

A Warm-up. Listen to your teacher. What comes next?

28	50	22
6	5	9

B Complete these patterns and fill in the missing shapes.

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-
-

C Complete the patterns.

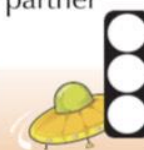
- AA, AB, AC, AD, , , ,
- AB, BC, CD, DE, , , ,
- ZY, YX, XW, WV, , , ,
- AZ, BY, CX, DW, , , ,
- 123, 223, 323, 423, , ,
- 135, 246, 357, , , ,
- MATHS, ATHSM, THSMA, , ,
- cool, oolc, olco, , , ,

D 1. Using cubes, decide what comes next in these patterns.

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-



- Now you have a go. Create some patterns of your own with the cubes for your partner to continue!



A Tables patterns.

1. Colour all the multiples of 2 yellow.
2. Colour all the multiples of 4 blue.
3. What do you notice?
4. Can you find a pattern with the 2 and 3 times tables?
5. In your copy investigate the patterns in the other tables, from 3 to 10. Write down the multiples of each and see what you can find.



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	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

B Finish the number patterns.



1. (a) 22, 33, 44, 55, __, __, __, __ (b) 70, 60, 50, 40, __, __, __, __
 (c) 4, 8, 12, 16, __, __, __, __ (d) 28, 24, 20, 16, __, __, __, __
 (e) 60, 55, 50, 45, __, __, __, __ (f) 27, 24, 21, 18, __, __, __, __
2. (a) 99, 98, 97, 96, __, __, __, __ (b) 88, 77, 66, 55, __, __, __, __
 (c) 3, 6, 9, 12, __, __, __, __ (d) 42, 35, 28, 21, __, __, __, __
 (e) 81, 72, 63, 54, __, __, __, __ (f) 1, 3, 6, 10, __, __, __, __
3. (a) 88, 80, 72, 64, __, __, __, __ (b) 46, 40, 34, 28, __, __, __, __
 (c) 87, 85, 83, 81, __, __, __, __ (d) 32, 31, 29, 26, __, __, __, __
 (e) 13, 14, 16, 19, 23, __, __, __, __ (f) 65, 60, 50, 45, 35, __, __, __, __
4. (a) 250, 350, 450, 550, __, __, __, __ (b) 659, 658, 657, 656, __, __, __, __
 (c) 215, 210, 205, 200, __, __, __, __ (d) 914, 910, 906, 902, __, __, __, __
 (e) 629, 620, 611, 602, __, __, __, __ (f) 876, 880, 884, 888, __, __, __, __

C Counting on.



1. Place your finger on **1**, count on **3** places. **Where did you land?** $1 + 3 = \underline{\quad}$
2. Now place your finger on **11**, count on **3** places. **Where did you land?** $11 + 3 = \underline{\quad}$
3. Place your finger on **21**, count on **3** places. **Where did you land?** $21 + 3 = \underline{\quad}$
4. Can you see a pattern? Continue the pattern.
 (a) $31 + 3 = \underline{\quad}$ (b) $41 + 3 = \underline{\quad}$ (c) $51 + 3 = \underline{\quad}$ (d) $61 + 3 = \underline{\quad}$

Objectives

- 326 Explore, recognise and record patterns in numbers 0–999.
- 328 Use patterns as an aid in the memorisation of number facts.

Strand Algebra
 Strand Unit Number Patterns and Sequences





Number sentences

$$36 + \underline{\quad} = 72$$



This is the same as finding the difference between two numbers.

Remember that difference between means **subtract**.

A Use addition to help you answer the following sums.

1. $6 + \underline{\quad} = 12$ 2. $9 + \underline{\quad} = 20$ 3. $\underline{\quad} + 7 = 21$ 4. $15 + \underline{\quad} = 26$
 5. $\underline{\quad} + 10 = 18$ 6. $16 + \underline{\quad} = 34$ 7. $7 + \underline{\quad} = 41$ 8. $10 + \underline{\quad} = 37$

B Use subtraction to help you answer the following sums.

1. $36 + \underline{\quad} = 72$ or $72 - 36 = \underline{\quad}$ 2. $45 + \underline{\quad} = 62$ or $62 - 45 = \underline{\quad}$
 3. $22 + \underline{\quad} = 48$ or $\begin{array}{r} 48 \\ -22 \\ \hline \end{array}$ 4. $27 + \underline{\quad} = 82$ or $\begin{array}{r} 82 \\ -27 \\ \hline \end{array}$
 5. $65 + \underline{\quad} = 86$ or $\begin{array}{r} 86 \\ -65 \\ \hline \end{array}$ 6. $56 + \underline{\quad} = 98$ or $\begin{array}{r} 98 \\ -56 \\ \hline \end{array}$


C Fill in the missing numbers from the Magic Squares.

1. The magic number is 12.

★	5			★
		4		★
★	6		3	★

2. The magic number is 18.

★				
	5		2	★
★				★
★	10	1	7	★

3. The magic number is $\underline{\quad}$

★	9			
		7		★
★	4		5	★

4. The magic number is $\underline{\quad}$

★	5		9	★
		8		★
★		6	11	★



A Answer the questions.

- Use multiplication to help you answer the following sums.
 - (a) $2 \times \underline{\quad} = 10$ (b) $3 \times \underline{\quad} = 12$ (c) $4 \times \underline{\quad} = 16$ (d) $8 \times \underline{\quad} = 48$
 - (e) $5 \times \underline{\quad} = 35$ (f) $9 \times \underline{\quad} = 81$ (g) $6 \times \underline{\quad} = 54$ (h) $7 \times \underline{\quad} = 56$
- Try dividing and see if it helps to find the answer.
 - (a) $2 \times \underline{\quad} = 18$ **$18 \div 2$** (b) $3 \times \underline{\quad} = 27$ **$27 \div 3$** (c) $4 \times \underline{\quad} = 16$ **$16 \div 4$**
 - (d) $7 \times \underline{\quad} = 49$ **$49 \div 7$** (e) $5 \times \underline{\quad} = 45$ **$45 \div 5$** (f) $6 \times \underline{\quad} = 54$ **$54 \div 6$**
 - (g) $9 \times \underline{\quad} = 63$ **$63 \div 9$** (h) $8 \times \underline{\quad} = 72$ **$72 \div 8$** (i) $9 \times \underline{\quad} = 81$ **$81 \div 9$**

B Match the following sentences to the correct number sentence.

- There are **24** pupils in Jen's class. Another **4** join.
Now there are **28** pupils in Jen's class.
- Joan read **34** pages of her book on Monday night and another **28** on Tuesday. Altogether she read **62** pages.
- Alice collects football cards. She had **98** but she gave **22** to her best friend. Now she has **76** football cards.
- Alex bought **2** packets of stickers every day for a week. He bought **14** packets altogether.
- Jamie shared out **24** cubes between **3** people. They each got **8** cubes.

$98 - 22 = 76$

$24 \div 3 = 8$

$2 \times 7 = 14$

$24 + 4 = 28$

$34 + 28 = 62$

C Write a number sentence for each of the following.

- Mum has **87** books on the bookshelf. She buys another **13** and puts them on the bookshelf. **How many books has she altogether?**
- Nathan stored **134** songs on his MP3 player. He decided to delete **24** songs. **How many songs are now on the MP3 player?**
- Tara read **167** pages of her book. There are **210** pages in the whole book. **How many pages has she left to read?**
- On Monday, Mr Potter sold **23** flower pots. On Tuesday he sold **26** flower pots. If Mr Potter sold **87** flower pots altogether on Monday, Tuesday and Wednesday, **how many flower pots did he sell on Wednesday?**



D In your copy, write word problems for the following number sentences.

- $67 + 24 = \underline{\quad}$
- $89 - 45 = \underline{\quad}$
- $6 \times 4 = \underline{\quad}$
- $32 \div 8 = \underline{\quad}$
- $31 + 42 = \underline{\quad}$
- $78 - 49 = \underline{\quad}$
- $7 \times 10 = \underline{\quad}$
- $81 \div 9 = \underline{\quad}$

Objectives

- 329 Translate an addition or subtraction number sentence with a frame into a word problem.
- 330 Solve one-step number sentences.

Strand Algebra
Strand Unit Number Patterns and Sequences



A Explain it!

Create a page for a maths book. It must explain number patterns and sequences. Use drawings as well. Swap with your partner when you are finished.

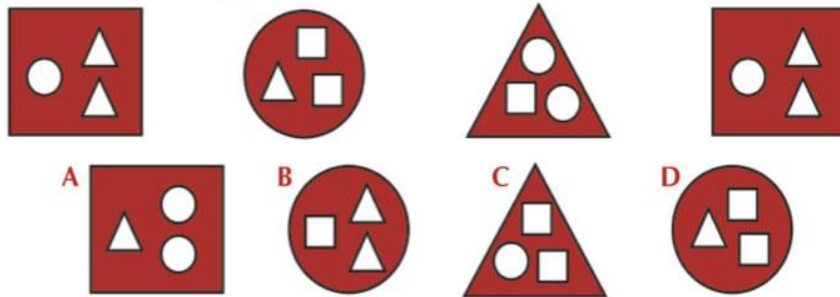
B Do it!

- 2, 4, __, 8, __, __, 14, __, __
- 99, 88, 77, __, __, __, __, __, __
- 78, 74, 70, 66, __, __, __, __, __
- ABA, ABB, ABC, __, __, __, __
- Aa1, Bb2, Cc3, __, __, __, __
- $34 + \underline{\quad} = 56$
- $23 + \underline{\quad} = 67$
- $5 \times \underline{\quad} = 35$

9. Complete the last in each pattern:

**C Solve it!**

Which comes next in the sequence below? Is it A, B, C or D?

**D Say it!**

- When numbers or shapes are in a certain order or follow a rule we say they are in a _____.
- When a design is repeated over and over again, a _____ is created.
- A _____ is a maths sentence written only in numbers and symbols ($+$, $-$, \times , \div).

E Share it!

Can you work out the pattern and fill in the missing numbers? Explain what you think is happening.

1 1 2 3 5 8 13 _____

