

*Dr Fog Presents*

# Investigating Calendars

Year 6 (National Numeracy Strategy)  
(Based on DFEE Sample Lessons)



# Resources

- Photocopies of [Calendars](#)



# Mental Learning Objective

- Make and investigate a general statement about familiar numbers by finding examples that satisfy it.



# Mental Learning Task

- Today we are going to start by looking at a problem first set in another lesson.



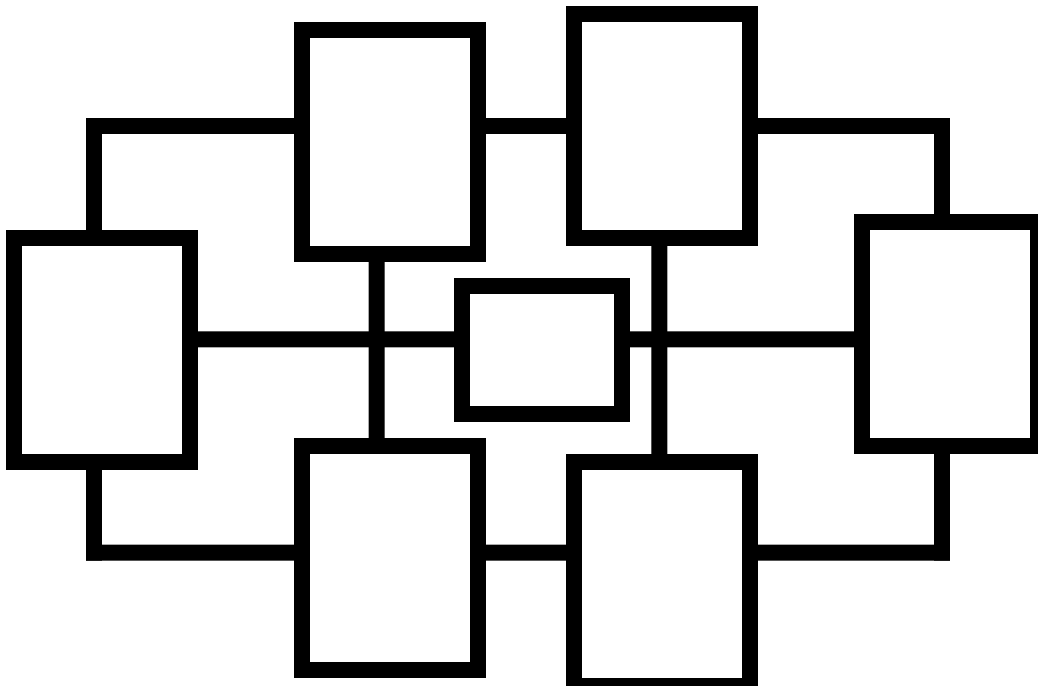
# Mental Learning Task

- Using the numbers 2, 2, 4, 4, and 6, 6, and a grid  $2 \times 3$ ,
- What is the highest score we could find by multiplying the neighbouring numbers and adding the products?



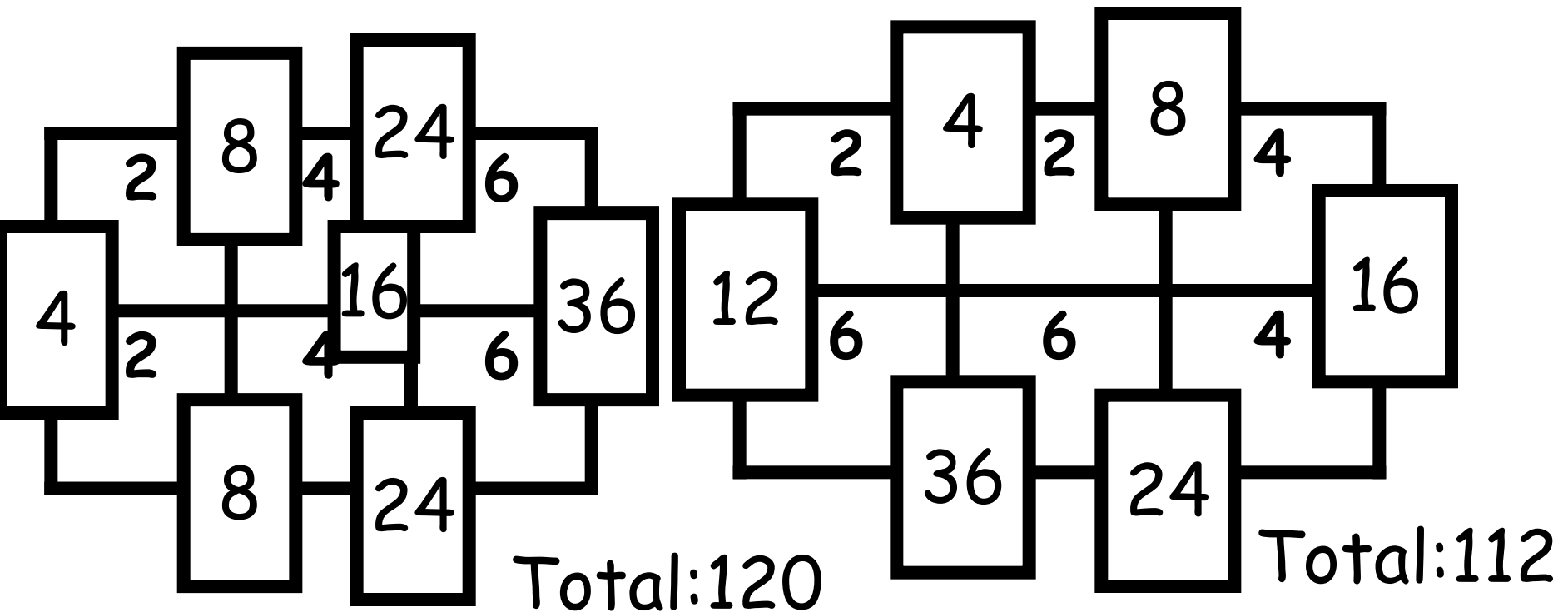
# Mental Learning Task

- Use the numbers 2, 2, 4, 4, 6, 6
- Can you find the 120 score?



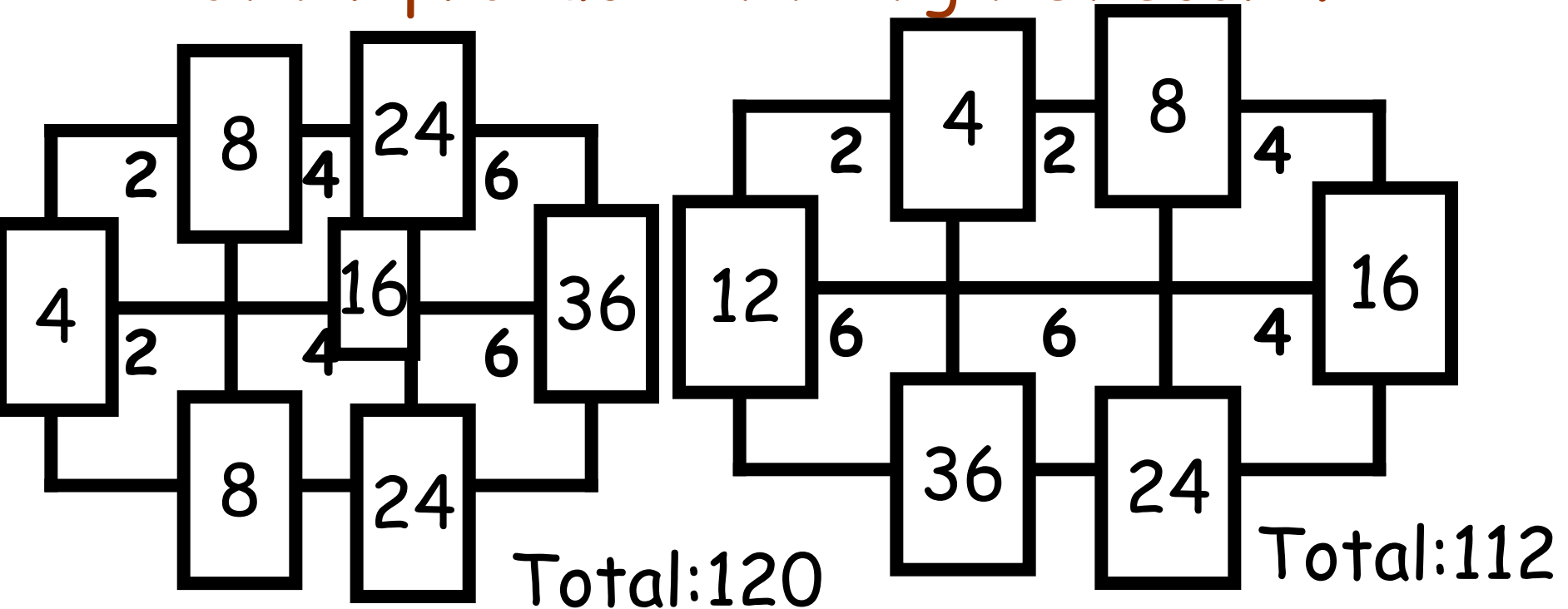
# Mental Learning Task

- The answers were...



# Mental Learning Task

- Putting high numbers next to each other produced the highest score.





# Mental Learning Objective

- Make and investigate a general statement about familiar numbers by finding examples that satisfy it.



# Main Learning Objective

- Develop from explaining a generalised relationship in words to expressing it in a formula using letters as symbols.



# Key idea

**I can make generalisations  
and hypothesise  
about the outcome.**



# Main Learning Task

- Today we are going to find find different patterns in calendars.



# Main Learning Task

- Sit in pairs.
- Give each pair a photocopy of the three consecutive months on the calendar.
- What can did you notice about the numbers?



# Main Learning Task

- What can you tell me about the numbers in each column?
- How far can you continue this sequences to?



# Main Learning Task

- Can you find this array on your calendars?

**16**

**17**

**23**

**24**



# Main Learning Task

- Add the numbers at at the opposite corners of the square.

**16**

**17**

**23**

**24**





# Main Learning Task

- Does this happen for other square arrays of four numbers in the calendars.

**16**

**17**

**23**

**24**



# Main Learning Task

- Why do you think this happens?

**16**

**17**

**23**

**24**



# Main Learning Task

- It works because one move to the right adds 1. One move down adds 7.

**16**

**17**

**23**

**24**



# Main Learning Task

- Whatever number is at the top left, the values of the other numbers is always a fixed amount more.

**16**

**17**

**23**

**24**



# Main Learning Task

- This is how it works in mathematical terms.

number          number +1

number +7    number + 8

# Main Learning Task

- Give me any number to test this idea.

number          number +1

number +7    number + 8

# Main Learning Task

- This is how we can write the sum using the word 'number' to mean any number.

number          number + 1

number + 7    number + 8

$$\text{number} + \text{number} + 8 = \text{number} + 1 + \text{number} + 7$$

# Main Learning Task

- I can use *n* as shorthand for 'number' and rewrite the equation on the board.

number          number + 1

number + 7    number + 8

number + number + 8 = number + 1 + number + 7

$$n + n + 8 = n + 1 + n + 7$$



# Main Learning Task

- Simplification: -
- Keep to addition of diagonals in a  $2 \times 2$  array or explore addition of diagonals in a  $3 \times 3$  array.
- Provide a calendar page with arrays already drawn in, focusing on easier multiplications.



# Main Learning Task

- Challenge:-
- Explore  $2 \times 4$  arrays or  $3 \times 3$  arrays.
- What rules apply in these cases?



# Main Learning Task

- Main: -
- Today you will work individually.
- Investigate what happens if you multiply the opposite corners of an array.
- Can you use algebraic notation?



# Main Learning Objective

- Develop from explaining a generalised relationship in words to expressing it in a formula using letters as symbols.



# Plenary

- Can you make any general statements that you can make about what you have discovered?
- What else would be worth exploring on a  $2 \times 2$  or other kind of array?



# Plenary

- Homework:-
- Try some of the ideas about what to explore in an  $2 \times 2$  array.



# Review of Key Idea

- I can make generalisations and hypothesise about the outcome.
- Did you learn this in today's lesson?



# Calendars for lesson

## September

M	T	W	Th	F	Sa	Sun
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

## October

M	T	W	Th	F	Sa	Sun
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

## November

M	T	W	Th	F	Sa	Sun
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	27	29
30						



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- You can [click here](#) to search for more of my teaching resources.
- [Click here](#) to visit my **YES** shop!

