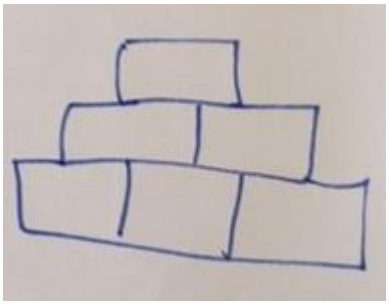
Number Pyramids Revisited Y3/4

Odd and Even Numbers, Additive Reasoning

You will need this for the week:

- Paper and pencil
- Printed sheet of pyramids or pyramids drawn on paper for each day



- Keep your pyramids as you work through the week

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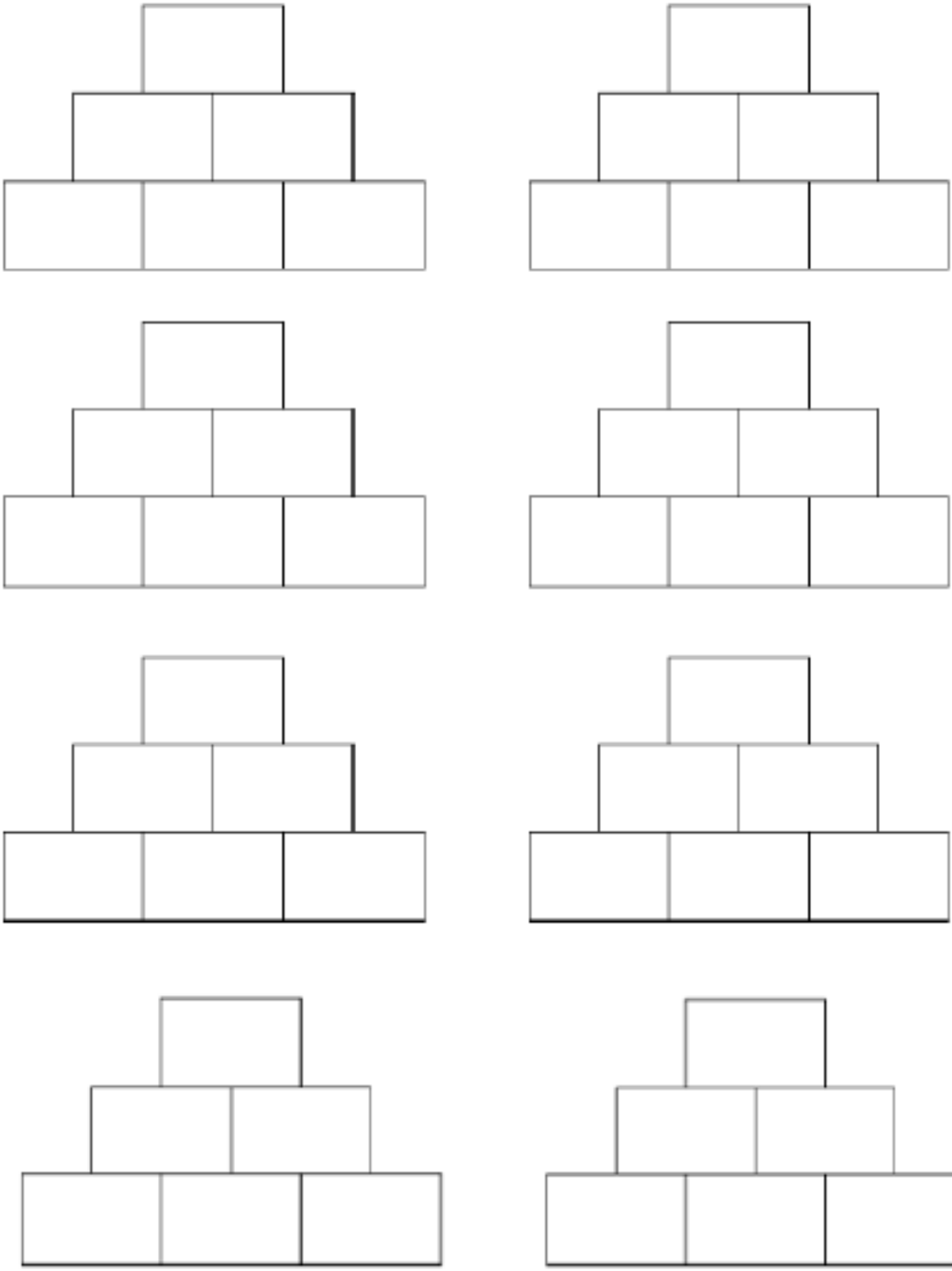

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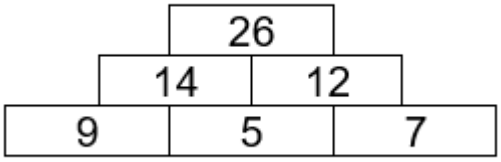
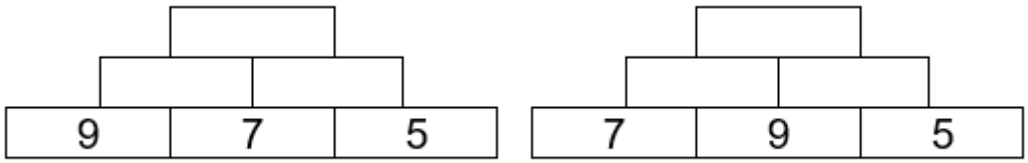
Day 1



- Look at this pyramid. Can you work out how the numbers in the middle layer and top are found using the bottom layer?
  Hint – think about adding pairs of numbers together
- Complete these two pyramids, where the numbers in the bottom layer have been rearranged



- All three pyramids have the same three numbers in the bottom layer of the pyramid: 9, 7 and 5. These numbers are all odd. What do you notice about the numbers at the top of the three pyramids, are they odd or even?
- Find other ways to rearrange the numbers 9, 7 and 5 in the bottom layer of a pyramid. What do you notice about the numbers at the top of the pyramid each time, are they odd or even? Why do you think this happens?

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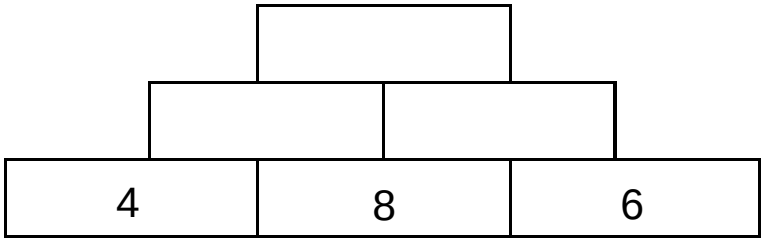
Day 2

- Using the three even numbers 4, 8 and 6 in the bottom layer, how many different pyramids can you make?



- How many different numbers appear at the top of these pyramids? Are these numbers odd or even? Why does this happen?
- Now repeat with the even numbers 12, 18 and 14.
- What do you notice about the pyramids from day 1 and from today?

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Day 3

- Choose your own three numbers to put in the bottom layer of a pyramid. Complete the pyramid then rearrange the numbers and repeat until you have made all six pyramids. What do you notice?
- Can you find a set of three numbers that when arranged and rearranged in the bottom layer of a pyramid **always** produce an **even** number at the top?
    - How did you choose your numbers?
    - Is there a different way to do this?
- Can you find a set of three numbers that when arranged and rearranged in the bottom layer of a pyramid **always** produce an **odd** number at the top? Why?
- Can you find a set of three numbers that when arranged and rearranged in the bottom layer of a pyramid produce **some** pyramids with **even** numbers at the top and **some** pyramids with **odd** numbers at the top? How many of each are produced? Why?
- What do you notice?

Notes for adults working with groups of children

- Making a pyramid using Numicon could help draw attention to how the odd/even numbers are generated at the top

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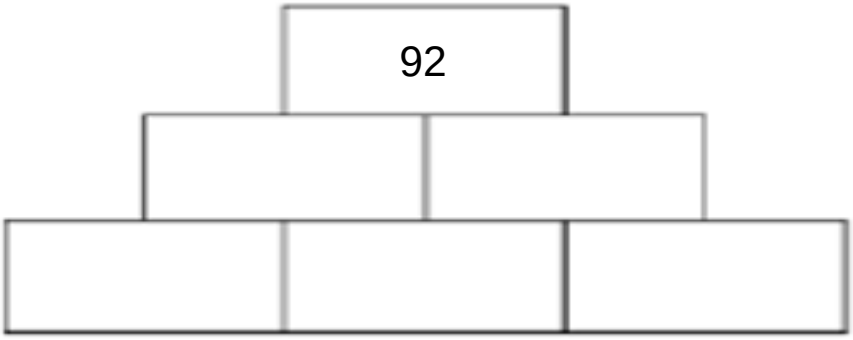
Day 4



- Can you complete this pyramid so that there are three **even** numbers at the bottom?
- Can you complete this pyramid so that there are three **odd** numbers at the bottom?
- Is the middle layer the same or different each time?
- How can you adjust your pyramids to form two that have 91 at the top? What happens to the numbers in the bottom layer?

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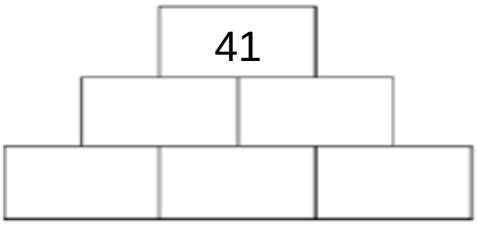
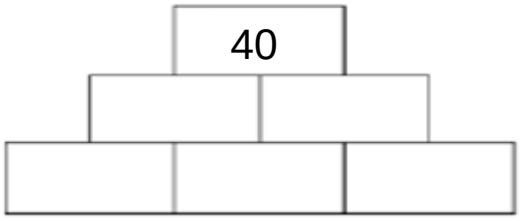
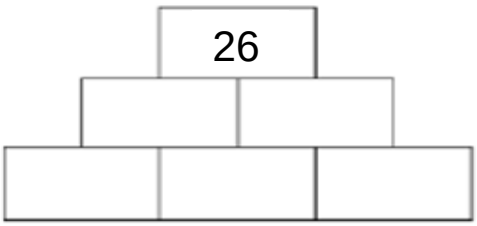
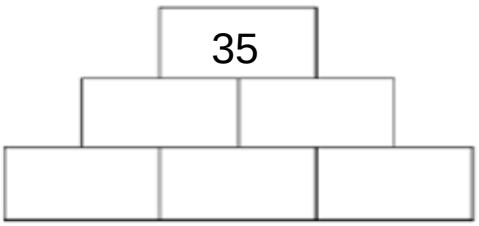
Day 5





- These two pyramids have been formed from the same three numbers in the bottom layer. What do you know about those three numbers, are they odd or even?
- Can you complete these two pyramids so that they have the same three numbers in the bottom layer? How did you do this?
- Now try these two pyramids which can be completed with the same three numbers in the bottom layer.





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