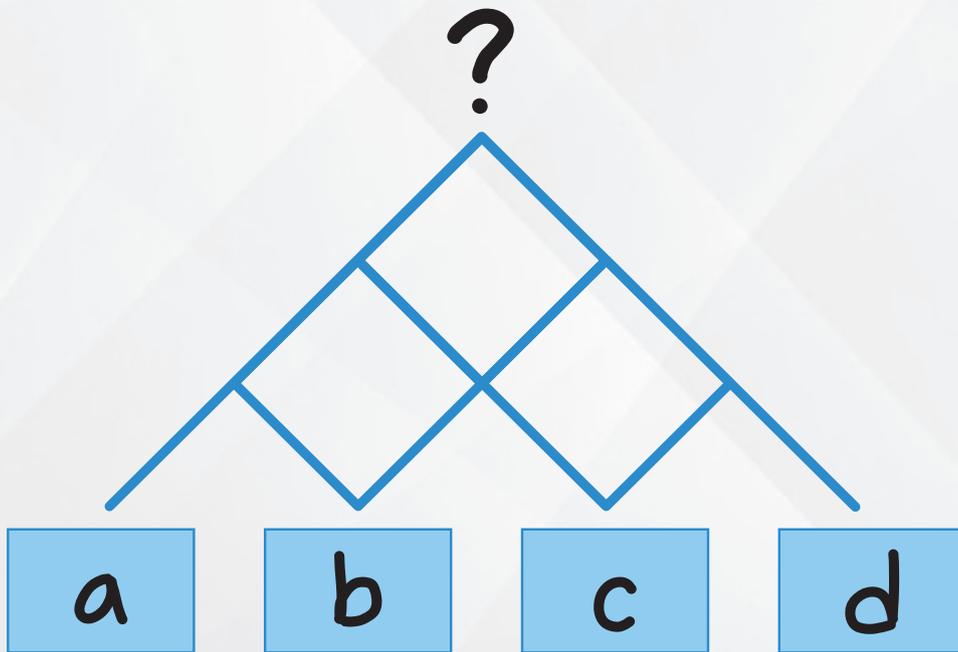


PYRAMID PREDICTION



Pyramid Prediction

What's the point of the task?

Asking students to predict the top number from the numbers along the base, encourages students to go beyond simply identifying *what* is happening to recognising *why* it is happening and describing it in mathematical language. It also a good opportunity to introduce algebraic notation.

Questions to facilitate the learning

- What happens if you add 1 to each number in the bottom row?
- What happens to the total at the top?
- Can you see why?

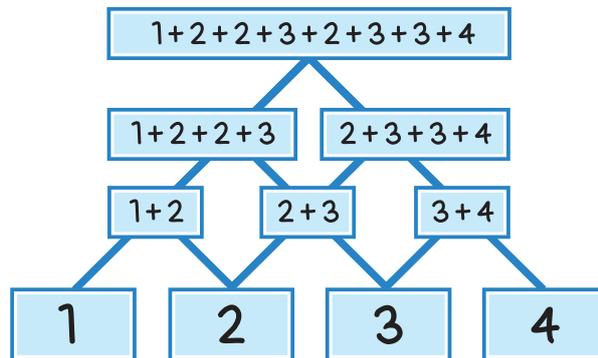
Curriculum connections

This task provides students with the opportunity to go through the reasoning process of *conjecturing*, *generalizing* and *justifying*.

This task relates to algebra as symbols or shapes could be used instead of numbers to describe the rule.

Scaffolding the learning

- What calculations are performed in each section of the pyramid?
- Can you see how to bypass the second and third rows and just perform one calculation to get the top number?



Extending the learning

How might you predict the top number in a pyramid with 5 numbers along the base?

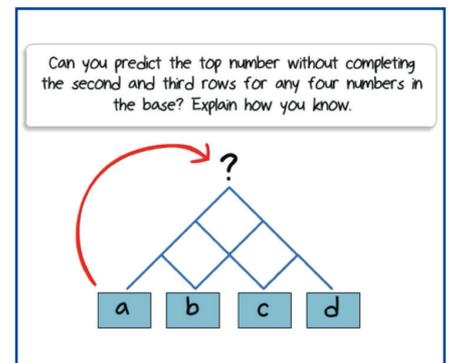
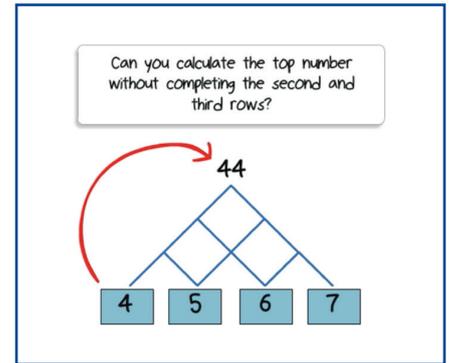
Solution

To find the top number, you triple each of the middle numbers and add both of these to the outside numbers. So in the case of a pyramid with 1–4 along the base, the equation would be:

$$\text{Top number} = 1 + (3 \times 2) + (3 \times 3) + 4$$

Using letters a, b, c, d along the base, the equation would be:

$$\text{Top number} = a + (3 \times b) + (3 \times c) + d$$



About Mathletics:

Mathletics is an online maths resource specifically designed for personalised teaching and learning. Used by thousands of schools across the UK, it is proven to significantly increase levels of student engagement, confidence and motivation and to improve attainment and progress in maths from KS1 to KS4.

For more information on Mathletics visit: www.mathletics.com and [@MathleticsUK](https://twitter.com/MathleticsUK)

About 3P Learning:

3P Learning was established in Australia in 2004 and in the UK in 2006 and has its UK office in Bristol. Its focus is on learner engagement, confidence and motivation and its best known products Mathletics, Spellodrome and Reading Eggs are strong on powerful curriculum-aligned content, 'gaming-style' challenges and rewards. 3P Learning is currently shortlisted for five 2019 Bett awards and its products are used in over 5,000 schools across the UK.

For further information on 3P Learning, please visit: www.3plearning.com

Pyramid Prediction

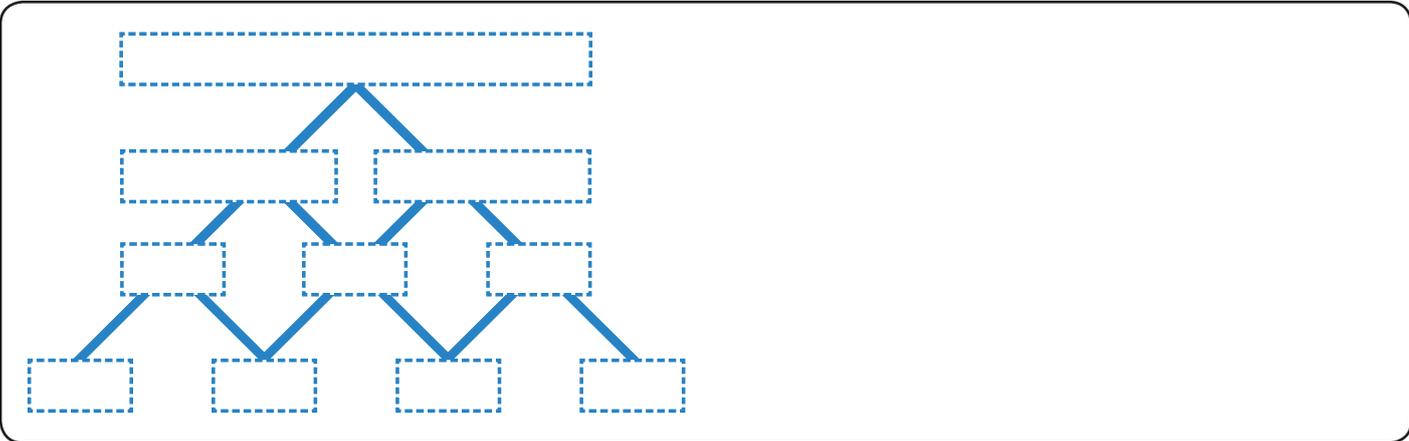
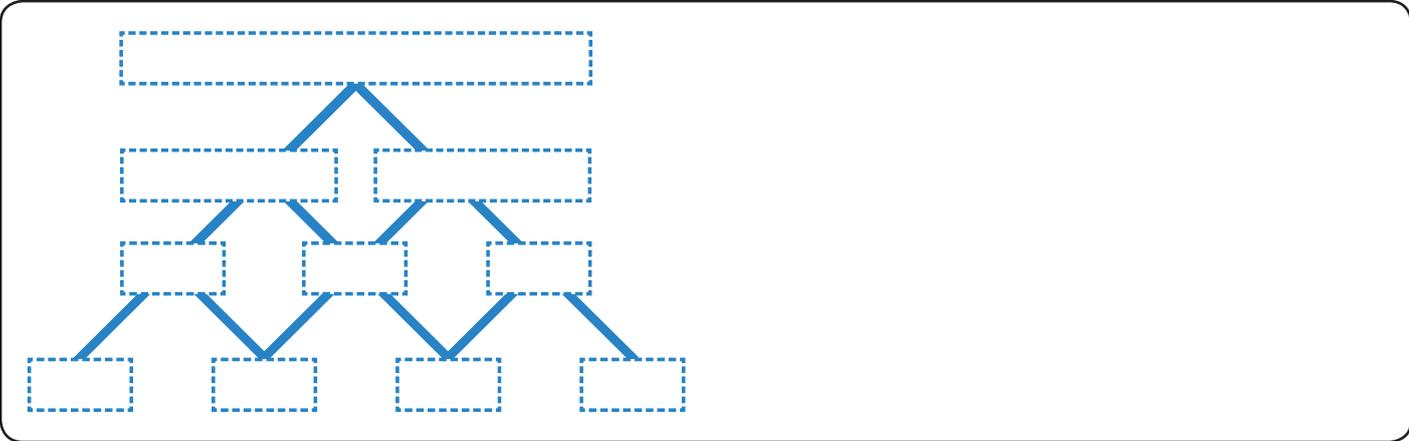
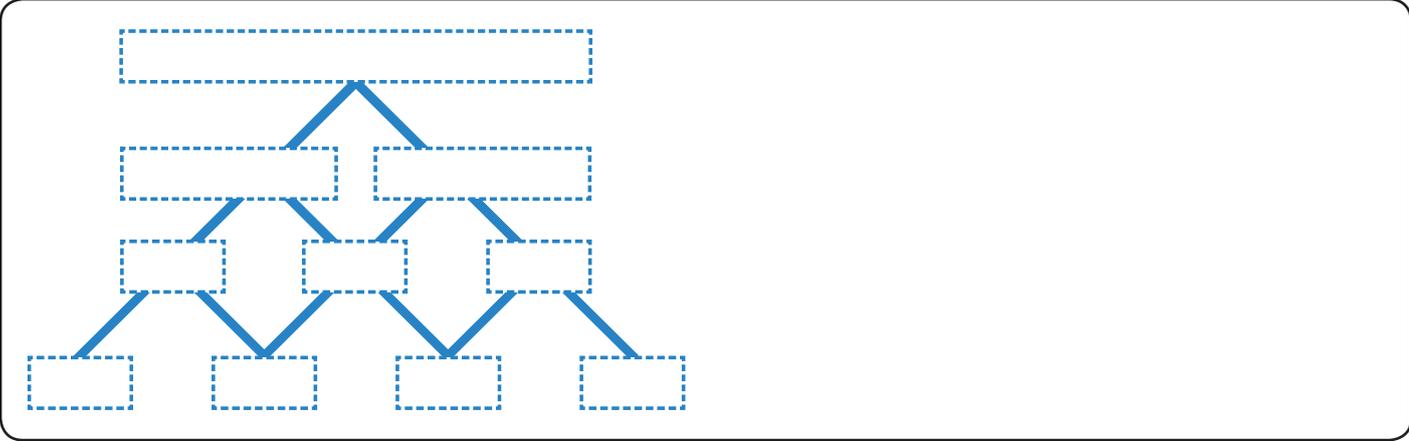
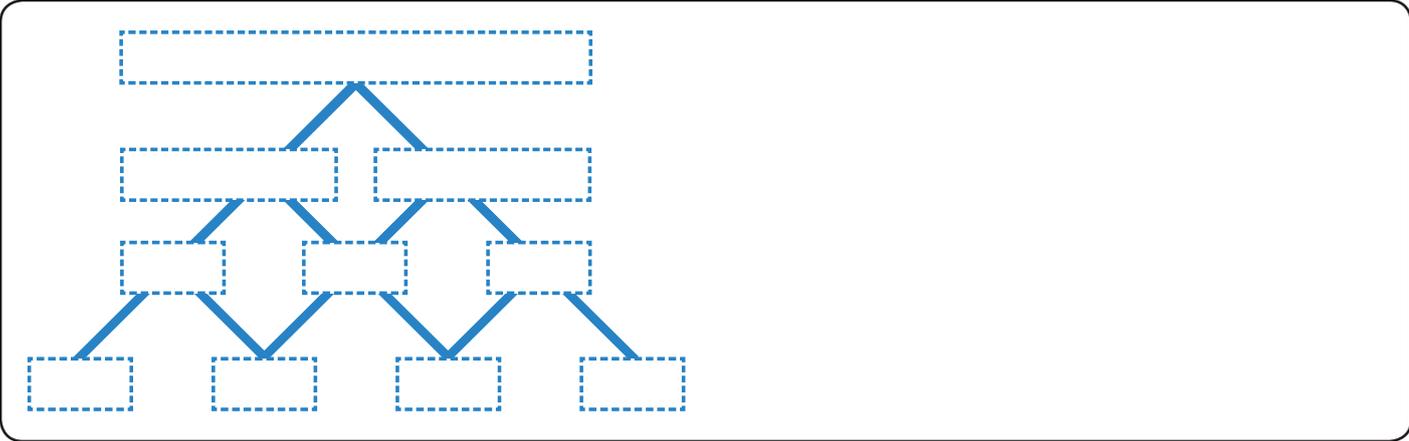
Investigate how the number pyramid works.

Can you calculate the top number without completing the second and third rows?

Can you predict the top number without completing the second and third rows for any four numbers in the base? Explain how you know.

Name _____

Worksheet



Name _____