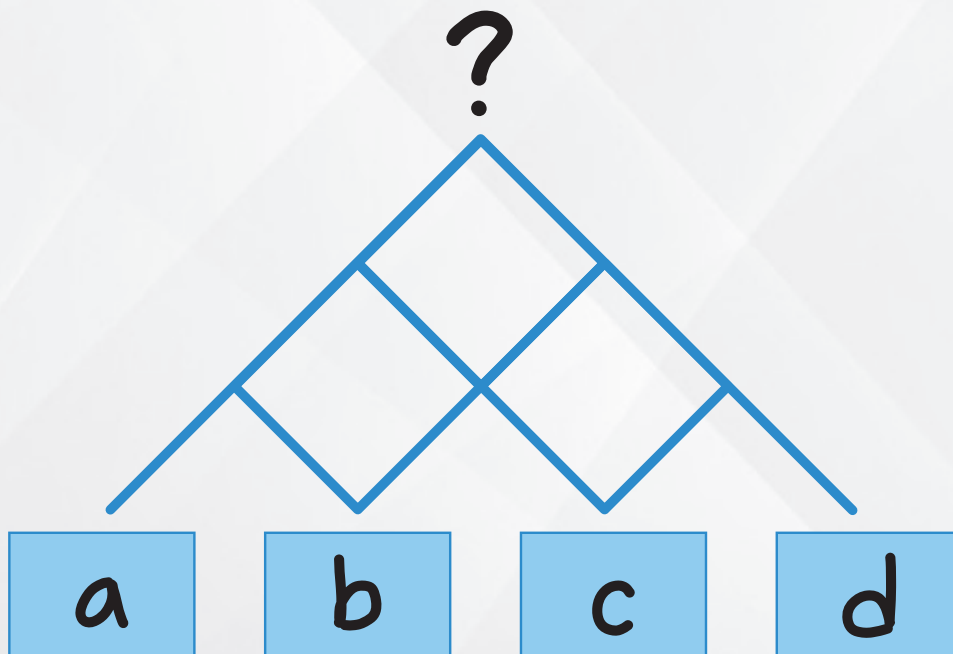


# PYRAMID PREDICTION



# 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?

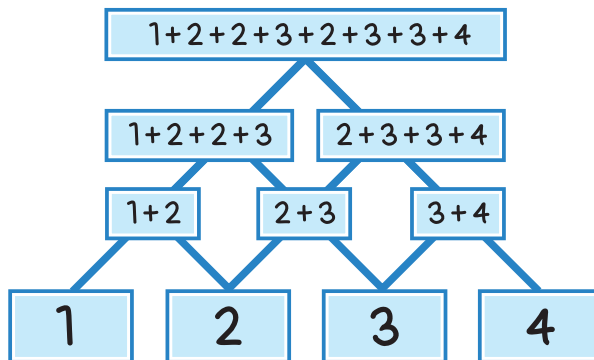
## Curriculum connections

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?



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.

## 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:

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

# Pyramid Prediction

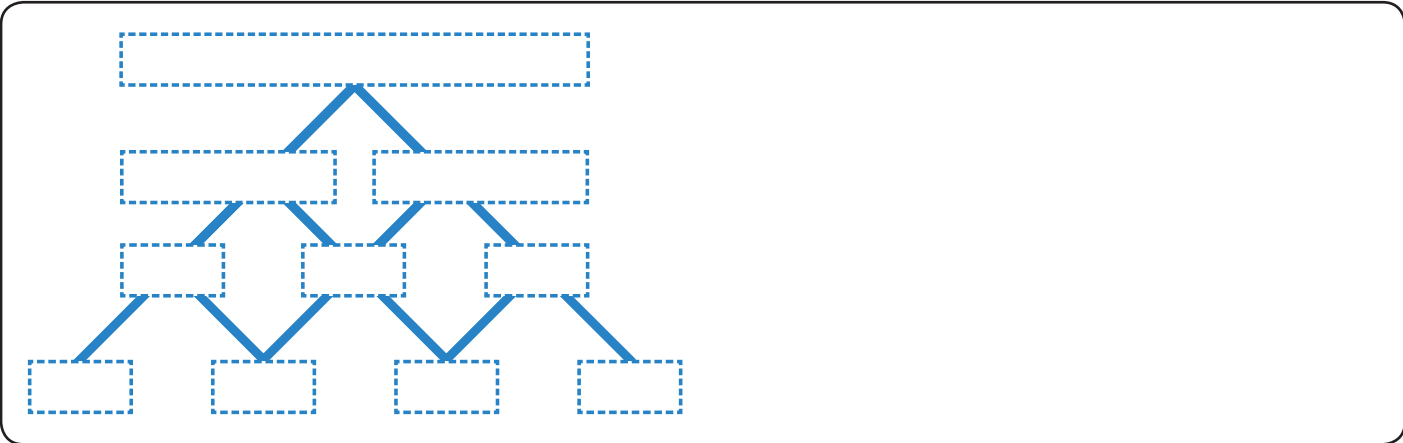
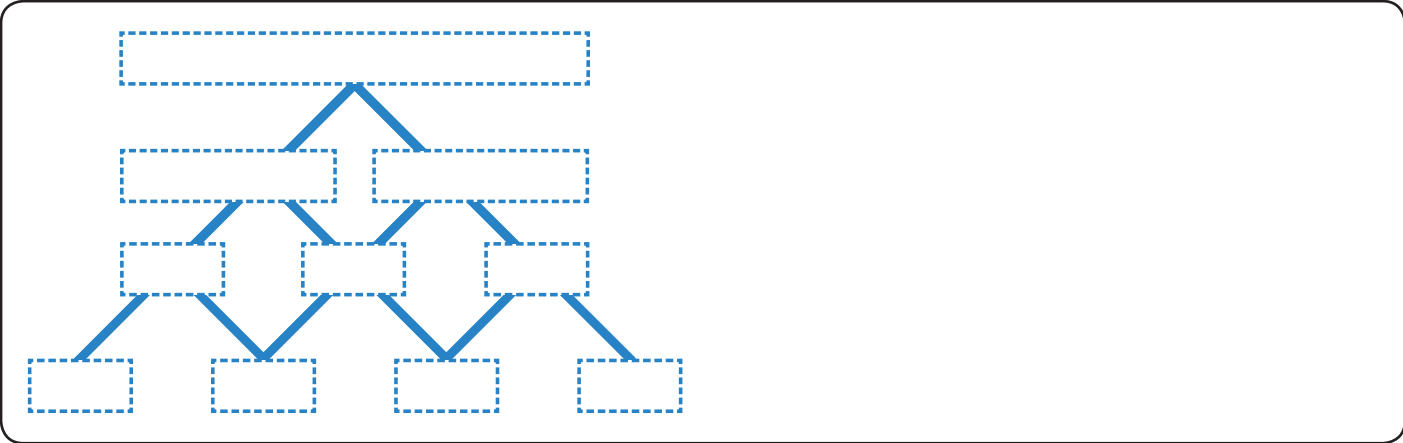
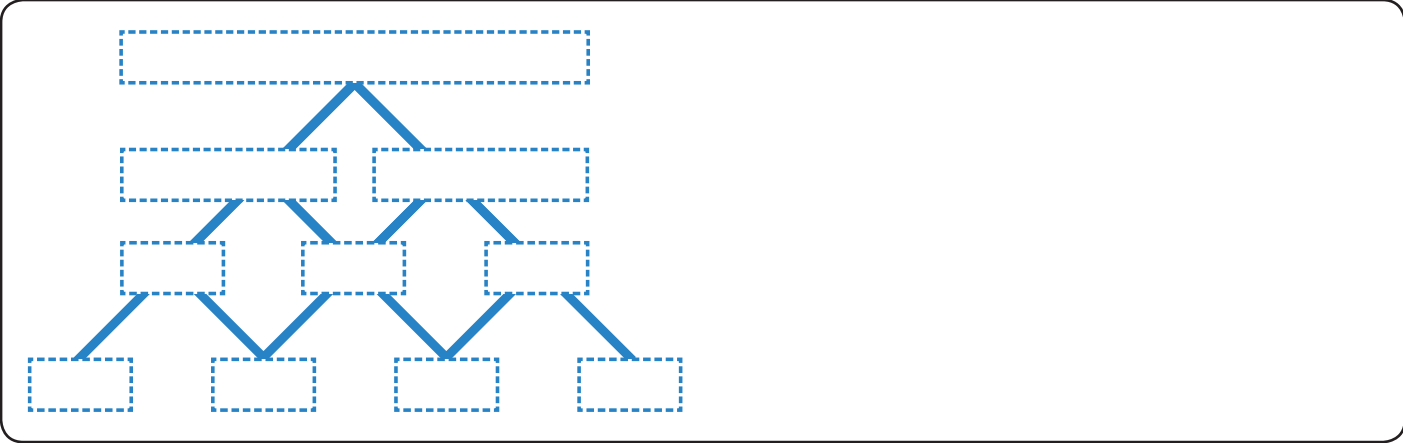
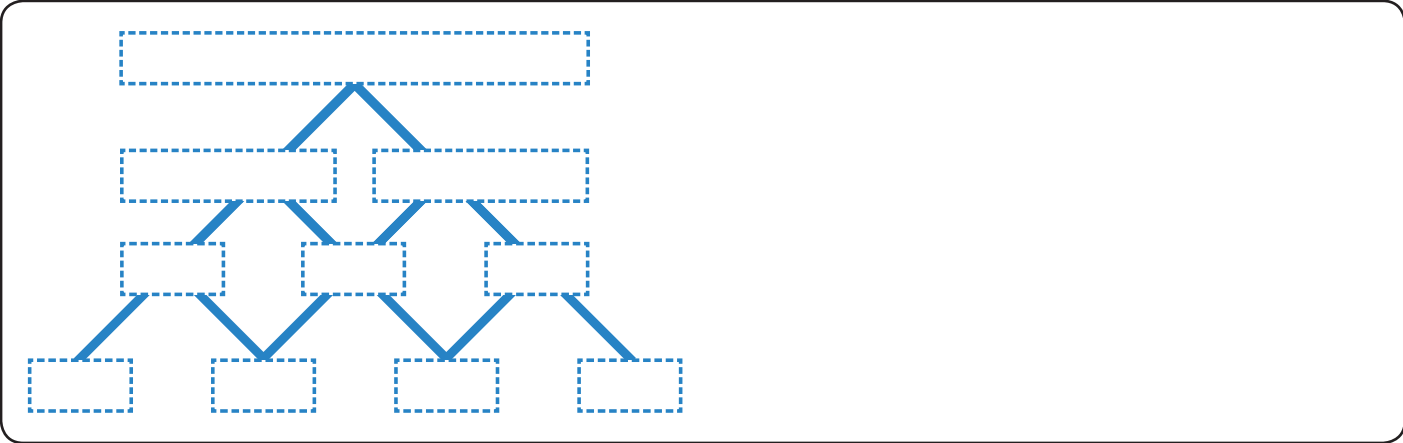
Investigate how the number pyramid works.

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 \_\_\_\_\_