caught 15 fish altogether.
The fish that Peter caught were small.
James caught twice as many fish as Danny who caught two large fish. Which of the three boys caught the most fish?

5) Three friends, Suzie, Annie and Julia competed in a 100m running race against six other girls. Annie finished ahead of three girls, Suzie came third in the race and Julia was two places behind Suzie. Which of the three friends had as many girls ahead of her as behind her at the end of the race?

10) There are sixteen people at Lucy's birthday party. Lucky Lucy has, not one, but two birthday cakes (same kind, same size). For each person at the party to receive the same amount of cake each cake will need to be cut into _ _ _ _ _ _ _?

11)
3 x 6 = 18 and 6 + 6 + 6 = 18. From this we can see that multiplication is simply repeated _ _ _ _ _ _ _ _?

13) A 1-litre jug is ¼ full of water. How many glasses each containing 250 ml water are needed to fill the jug?

14) The combined age of Deb, Liz and Eli is 36.
Eli is twice as old as Liz who is 4 years older than Deb.
Which girl's age is 1 more than ¼ of the girls' combined age?

16) Roz, Fay and Ann were going to see a movie.
Roz arrived at the cinema 10 minutes early, Fay arrived on time and Ann arrived 10 minutes late. If the girls had agreed to meet at 2pm who arrived 900 seconds after 1.45pm?

17) Charles has saved $95 towards a new BMX bike. If the bike costs $335 and Charles is able to save $30 per month how many months must pass before Charles has enough money to purchase the bike?
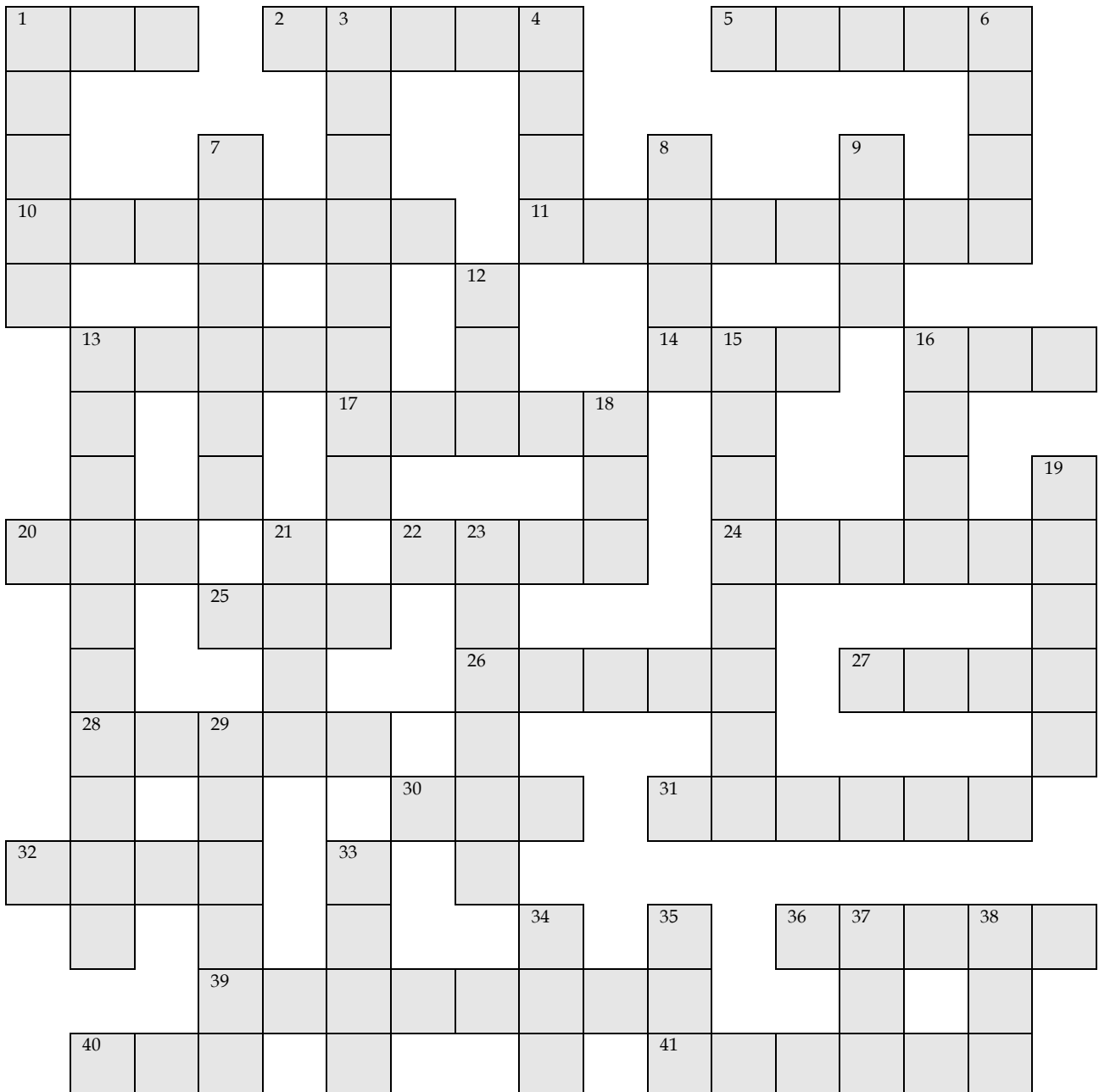
20) What number is four times a quarter of its square?

22) How much is twice $(5^2 - 4^2 - 3^2)$?

24) If Trevor is twice as old as Robert, Walter is three times as old as Steven (who is 12), and Trevor is half Walter's age, whose age is ¼ of Walter's?

25) Ted, Bob and Dan all sat for the Astronaut Theory Test. Ted's score of 80% was the highest, Bob scored 75% and Dan scored 60%. Who had a score which was ¾ as much as Ted's?

26) Cherie and Wanda split $50 in the ratio 2:3. Who received $30?

27) Mike and Jeff caught 20 fish together. Jeff caught 60% of the fish. Who caught twelve fish?

28) If Josie is 30% of Nan's age and Josie is 15, how old is Nan?

30) 3^3 divide by 27.

31) If overweight Uncle Bill wishes to average exactly 2kg per week weight loss and he's lost 8kg in 3 weeks does he need to reduce or increase his rate of weight loss?

32) What is the only 30-day month with 4 letters?

36) If Liz is ½ of Jill's age, Clare is ¾ of Liz's age and Clare was born after Anna who is the youngest?

39) A word meaning 'reduce'.

40) Amy, Bec, Tess and Jan have $15 between them. Bec has 20% of the $15, Amy 40%, Jan 10% and Tess 30%. Which girl has $6?

41) From January to August Matthew earned $360 doing small jobs for neighbours.
Then he spent $40 on a basketball, $50 on a tracksuit and $180 on a pair of basketball shoes.
How many dollars did he have left?

Down

1) Betina's pet rabbit, Flopsy, eats ¼ carrot in 45 seconds. How many minutes does she take to eat the whole carrot?

3) Alexander's goldfish have increased in number. Three of the original eight goldfish died but the remainder doubled in number then doubled again. Two fish since died. How many goldfish does Alexander now have?

4) Gail, Tina and Rosa spent a total of $40 on birthday gifts for their friend Hannah. Gail contributed 20% of the total, Tina's share was $15 and Rosa contributed the remainder. Whose contribution was the greatest?

6) Liam, Alan and Kent scored half of their team's 84 points in a basketball match.
Alan scored twice as many points as Liam who scored twice as many points as Kent.
Which boy scored 24 points?

7) A man rode his motorcycle 90 kilometres in one hour.
At this speed how many kilometres would he travel in 20 minutes?

8) "How do I write 1650 in Roman Numerals?" asked Jack.
"Like this", replied Cherie.
What did Cherie write?

9) Mr Perkins' hens each laid four eggs a week over 4 weeks. At the end of the four weeks Mr Perkins had collected 96 eggs. How many hens does Mr Perkins have?

12) Gil, Bob, Reg and Tim had a 100m running race. Tim's time was 15.5 seconds, Bob's times was 0.5 seconds slower than Tim's, Reg took 1.1 seconds less than Tim and Gil finish 1 second behind Reg. Whose time was 90% that of Bob's?

13) Briana is 150cm tall. Her friend Julia is 10% taller again than Briana. Chelsea, Briana's little sister, is 80% of Briana's height. Olivia, Julia's little sister, is 21cm shorter than Julia. How many cm shorter than Olivia is Chelsea?

15) A word meaning 'add to'.

16) Ruby was clever at Maths. She worked out that 20% of 20% of a certain number is 0.2.
What is the number?

18) How many quarters are there in 25% of 2?

19) Jules, Nadia and Steff saved $50 altogether. Jules saved ¾ as much as Nadia.
If Nadia saved $24 which girl saved the least?

21) If Matt weighs 63kg, John 68kg and Bill 58kg which of them weighs exactly 1/3 of their combined weight?

23) Edward and his twin Edwina sent a total of 36 emails during the month of March. Edwina sent 7/12 of the emails. Who sent 21 emails during March?

29) Thomas, Freddy and Justin collected 126 swap cars altogether. Thomas collected 1/3 of them and Freddy collected 1/3 as many as Justin. Who collected 21 cards?

33) If John is twice as heavy as Jake, and Jake is $^1/_3$ as heavy as Jock, who is the heavier?

34) Tom, Tim, Dan and Bob have 60 goldfish altogether. Dan has 5 less than Bob who has 1/3 of the total number. Tom has 3 more fish than Tim. Who has exactly ¼ of the goldfish?

35) Jen is 2^3 years old and Lil is 3^2 years old. Which girl is younger by 1 year?

37) The combined height of Nat, Gav and Lee is 480cm. Lee is 2cm taller than Gav. Nat is 160cm tall. Which boy is the taller of the three?

38) Roy, Rob and Ron ran 24km in total. Ron ran $^1/_3$ of the 24km and Roy ran slightly less than Rob. Who ran the least distance?

About 'Fraction Fundamentals'

Description:

*''Fraction Fundamentals' is true to its name. This 22-question crossword addresses the terms **numerator, denominator, equivalent** and **wholes**. Students are required to perform basic additions and subtractions involving fractions, convert fractions to equivalents with new denominators and find the missing part of a fraction when given the other part.*

Which students will benefit most from doing this crossword?:

- *Students who have recently had lessons in the first principles of Fractions.*
- *Those who require consolidation in order to master the above.*
- *Younger, bright students who have had little exposure to fractions.*

Level of Difficulty:

Easy

10 Concepts/Topics Covered in 'Fraction Fundamentals'

Equivalent Fractions

Parts of a fraction

Wholes

Simplifying fractions

Sharing as division

Your students will encounter each of these concepts/topics in the crossword.

Subtract a fraction from one whole

How many of this fraction in two or more wholes?

Find missing numerator

Find missing denomin'

Ranking fractions: lowest to highest
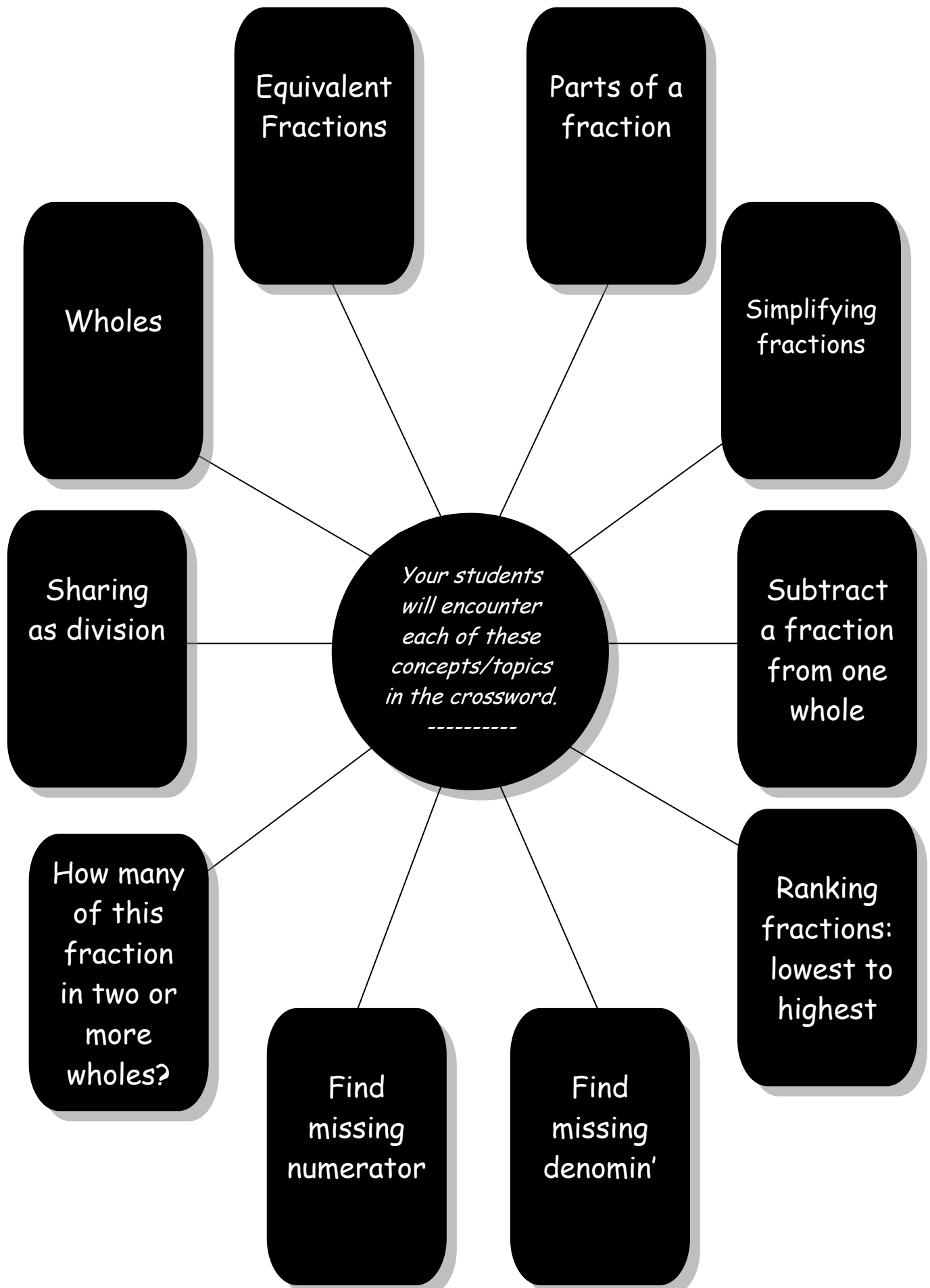
Fraction Fundamentals

Level of difficulty ★

The word 'fraction' means 'part of one whole'. It's written as one number divided by another.
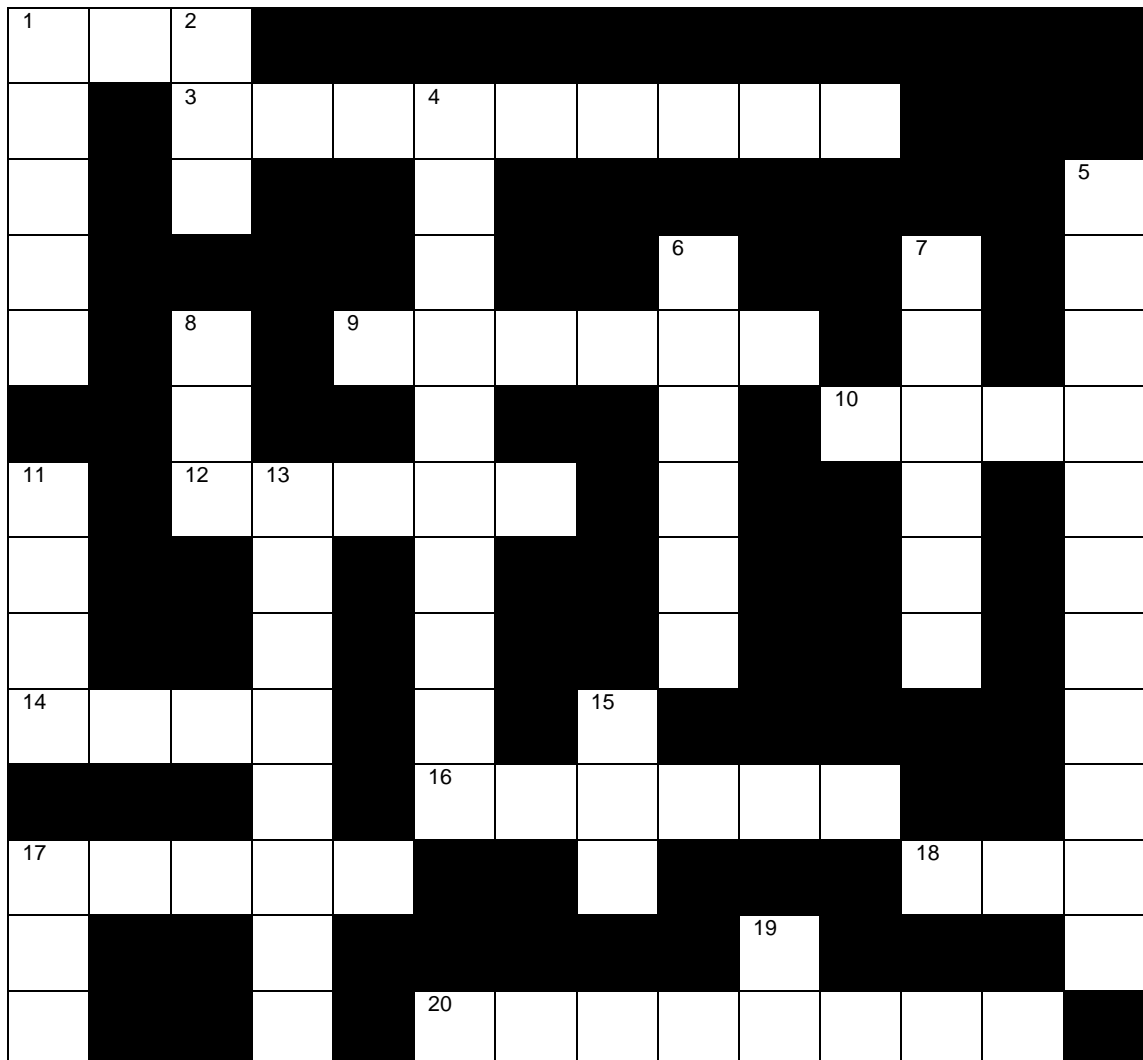
Challenge

Put these fractions in order, from lowest to highest:

$$\frac{1}{4} \quad \frac{7}{8} \quad \frac{1}{8} \quad \frac{2}{5} \quad \frac{5}{8} \quad \frac{9}{10} \quad \frac{1}{2} \quad \frac{3}{4} \quad \frac{1}{10}$$

Across

1. How many thirds equal four sixths?

3. The name given to the upper number in a fraction.

9. Five of these make one whole.

10. The result when 1/3 is subtracted from 2/6.

12. Equivalent fractions means _ _ _ _ _ fractions.

14. This many tenths equal two fifths.

16. How many sixtieths equal one half?

17. How many eighths equal six sixteenths?

18. How many sixths equal half of two thirds?

20. You need eight of these to make four sixths.

Down

1. How many halves equal one and a half?

2. This many sevenths equals two fourteenths.

4. If two or more fractions are equal we say they are…..?

5. The name given to the lower part of a fraction.

6. If a cake is cut into three equal parts we say it is cut into……?

7. If a fraction has this number as the numerator and 22 as the denominator it is equal to one half.

8. How many oranges do I need if I want to give each of eight people 1/8 of an orange?

11. What fraction of a class of 28 students are boys if 14 are girls?

13. Three of these equal six eighths.

15. How many halves equal three wholes?

17. If the denominator is 3 what must the numerator be to give a fraction equal to $^4/_6$?

19. Improper Fraction *initials*

About 'The Roman Number System'

Description:

''The Roman Number System' is a 137-clue crossword covering everything to do with Roman Numerals.
All Roman Numerals to 1000 are involved, i.e.
1=I, 5=V, 10=X, 50=L, 100=C, 500=D and 1000=M.
Some of the questions are very challenging and will test even the most able students.
At least one whole maths lesson will be required for the crossword's completion.
If not completed in class the crossword may be finished for homework.

Which students will benefit most from doing this crossword?:

All students who have learned Roman Numerals to 1000=M.

Level of Difficulty:

Challenging

10 Concepts/Topics Covered in 'The Roman Number System'

Never more than three of any symbol in succession

'Lesser value' numeral in front means subtract

'Higher value' numerals usually come first

'Lesser value' numeral behind means add

Your students will encounter each of these concepts/topics in the crossword.

1=I
5=V
10=X
50=L
100=C
500=D

IV=4
V=5
VI=6

XL=40
L=50
LX=60

CM=900
M=1000
MC=1100

XC=90
C=100
CX=110

CD=400
D=500
DC=600
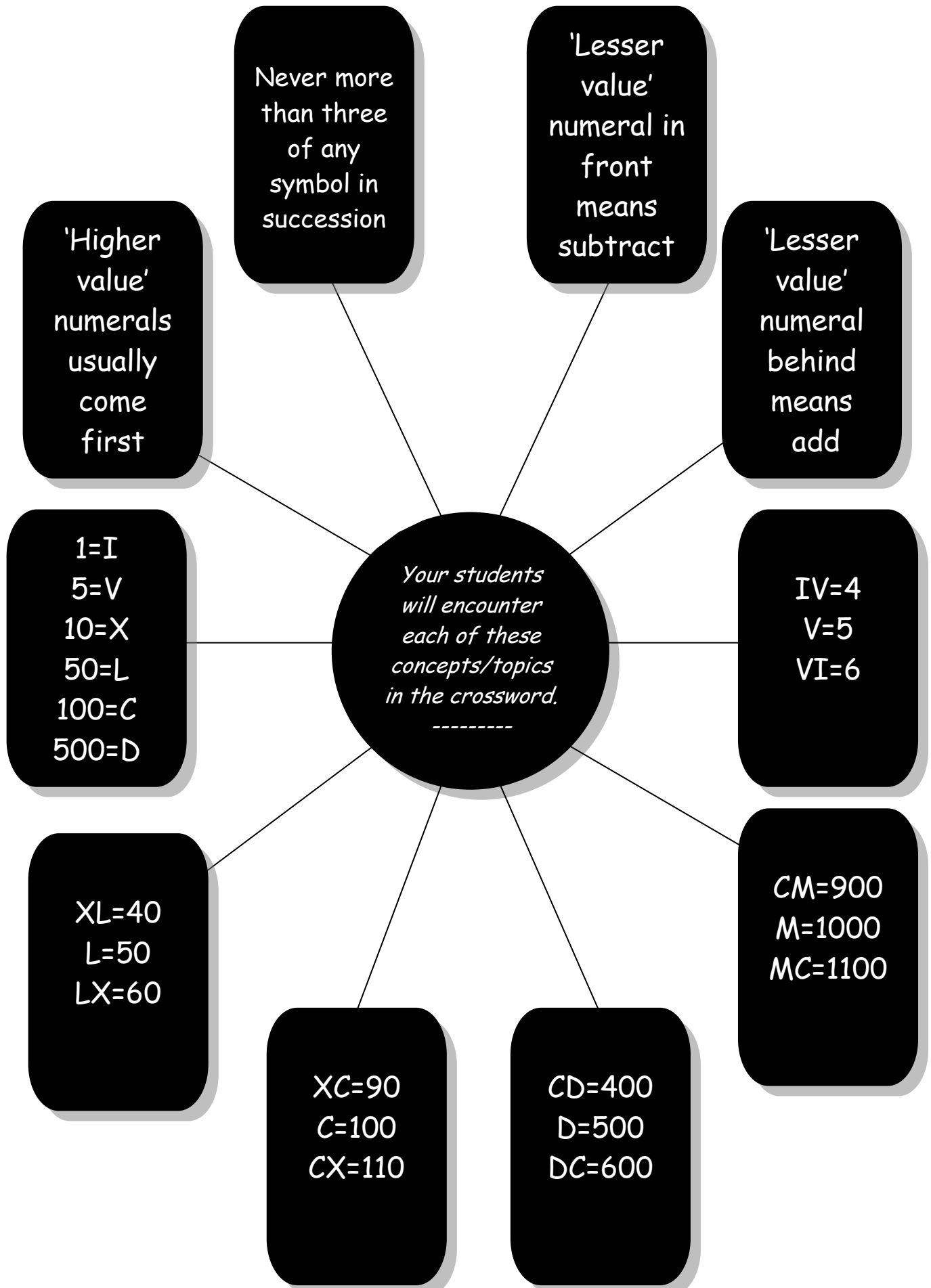
The Roman Number System

Level of difficulty ★ ★ ★

Write the answers using our numbers

We Romans found our number system easy to use.

Across

1. CDXXXVIII
3. III x VII =
5. MDCCCLVII
9. MMIV
11. III x V =
13. CMXXVI
15. V x IX =
16. M – CXII =
17. VI x VI =
18. C – I =
19. IX x IX =
21. C – XXV =
22. VII x II =
23. XXV x IV =
24. XI x XI =
26. L + XVIII =
27. M – XLIX =
30. VIII x IV =
31. LII ÷ II =
33. MMI =
35. L – II =
36. C – XVI =
37. CXI
39. XII x IV =
41. CCCXL – I =
44. LXXXVIII ÷ II =
46. DCLXIX
47. CCXXXV
48. XXXI x II =
50. M ÷ V =
51. VI x IV =
52. D + XVI =
53. MMMCCCXCVIII
54. XCIII

56. CC + CXVIII =
58. CXXXI x II =
60. MLXVI
62. XI x IX =
64. VII x VII =
66. DXVIII
68. XLI x II =
69. D + X + III
71. CCL ÷ II =
73. XXX – III =
75. CM + XC + IX =
76. DCIX
78. CD – XIX =
79. LX – III =
81. IX x V =
82. VIII x VIII =
84. MMCCCXCIV =
86. (L x V) + IX =
88. XXVIII ÷ II =
90. XV x V =
91. MLXIV
93. CCIV x II =
95. (XL ÷ II) + II =
96. (VII x VII) – XXX =
97. M – XXVIII =
99. C + (XII x XII) =
101. CDXX
103. VII x III =
104. L – VII =
106. CDXVII
108. M – CDLXXXVIII =
111. DXX
112. M – CVI =
113. M – XXI =

Down

1. CDXXIII
2. C – XIX =
4. CXCIX
5. II x VIII =
6. IX x III x II =
7. DCCLVIII
8. D – XV =
9. VII x IV =
10. CD + XL + IV =
12. (XXV ÷ V) x C =
14. C – LXXI =
20. MCXXIV
21. M – CCLXXXVIII =
22. (M ÷ V) – XL =
23. II x III x III =
25. XXV x XXV + IV =
26. DCLXXXIII
29. CXXI ÷ XI =
32. II x II x II x II x II x II =
34. MCDXCIV
36. XLV + XLIV =
38. MLXIII
40. MM – MCLX =
42. MMMLVIII
43. C – LXVII =
45. CCV + CCIV =
46. (XVI ÷ II) x VIII =
47. (L ÷ II) + I =
49. (VI x D) – I =
51. (M ÷ V) + VI =
53. VIII x VIII ÷ II =
55. XCIX – LXVIII =
56. (M ÷ X) – (C ÷ V) – (CD ÷ X) – I =
57. MCMLXXXVII

59. DCC – XXVII =
61. XIII x V =
63. L – XV =
64. (C ÷ II) – II =
67. MM – MCXXI =
70. DC ÷ V =
71. XI^{II}
72. III x V x V x VII
73. CCL – XIV =
74. DCC – LXVI =
75. XIX x V =
76. VI^{II} + III^{III} =
77. D – CDVIII =
80. II x VI^{II}
81. VII^{II} =
83. XX^{II} =
85. M – CMIX =
87. MM – MCDI =
89. CCL + CL + XCII =
90. III^{II} x II^{III} =
91. XII^{II} =
92. VII x VI =
93. II x XI x II =
94. IV x CCXII =
95. X^{II} x II + IV =
96. CXXI ÷ XI =
98. C – VI x IV + I =
100. V x IX =
102. L + XX + XI + VI =
103. CCXVIII
105. C – LXV =
107. II x III^{II} =
108. II x III x III^{II} =
109. XLV – IV^{II} =
110. LXXVI ÷ IV =
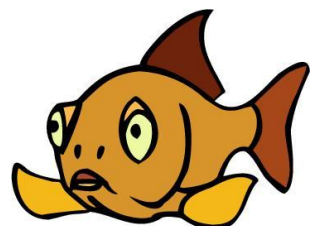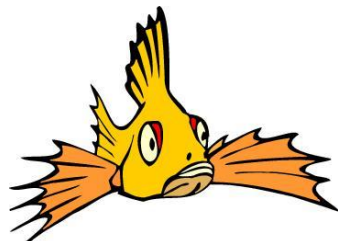
About 'Money, Money, Money'

Description:

There are 28 clues in this crossword.
Students are required to solve questions dealing with the different coin and note denominations and conversions from one to another; to do so they need to draw on basic facts contained in the 4 operations.

Which students will benefit most from doing this crossword?:

- *All students requiring consolidation in the basics of Money.*
- *Older/remedial students in Living Skills courses.*
- *Advanced younger students.*

Level of Difficulty:

Easy

10 Concepts/Topics Covered in 'Money, Money, Money'

Cents in a dollar

Conversions across denomina-tions

Sharing an amount of money

Different denom's, same total value

Your students will encounter each of these concepts/topics in the crossword.

Adding money in diff' denom's

Subtract money in diff' denom's

Getting change

Currencies

'Olden days' money

Notes v coins

Money, Money, Money

Level of difficulty ★

I know what I'll buy with my money………some new shoes!
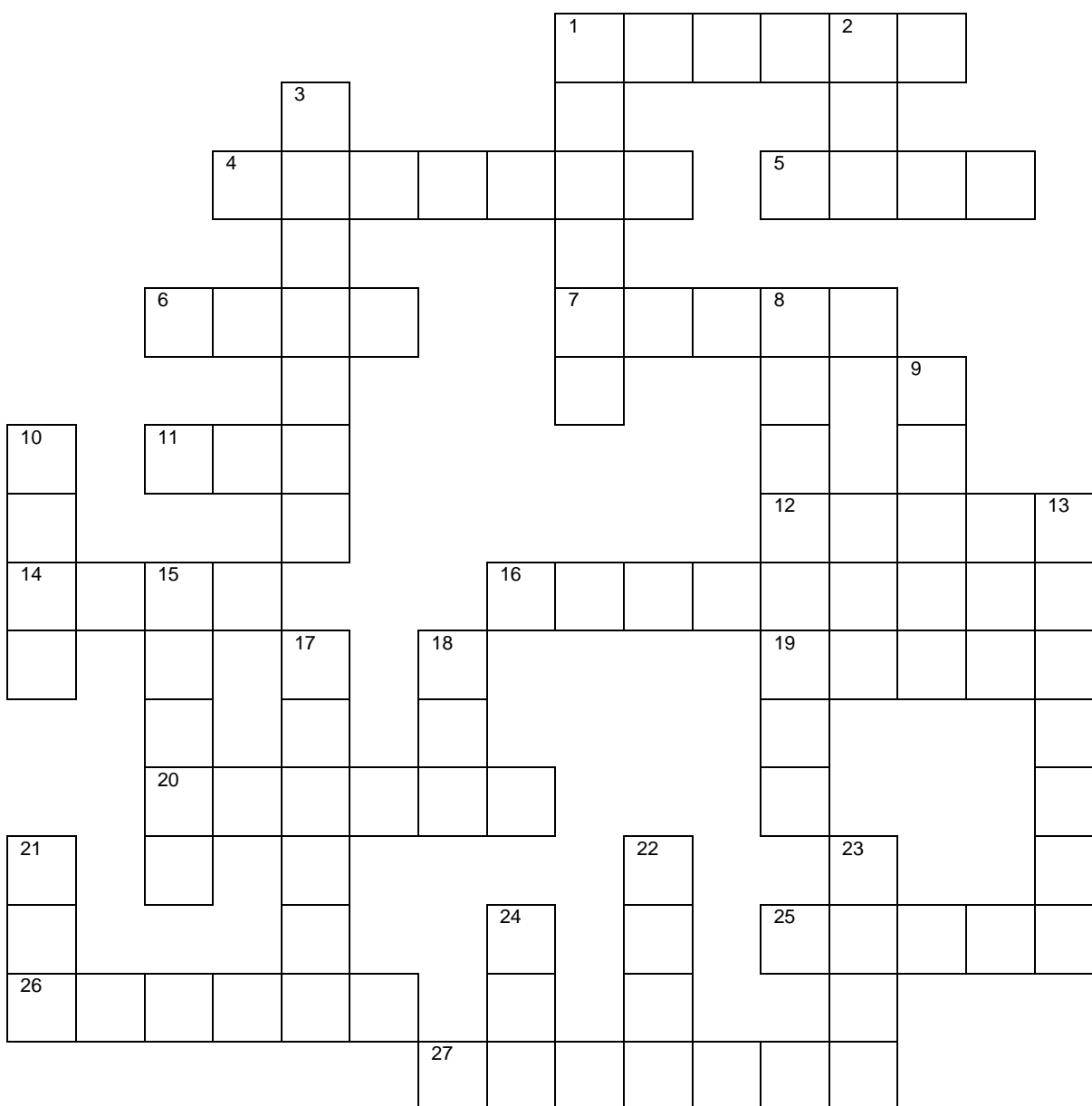
Across

1. How many dollars do sixty 50c coins make?

4. There are this many cents in one dollar.

5. How many 5c coins equal one 20c coin?

6. Are twenty 20c coins worth more or less than seven 50c coins?

7. $10 is _ _ _ _ _ as much as ten 50c coins.

11. How many $2 coins equal four 50c coins?

12. Long ago some coins were square but now most are _ _ _ _ _.

14. Is a $100 note worth more or less than fifty-five $2 coins?

16. How many $50 notes have the same value as seventy-five $2 coins?

19. Thirty $2 coins have the same value as three $20 _ _ _ _ _.

20. How many $10 notes equal fifty-five $2 coins?

25. There are three hundred of these in $3.

26. $1 and $2 coins are gold coins. All the others are _ _ _ _ _ _.

27. Seven 50c coins plus fifteen 10c coins make five _ _ _ _ _ _ _.

Down

1. How many 5c coins equal $1?

2. How many dollars do you need to add to sixty 5c coins to get $5?

3. 25c is a _ _ _ _ _ _ _ of $1.

8. All countries in the world have their own notes and coins. This is their _ _ _ _ _ _ _ _.

9. We should always _ _ _ _ _ our change to see if it is the correct amount.

10. Fifteen 10c coins have _ _ _ _ the value of sixty 5c coins.

13. Some of our notes have beautiful _ _ _ _ _ _ _ on both sides.

15. How many 20c coins would you need to add to twelve 5c coins to get $2 in total?

17. To have $2.40 you need _ _ _ _ _ _ 20c pieces.

18. $4.50 is the same as two $1 coins plus one $2 coin plus _ _ _ 50c coin.

21. Is it true that eight 50c coins have the same value as eighteen 20c coins plus four 10c coins?

22. A _ _ _ _ piggy bank is better than an empty one!

23. We know that five 10c coins make 50c because five _ _ _ _ make 50.

24. How many 5c pieces need to be added to ninety-nine 10c pieces to make $10?

About 'About Time'

Description:

A 42-clue crossword dealing with the larger units of Time….day, week, fortnight, month, seasons, year, decade, century.

Which students will benefit most from doing this crossword?:

- *All students requiring consolidation in Time's larger units.*
- *Older/remedial students in Living Skills courses.*
- *Advanced younger students.*

Level of Difficulty:

Easy

10 Concepts/Topics Covered in 'About Time'

Days in a week

Weeks in a fortnight

Months in a year

Seasons

Your students will encounter each of these concepts/topics in the crossword.

Years in a decade

Years in a century

Noon and midnight

Internat'l Date Line

Digital and analogue timepieces

Leap year
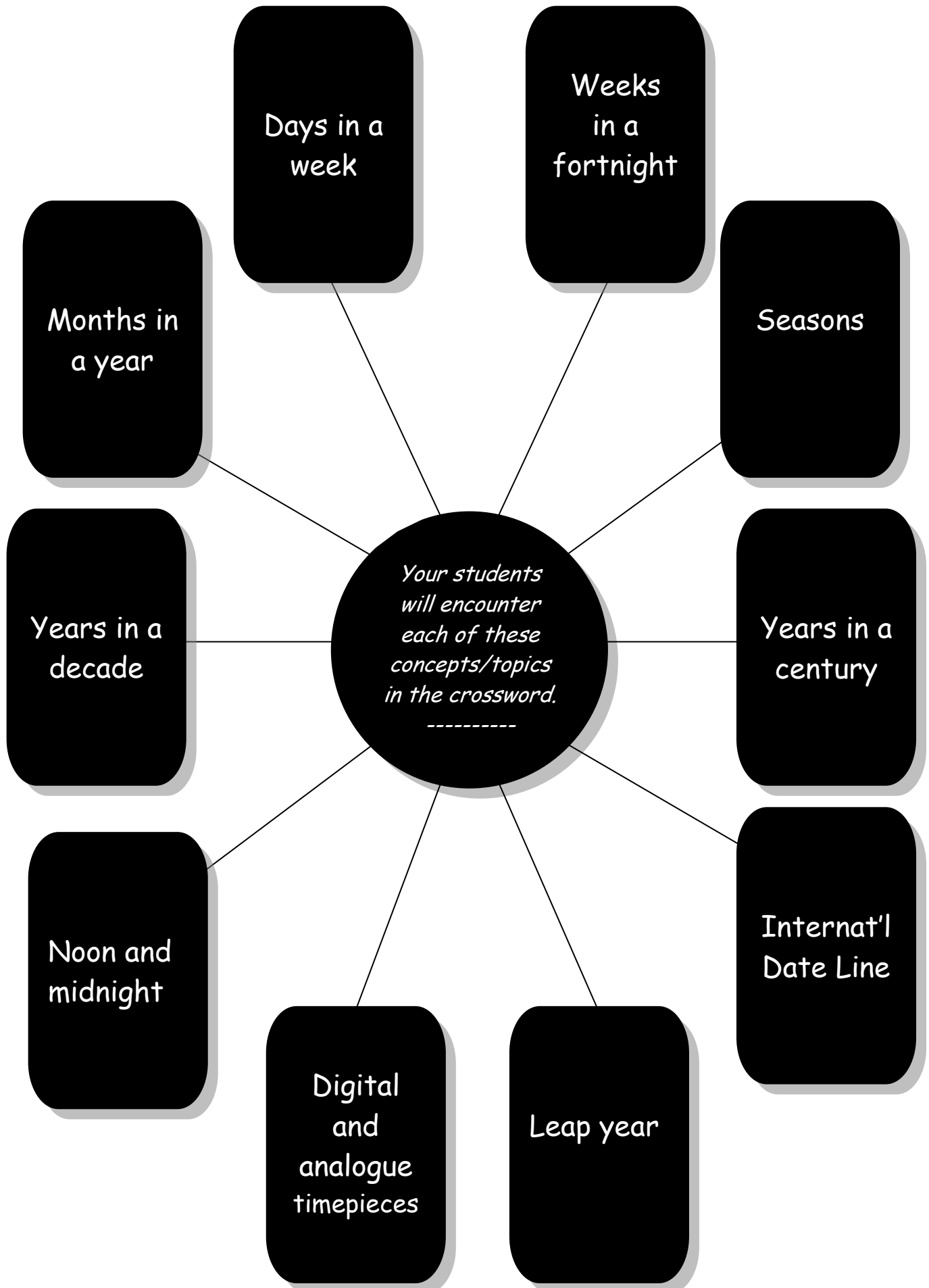
About Time

Level of difficulty ★
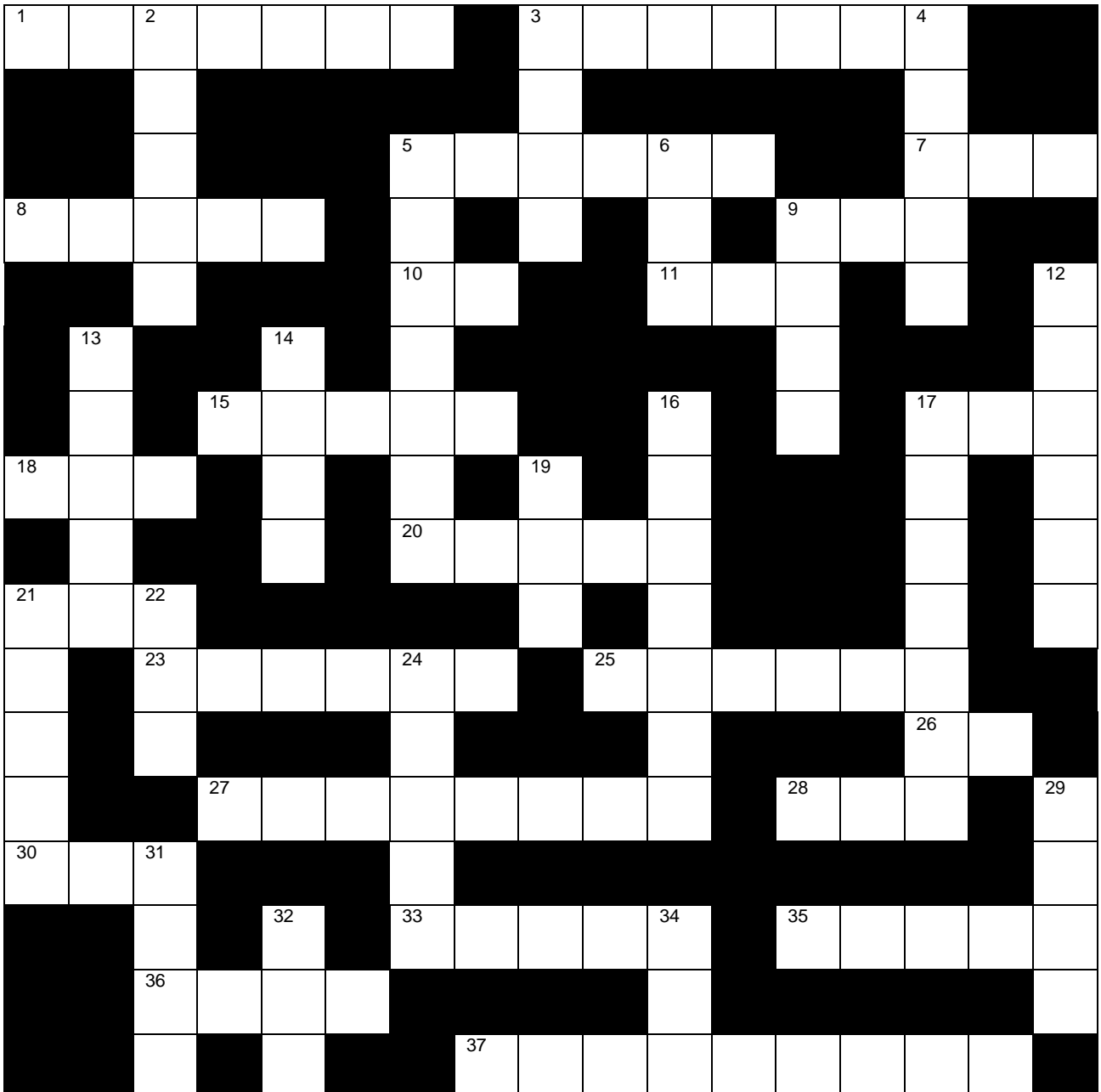
Across

1. 15 minutes is a _ _ _ _ _ _ _ of an hour.

3. The first month.

5. There are 12 of these in a year.

7. The first 3 letters of the 4th month.

8. 4 months is a _ _ _ _ _ of a year. (fraction)

9. The first 3 letters of the 3rd month.

10. Are there 4 months in each season?

11. How many weeks in a fortnight?

15. October and a 'leap year February' have this many days combined.

17. First 3 letters of the month that comes four months before April.

18. First 3 letters of the day that comes three days before Monday.

20. If March is three and December is twelve then July is….

21. First 3 letters of the day that contains the most letters.

23. Americans call this season Fall.

25. Which month follows three months after May?

26. These two letters written after the time tell us that it is before noon.

27. Which is the only month whose number of days varies?

28. International Date Line. (initials)

30. First syllable of the day that comes four days before Thursday.

33. 180 minutes equals three _ _ _ _ _.

35. In January is the sun 'above' or 'below' the equator?

36. What's the time when it's midway between midnight and the following midnight?

37. Fourteen consecutive days make one of these.

Down

2. The month that comes just before May.

3. Which month ends the first half of the year?

4. 36 months equals three _ _ _ _ _.

5. 1½ hours equal 90 of these.

6. In Australia the weather in January is often very _ _ _.

9. Is 250 seconds more or less than 4 minutes?

12. What do we call a period of 10 years?

13. How many months make up a season?

14. If Sunday is one and Saturday is seven then Thursday is….

16. What do we call a period of 100 years?

17. Some clocks and watches are analogue and some are….

19. Abbreviation of *evening*.

21. Each year has 52 of these.

22. The 24 hours between midnight and midnight is a….

24. In England this is the first month of spring.

29. Sunrise.

31. How many times in 4 years does February have 30 days?

32. First syllable of the day that's 4 days before Friday.

34. Abbreviation of Saturday.

About 'Weights and Measures'

Description:

'Weights and Measures' is a 39-clue crossword covering Linear Measure, Mass, Volume and Capacity.
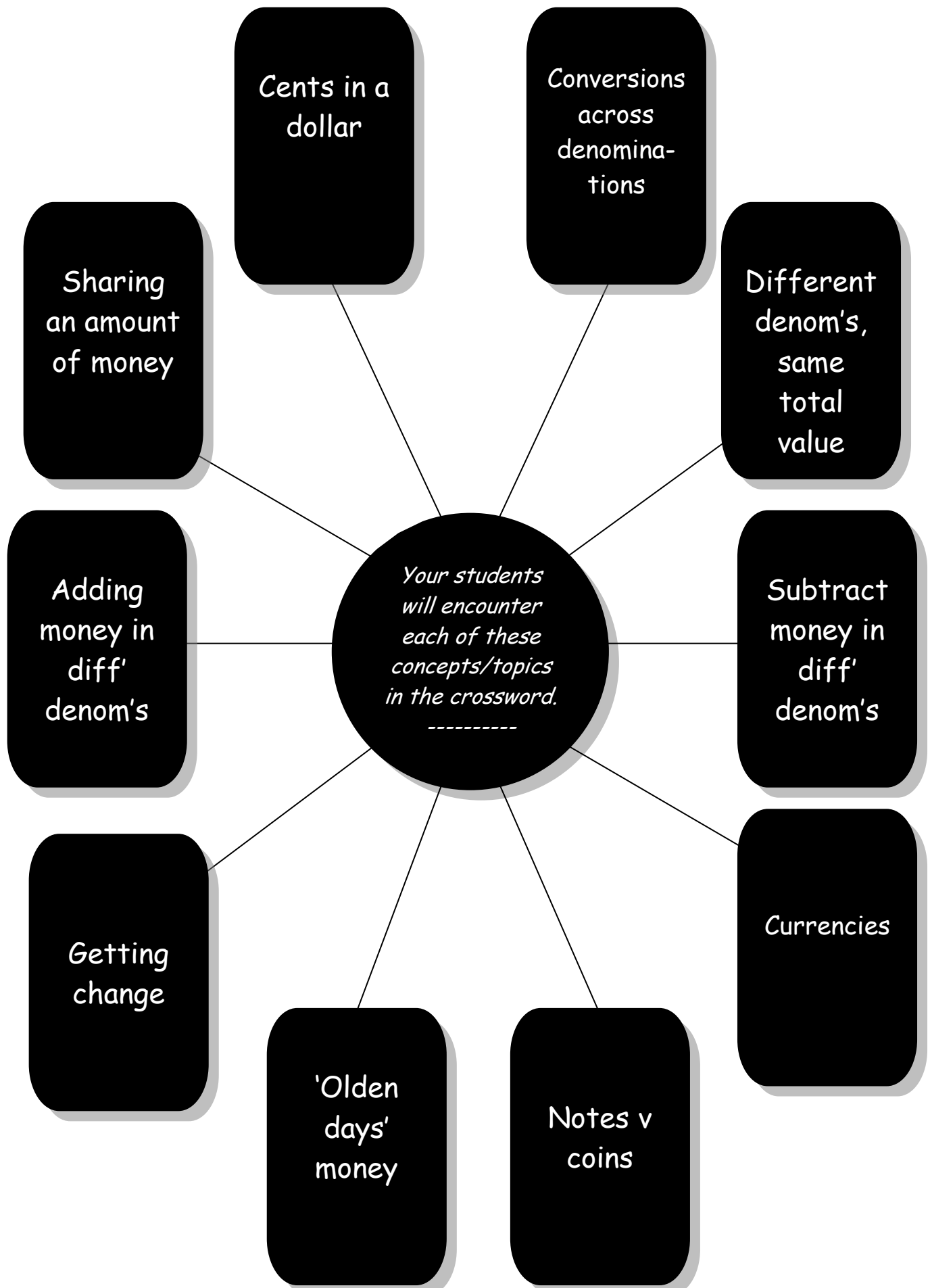*It tests students' knowledge of basic facts, such as 100cm=1m, 1000g=1kg and 1000ml=1L.*

Which students will benefit most from doing this crossword?:

- *All students requiring consolidation in Measurement facts.*
- *Older students in modified Maths courses.*
- *Advanced younger students.*

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'Weight and Measures'

cm in a metre

mm in a cm

m in a km

mm in a m

Your students will encounter each of these concepts/topics in the crossword.
----

kg in a tonne

g in a kg

ml in a L

Calculations involving percentage

Calculations involving fractions

Real-life applications
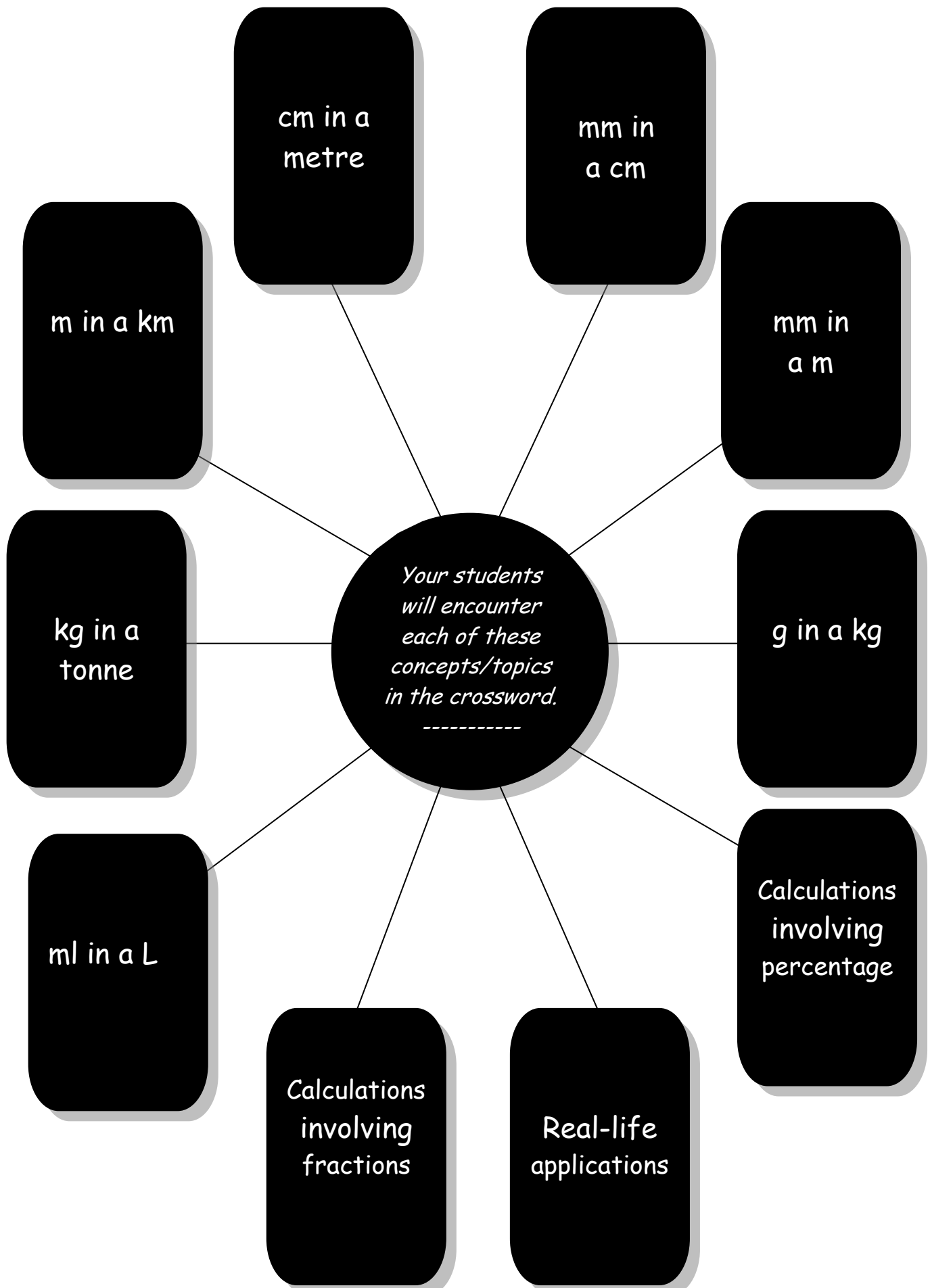
Weights and Measures

Level of difficulty ★★

Across

1) How many mm make 8 cm?

5) 1 000 of these make one tonne.

10) One of these is equal to 1 000m.

12) How many metres does 800cm equal?

13) 100 000 _____ equal one kilometre.

15) How many litres in 2 000 ml?

16) How many mm in 10% of a cm?

17) Millilitre (abbreviation)

19) How many grams make 1% of a kilogram?

20) If I pour ½L of water into a 500ml jar the jar will be _ _ _ _.

22) What fraction of a hectare is 2 500m^2?

23) 10% of 1km equals 100 _ _ _ _ _ _.

25) How many 10cm pieces of string can be cut from a piece of string 1m long?

26) 500mm equals what fraction of a metre?

27) One tonne equals one million _ _ _ _ _.

28) How many kilometres do one million millimetres equal?

30) Three tonnes is _ _ _ _ _ _ 1 500kg.

32) How many mm are left when I subtract 45mm from 4.5cm?

34) How many 100ml glasses of water do I need to fill an empty 1L container?

35) 20 000 kilograms equals how many tonnes?

36) How many 10cm lizards, if placed end to end, would equal the length of a 1.5m snake?
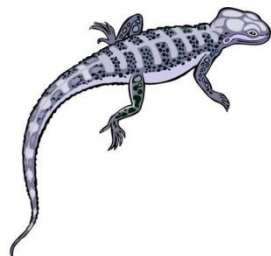
Down

2) Abbreviation for hectare.

3) Abbreviation for kilogram.

4) Abbreviation for kilometre.

6) 8 000ml make 8 of these.

7) How many 50mm strips could be cut from a 2.5m length of ribbon?

8) Can a 3L jug hold more water or less water than four 700ml jugs?

9) How many bags of cement each weighing 50kg have a mass of one tonne?

11) A 9L bucket has the same capacity as 100 jars each with capacity 90 _ _ _ _ _ _ _ _ _ _.

14) 300mm equal how many centimetres?

18) 750mm plus 25cm equals one _ _ _ _ _.

19) One _ _ _ _ _ _ _ _ ml equals one litre.

21) Does a 2 tonne truck weigh more or less than three cars each weighing 700kg?

23) Do four 900ml bottles have more or less capacity (together) than two 1.7 L bottles?

24) How many laps of a 500m running track must an athlete complete to cover a journey of 3.5km?

25) How many cm in 2% of a metre?

29) How many mm in 0.9cm?

31) Four 250kg pigs together weigh _ _ _ tonne.

33) An old turtle moves along at 1mm/sec. How many cm does it cover in 10 seconds?
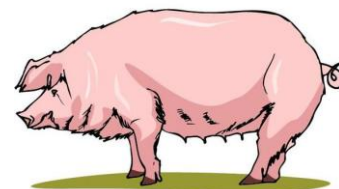
About 'A Bit of Everything'

Description:

This easy crossword contains 25 clues and deals with a variety of Maths topics including Number, Space and Roman Numerals

Which students will benefit most from doing this crossword?:

The crossword provides a quick and random revision of concepts drawn from several maths topics and as such is useful for students spanning a wide range of year levels.

Level of Difficulty:

Easy

10 Concepts/Topics Covered in 'A Bit of Everything'

Solid shapes

Plane shapes

Square root

Percentage

Your students will encounter each of these concepts/topics in the crossword.

Mass

Roman Numerals

Square numbers

Fractions

Polygons

Circles
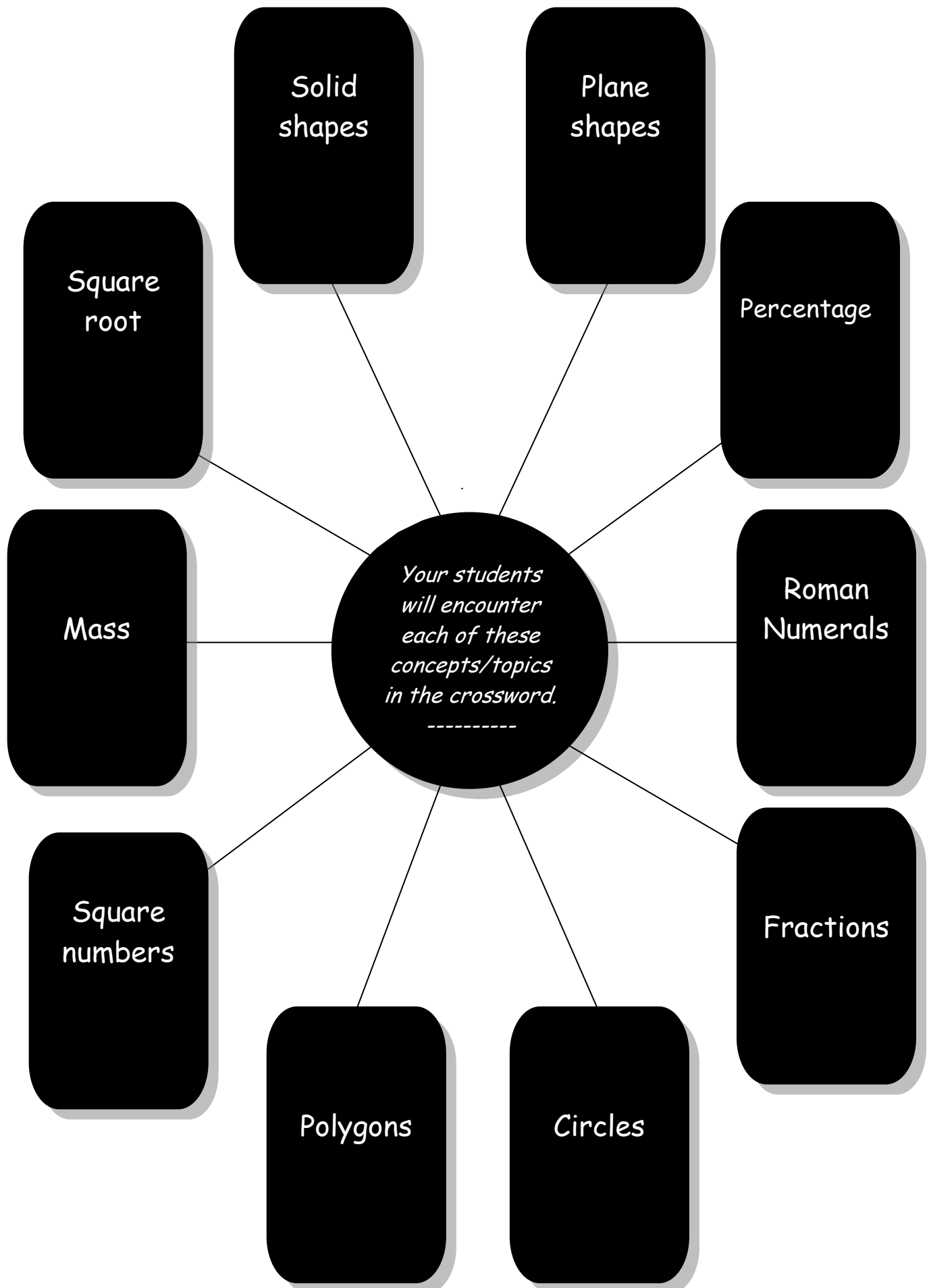
A Bit of Everything

Level of difficulty ★

Just to keep your Maths in good shape.
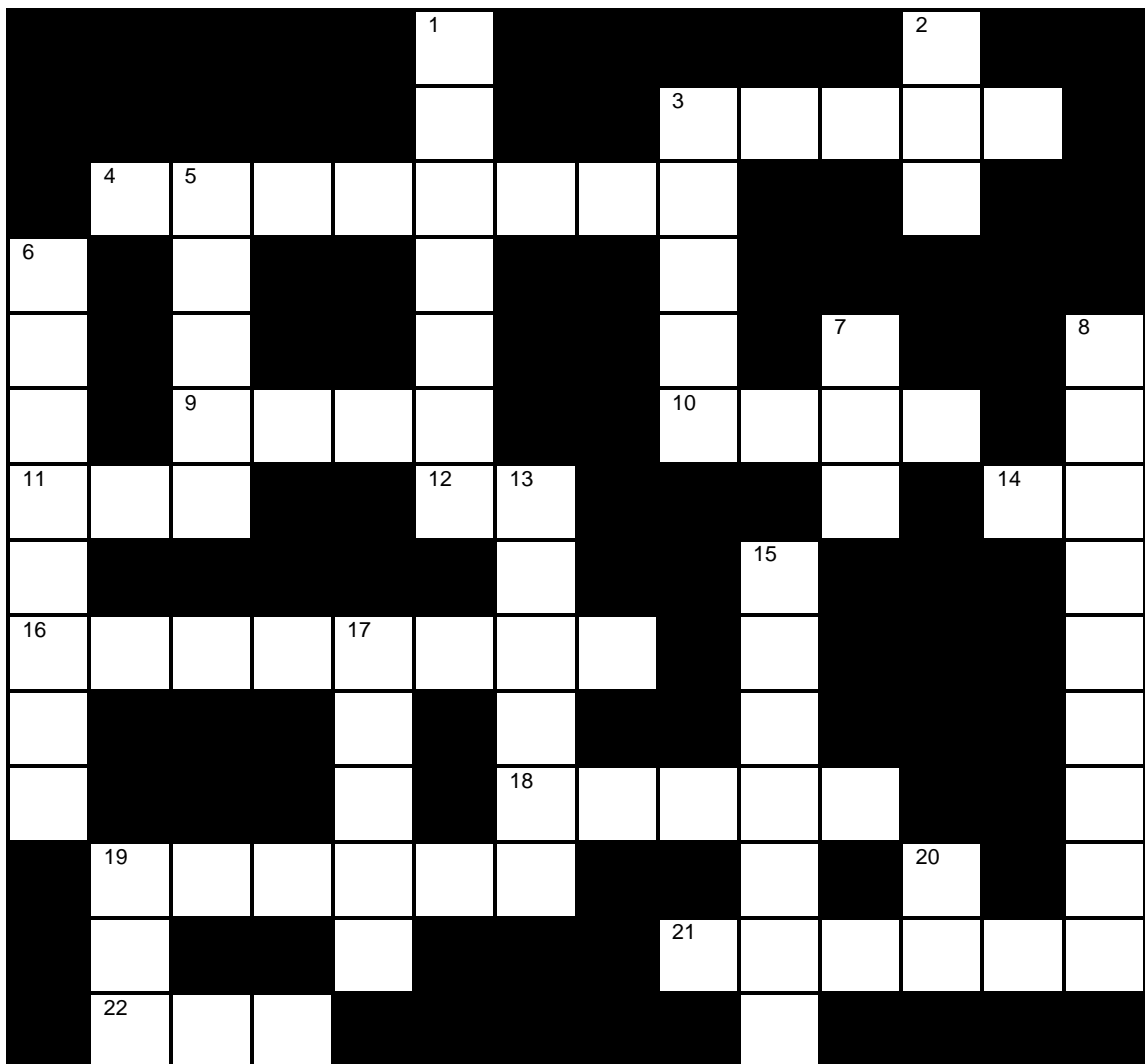
Across

3) Cubes, prisms and spheres are all _ _ _ _ _ objects.

4) A plane shape with 3 straight sides.

9) A nonagon has this many sides.

10) The square root of 81.

11) The half-way point of a line is called the _ _ _point.

12) How did the Romans write 600?

14) 2 000 in Roman Numerals.

16) 10% of 10 000 is one… _ _ _ _ _ _ _ _.

18) XLVII is an example of a _ _ _ _ _ numeral.

19) Each of the planets in our Solar system has this shape.

21) 20% of $5 makes one of these.

22) 95 in Roman Numerals.

Down

1) 10% of a tonne is one _ _ _ _ _ _ _ kilograms.

2) A quarter of two dozen.

3) How many mm equal 0.7cm?

5) Another name for *circular*.

19) A circle is perfectly _ _ _ _ _.

6) The width of a circle is its _ _ _ _ _ _ _ _.

7) Apart from zero what number is the same as its square?

8) The top number in a fraction.

13) The diagonals of a square cross at the square's _ _ _ _ _ _.

15) This plane shape has 6 straight sides.

17) How many sides has a heptagon?

19) How many faces has a rectangular prism?

20) How is 40 written as a Roman numeral?
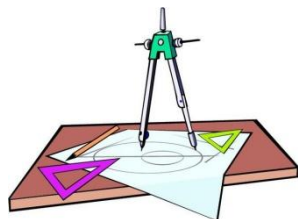
About 'A Few Little Problems'

Description:

This is a 42-clue problem solving crossword covering many maths topics and concepts.
The questions are challenging and some will test even the most able students. Many questions require the student to think logically.
This crossword cannot be completed quickly; an entire maths lesson may be required for its completion.

Which students will benefit most from doing this crossword?:

Students who have learned all the concepts shown on the following page.
Also suitable for capable/ gifted students who may not have covered all these concepts. Excellent revision for older students.

Level of Difficulty:

Challenging

10 Concepts/Topics Covered in 'A Few Little Problems'

The Four Operations

Fractions

Roman Numerals

Percentage

Your students will encounter each of these concepts/topics in the crossword.

Time

Number

Mass

Square Numbers

Area

Cubic Numbers
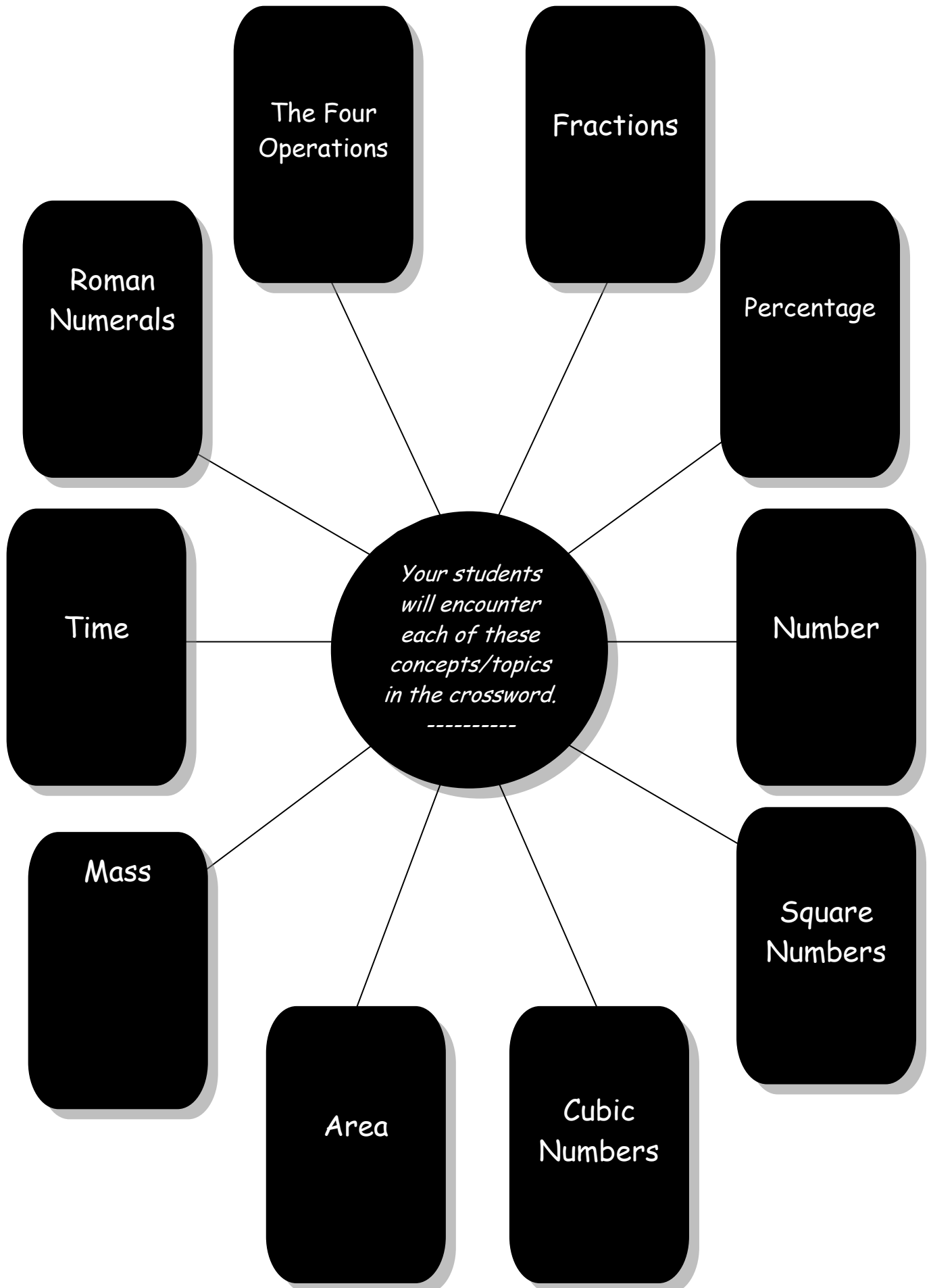
A Few Little Problems

Level of difficulty ★★★
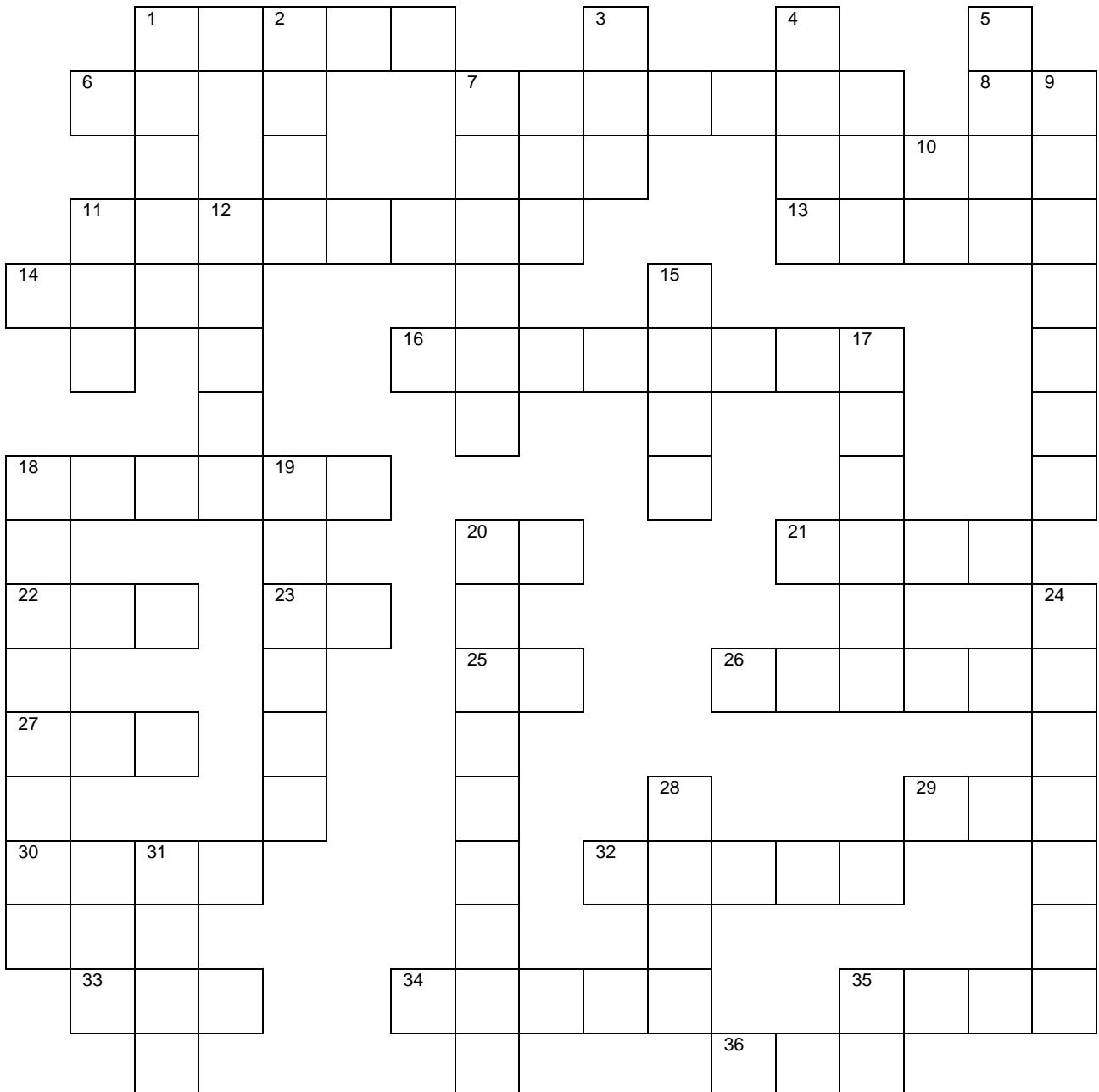
Across

1) Amy's uncle has hens that lay about 9 eggs each day.
So, over four days they will lay about three
_ _ _ _ _ eggs.

6) "How is 1100 written in Roman Numerals?" asked Jenny.
"That's easy," said Sam, "you just write _ _."

7) "How many stamps have you saved?" asked Beth.
"Five dozen plus two score," replied Connie.
Connie had saved one _____ stamps.

8) Lennie worked out 30 x 30 and then wrote the answer in Roman Numerals. What did he write?

12) If Jane is ½ Patti's age and Gemma is ¼ Patti's age then Jane is
_ _ _ _ _ _ Gemma's age.

13) How old is Tim if he's ½ as old as Sam who's ¼ as old as Mike who's 56?

14) How much is ½ of $\frac{1}{8}$ minus ¼ of ¼?

16) Eva's father bought a 25 000m^2 property.
The property was
2.5 _ _ _ _ _ _ _ _.

18) Eleanor's teacher gave the class a spelling test of 25 words. The teacher wrote each student's score in Roman Numerals and Eleanor's score was XX. How many words did she spell correctly?

20) Joe had 7½ minutes to wait before his bus came. He went into a nearby shop and returned to the bus stop 500 seconds later.
Did he catch the bus?

21) Two 500kg baby rhinos have a combined _ _ _ _ of 1 tonne.

22) Grant's Uncle Stewart had his birthday and is now half a century.
Grant is $\frac{1}{5}$ as old as his uncle. So Grant has lived for _ _ _ decade.

23) Stanley is $^3/_5$ of Mike's age and Mike is 15. Write Stanley's age in Roman Numerals.

25) The year that was 16 years before the 1066 Battle of Hastings was _ _ (in Roman Numerals).

26) How many months in $^1/_3$ of ¾ of 4 years?

27) How many kilograms less than Danny does Troy weigh if Troy weighs 54 kg and he is 90% of Danny's weight?

29) Eight is _ _ _ raised to the power three.

30) How much more is 5 squared than 4 squared?

32) A _ _ _ _ _ is the same as 40% of ½ metre plus 40% of 2 metres.

33) Mr Sanderson owned a property 30 000 m^2 in area. He sold $^2/_3$ of the property and kept the remainder for himself. How many hectares does he now have?

34) There are 24 x 365 _ _ _ _ _ in a (non leap) year.

35) If Jack is ½ of Jimmy's age, Jimmy is 40% of Bob's age, and Bob is 60, is Jack more or less than 13 years old?

36) How many seconds in 2% of 5 minutes?

Down

1) Write the answer to 14 x 50 in Roman Numerals.

2) Jasmine thought of a number. She doubled it and then added 4. She then multiplied that result by 20. Finally, she added 20. She ended up with 100. What number did Jasmine first think of?

3) How many kilograms less than Justin does Thomas weigh if he is $^{62}/_{63}$ of Justin's weight and Justin weighs 63kg?

4) Is 80% of 70kg more or less than 70% of 81kg?

5) What is Josh's great grandfather's age in Roman Numerals if he is 6 times Josh's age and Josh is one and a half decades old?

7) There are 41 _ _ _ _ _ _ in twenty and a half.

9) There are 70 of these in 4200 seconds.

10) Write one and a half decades in Roman Numerals.

11) In another 7 years Ben will be a quarter of his grandfather's age. Ben's grandfather is now 61 so how old is Ben?

12) Farmer Brown's hens lay, on average, 12 eggs a day. So over a week they will lay seven _ _ _ _ _ eggs.

15) What fraction of a hectare is 5000m^2?

17) 16 is one and so is 25. 9 is also one as is 49. Each of these numbers is a perfect _ _ _ _ _ _.

18) 10^3 is one
_ _ _ _ _ _ _ _.

19) In 11 wholes there are 33 _ _ _ _ _ _.

20) Chad couldn't remember that the top part of a fraction is called the
_ _ _ _ _ _ _ _ _.

24) 60% of a minute and 1% of an hour are both equal to 36 _ _ _ _ _ _ _.

28) 2300 contains 230
_ _ _ _.

31) Eva, Jane and Melanie are friends and together they have a dozen free movie tickets. If Eva has 2^2 free tickets and Jane has 2^3 free tickets how many free tickets does Melanie have?

35) If Josephine has saved 30% of $200 how many dollars (in Roman Numerals) has she saved?

About 'Ship Shape'

Description:

There are 33 clues in this crossword which focuses on Plane Shapes.
Many types of polygons are featured (eg pentagons, nonagons), as well as circles.

Which students will benefit most from doing this crossword?:

Those who've had lessons on Polygons, from triangles to dodecagons, and properties of Circles.

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'Ship Shape'

Line of symmetry

Diameter and circum-ference

Right angle

Degrees

Your students will encounter each of these concepts/topics in the crossword.

Parallel

Isosceles triangle

Polygon

Closed plane figure

Angle

Perimeter
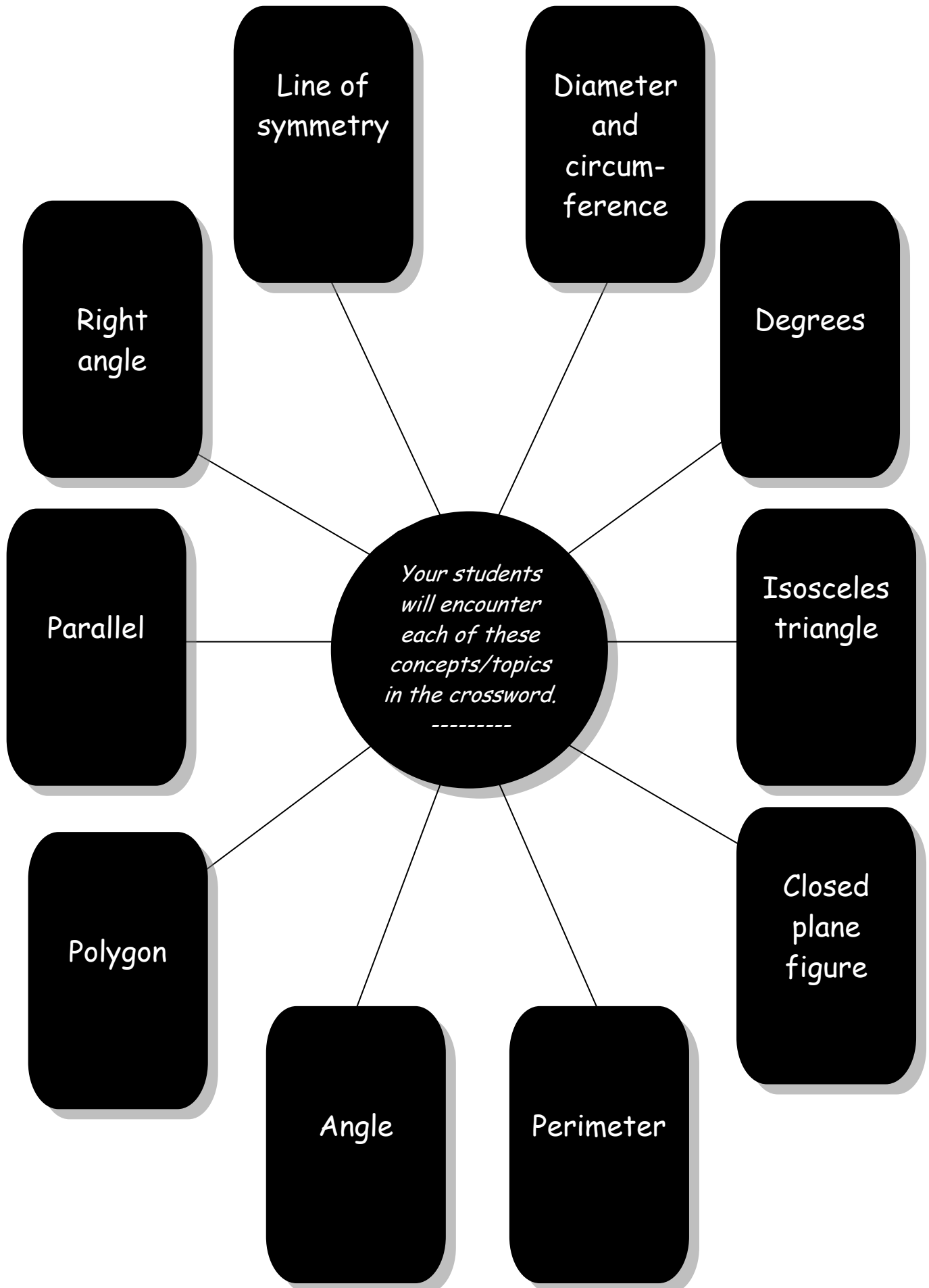
Ship Shape

Level of difficulty ★★

Across

1. If you multiply this by a circle's diameter you will find the circle's circumference.

2. Another name for a rectangle.

5. One number added to another gives their _ _ _.

8. Short for 'ruler'.

9. A four-sided shape with two sides parallel.

11. This shape has four even sides but no right-angles.

14. How many equal angles does an isosceles triangle have?

15. The _ _ _ _ _ _ is half the length of the diameter.

16. Any shape with three straight sides.

18. Any shape with four straight sides.

23. How many lines of symmetry does an isosceles triangle have?

24. A four-sided shape with opposite sides parallel.

26. Add 'gon' to this and you'll get a polygon with eight straight sides.

28. The part of 'polygon' that means 'many'.

29. How many sides does a nonagon have?

Down

1. The distance around a plane shape is its…?

2. How many right angles can a triangle have?

3. A shape with eight straight sides.

4. How many more sides than a pentagon has a hexagon?

5. Half (as in half of a circle).

6. What you need to do to find how long a line is.

7. Every one of these has a centre, a diameter and a circumference.

10. How many axes of symmetry does a rectangle have?

12. This has four equal sides and four right angles.

13. How many sides does a heptagon have?
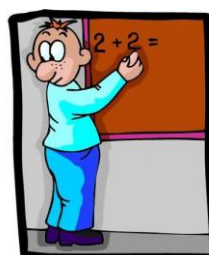
17. If you add 'gon' to the end of this you'll get a 12 sided polygon.

19. This polygon has 10 sides.

20. When two _____ meet an angle is formed.

21. The amount of space inside a closed plane figure is its _____.
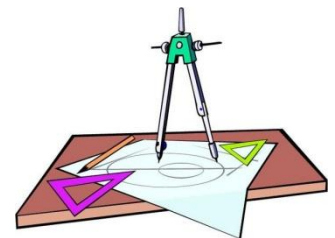
22. How many lines of symmetry does a square have?

24. First four letters of a five-sided polygon.

25. Does a heptagon have less or more sides than a hexagon?

27. How many right angles contain the same number of degrees that a triangle contains?

About 'All in Order'

Description:

''All in Order' has 30 clues.
The aim of the crossword is to provide students with practise in using BIMDAS when performing calculations, i.e.
Brackets, Indices, Multiplication, Division, Addition, Subtraction.

Which students will benefit most from doing this crossword?:

Students across all year levels, especially those who are uncertain about Order of Operations will benefit.
Students who are heavily dependent on calculators will also find the crossword very useful.

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'All in Order'

BIMDAS

Addition
Subtraction
Multiplication
Division

Indices

Brackets

Odd
and
Even

Your students will encounter each of these concepts/topics in the crossword.

Greater than
Less than

Squared
numbers

Work
from left
to right

Divide
before
multiplying
if division
is more to
the left

Subtract
before
adding if
subtraction
is more to
the left

All in Order

Write all answers in words

So, how is maths done on Earth?

Across

3. 4 + 6 x 6

7. 1 + 2 x 5 ÷ 10

8. 3 x 3 + 8 ÷ 2 + 6

12. Is 4 x 6 + 2 greater than or less than 4 + 6 x 2?

14. 7 + 8 x 8 ÷ 8 − 7

16. Does 5 + 7 ÷ 7 equal 5 x 7 + 7?

17. Is 4 + 4 x 4 ÷ 4 greater than or less than 4 x 4 + 4 ÷ 4?

19. By how much does 3 x 3 + 3 ÷ 3 + 3 exceed 3 + 3 ÷ 3 x 3?

20. Is the answer to this odd or even?... 5 + 5 ÷ 5 x 5

23. By how much is 2 x 2 + 3 x 3 greater than 2 + 2 ÷ 2 + 3 ÷ 3?

24. By how much is 7 + 5 − 4 x 2 less than 5 x 4 − 3 x 2?
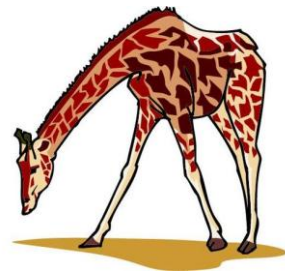
25. 2 + 2 x 7 + 2

27. (23 + 7) ÷ 3

28. 5 x (2 + 1) ÷ 5 - 2

Down

1. 8 x (10 + 2) + 4

2. (5 + 5) ÷ 5 x 5

4. 3 − 2 x 2 ÷ 2

5. (8 − 3) x 2

6. (10 + 2 ÷ 2) − 7 ÷ 1

7. $5^2 ÷ 5$ x $3^2 - 4^2 + 1$

9. $10^2 − 20 ÷ 4 − 5$ x 3

10. 3 x (3 + 5) − 3^2 + 3

11. Is (3 + 2) x 8 the same as 8 x (2 + 3)?

13. ($10^2 − 5$ x 2 + 10) x 10 equals one ...?

15. By how much is 3 x 4 + 18 greater than (3 x 2) + 2^2?

18. $3^2 − 4^2 ÷ 2 + 3$ x 2

20. (3 + 3) x (4 − 1) − 7

21. ($4^2 ÷ 2^2$) ÷ 2^2 x 2^2 + 2

22. 6 − 1 x 1^2 x ($2^2 − 2$) − 1

26. Is $4^2 + 2^2 ÷ 2$ the same as ($4^2 + 2^2$) ÷ 2?

About 'Squares 'n Square Roots'

Description:

'Squares 'n square Roots' has 49 clues.
Some questions are multi operational: for example the student is required to perform more than one arithmetic operation, or may need to solve an algorithm containing brackets, etc.

Which students will benefit most from doing this crossword?:

- *Any students who have learnt about squares and square roots.*
- *Students needing extra practise in the above.*
- *Bright students who have been briefly introduced to these concepts.*

Level of Difficulty:

Challenging

10 Concepts/Topics Covered in 'Squares 'n Square Roots'

Perfect square

Square root

Perfect squares added

Perfect squares subtracted

Your students will encounter each of these concepts/topics in the crossword.

Square roots added

Square roots subtracted

Comparing products involving squares and square roots

Comparing sums involving squares and square roots

Mixed: products and sums

Mixed: products and divisions

Squares 'n Square Roots

Level of difficulty ★★★

Write all answers in words.

Across

1. 20^2

4. $10^2 - 3^2 - \sqrt{1}$

7. $2^2 + \sqrt{1}$

9. $5^2 - 4^2 - \sqrt{4} + \sqrt{9}$

10. What fraction of $\sqrt{64}$ is 2^2?

12. $\sqrt{100} \times \sqrt{16}$

14. $\sqrt{4} \times 3^2$

16. $\sqrt{64} \div \sqrt{16} \div \sqrt{4}$

17. $7^2 - 5^2 + \sqrt{1}$

21. $\sqrt{144} \times \sqrt{9}$

22. $1^2 + \sqrt{121}$

24. Does $\sqrt{81}$ equal 9^2?

25. $(10^2 - 8^2) \div \sqrt{81} + \sqrt{1}$

26. $8^2 - 7^2 - \sqrt{36}$

27. $\sqrt{144} - \sqrt{121}$

29. $\sqrt{4} + \sqrt{49}$

31. $\sqrt{64} + \sqrt{36} + \sqrt{4}$

33. $\sqrt{100} - \sqrt{9}$

35. Do only one of these or both equal 10?
$\sqrt{25} \times \sqrt{4}$
$10^2 \div \sqrt{100}$

36. $(3^2 + 4^2 + \sqrt{121}) \div 6$

37. $3^2 - \sqrt{1}$

38. Is $\sqrt{64}$ the same as 8^2?

40. Is $\sqrt{36}$ the same as $\sqrt{4} \times \sqrt{9}$?

41. Does $\sqrt{144}$ equal $6^2 \div \sqrt{9}$?

42. $\sqrt{4} + \sqrt{9} + \sqrt{36}$

Down

1. $\sqrt{81} + \sqrt{36}$

2. $(3^2 \times 3^2) \div \sqrt{81}$

3. $10^2 - \sqrt{100} - \sqrt{100}$

4. Another word for zero.

5. Does $8^2 - \sqrt{64}$ equal zero?

6. How much more than $\sqrt{1}$ is $(2^2 - 1^2)$?

8. $\sqrt{144} \div \sqrt{9} \times \sqrt{4}$

11. $\sqrt{25} \times \sqrt{144} - \sqrt{121}$

13. $9^2 \div \sqrt{81} + 1^2$

15. $8^2 + 4^2 + 1^2$

18. $3^2 \div \sqrt{9} + 3^2 - \sqrt{1}$

19. $\sqrt{121} + 3^2 - \sqrt{121}$

20. $\sqrt{144} \div \sqrt{9} - \sqrt{16}$

21. $9^2 - 8^2 - 4^2 + 1^2$

22. $\sqrt{36} \div \sqrt{4} - \sqrt{1}$

23. $\sqrt{9} \times \sqrt{9} + \sqrt{100}$

24. $\sqrt{25} + \sqrt{144} - \sqrt{64}$

28. $121 \div \sqrt{121}$

30. $\sqrt{64} \times \sqrt{100}$

31. $(11^2 - 10^2 - \sqrt{121}) \times \sqrt{36}$

32. $9^2 - \sqrt{1}$

34. Does $2^2 \times 2^2$ equal $\sqrt{16}$?

35. Do only one of these, or both, equal 27?
$3^2 \times \sqrt{9}$
$6^2 - \sqrt{81}$

39. $9^2 - \sqrt{144} - \sqrt{25} - 63$

About 'Maths Super Puzzle'

Description:

'Maths super Puzzle' is a 155-clue crossword covering many maths topics and concepts. Some of the questions are very challenging and will test even the most able students. Many questions require the student to think logically.
This crossword cannot be completed quickly; it is suggested an entire maths lesson be set aside for its completion.

Which students will benefit most from doing this crossword?:

- *Students who are familiar with all maths concepts covered in primary school.*
- *Secondary students who need revision and consolidation of maths concepts taught in primary school.*
- *Very bright/gifted students who have had little exposure to some maths concepts taught in late primary years.*

Level of Difficulty:

Very challenging

10 Concepts/Topics Covered in 'Maths Super Puzzle'

Squared numbers

Polygons

Higher Powers

Time

Number Patterns

Your students will encounter each of these concepts/topics in the crossword.

Roman Numerals

Prime Numbers

Linear Measures

Right angles
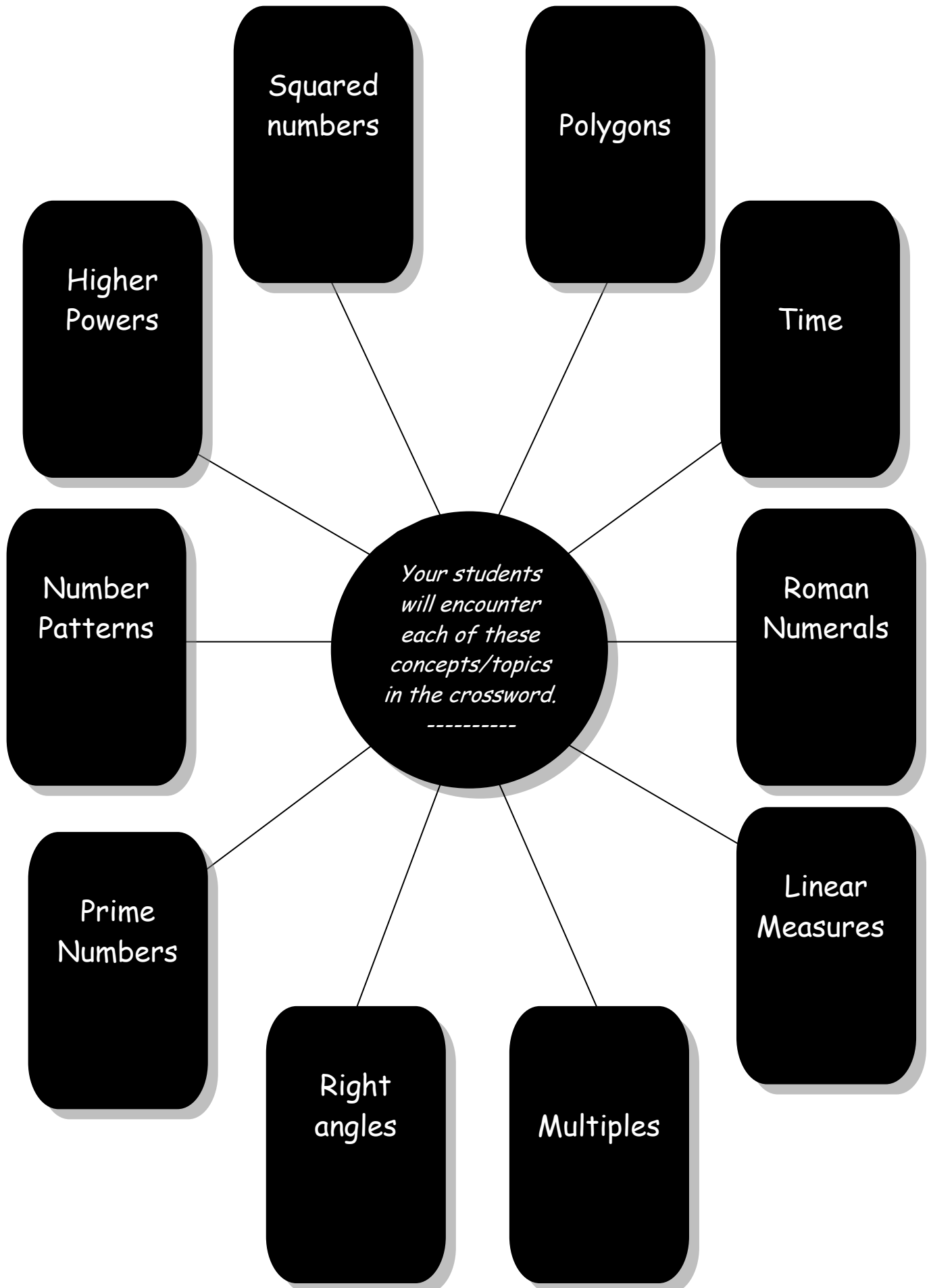
Multiples

Maths Super Puzzle

Level of difficulty ★★★★

Write the answers in numbers (not words)

See how fast you can rip through this!
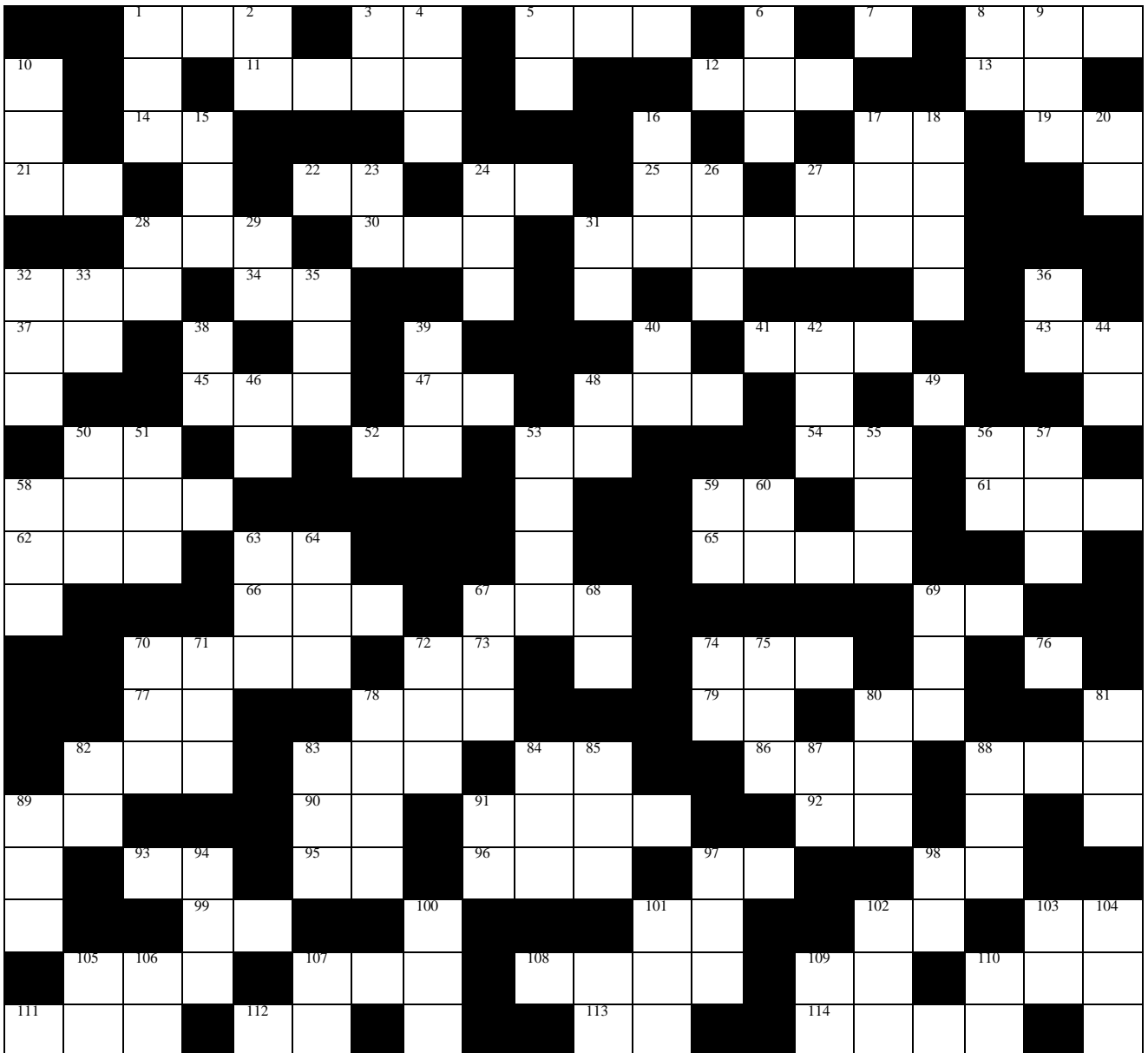
Across

1. Product of 11^2 and 1^2.
3. Half the product of 10 and 11.
5. Product of 2^2 and the fourth multiple of 10.
7. Sides in an octagon.
8. Number of degrees in three triangles.
11. Number of years in a millennium.
12. Half of double 13^2.
13. Only prime number between 37 and 43.
14. Product of 7^2 and ¼ of 2^2.
17. Eleventh multiple of 5.
19. The Ancient Romans would have written XLVI for this number.
21. 2^6.
22. 2^5 x 1^5.
24. Divide 153 by 3^2.
25. February has this many days every 4th year.
27. 2^2 x 10^2.
28. 302, 253, 204, 155, ……….
30. Years in half a millennium.
31. 10^6.
32. Product of 3^2 and the next prime number after 31.
34. Product of 6 and 2^3.
37. The Ancient Romans wrote LXX for this number.
41. Double 11^2.
43. Weeks in a year.
45. Number of degrees in two right angles.
47. Two dozen.
48. DCCLXXVII. (Roman)
49. All numbers ending in 0 or 5 are multiples of this number.
50. ¼ of the product of 8 and 11.
52. Number of mm in 8.5 cm.
53. Hours in ¼ of two days.
54. In 6 out of 8 years February has this many days.
56. 11^2 - 4^2 - 2^2 - 2.
58. Years in 400 decades.
59. Metres in 1200 cm.
61. Product of 3 and the square root of 10 000.
62. Metres in 0.6 km.
63. Only prime number between 19 and 29.
65. Seconds in an hour.
66. Days in a non-leap year.
67. Hours in a week.
69. Hours in 3 days.
70. MCVI.
72. 2 x 3^3.
74. Number of days (combined) in the months that have 30 days.
76. 5^2 – 4^2 – 3^2.
77. 10^2 minus the product of 3 and 5^2.
78. 39, 58, 77, 96, 115, ……….
79. A century minus ¼ of 80.
80. Double half of 5 x 2^3.
82. Sixteenth multiple of 26.
83. Years in 0.2 millennium.
84. Total sides in a decagon, an octagon, a hexagon, a pentagon and a triangle.
86. 397, 405.5, 414, 422.5, ……….
88. Half of 5^2 x 2^3.
89. Fifth multiple of 19.
90. Litres in 86 000 ml.
91. 3rd leap year after 1999.
92. 1^2 x 2^2 x 3^2.
93. Half of 4 dozen
95. 4^2 x 6
96. 4^2 x √100
97. √25 x √4
98. 2^3 x √36
99. 10^2 - √16
101. 100% of 50.
102. 200% of 12.5.
103. Subtract the only prime number between 31 and 41 from 100% of 100.
105. 5^2 x 2^3 - 2^2.
107. 5^4.
108. MMCCXXII. (Roman)
109. Grams in 0.08 kg.
110. Days in a normal year + a leap year.
111. 25% of 404.
112. Cm in 140 mm.
113. 23.5% of 200.
114. 2^3 x 10^3.

Down

1. 200% of ½ x 12^2.
2. The 5th prime number.
3. Years in ¼ of two centuries.
4. 5^4 – 5^3.
5. 2^4 – 1^4 x 0^4.
6. 9^2 x 2^1
7. Same as 7 across.
8. No. of thirds in 18.
9. 327, 356, 385, ……….
10. Grams in 0.486 kg.
15. CM. (Roman)
16. 2^2 x 5 x 11.
17. Ml in 0.5 L.
18. No. mm in 5 m.
20. No. tenths in 6.
23. No. fifths in 5.
24. 5% of 2 000.
26. No. cents in one sixth of $54.
27. No. sides in eight pentagons.
28. 2^3 + square root of 25.
29. No. quarters in 16.
31. ¾ of ¼ of 80.
32. 3 x 5^3.
33. 0.6 x 50.
35. 2 x 20^2.
36. Sum the first four prime numbers and then subtract 2.
38. 2^5 – 1^5.
39. 15^2.
40. Product of the 4th and 5th prime numbers.
42. No. minutes in 7 hours 12 minutes.
44. One third of 87.
46. 10^2 – 4^2.
48. No. thirds in 24.
49. Same as 49 across.
50. There are this many fifths in 40.
51. There are this many cm in 2^5 ÷ 2^4 m.
53. This was the sixth leap year after 1973.
55. If you add 30% of 210 to ½ of 1474 you will get …….. .
56. Subtract the 4th prime number from 100% of 100.
57. 10^3 – 10^2.
58. No. cents in 2% of $234.
59. Square 4 and subtract the product of 3 and 1^2.
60. Square 4 and add the square root of 100.
63. No. ml liquid in a one litre container that is 23% full.
64. No. ml liquid in a one litre container that is 63.4% empty.
67. This number is 6 less than 1½ centuries.
68. 3 x 4 x 5 + 3^3.
69. $(4+6)^3$ – (800 – 5 x 10^2).
70. Add the sum of the first four prime numbers to the sum of 2^2 and a century.
71. A dozen dozen plus a dozen.
72. 200% of 265.
74. 1^2 + 2^2 + 2^2 + 3^2.
75. 600% of 34.
76. Same as 76 across.
78. A famous battle was fought in MLXVI. (Roman) What year was that?
80. D – LXXXIV. (Roman)
81. 25% of 1 228.
82. 2^6 ÷ 4^3 x (2+3) x 3^2.
83. M – DCCXI. (Roman)
84. 1 800% of 17.
85. M ÷ D x C. (Roman)
87. 2^5 + 1^3 ÷ 1^5.
88. How many years in twenty decades minus 2^5 years?
89. 3^4 ÷ 3^2 x 10^2.
91. 70% of ¼ of 120.
94. Add the square of 20 to the square of 10 and then subtract the square of 2.
97. How many grams left if a 1 kg rock loses 89.8% of its weight through erosion?
98. 5^2 + 5^2 – 5^1.
100. 1000% of 25.
101. 2^2 x 5^3 + 3^3.
102. 30^2 - 20^2 – (20^2 - 10^2).
103. 100% of (6^2 + 3^3).
104. No. mm in 3.1% of 10 metres.
105. The sum of the 2nd and 4th prime numbers.
106. Product of the prime number immediately following 11 and the prime number immediately preceding 11.
107. 2^1 x 2^2 x 2^3.
109. 11% of 800.
110. (0.7 of 80) + (25% of 56).

About 'Same Quantities, Different Names'

Description:

This crossword has 32 clues.
Students are required to perform additions, subtractions, simplifications and conversions involving fractions, decimals and percentages.

Which students will benefit most from doing this crossword?:

- *Students with a sound understanding of fractions, decimals and percentages.*
- *Those who require consolidation in this area.*
- *Younger bright students who grasp new concepts easily.*

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'Same Quantities, Different Names'

Simplifying

Mixed subtraction: percent/ fraction

Equivalent Fractions

Missing numerator

Percent/ fraction equivalence

Your students will encounter each of these concepts/topics in the crossword.

Hundredths

Missing denominator

Decimal/ fraction equivalence

Fractions as division

Decimal/ percent equivalence

Same Quantities, Different Names

Level of difficulty ★★

Confucius say….

"Fractions, Decimals, Percentages…..all are to do with parts of a whole".

Well, whether he said it or not, it's true.

Across

1. How many quarters equal four eighths?

3. What fraction is four sixths in its simplest form?

5. How many eighths equal three quarters?

6. What is 75% minus ¾?

7. If the denominator is 75 what must the numerator be to make a fraction equal to one third?

8. How many hundredths equal one half?

9. Are 80% and 0.8 equal or unequal?

10. How many wholes do eleven elevenths make?

12. What numerator goes with a denominator of 50 to give a fraction equal to 20%?

14. How many hundredths equal a hundred thousandths?

16. How many sixths equal 50%?

18. How many ten thousandths equal one fifth?

21. How many tenths would you add to 3 tenths to give a fraction equal to 30%?

25. Is two thirds greater or less than 75%?

26. Do three fifths equal 0.35?

27. If a cake is divided into eight equal pieces how many pieces make 75% of the cake?

28. Is 1½ greater or less than 1.49?

29. Is seven tenths the same as fourteen twentieths?

Down

2. How many quarters equal 0.25?

3. What numerator goes with a denominator of 8 to give a fraction equal to 25%.

4. This fraction equals 0.75.

5. How many fiftieths equal 34%?

8. What denominator goes with a numerator of 10 to give a fraction equal to 2/3?

11. Is 4/5 the same as 0.45?

15. Is 0.89 the same as eighty nine thousandths?

17. How many ninths make four eighteenths?

19. How many wholes are made by adding 3/5 to 4/10?

20. What numerator goes with a denominator of 20 to make a fraction equal to 80%?

22. What denominator goes with a numerator of one to make a fraction equal to 100%?

23. How many hundredths equal 0.8?

24. How many twentieths equal two tenths?

25. Is 60% greater or less than 0.61?

About 'Length, Mass, Capacity'

Description:

This crossword has 40 clues. Students are tested on their knowledge of metric units and are required to perform conversions between the different units in each of Length, Mass and Capacity.

Which students will benefit most from doing this crossword?:

- *All students who have been introduced to the metric units in Length, Mass and Capacity.*
- *Older students requiring consolidation of basic facts and conversions.*
- *Younger, capable students who need a challenge.*

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'Length, Mass, Capacity'

cm – metre conversion

g – kg conversion

mm – metre conversion

ml – litre conversion

Abbreviations of Metric Units

Your students will encounter each of these concepts/topics in the crossword.
----

kg – tonne conversion

Addition requiring conversion

Subtraction requiring conversion

Multiplication requiring conversion

Division requiring conversions
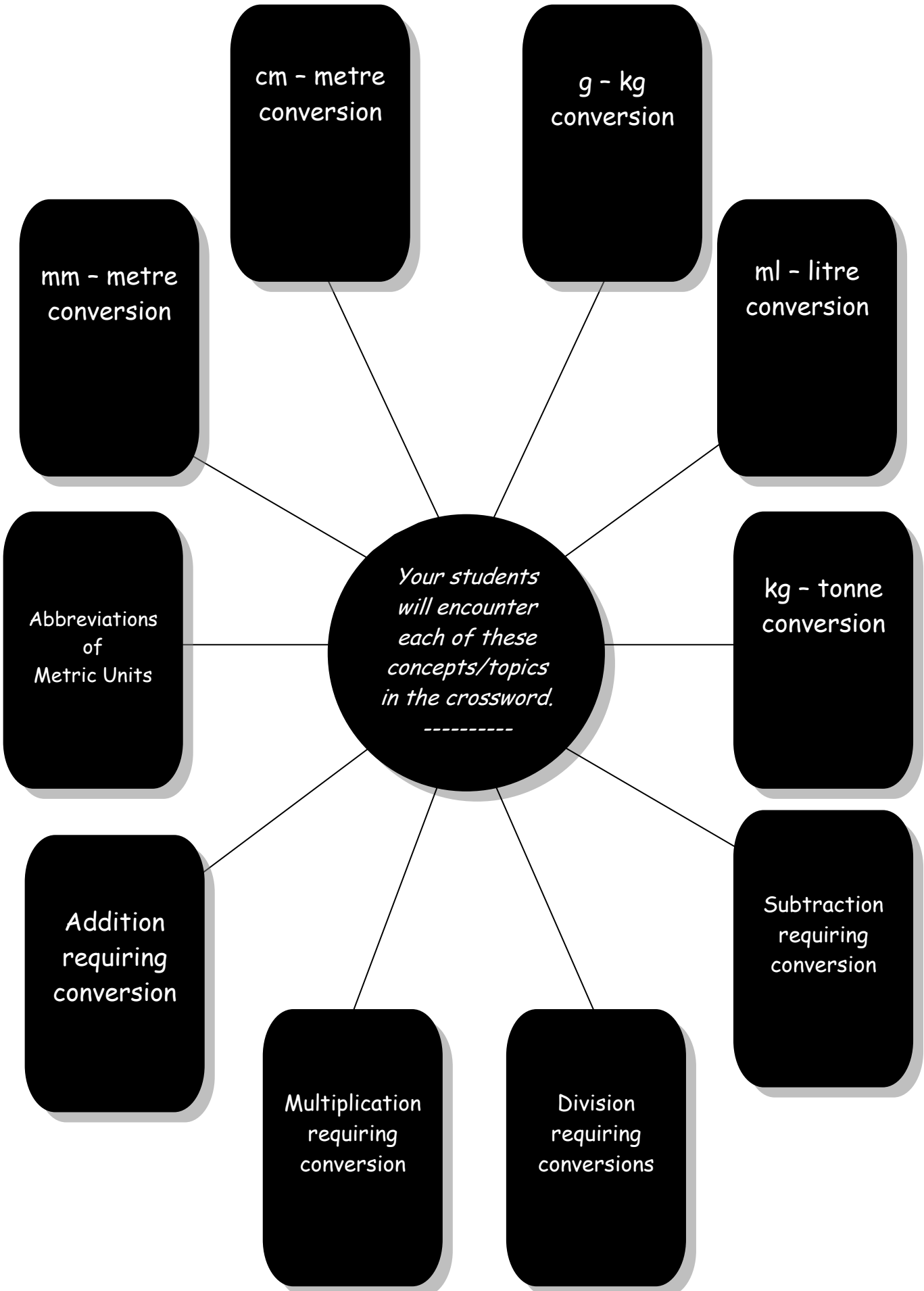
Length, Mass, Capacity

Level of difficulty ★★

Do I have any mass?

Or height?

Across

1. By how many centimetres does 2 metres exceed 1.2 metres?

5. 1 500 grams equal 1.5…?

10. One thousand metres equals one…?

13. How many one-litre bottles could be filled with 8 000 ml of milk?

14. 70 millimetres equals 7…?

16. How many tonnes in 2 000 kg?

18. Millilitre (abbrev)

19. By how many mm does 8 cm exceed 70 mm?

20. If 250 ml of water is poured into a 500 ml jug then the jug is half …?

22. 2 500 m^2 is equal to a _ _ _ _ _ _ _ of a hectare.

23. Which units of length are abbreviated to 'm'?

25. This means 'three', as in triangle.

26. What fraction of a hectare is 5 000 m^2?

27. In 3/4 of a kilogram there are 750…?

28. 1 000 ml equals how many litres?

30. 3 cm is _ _ _ _ _ _ 15 mm.

32. How many grams are left if 250 g are subtracted from ¼ kg?

34. How many kg in 10 000 g?

35. How many one-litre jugs can be filled with 20 000 ml of water?

36. How many mm in 1.5 cm?

Down

2. Hectare (abbrev)

3. Kilogram (abbrev)

4. Kilometre (abbrev)

6. 4 cups that can each hold 500 ml have a combined capacity of two …?

7. How many 2 cm pieces of string can be placed end-to-end to make one metre?

8. Are 5 litres more or less than 4 900 ml?

9. How many 50 kg barrels weigh one tonne?

11. What units are used to measure small volumes of liquids?

12. The distance around the boundary of a triangle, rectangle etc.

15. A whale's weight is measured in …?

17. A car weighs about _ _ _ tonne?

19. There are one _ _ _ _ _ _ _ _ mm in a metre.

21. Is 4.5 cm more or less than 50 mm?

23. Is 300 kg more or less than ¼ tonne?

24. How many ½ L bottles are needed to hold 3½ L of water?

25. How many kg do eight 250 g cartons weigh?

25. How many kg do eight 250 g cartons weigh?

29. 9 000 kg is the same as how many tonnes?

31. How many tonnes does a 1 000kg hippopotamus weigh?

33. A snail moves 9mm and then a further 8.1 cm. How many more centimetres does it need to move before it has travelled 10 cm altogether?
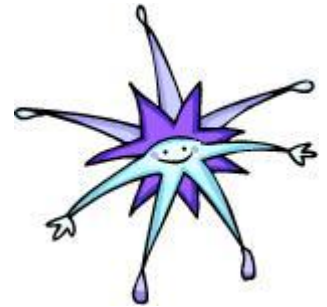
About 'Work it Out'

Description:

There are 37 clues in this problem-solving crossword. A wide variety of mathematical concepts are covered (see next page).

Which students will benefit most from doing this crossword?:

As many of the concepts here are taught in late primary school the crossword is most suitable for students aged 11+.
Older students in need of revision/consolidation would also find the puzzle useful as would bright, younger students who like a challenge.

Level of Difficulty:

Challenging

10 Concepts/Topics Covered in 'Work it Out'

Mixed operations incl' **Doubling**

Mixed operations incl' **Squaring**

Logical Thinking

Sequencing

Your students will encounter each of these concepts/topics in the crossword.

Millions

Mixed operations incl' **Multiplic'n**

Mixed operations involving **Fractions**

Mixed operations involving **Capacity**

Mixed operations involving **Percent**

Mixed operations involving **Time**
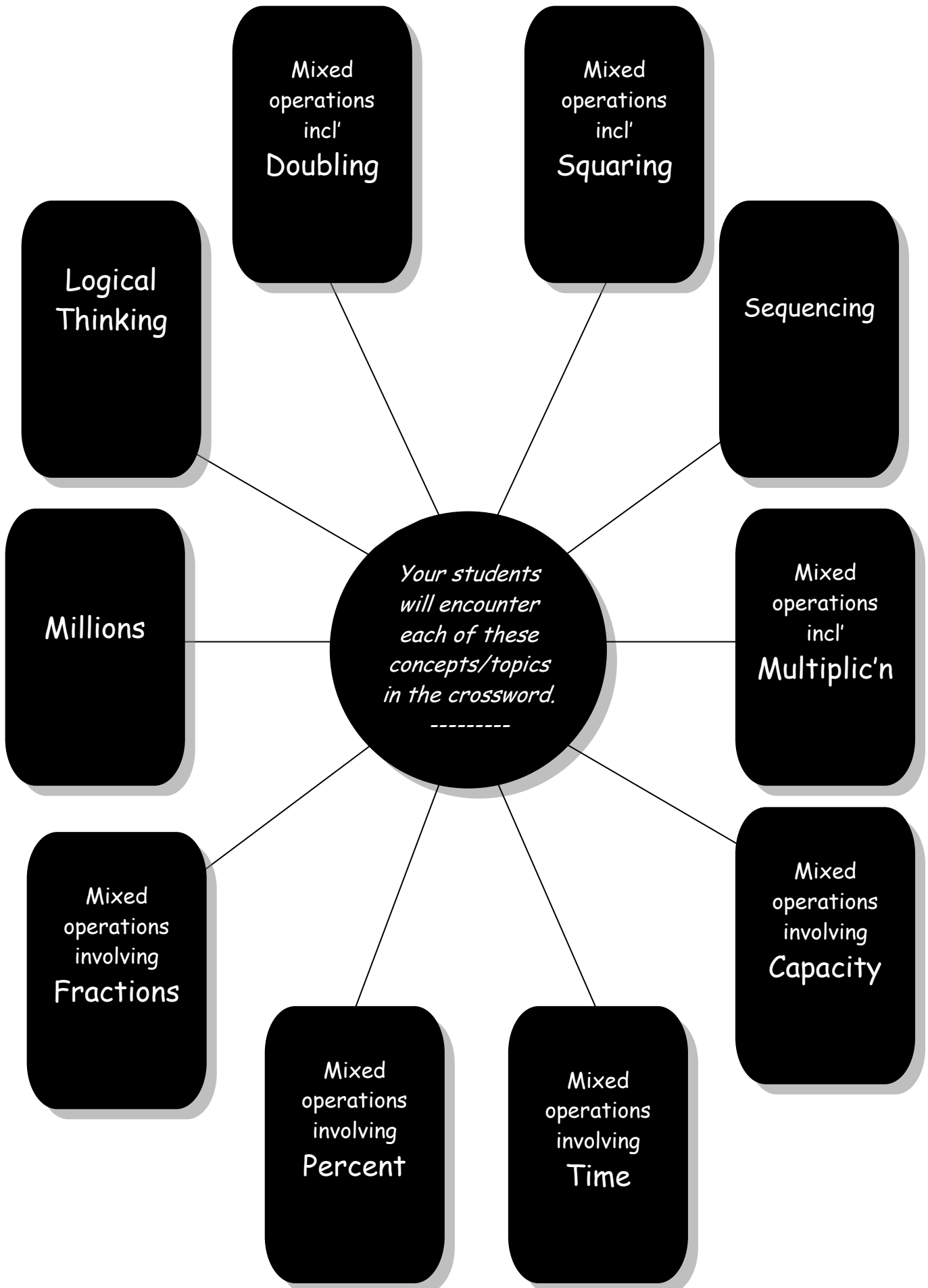
Work it Out
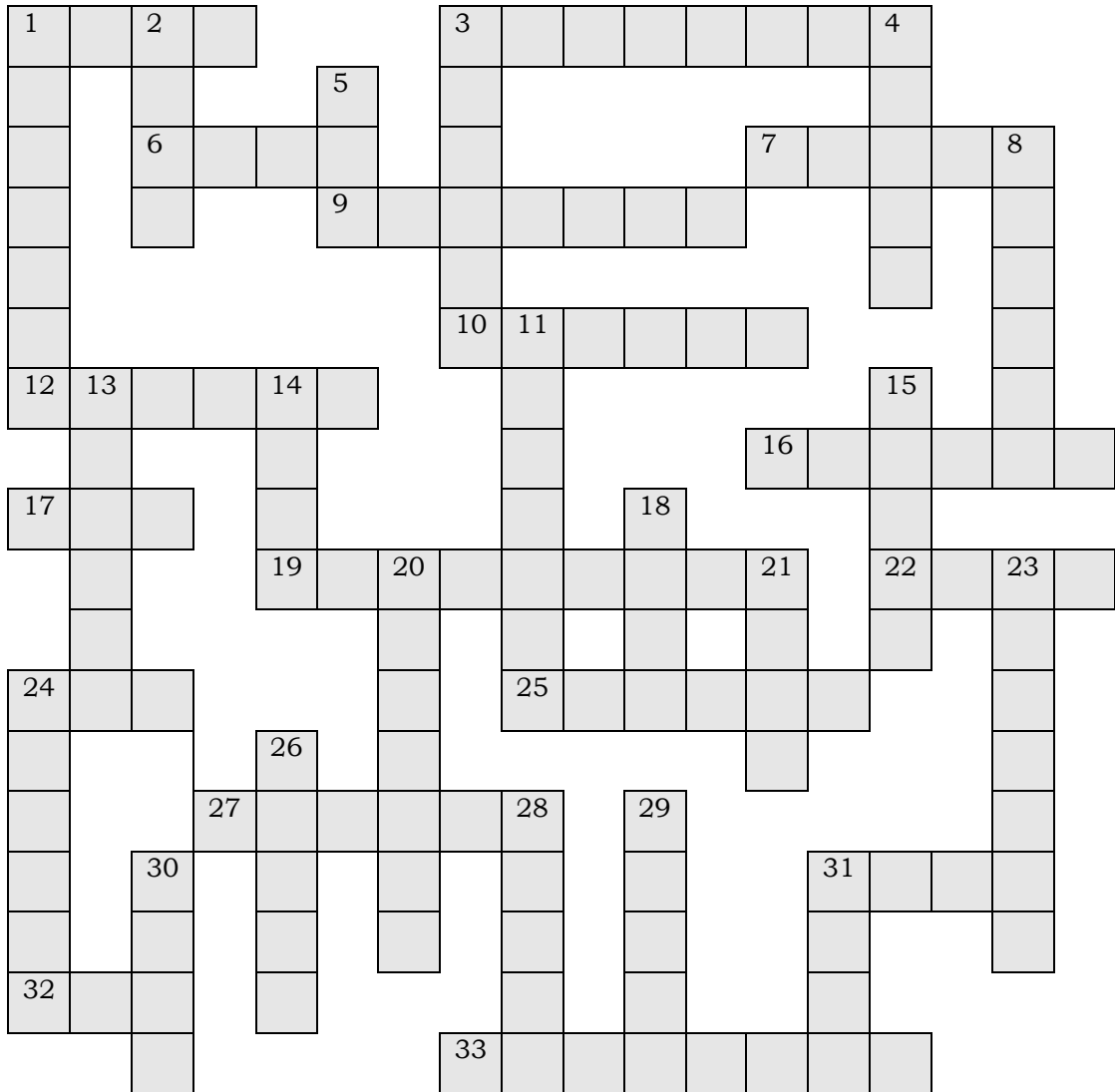
There are no trick questions here.

Nothing fishy at all.

© Intelligent Australia Productions

Across

1. Jodi, Anna and Susie had $42 between them. Jodi had twice as much as Anna who had twice as much as Susie. Which girl had $12?

3. If a number is ten times half the double of 10^2 then the number is one …?

6. Alison, Nina and Michelle each have an uncle whose name contains three times half the number of letters as his niece's name above. Which girl has an uncle whose name contains 6 letters?

7. If 'slam' is 2846 what is 26488?

9. Joe's rich grandfather has a bank balance with 7 digits in it. This means he has at least a thousand/million/billion dollars in the bank. (choose the best answer)

10. Eddie, Edward and Edmund ran in a race against each other. If Edmund finished either first or second, Eddie finished either second or third and Edward finished ahead of Edmund who won the race?

12. Julie the Holiday Addict loves to go on holidays as often as she can. Should she take 18 holidays yearly, four holidays in every three month period (i.e. quarterly) or a holiday every three weeks?
Answer either: *weekly/ quarterly/ yearly*

16. Name a four sided shape whose length is double half of its width.

17. Which number can be multiplied by half of itself to give an answer that is ¼ of 200?

19. Salvadore scored three quarters as many points as Stephason, and 3/7 of his team's score, in the basketball match. If one of these players scored 30 points who was it?

22. Elke, Emma and Ella walked 12 km altogether. Elke walked half the distance Emma walked and Ella walked one and a half times as far as Emma. Which girl walked 4 km?

24. Roger walks 1.5 km to school and the same home in the afternoon. How many kilometres make up 1/3 of his daily return trip?

25. Sharon and Sherry drank a litre of orange juice together. If Sherry's share was 4/5 of 800ml which girl drank the most?

27. Is a girl who can run 100m in 17 seconds faster or slower than a boy whose top speed is 20 kilometres per hour?

31. How many kilometres does a rocket cover in a second if it travels at 18 000 kilometres per hour?

32. Kit, Nat and Pat enjoy shopping at the markets. They arrange to meet there at 10.00 a.m. Kit arrives 5 minutes before Nat and Pat is 8 minutes later than Kit. If Pat arrives at 10.03 which boy arrives exactly on time?

33. Name the month that comes three months before the month that is 4 months after November.

Down

1. William, Anthony and Malcolm collect stamps. Between them they have 2000 stamps. If William has half as many stamps as Malcolm and Malcolm has 250 more stamps than Anthony which boy has 650 stamps?

2. On the even-numbered side of Aussie Avenue the Browns live at no. 26 and the Joneses at no. 46. How many homes are situated between them?

3. How many metres is it around a rectangular garden bed whose length of 4m is double its width?

4. Debra, Dotty and Diana collect stickers. Of the 150 stickers they've collected altogether Debra has 30% of them, Diana has 2/5 of them and Dotty has the rest. Which girl has 60 stickers?

5. Sam's weight is 80% of Tim's (Tim weighs 60kg). Dan weighs 10kg less than Tim. Who weighs the least of the three?

8. Is the number that's three times a quarter of 80 larger or smaller than the number that's twice a quarter of 100?

11. If 7824491 is 'srallod', what is 1944287?

13. Lucinda's father is 43 years old. In another 5 years Lucinda will be 1/3 her father's age. What is Lucinda's age right now?

14. Is the number that's ¼ of 64 more or less than the number that's 1/3 of 51?

15. Any number raised to the 2nd power is squared. Any number raised to the 3rd power is…?

18. If James is 1 year younger than his brother Tommy who is ¼ their father's age of 48 is James' age more or less than the age of his sister Angie who is 10?

20. Sophie, who weighs 44kg, is ½ her father's weight. Is Sophie heavier or lighter than her brother Simon whose weight is three times a quarter of his father's weight?

21. If 2590 equals 'real' what does 5920 equal?

23. Lindsay, Richard and Michael's combined age is 39. Richard is the eldest of the three, followed by Michael, with Lindsay the youngest. There is 2 years difference between each of the boy's ages. Which boy is 13 years old now?

24. If 324851 equals 'negyxo' what does 158423 equal?

26. David, James and Sally consumed 30 peanuts between them. David ate 20% of them, James had 40% and Sally ate the remainder. Who ate 6 peanuts?

28. A=1, B=2, C=3, D=4………Z=26.
Rosie, Clare and Deana all think their own name has the highest value (using the code above) Who is right?

29. If Cindy is 3/5 of 9/5 of Chloe's age which of the two is the youngest?

30. Beck, Kate and Sash are in the school athletics team. In the 1500m run Sash's time was 7/8 of Kate's and 9/8 of Beck's. Which girl had the slowest time?

31. How many 2 tonne elephants weigh 10 000kg?

About 'Operation Number'

Description:

This crossword has 46 clues. Questions have been designed such that the majority of students will not need a calculator to arrive at solutions. However a small amount of working out will need to be done for some clues.

Which students will benefit most from doing this crossword?:

All students who have been exposed to the concepts listed on the following page will enjoy this puzzle.

This crossword is excellent for consolidation of number skills and provides a great challenge for younger students who have a strength in mathematics.

Level of Difficulty:

Medium

10 Concepts/Topics Covered in 'Operation Number'

Multiplying by 100

Hundreds of Thousands

Mixed operations including Division

Remainders

Prime Numbers

Your students will encounter each of these concepts/topics in the crossword.

Millions

Percent

Division

Fractions

Tripling
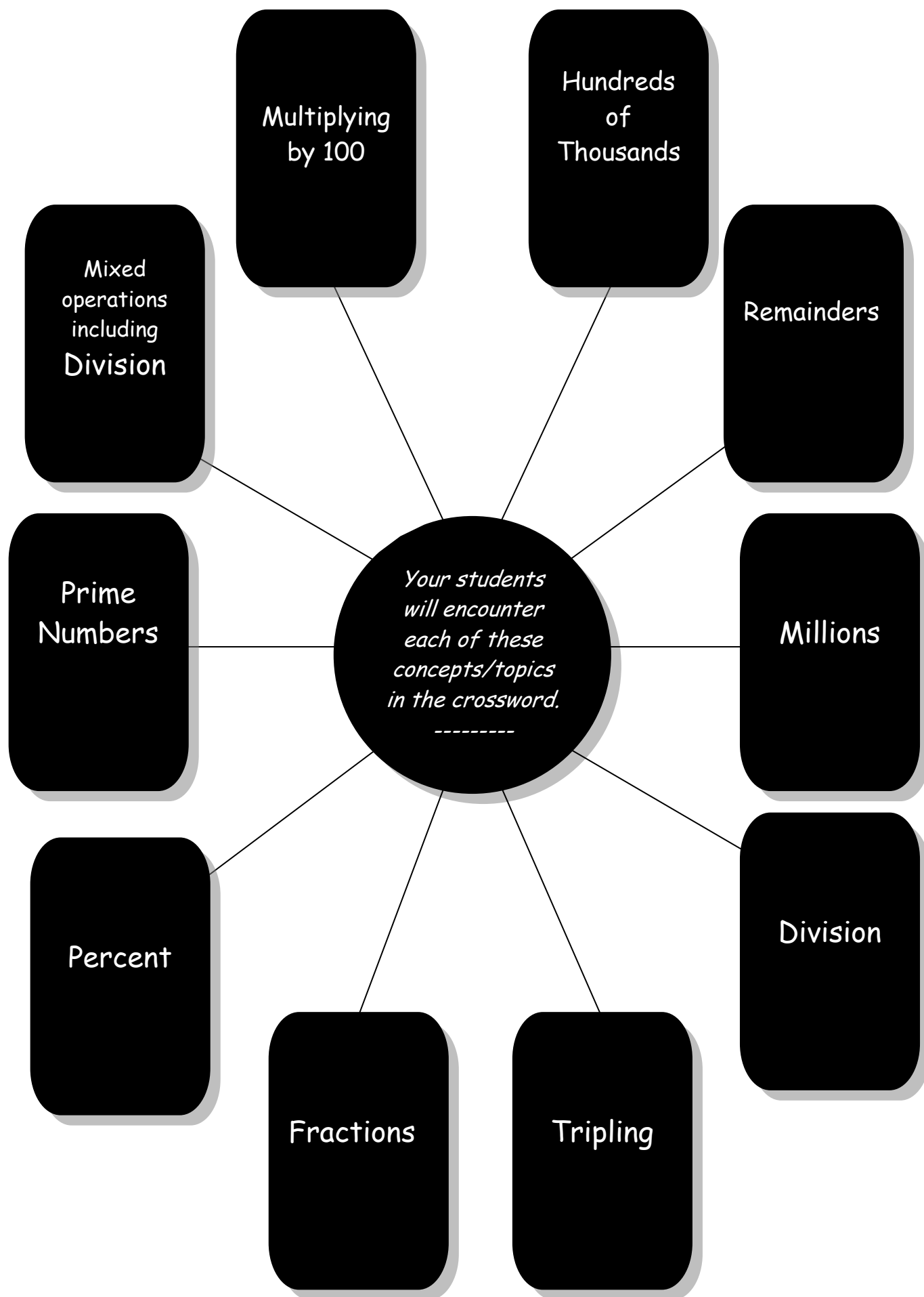
Operation Number

Level of difficulty ★★

answer all questions in words

*Some folks say that multiplication is repeated addition? What do **you** think?*
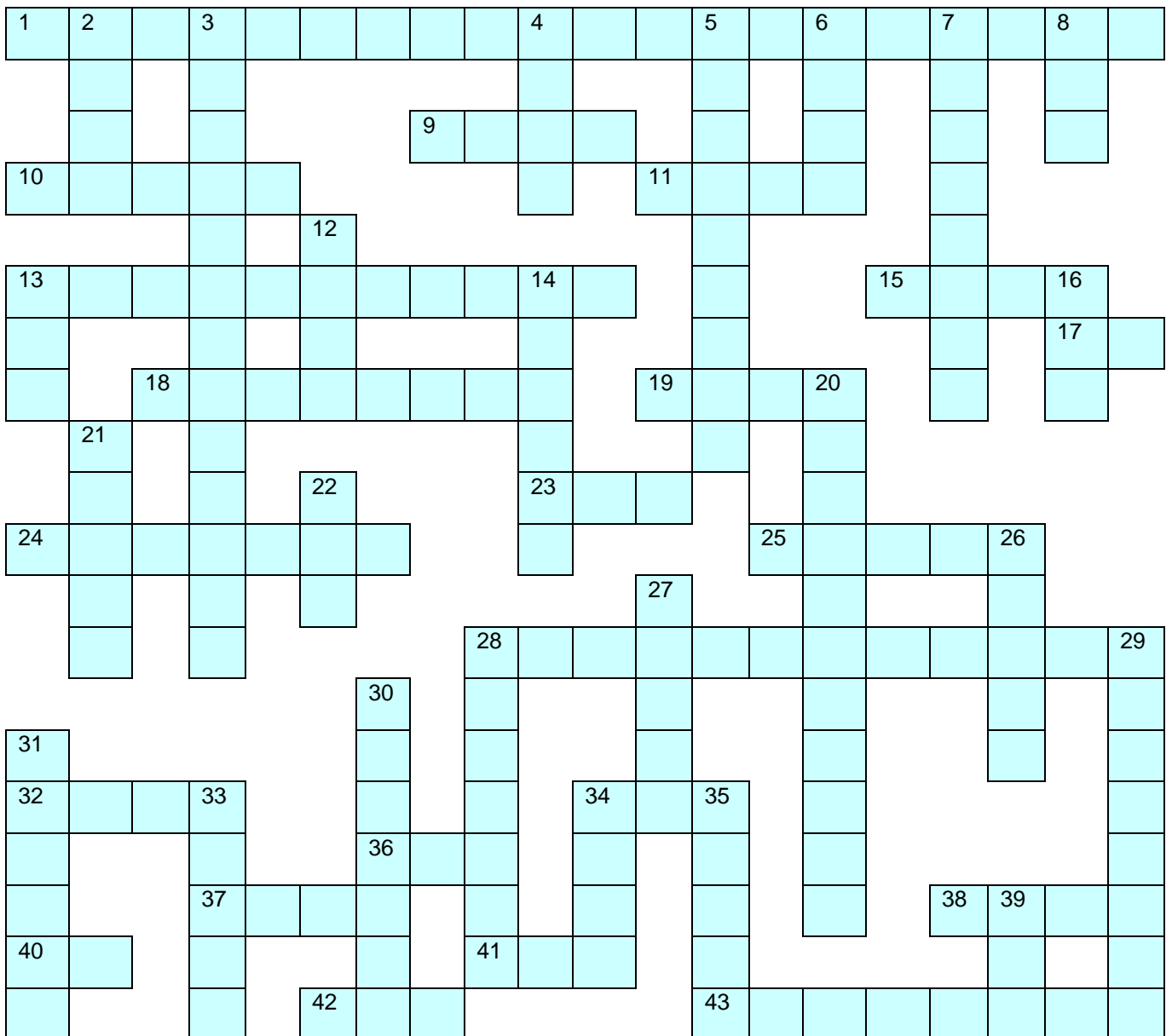
Across

1. 34 x 30

9. How many 60s in 540?

10. What is the reminder when 47 is divided by 8?

11. Is 50 x 100 more or less than 25 x 210?

13. What must I subtract from 234 500 to give the answer 232 500?

15. What remains if I take 8 x 70 away from 7 x 80?

17. Does 16 ÷ 4 + 4 equal 16 ÷ (4 + 4)?

18. How many 200s in 2800?

19. How many 35s in 175?

23. What is the only prime number that is an even number?

24. Is 100 x 100 greater or less than 200 x 49?

25. What's the remainder when I divide 4 into 31?

28. What do I get if I subtract 1239 from 1317?

32. First four letters of 'difference'.

34. How much is 200% of ½ ?

36. What is the product of the 1st and 3rd prime numbers?

37. How many 230s in 1150?

38. Is 4000 − 1998 more or less than 10000 − 7999?

40. Are both 7 and 13 factors of 224?

41. Are both 7 and 13 factors of 364?

42. What remains when 86 is divided by 17?

43. What do I get if I double 13, triple that answer, and then divide by 6?

Down

2. How many times larger than 81 is 729?

3. How many times does 1000 divide into 3 000 000?

4. How much is 1 000 001 minus 999 992?

5. How many 100s in 9 600?

6. You'll get 28 if you add together fourteen of these.

7. Which number is $\frac{1}{5}$ of 90?

8. How many prime numbers are there between 30 and 40?

12. Apart from 7 what is the only number that, when divided into 31, gives a remainder of 3?

13. Which digit (number) is in the hundreds of thousands place in 3 247 860?

14. How much larger than 6454 is 6544?

16. What is the square root of 100% of one squared?

20. How much less than 4749 is 4666?

21. How many times does 87 divide into 261?

22. Is the answer to 3148 minus 1788 the same as the answer to 4644 minus 3284?

26. What do I need to multiply 28 by to get an answer of 224?

27. What is the 4th prime number?

28. How many 700s in 49 000?

29. What is the only prime number between 11 and 17?

30. What do I multiply 16 by to get 240?

31. What is the opposite of 'subtracting'?

33. How many 50s in 2500?

34. There are 99 twos in 198 and 99 _ _ _ _ in 99.

35. What's the remainder if I divide 9 into 80?

39. How many times does (4 x 2) divide into (64 ÷ 8)?

Title ....

Across

Down

Solutions

Some Real Testers

```
T W O     P E T E R       J U L I A
H         I     O             L
R     T   G     S   M     S   A
E I G H T H S   A D D I T I O N
E     I   T   R     C     X
  T H R E E     E     L I Z   F A Y
  W   T   E I G H T   N     I
  E   Y   N       W   C     V   S
O N E   M   Z E R O   R O B E R T
  T   D A N   D       E         E
  Y   T     W A N D A   J E F F
  F I F T Y   I       S         F
  O   R     O N E   R E D U C E
J U N E   J   A
  R   E D O   D   J   C L A R E
      D E C R E A S E   E   O
  A M Y   K   N   N I N E T Y
```

Fraction Fundamentals

```
T W O
H   N U M E R A T O R
R   E     Q               D
E         U     T     E   E
E   O   F I F T H S   L   N
    N     V     I   Z E R O
H   E Q U A L   R     V   M
A   U     L     D     E   I
L   A     E     S     N   N
F O U R   N   S           A
    T   T H I R T Y       T
T H R E E     X       T W O
W   R         I           R
O   S   T W E L F T H S
```

Challenge: $\frac{1}{10}$ $\frac{1}{8}$ $\frac{1}{4}$ $\frac{2}{5}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$ $\frac{9}{10}$

The Roman Number System

4	3	8	■	2	1	■	1	8	5	7	■	■	4	■	2	0	0	4
2	■	1	5	■	9	2	6	■	4	5	■	■	8	8	8	■	■	4
3	6	■	0	■	9	9	■	■	8	1	■	7	5	■	■	1	4	
■	■	1	0	0	■	■	■	■	1	2	1	■	■	6	■	6	■	
■	6	8	■	■	9	5	1	■	3	2	■	2	6	■	2	0	0	1
4	8	■	8	4	■	1	1	1	■	4	8	■	4	■	9	■	■	4
■	3	3	9	■	3	■	■	0	■	■	4	4	■	■	6	6	9	
■	■	0	■	2	3	5	■	6	2	■	2	0	0	■	2	4	■	4
■	5	1	6	■	■	3	3	9	8	■	■	9	3	■	0	■	■	
3	1	8	■	■	2	6	2	■	9	■	■	■	■	1	0	6	6	■
9	9	■	■	3	■	7	■	4	9	■	■	■	■	■	5	1	8	
■	8	2	■	5	1	3	■	8	■	1	2	5	■	■	■	■	7	
2	7	■	■	2	■	■	6	■	2	■	2	■	■	9	9	9		
3	■	■	6	0	9	■	■	3	8	1	■	5	7	■	4	5	■	
6	4	■	■	3	■	2	3	9	4	■	■	■	2	5	9	■	1	4
■	0	■	■	■	■	■	1	■	7	5	■	■	■	9	■	■	■	9
1	0	6	4	■	4	0	8	■	2	2	■	■	1	9	■	9	7	2
4	■	■	2	4	4	■	4	2	0	■	8	■	2	1	■	■	7	■
4	3	■	■	5	■	■	8	■	4	1	7	■	1	■	5	1	2	■	1
■	5	2	0	■	■	■	■	■	8	■	■	8	9	4	■	9	7	9

Money, Money, Money

				T	H	I	R	T	Y			
		Q		W				W				
	H	U	N	D	R	E	D		F	O	U	R
		A		N								
	M	O	R	E		T	W	I	C	E		
		T		Y			U		C			
H	O	N	E			R		O				
A		R				R	O	U	N	D		
L	E	S	S		T	H	R	E	E		N	E
F		E		T		O		N	O	T	E	S
V		W		N		C					I	
E	L	E	V	E	N	Y					G	
Y	N	L			F		T				N	
E	V		T		U		C	E	N	T	S	
S	I	L	V	E	R	W		L		N		
			D	O	L	L	A	R	S			

About Time

QUARTER JANUARY

THIRD ... MONTHS ... MAR ... APR

SIXTY ... TWO ... DEC

FRI ... SEVEN

WED ... AUTUMN ... AUGUST

FEBRUARY ... IDL

SUN ... HOURS ... BELOW

NOON

FORTNIGHT

Weights and Measures

EIGHTY ... KILOGRAMS

KILOMETRE

EIGHT ... CENTIMETRES

TWO

TEN ... FULL

QUARTER ... METRES ... TEN

HALF ... GRAMS ... ONE

DOUBLE ... NONE

TEN

TWENTY ... FIFTEEN

A Bit of Everything

			H					S		
			U		S	O	L	I	D	
	T	R	I	A	N	G	L	E		X
D		O		D		V				
I		U		R		E		O		N
A		N	I	N	E		N	I	N	E	U
M	I	D		D	C			E		M	M
E				E		H				E
T	H	O	U	S	A	N	D		E	R
E			E		T		X		A
R			V		R	O	M	A	N	T
	S	P	H	E	R	E		G	X	O
	I		N			D	O	L	L	A	R
	X	C	V				N	

A Few Little Problems

	D	O	Z	E	N			O		L		X	
M	C		E		H	U	N	D	R	E	D	C	M
	C		R		A		E		S		X	I
T		D	O	U	B	L	E		S	E	V	E	N
Z	E	R	O			V		H			U
	N		Z		H	E	C	T	A	R	E	S	T
	E		S			S		L		Q		E
T	W	E	N	T	Y			F		U		S
H			H		N	O		M	A	S	S
O	N	E		I	X	U			R		S
U			R		M	L		T	W	E	L	V	E
S	I	X		D		E					C
A			S		R		T		T	W	O
N	I	N	E		A	M	E	T	R	E	N
D		O			T		N			D
	O	N	E		H	O	U	R	S	L	E	S	S
	E			R		S	I	X

Ship Shape

P	I			O	B	L	O	N	G		O				S	U	M
E				N			C				N		C		E		E
R	U	L	E				T	R	A	P	E	Z	I	U	M		A
I							A					R		I		S	
M		T					G					C				U	
E		W		R	H	O	M	B	U	S		L		S		R	
T	W	O				N				Q		E		E		E	
E										U				V			
R	A	D	I	U	S		T	R	I	A	N	G	L	E			
								R				N		D			
	Q	U	A	D	R	I	L	A	T	E	R	A	L		O		
			E			I				R				D			
			C		N		F		E		O	N	E				
	P	A	R	A	L	L	E	L	O	G	R	A	M		C		
	E		G		S		U			O	C	T	A				
	N		P	O	L	Y		R		R		W					
	T		N				N	I	N	E		O					

All in Order

H		T		F	O	R	T	Y			F
U		E		N		E			T	W	O
N	I	N	E	T	E	E	N		H		U
D		I		I		Y			I		R
R		G		G	R	E	A	T	E	R	
E	I	G	H	T		S		H		T	T
D		T		T			N	O		Y	W
Y		L	E	S	S	U			E	
		E		E	V	E	N		T
S	L			V		A			Y
N	I	N	E	T	E	N	D	T	
X	V			E		H		
E	I	G	H	T	E	E	N	R
T	E	N			O	N	E	

© Intelligent Australia Productions

Squares 'n Square Roots

```
F O U R H U N D R E D · · · · · · ·
I · · · · · I · · I · N I N E T Y · · ·
F I V E · · N · · G · I · O · W · · ·
T · · I · T E N · H A L F · F O R T Y ·
E · · G · · · · · T · O · · · · E · ·
E I G H T E E N · · Y · R · · · O N E ·
N · · T · I · · · · · T · · · · · ·
· · · · G · T W E N T Y F I V E · · ·
· · · N · H · · · · · N · · · L · · Z
· T H I R T Y S I X · · I · T W E L V E
· W · N · Y · · · N · N · W · V · · R
N O · E O · · · F I V E · O · E · · O
I · · · N I N E · N · · · O N E · ·
N I N E · E · · · E · · · · · L ·
E · · I · · S I X T E E N · · · E ·
· · G · · I · · E · I · S E V E N
B O T H · S I X · E I G H T · E · O
O · T · · T · N · H · · · N O
T · Y E S · Y E S · T · · N
H · · · · · · · Y · E L E V E N
```

Maths Super Puzzle

		1	2	1		5	5		1	6	0		1		8		5	4	0
4		4		1	0	0	0		6			1	6	9			4	1	
8		4	9				0			2		2		5	5		4	6	
6	4		0		3	2		1	7		2	9		4	0	0			0
		1	0	6		5	0	0		1	0	0	0	0	0	0			
3	3	3		4	8			0		5		0				0		1	
7	0		3		0		2			7		2	4	2			5	2	
5			1	8	0		2	4		7	7	7		3		5			9
	2	2		4		8	5		1	2				2	8		9	9	
4	0	0	0						9		1	2		0		3	0	0	
6	0	0		2	3			9		3	6	0	0			0			
8			3	6	5		1	6	8					7	2				
	1	1	0	6		5	4		7		1	2	0		0		0		
	2	5		1	3	4			8	0		4	0			3			
4	1	6		2	0	0		3	2		4	3	1		1	0	0		
9	5			8	6		2	0	0	8		3	6		6		7		
0		2	4		9	6		1	6	0		1	0			4	8		
0			9	6		2			5	0			2	5		6	3		
	1	9	6		6	2	5		2	2	2	2		8	0		7	3	1
1	0	1		1	4		0			4	7			8	0	0	0		0

Same Quantities, Different Names

T	W	O		T	W	O	T	H	I	R	D	S	
		N		W			H					S	I	X
	Z	E	R	O			R					E	
				T	W	E	N	T	Y	F	I	V	E
F	I	F	T	Y			E					E	
I					E	Q	U	A	L			N	
F			O	N	E		U					T	E	N
T	E	N		O			A		T	H	R	E	E	O
E		O			T		R					E	
E				T	W	O	T	H	O	U	S	A	N	D
N	O	N	E		O		E		N		I	
	N		I			R		E		X			F
	E		G		L	E	S	S		T		N	O
		H		E					E		U
	T		S	I	X		G	R	E	A	T	E	R
	Y	E	S					N	

Length, Mass, Capacity

E	I	G	H	T	Y						K			K			
			A				K	I	L	O	G	R	A	M	S		
			F		M			I									
T			K	I	L	O	M	E	T	R	E						
W			F		R			R		M					P		
E	I	G	H	T		E		C	E	N	T	I	M	E	T	R	E	S
N				Y				S			L			O		R	
T	W	O							M	L			N		I	
Y		N							I			N		M	
	T	E	N					F	U	L	L			E		E
	H								I			S		T	
	O			L					T					E	
Q	U	A	R	T	E	R			M	E	T	R	E	S		T	R	I
	S			S			O			E		E		W	
H	A	L	F		S			G	R	A	M	S		V		O	N	E
	N						E					E		I	
	D	O	U	B	L	E				N	O	N	E		N	
		N								N		T	E	N
T	W	E	N	T	Y			F	I	F	T	E	E	N

Work it Out

A	N	N	A		T	H	O	U	S	A	N	D
N		I		S	W						I	
T		N	I	N	A	E			S	M	A	L	L
H		E		M	I	L	L	I	O	N		N	A
O				V					A		R
N				E	D	W	A	R	D		G
Y	E	A	R	L	Y		O			C	E
	L		E			L		S	Q	U	A	R	E
T	E	N		S		L	M		B
	V		S	A	L	V	A	D	O	R	E	E	M	M	A
	E		I		R		R	A	D		I
O	N	E		G	S	H	E	R	R	Y	C
X			D	H			L		H
Y		F	A	S	T	E	R	C		A
G	K	V	E	O	H		F	I	V	E
E	A	I	R	S	L	I	L
N	A	T	D		I	O	V
	E			D	E	C	E	M	B	E	R

Operation Number

O	N	E	T	H	O	U	S	A	N	D	A	N	D	T	W	E	N	T	Y
	I		H					I			I			W		I			W
	N		R			N	I	N	E		N			O		G			O
S	E	V	E	N				E		L	E	S	S			H			
			E		F					T						T			
T	W	O	T	H	O	U	S	A	N	D		Y			Z	E	R	O	
W			H		U			I			S					E		N	O
O		F	O	U	R	T	E	E	N		F	I	V	E		N		E	
	T		U					E			X		I						
	H		S		Y			T	W	O		G							
G	R	E	A	T	E	R		Y			T	H	R	E	E				
	E		N		S					S		T			I				
	E		D				S	E	V	E	N	T	Y	E	I	G	H	T	
				F		E			V		T			H			H		
A				I		V			E		H			T			I		
D	I	F	F		F		E		O	N	E			R			R		
D			I		T	E	N		N		I			E			T		
I		F	I	V	E		T		E		G	E		M	O	R	E		
N	O		T		E		Y	E	S		H					N	E		
G			Y		O	N	E			T	H	I	R	T	E	E	N		