### **Problem Solving Strategies**

# Constructing a table, chart or graph

### An age old problem

Blaze, aged 19, and Captain Bluebeard, aged 37, have an age difference of 18 years. If you add all of the **digits in their ages** the total is 20.

1 + 9 + 3 + 7 = 20

How old will they be when the sum of their digits again totals 20?





Constructing a table or chart is a useful strategy for solving this problem. Start with their current ages.

Blaze	Captain Bluebeard	Total
19	37	1 + 9 + 3 + 7 = 20
20	38	2 + 0 + 3 + 8 = 13
21	39	2 + 1 + 3 + 9 = 15
22	40	2+2+4+0= 8
23	41	2 + 3 + 4 + 1 = 10
24	42	2 + 4 + 4 + 2 = 12
25	43	2 + 5 + 4 + 3 = 14
26	44	2 + 6 + 4 + 4 = 16
27	45	2 + 7 + 4 + 5 = 18
28	46	2 + 8 + 4 + 6 = 20

So the next time the total of digits in their ages equals 20 is when Blaze is 28 and Captain Bluebeard is 46.

1 Guessing and checking	6 Checking for relevant and irrelevant information
2 Constructing a table, chart or graph	7 Identifying smaller tasks within a larger problem
3 Drawing a picture or diagram, or making a model	8 Making an organised list to account for all possibilities
4 Acting out the problem	9 Solving a similar or simpler problem
5 Identifying a pattern or using a rule	10 Working backwards

### **Problem Solving Strategies**



# Constructing a table, chart or graph



Squawk, aged 11, and Blaze, aged 19, have an age difference of 8 years. If you add all the digits in their ages the total is 12.

1 + 1 + 1 + 9 = 12

How old will they be when the sum of their digits again totals 12?



1 Guessing and checking	6 Checking for relevant and irrelevant information
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### **Problem Solving Tasks**



### Sails sum

Captain Bluebeard is trying to remember the length and width of the ship's main sail. After careful thought he remembers the perimeter of the sail is exactly 60 metres. The width of the sail measures half that of the length.

What is the length of the main sail?





What is the area of the sail?

1 Guessing and checking	6 Checking for relevant and irrelevant information
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#### — Problem Solving Strategies and Tasks

#### JIGSAW MATHS 6 PROBLEM SOLVING TASK CHECKLIST

Task	Which strategies used?	Completed and checked ()	Task	Which strategies used?	Completed and checked (✓)
1 Target practice			21 Sails sum		
2 Beach volleyball			22 Becalmed		
3 Island hopping			23 Circular design		
4 Additional triangle			24 Time out		
5 Offspring			25 Shut eye		
6 Rascal's banana			26 Fire power		
7 Double doubloons			27 Ship's weight		
8 Festive celebrations			28 Cents sense		
9 Cannonballs			29 Fencing around		
10 Pirate's Inn			30 Ship shopping		
11 On the edge			31 Fencing tournament		
12 Gunpowder kegs			32 Blinking madness		
13 Hard to square			33 Pirate pets		
14 Never cross a pirate			34 Four flags in a flap		
15 Shattered square			35 Armada formations		
16 Tricky triangle			36 Shuffle and sequence		
17 Crisscross			37 Coconut challenge		
18 Two triangles			38 Coconut challenge 2		
19 Cube.net			39 All hands on deck		
20 Painted surfaces			40 Feathered fashions		

The strategies are numbered to help you in completing the *Which strategies used*? box in the Task Checklist above. Simply write the numbers of the strategies you used in the space next to the task. Your teacher will tick ( $\checkmark$ ) the problem when it has been completed and checked.

1	Guessing and checking	6	Checking for relevant and irrelevant information
2	Constructing a table, chart or graph	7	Identifying smaller tasks within a larger problem
3	Drawing a picture or diagram, or making a model	8	Making an organised list to account for all possibilities
4	Acting out the problem	9	Solving a similar or simpler problem
5	Identifying a pattern using a rule	10	Working backwards