


Problem Solving

1. Draw a picture or diagram.

A cartoon illustration of a girl with long brown hair, wearing a pink patterned shirt, sitting at a desk and drawing with a pen on a piece of paper. A small 'twinkl' logo is visible in the bottom right corner of the illustration.

twinkl

A cartoon illustration of a wizard with a blue hat and robe, holding a colorful wand. He is holding a 4x4 grid of numbers. The grid contains the following numbers:

1	4	2	3
3	2	4	1
4	1	3	2
2	3	1	4

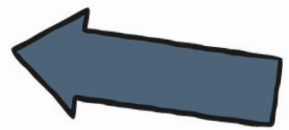
The wizard's name 'MARTIN' is written on his robe. A small 'twinkl' logo is visible in the bottom right corner of the illustration.

MARTIN

twinkl

phillipmartin.info

3 Work backwards.

A large, dark blue arrow pointing to the left.

twinkl

How can you be a Maths Magician?

Mathematicians solve problems. So what are they good at?



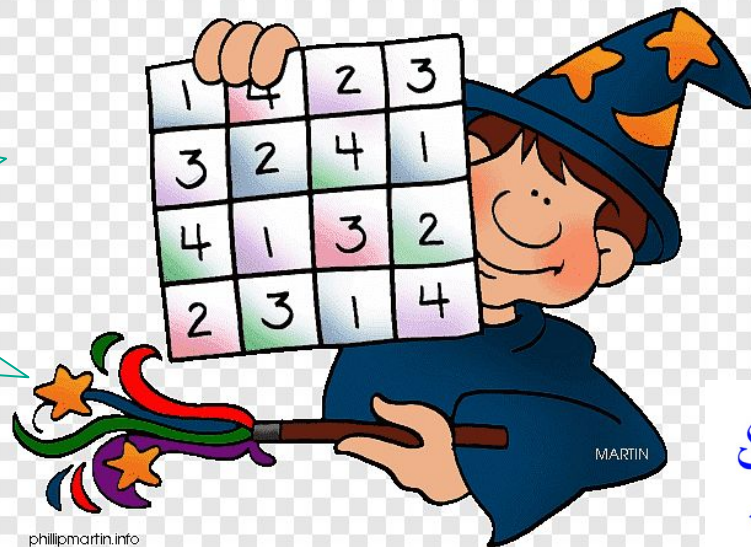
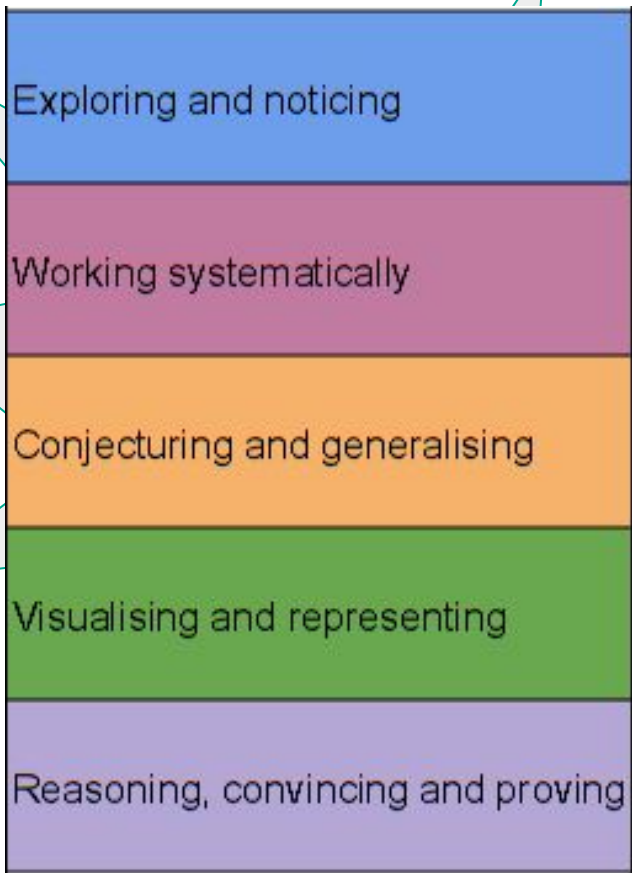
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Maths Magicians (or Mathematicians) are good at:



Mathematicians have skills:



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The 4 stages of problem solving

1 Understand: What is the problem asking of us?

2 Think: Which strategy might work best?

3 Solve: Use the strategy to solve the problem.

4 Reflect: Did it work? Was it a good strategy?

10 Strategies for Success

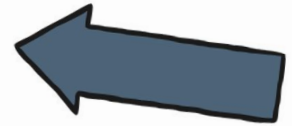
1. Draw a picture or diagram.



2. Find a pattern.



3 Work backwards.



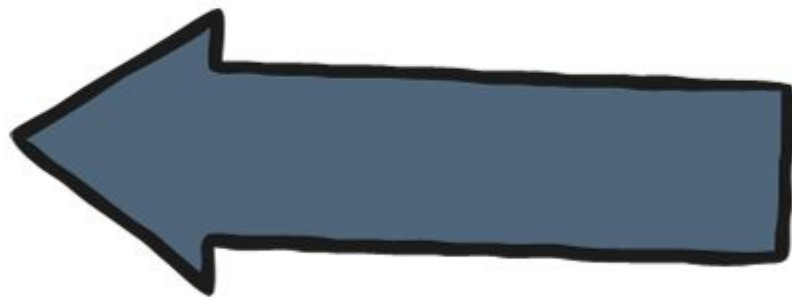
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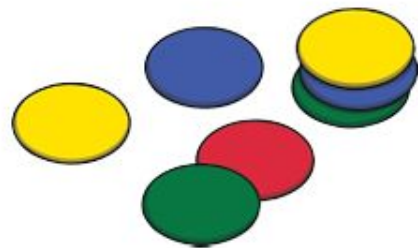
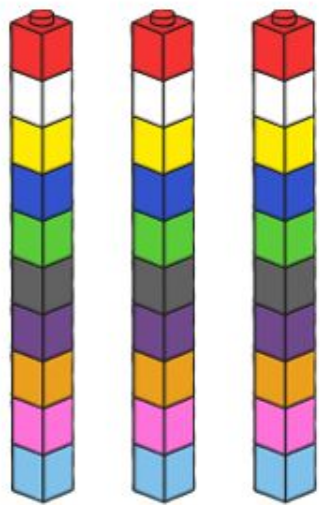
2. Find a pattern.



3 Work backwards.



4. Use concrete objects.



5 Read the question twice.



6. Decide where to start.



7. Keep trying and don't give up!



8. Use maths talk with a partner



9. Systematic working

$$82 = 80 + 2$$

$$82 = 70 + 12$$

$$82 = 60 + 22$$

$$82 = 50 + 32$$

$$82 = 40 + 42 \dots$$



10. Generalising



1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

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

Strategies solve problems

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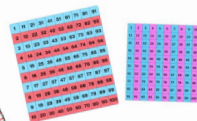


9. Systematic working

$$\begin{aligned}82 &= 80 + 2 \\82 &= 70 + 12 \\82 &= 60 + 22 \\82 &= 50 + 32 \\82 &= 40 + 42 \dots\end{aligned}$$



10. Generalising



1. Draw a picture or diagram.



7. Keep trying and don't give up!



Exploring and noticing

Working systematically

Conjecturing and generalising

Visualising and representing

Reasoning, convincing and proving

Problem Solving

1. Draw a picture or diagram.



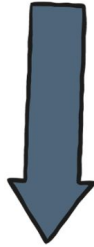
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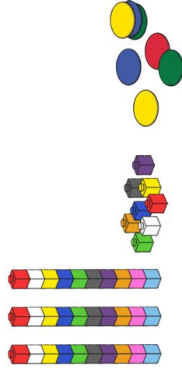
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