BLOOMSM4TH
Makes Maths Fun

Level 5
PATTERNS & ALGEBRA

Bloomsmath is a comprehensive mathematics program which provides a fun way for every student to be learning to the best of their ability.

By Rachel McCann (B.Teach; B.Ed Hons; M.ED (Special Ed.)

Bloomsm4th
Makes Maths Fun

Level 5

Patterns & Algebra

Level 5 is designed for students in their fifth year at school often called Year 4. Students will generate, describe and record number patterns using a variety of strategies and complete simple number sentences by calculating missing values.

Knowledge: Students will find x in number sentences to solve a riddle.

Students who demonstrate proficiency in this activity move on to Comprehension.

STOP Students stop here as they require additional teacher support to master this activity.

Comprehension: Students will solve a number of "Three Coins In My Pocket" puzzles.

Students who demonstrate proficiency in this activity move on to Application.

STOP Students stop here if time has run out or they require additional support with this activity.

Application: Students will solve nine "Triangle Puzzles".

Students who demonstrate proficiency in this activity move on to Analysis.

STOP Students stop here if time has run out or they require additional support with this activity.

Analysis: Students will solve 4 "Number Circles".

Students who demonstrate proficiency in this activity move on to Synthesis.

STOP Students stop here if time has run out or they require additional support with this activity.

Synthesis: Students will fill in the missing numbers in each pattern.

Evaluation: Suggested questions provide a starting point for discussions related to Patterns and Algebra.

Students may complete more or fewer activities for each learning outcome depending on the time allocated and their strength in the area being covered.

All students should participate in the Evaluation discussion to encourage the use of mathematical language, logical reasoning and reflection on that which they have completed.

Patterns & Algebra - Level 5 - Students will generate, describe and find missing values in number patterns using a variety of strategies.

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation

Name: _____

Knowledge

Find x for each equation below to learn - Why Romans never struggled with algebra?

A $4 + x = 10$

B $16 - x = 12$

C $x \times 5 = 15$

E $14 \div x = 2$

I $5 + 5 = x$

L $7 + 5 = x$

N $x - 6 = 2$

S $9 \times x = 45$

T $20 \div 10 = x$

U $x - 4 = 5$

W $13 + x = 14$

Y $18 - x = 7$

4	7	3	6	9	5	7

x

10	5

6	12	1	6	11	5

2	7	8

Let's Try This Again   Progress To Comprehension

Name: _____

Comprehension

For each of the 10 equations below you must find 3 coins which total to the given amount. Use only 5c, 10c, 20c, 50c, $1 and $2 coins. The same coin may be used more than once and there may be more than 1 correct solution for each equation

ie.

    10c + 10c +10c = 30c and
    5c + 5c + 20c = 30c.

_____c + _____c + _____c = **50c**

_____c + _____c + _____c = **70c**

_____c + _____c + _____c = **$1.20**

_____c + _____c + _____c = **35c**

_____c + _____c + _____c = **90c**

_____c + _____c + _____c = **$2.00**

_____c + _____c + _____c = **65c**

_____c + _____c + _____c = **$1.05**

_____c + _____c + _____c = **$3.50**

_____c + _____c + _____c = **80c**

Let's Try This Again   Progress To Application

Patterns & Algebra - Level 5 - Students will generate, describe and find missing values in number patterns using a variety of strategies.
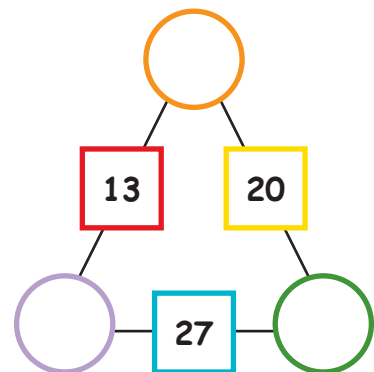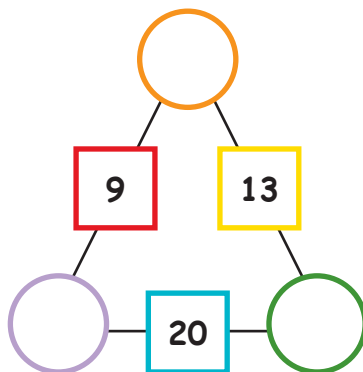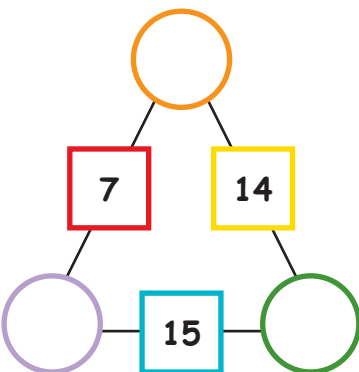
Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation

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Name: _____

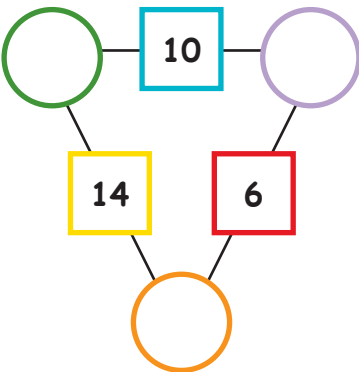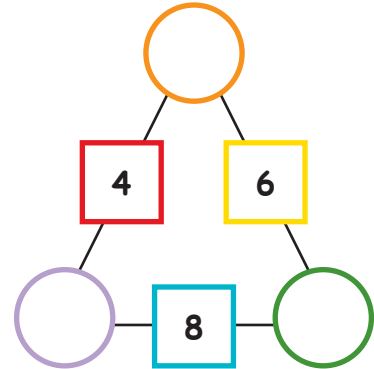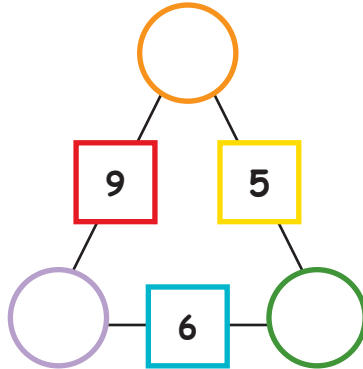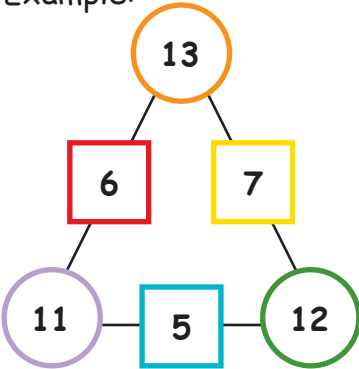# Application

See if you can solve these nine "Triangle Puzzles".

In each puzzle below the number in the circle must always be the sum of the numbers in the squares on either side of it.

Example:

Puzzle 1 (Example): Top circle 13, squares 6 and 7, bottom-left circle 11, bottom square 5, bottom-right circle 12.

Puzzle 2: Squares 9 and 5, bottom square 6.

Puzzle 3: Squares 4 and 6, bottom square 8.

Puzzle 4: Top square 10, lower squares 14 and 6.

Puzzle 5: Top square 12, lower squares 14 and 8.

Puzzle 6: Top square 10, lower squares 11 and 9.

Puzzle 7: Squares 7 and 14, bottom square 15.

Puzzle 8: Squares 9 and 13, bottom square 20.

Puzzle 9: Squares 13 and 20, bottom square 27.
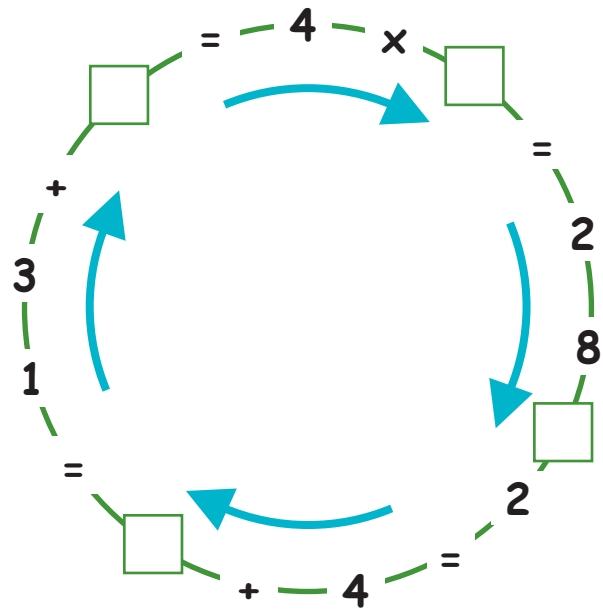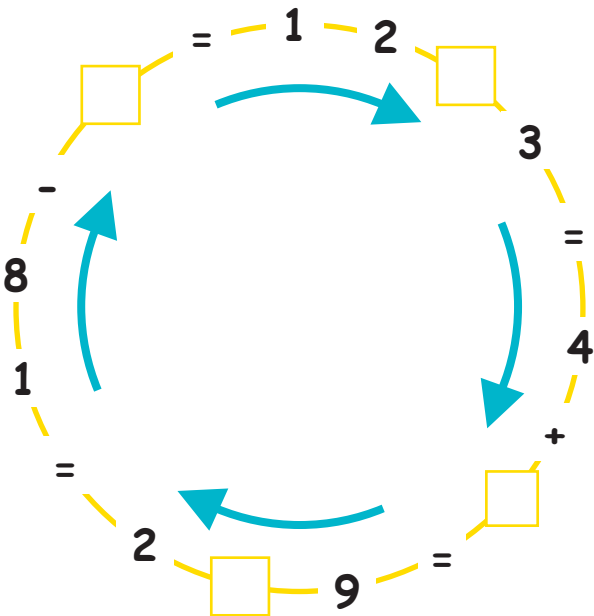
Let's Try This Again   Progress To Analysis

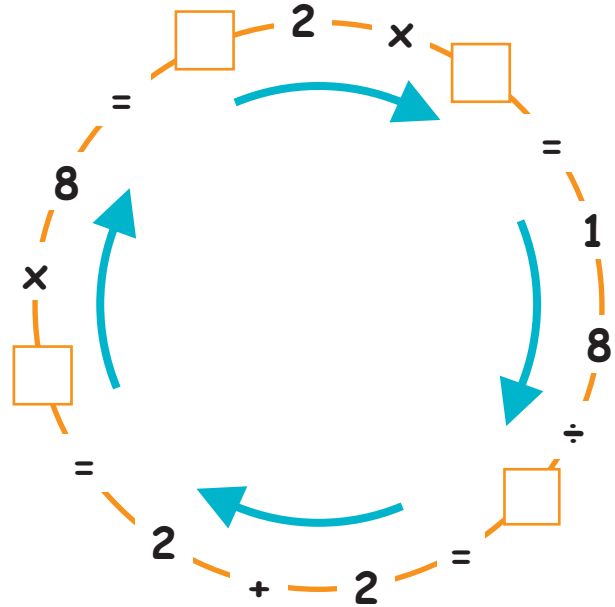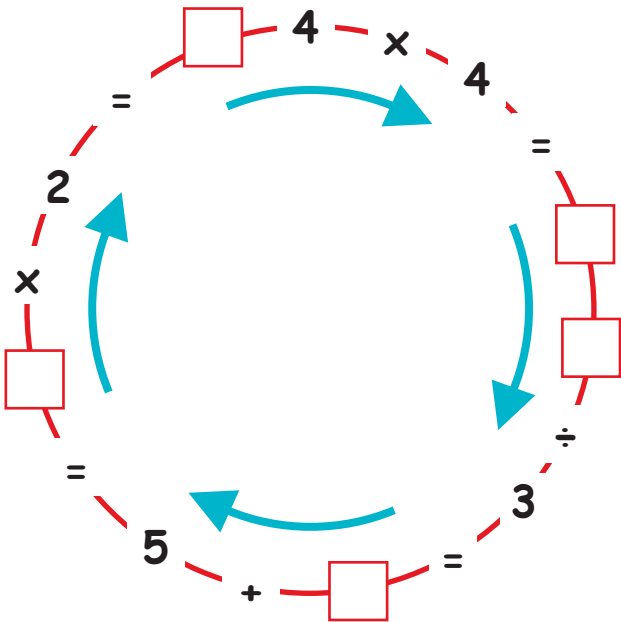Name: _____

Analysis

See if you can solve the 4 algebra circle below where the last number from each previous equation is the first number for the next equation. Note: If it is a double digit number such as 25 it is only the 5 which starts the next equation.
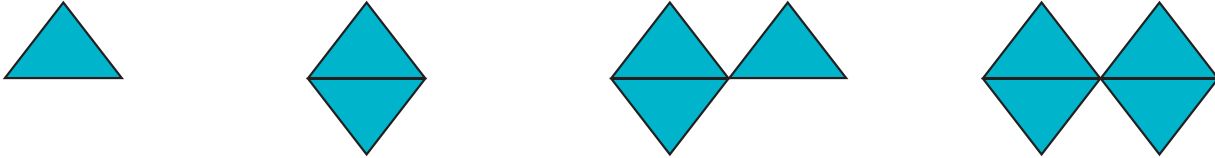
Knowledge

Comprehension

Application

Analysis

Synthesis

Evaluation

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🌼 Let's Try This Again   🐞 Progress To Synthesis

Name: _____

Synthesis

Can you find the pattern for each set below and then fill in the missing numbers.
Pictures have been given to help you with these.

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

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

1	2	3	4	5	6	7	8
4	7	10	13				

1	2	3	4	5	6	7	8
6	9	12	18				

Can you find an algebraic rule for any of these patterns?

Let's Try This Again

Progress To Evaluation

Evaluation

The following questions and activities are provided as a starting point for fun discussions related to Patterns and Algebra. During these conversations students will have an opportunity to use appropriate mathematical language in its correct context, to engage in reflection on the Patterns and Algebra activities they have completed and to use logical reasoning to tie their in-class mathematics to its everyday context.

Students who completed the Synthesis activity can provide an alien equation for their classmates to solve.

Students can try to build their own algebra circle.

Why do we use algebra – when is it necessary? Discuss dividing food evenly or buying the correct amount of a certain item that comes in multiples such as enough lollipops for 24 students when they come in bags of 8.

Play guess my number where you provide clues to the number ie. I am a multiple of 3, I have 2 digits, I am between 20 and 30, I am also a multiple of 2 what am I?

See if students can play the same game but they must try to provide 4 items before students can guess the number.

See if together you can devise an algebraic rule for the picture patterns in synthesis.

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