

## Maths - Year 3

### Pattern and Algebra 5: Finding all possibilities and investigating a general statement.

#### Key Vocabulary

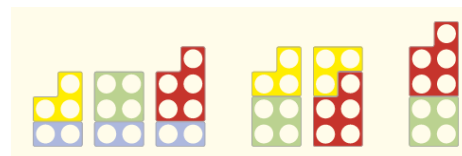
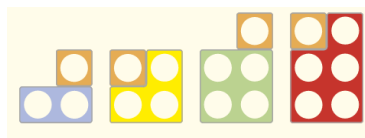
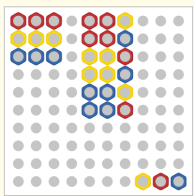
|                     |   |
|---------------------|---|
| Combination         | Different ways to group numbers.  |
| Consecutive numbers | Numbers that follow each other immediately in a sequence e.g. 2, 3, 4, 5, 6, 7 etc. |
| Estimate            | An educated guess, close to the actual.   |
| Systematic          | Solving a problem in a structured way.  |

#### Mathematical Skills

- Plan how to start an investigation.
- Reason that it is helpful to start their work systematically e.g. to find all combinations, notice patterns, make predictions.
- Develop ways to record systematically.
- Check results.
- Understand a general statement.
- Make a generalisation i.e. noticing a rule emerging and explaining why something will always happen.

#### Mathematical Methods

- Finding all possibilities e.g. with three colours or two shapes (no bigger than 5).



- Finding all possibilities with coins e.g. if you have the following: 50p, 20p, 10p, 5p, 2p, 1p.

|                |                |               |             |             |
|----------------|----------------|---------------|-------------|-------------|
| $50 + 20 = 70$ |                |               |             |             |
| $50 + 10 = 60$ | $20 + 10 = 30$ |               |             |             |
| $50 + 5 = 55$  | $20 + 5 = 25$  | $10 + 5 = 15$ |             |             |
| $50 + 2 = 52$  | $20 + 2 = 22$  | $10 + 2 = 12$ | $5 + 2 = 7$ |             |
| $50 + 1 = 51$  | $20 + 1 = 21$  | $10 + 1 = 11$ | $5 + 1 = 6$ | $2 + 1 = 3$ |

- Investigating a general statement about consecutive numbers e.g. Is the total of 3 consecutive numbers always a multiple of 3?

- Investigate a general statement about odd and even numbers e.g. two odd numbers added together always totals an even number.

#### Can you..?

- Find all the ways Tia could make 20p with these coins.



- If Tia buys a sticker for 26p, how could she pay with the fewest coins?

- Ben is thinking of 3 consecutive numbers. The largest is 12. What are the other two?

- Can you find the total of these consecutive numbers: 11, 12 and 13.