The**Swot**Shop

Maths Talent Program

Year 6,7

Maths Talent A

Sample Lesson with Teacher Instructions

The Swot Shop

This is a sample lesson from the **Maths Talent Program – Maths Talent A suited for Year 6, 7 students.** It includes basic teacher instructions. The lesson runs for 90 minutes.

All Swot Shop Programs are developed specifically for bright, gifted and motivated learners.

The Maths Talent Program is taught by a qualified and experienced teacher.

The program is developed to enrich, enhance and complement the learning that students experience in school settings.

Part of the focus of the Maths Talent A program (the highest level) is centred on material created by the Australian Maths Trust (AMT) based at the University of Canberra. This body is responsible for the Maths Challenge for Young Australians which is an enrichment/competition program for naturally talented primary and high school students. The Swot Shop offers two levels: Newton and Dirichlet.

To learn more please contact us on (02) 9634 2000.

Sample Lesson

Warm-Up Puzzle
Write it on the board:

What is the product of the digits in the sum of eleven thousand, eleven hundred and eleven?

(Answer: 11000 + 1100 + 11 = 12 111 ∴ the product of the digits is 2)

Discuss and correct last week's homework.

Open Ended Problem
Encourage students to find as many answers as they can.

At School in the Fifties
Direct the students to the page and request that they examine the three examples, follow the patterns and relationships to see if they can work out the rules for the square root algorithm. Set up the example $\sqrt{2209}$ on the board and get the class to help with the rules for its completion. Repeat for $\sqrt{15376}$). Organise a race for $\sqrt{21342.56371}$ with the aim of finding the root to as many decimal places as time will allow.

Answers: $\sqrt{2209}$) = 47, $\sqrt{15376}$ = 124, $\sqrt{21342.56371}$ = 146.0909433

Maths Puzzle Relay
(You will need half an hour). Randomly put students into pairs and give each pair a set of the eight puzzles. Students may share the workload in any way they wish. Calculators may be used. Each solution is to be brought for checking. With a red pen write the score next to each answer: +5 for a correct solution, -2 for each submission of a wrong solution with a maximum of three submissions. At the end of the time limit award a ribbon to each member of the pair/ pairs with the highest total score.
Allow time to discuss some of the questions.

Homework: Problem page
Ensure students understand what is required for this homework task.

Equipment:
Calculators

OPEN-ENDED PROBLEM

Use this page to find as many answers as possible to this problem:

The average number of spelling errors for five poor spellers was 17.2.
No one got less than 15 or more than 19.
What could the results be? (One possibility has been listed for you.)

Student A	Student B	Student C	Student D	Student E
15	15	18	19	19

AT SCHOOL IN THE FIFTIES
Calculating square roots without a calculator.

1. Split the number into pairs of digits, at the decimal point and moving in pairs to the right and to the left eg. 2916.00 splits 29'16.'00', and 15376.023 would split 01'53'76'.'02'30'

2. Examine the first two digits, looking for the closet perfect square. In this case the number is 29 and it splits into 5 x 5. Place one five above the line and one on the left.

3. Subtract 25 from 29 to make 4 and bring down the next pair of digits to give 416.

4. Double the number on top of the line and place it on the left to make 10. Put a place holder behind the ten to make a 3 digit number. The last digit will be the same as the digit placed above the line and when this three-digit left hand number is multiplied by the digit on top of the line, the answer should be as close as possible to 416.

5. In this case the answer of 104 x 4 is exactly 416, leaving no remainder, therefore the square root of 2916 is exactly 54.

6. If this were not the case, repeat the procedure again, doubling the whole top number "54" and writing it on the left followed by a place holder.

Maths Puzzle Relay

1. At the bakery where Mona works, bread is sold by the kilogram.

    On a scale, 1/4 of a block of cheddar plus 1/3 of a kilogram balances with a whole block of cheddar.

    How much does one block weigh?

2. A group of coworkers went out for lunch. The total bill came to $45.00.

    When the bill arrived, their manager offered to pay for herself, saying, "You all can split the rest evenly."
    As a result, each of the remaining people paid $1.50 more than they would have if the manager had shared the bill equally with everyone.

    How many people were in the group (including the manager)?

3. Barbara asked, "How many people are in your classes?"

    "The total number of people in my four classes is 92," said Matt. The totals for each of the classes are 4 consecutive even numbers. My English class is the largest; my maths class is smaller than the science or the social studies class. There are more in social studies than science.

    Since Barbara was in Matt's maths class, how many others were in it besides them?

4. Paula, playing with an old puzzle cube, decided to make a non-working model. She has glued the individual cubes together as shown. (She always had trouble with the working model.)

"I'm glad it's finished. Can you imagine how many times I had to glue to attach the side of each little cube to another?"

Assuming that each operation of gluing one small side to another is a separate operation, how many times did Paula glue?
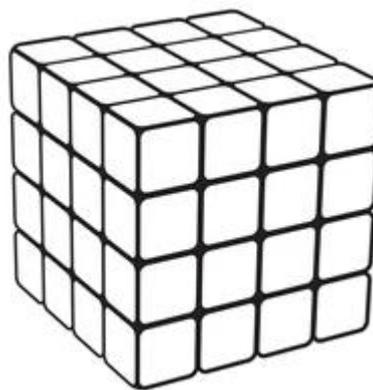
5. Two kids collect soft drink cans to recycle for money. They know that if they collect eight empty cans, they will receive 1 full can in exchange. If they gather 48 cans, how many drinks can they have between them?

6. "How much "How much money do you have, Liam?" asked Maya.

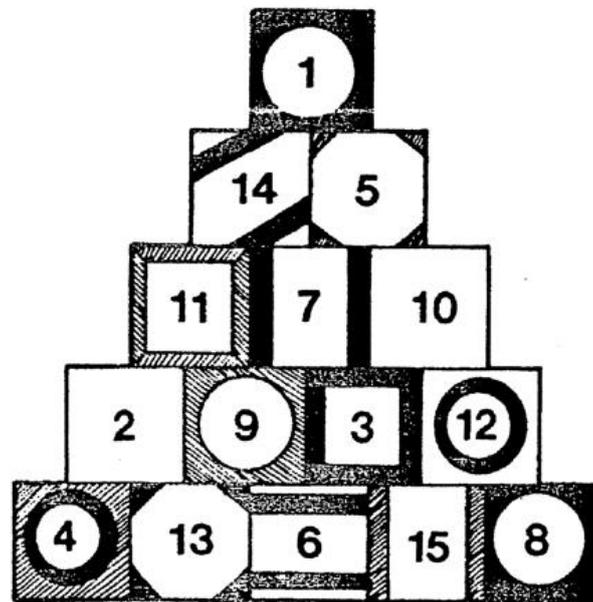"If I had three times as much, plus half as much, plus $4.20, I would have $40.20," replied Liam.

How much money does Liam have now?

7. What number, when divided by 4, gives the same answer as when 4 is subtracted from it?

(The number, containing a fraction, is less than 10).

8. Duke, Vivian and Randall are sharing these boxes.

No one may have boxes with consecutive numbers.

No one may have boxes with the same wrapping.

Although each end up with a different number of boxes, the three total scores are consecutive numbers.
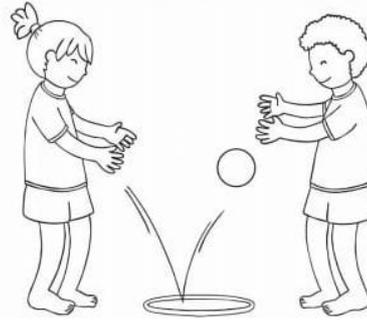
Write the numbers for each child's boxes in the columns below.

| Duke	Vivian	Randall

Problem Page

Solve these problems.

1. A rubber ball bounces half the height from which it falls. If the ball is thrown to a height of 24 metres, how high will it rise on the fifth bounce?

2. Fruity Cordials sells cordial in 2 litre containers for $1.78 or in 5 litre containers for $4.35. Which is the better value?

3. In a factory, a certain number or workers receive $500 per week. 4 times as many receive $400 per week and 10 times as many receive $300 per week. What is the average weekly wage per worker?

4. Find the numbers to go in the circles. The number in each square is the sum of the numbers in the two circles joined to it.
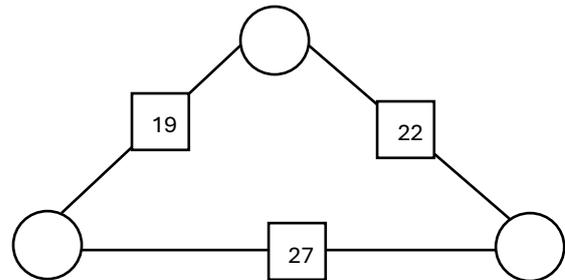
5. One man takes 120 steps a minute, each 75 cm long; another walks at 5½ kilometres per hour.

   If they start together, how soon will one of them be 100 metres ahead of the other?

6. a) Find two numbers (both greater than 1) which when multiplied together give 323.

   b) Find two prime numbers with a difference of 4 and a product of 1517.