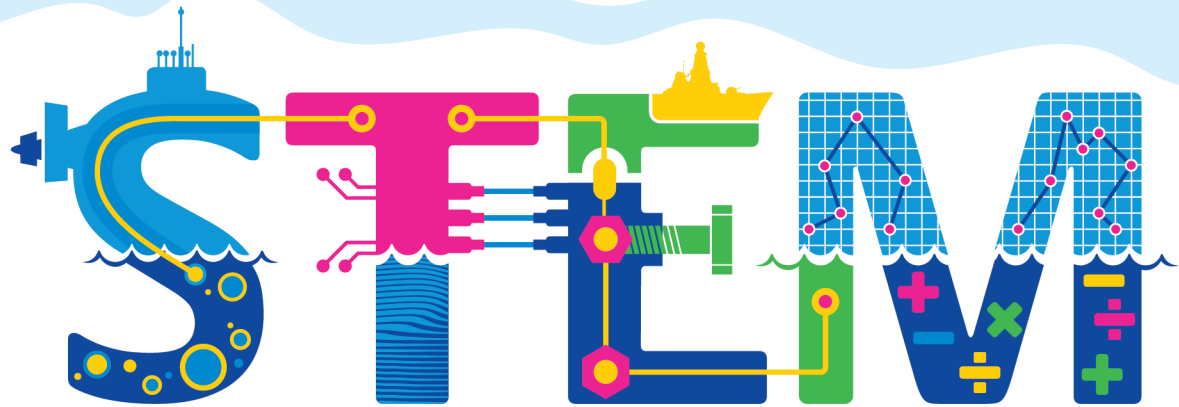


babcock™



SCIENCE | TECHNOLOGY | ENGINEERING | MATHS

Activity Book

Festive Christmas Edition



S P H A W
U T R A A
P P Y O E
E S A E P



$$6 + 4 =$$



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Introduction

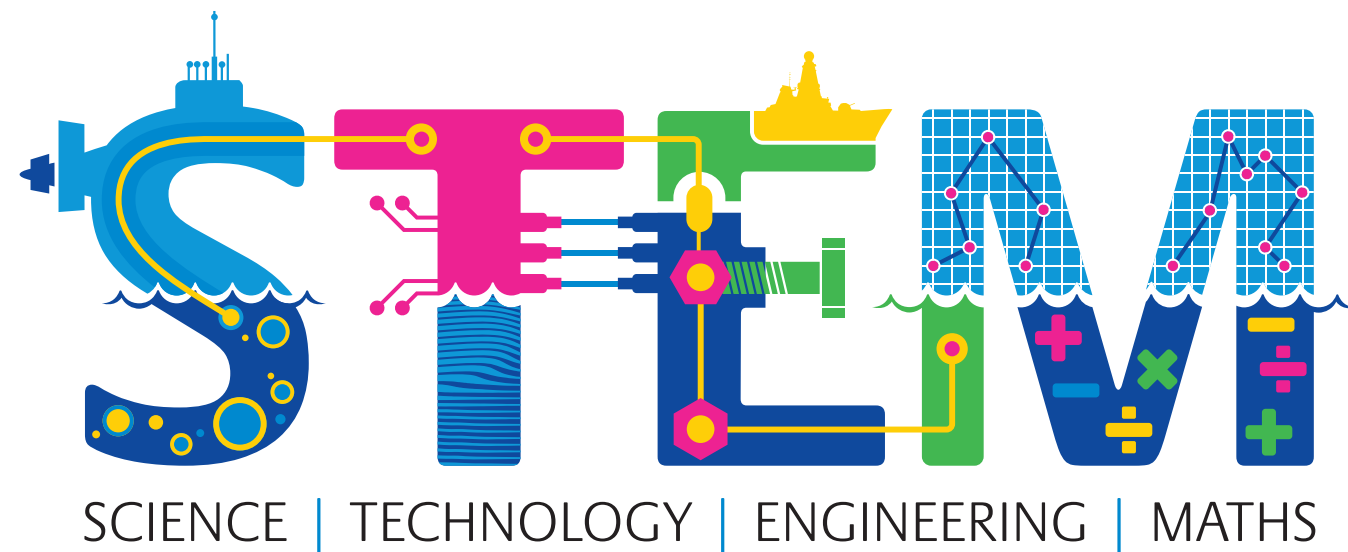
This booklet has been produced by the STEM Team at Devonport to provide fun, marine and nuclear inspired activities, which take readers on an exciting and educational journey through Devonport Royal Dockyard, inspiring them through STEM based learning.

If you would like to submit any of your drawings or give us feedback, please email them to: Babcock.STEM.Events@babcockinternational.com

We hope you enjoy our Christmas edition of our Activity Book.

For further information about Babcock's STEM Team further activities for you to complete at home, please follow the below link.

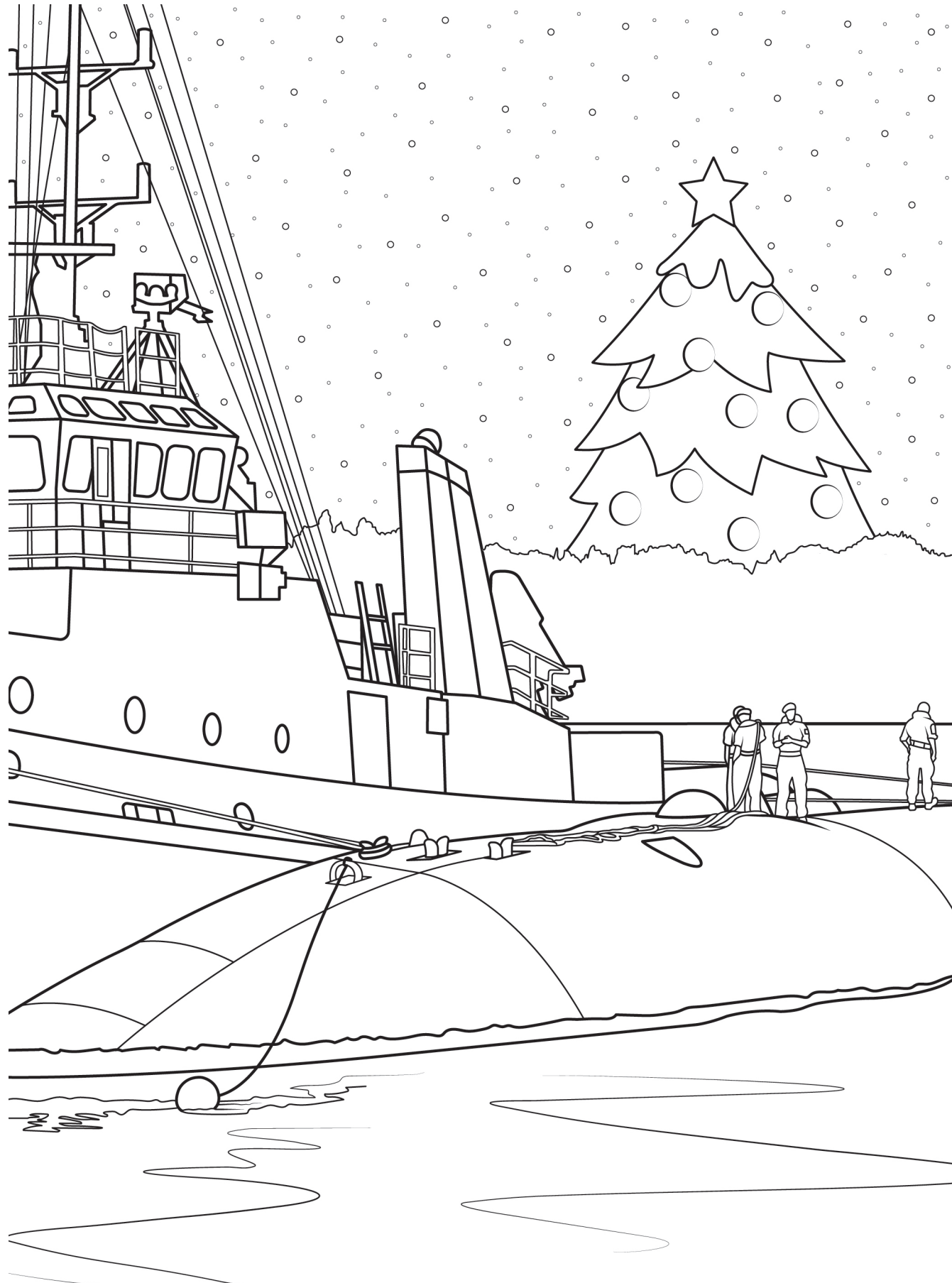
www.babcockinternational.com/who-we-are/babcock-and-stem/



Colour in the lighthouse



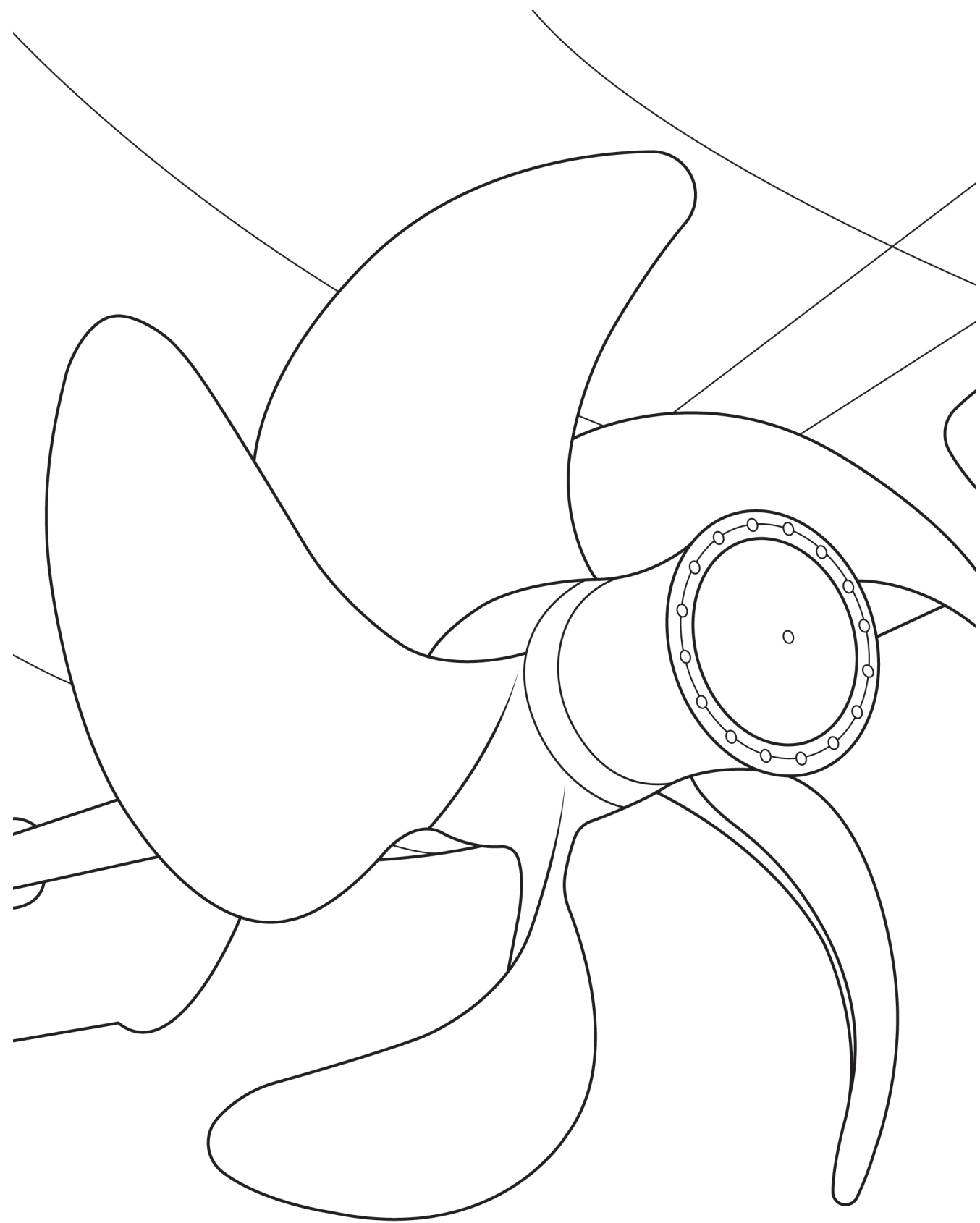
Colour in the submarine



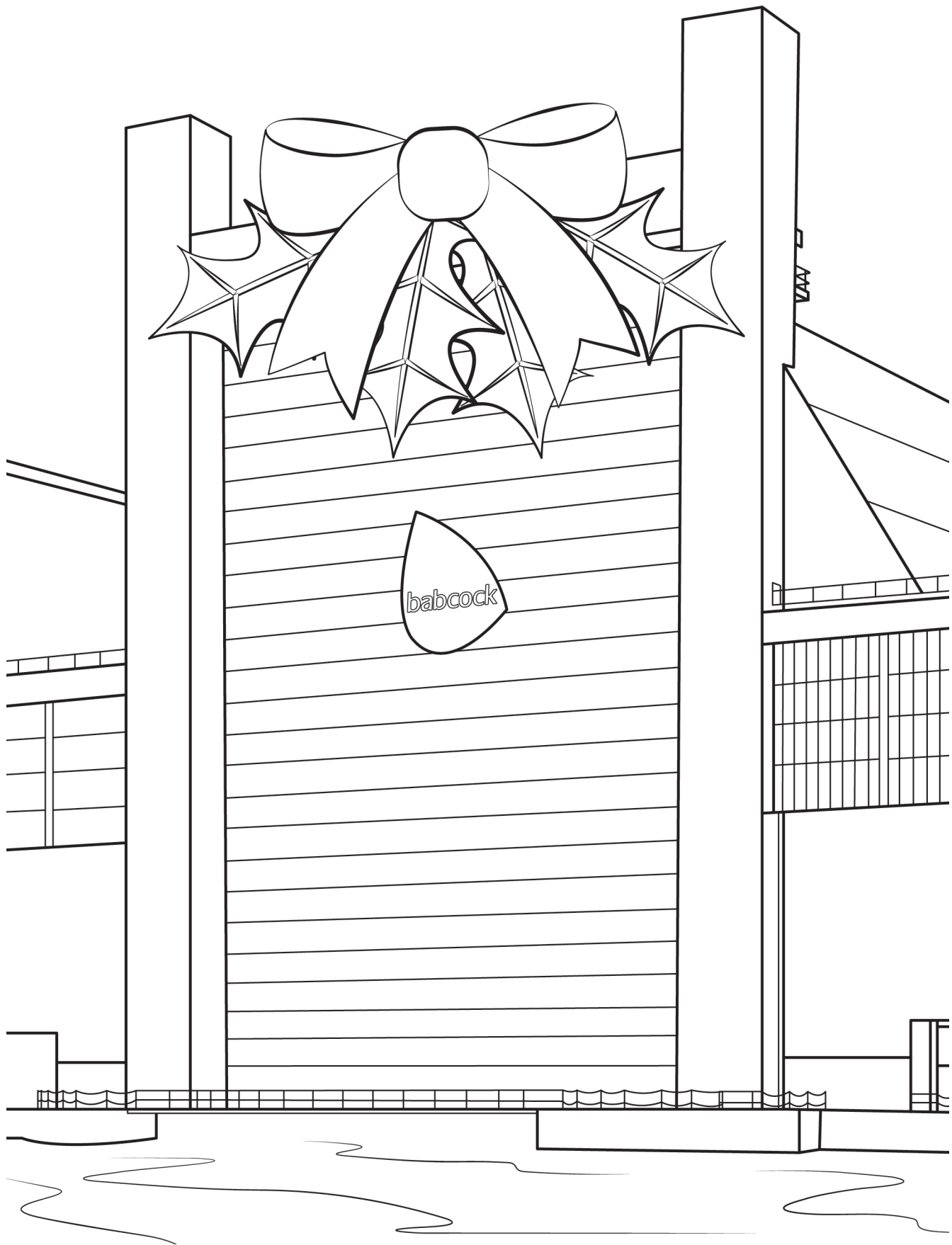
Colour in the engineer



Colour in the propeller



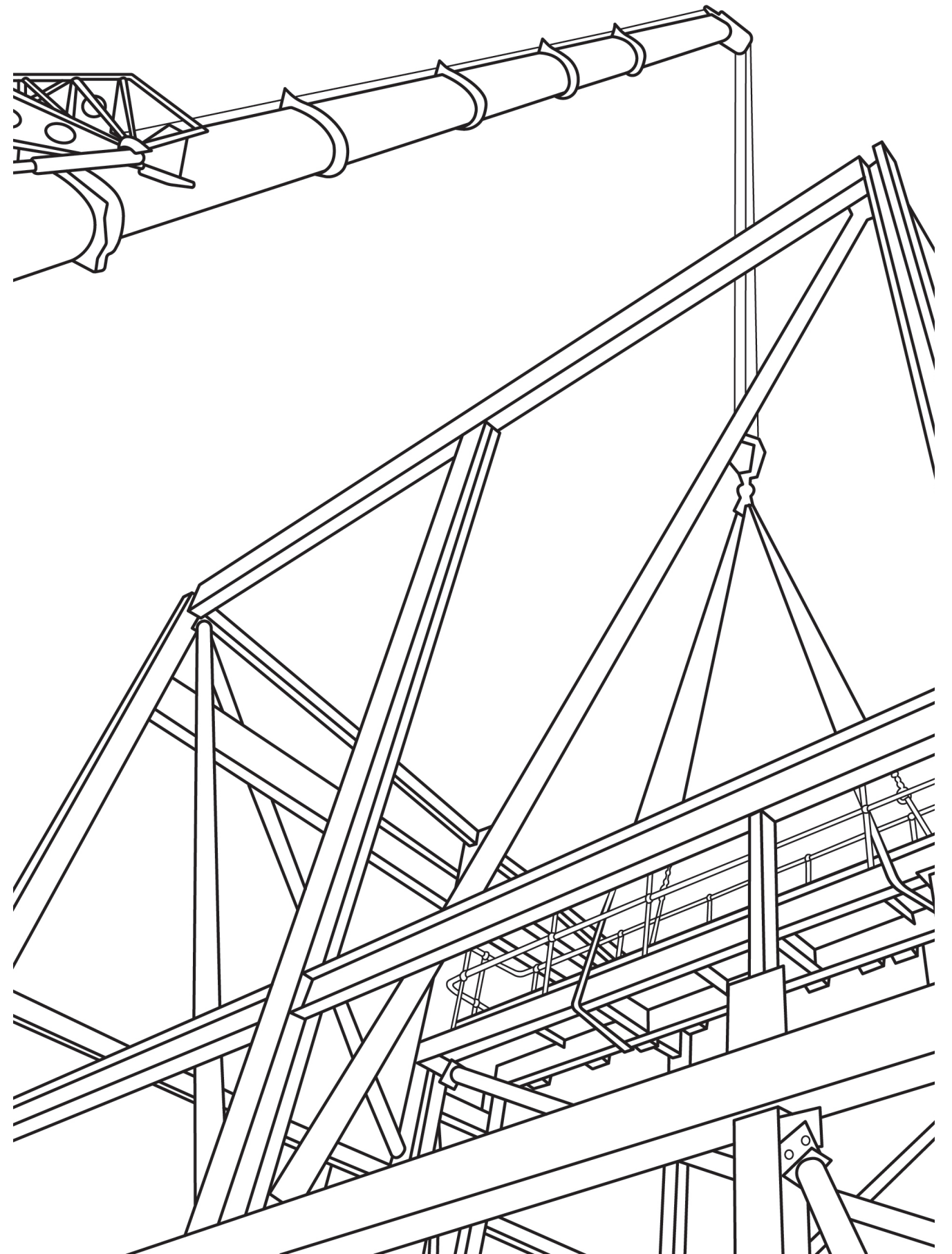
Colour in the building



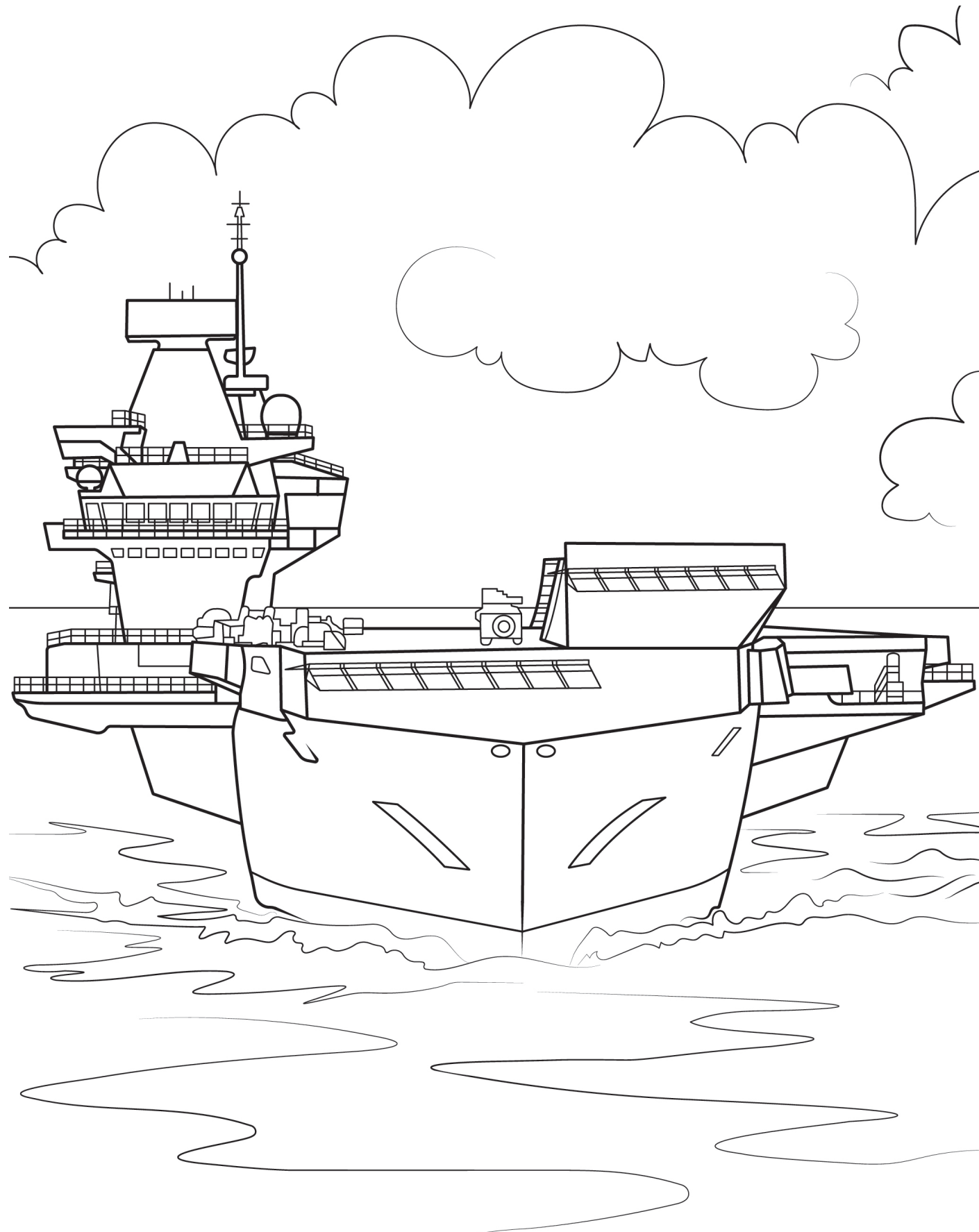
Colour in the apprentices



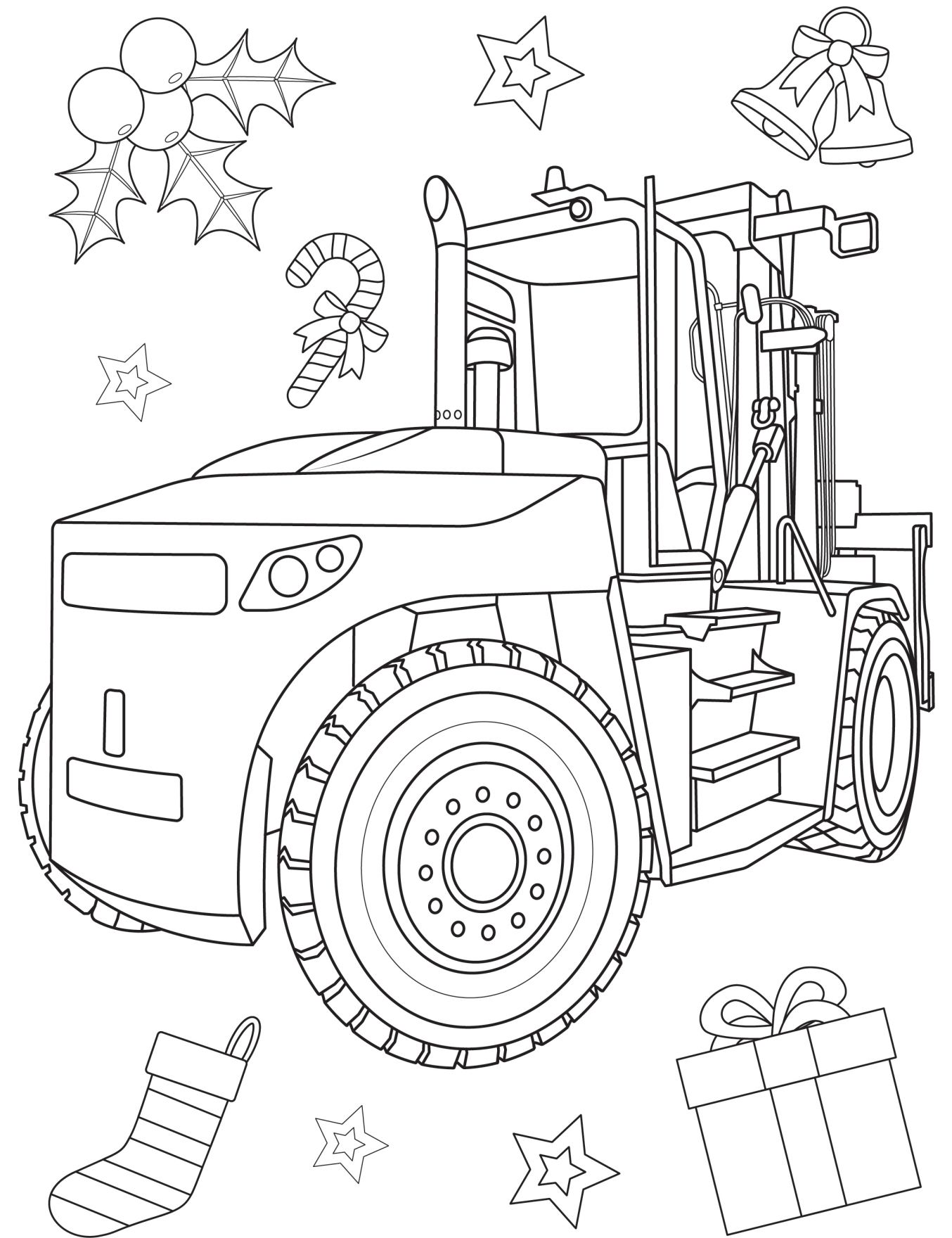
Colour in the crane



Colour in the frigate



Colour in the forklift truck



Maze game:

Christmas Alphabet

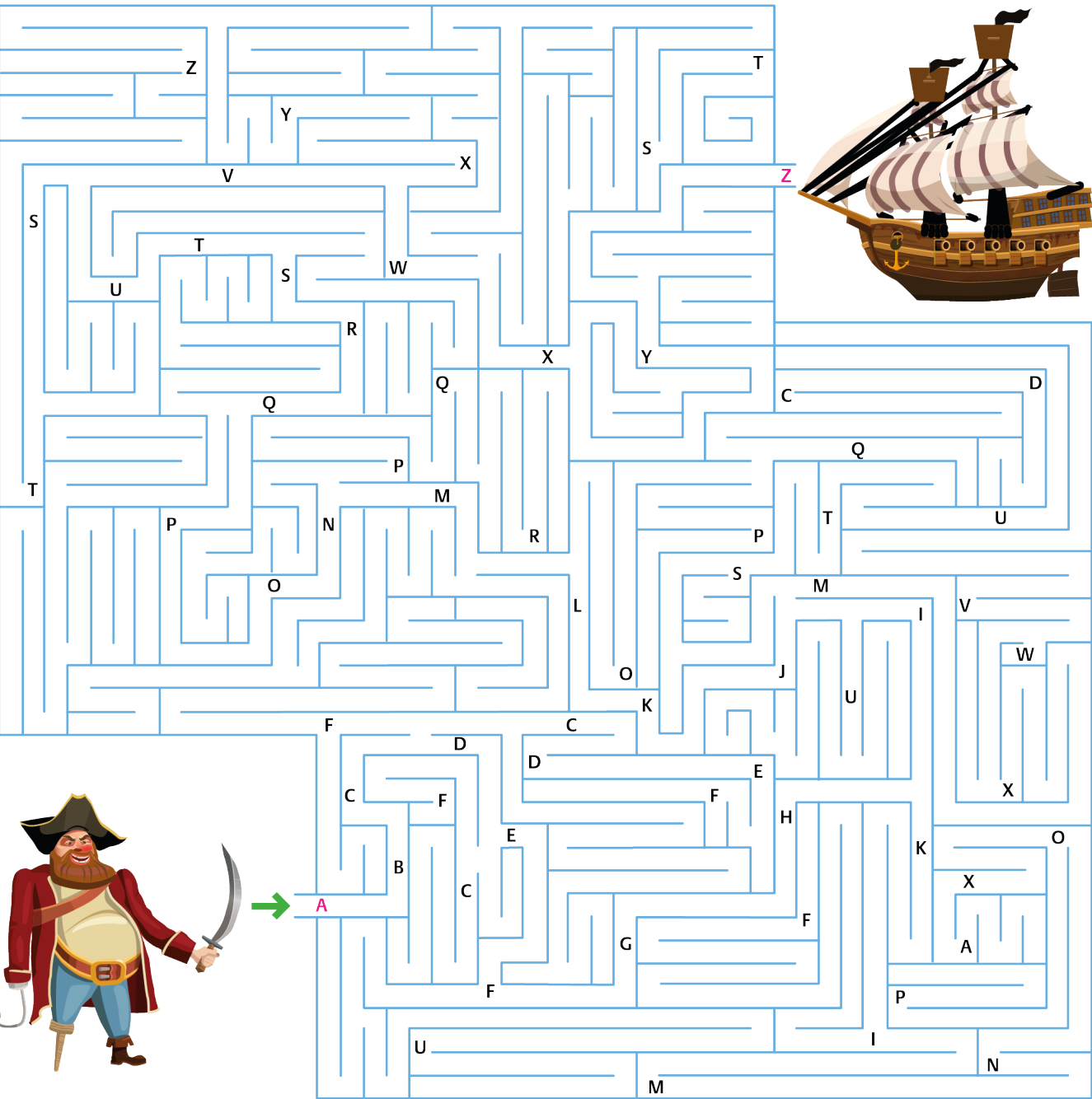
Colour the path from A to Z to lead the Elves to Santa's Sleigh



Maze game:

Labyrinth Alphabet

Can you help the Pirate get to his ship by following the alphabet trail in order?



Wordsearch:

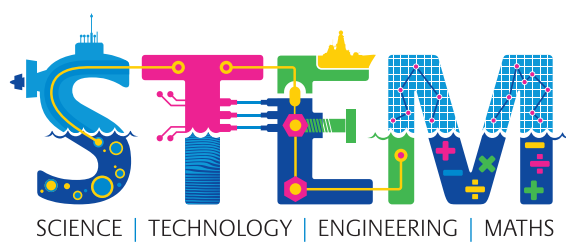
Christmas Tree



- | | | | |
|----------|--------|-----------|-------------|
| Santa | Wreath | Fireplace | Stocking |
| Elf | Star | Candycane | Gift |
| Reindeer | Holly | Angel | Decorations |
| Candle | Bell | Mistletoe | |

Wordsearch:

STEM



- | | | | |
|---------------|-------------|----------|-------------|
| Communication | Education | Robotics | Curriculum |
| Mathematics | Afterschool | School | Learning |
| Camp | Skills | Invent | Solving |
| Technology | Creativity | Analysis | Thinking |
| Students | Teamwork | Science | Engineering |
| Problem | Initiative | Designs | Curiosity |

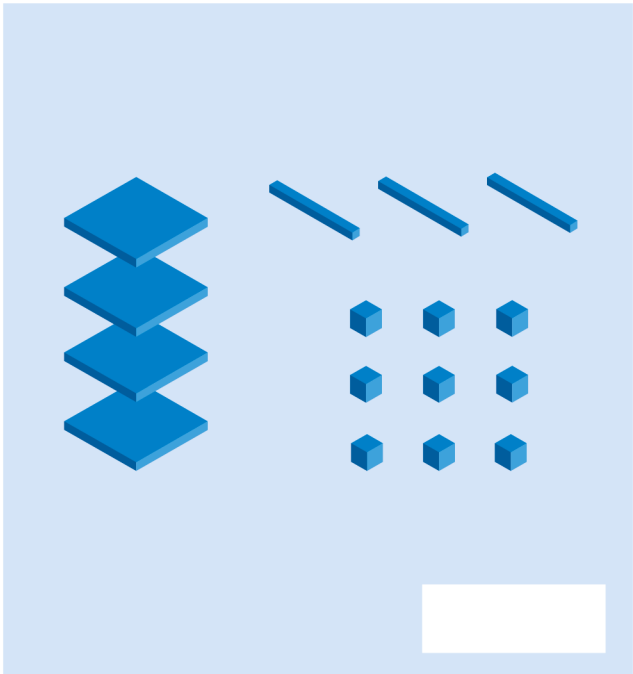
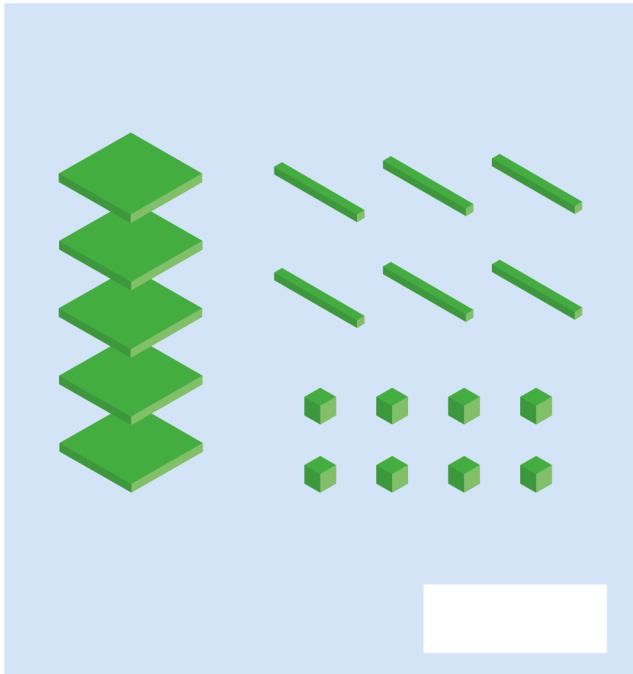
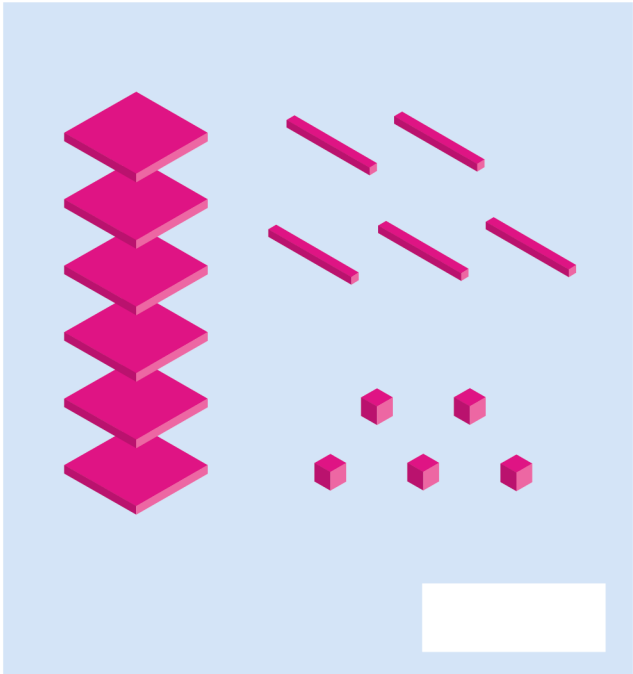
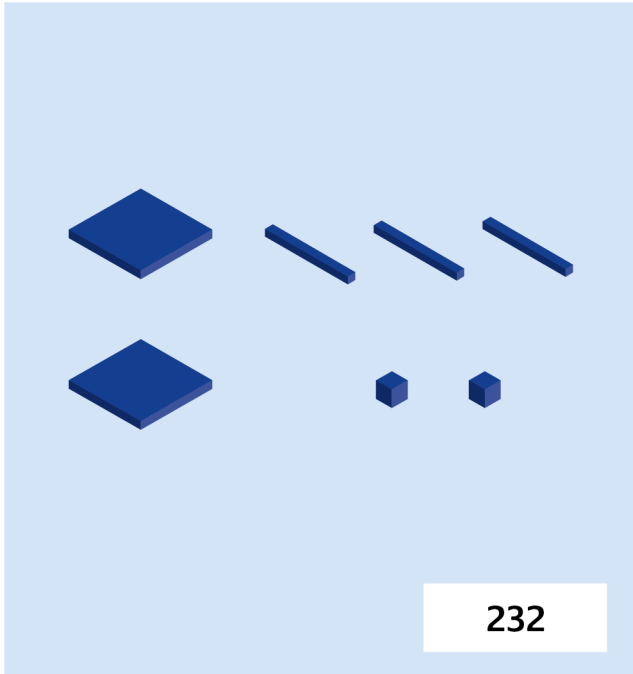
Counting Bricks

What is the number shown in each group of base ten blocks?

 100


 10

 1




Counting Bricks

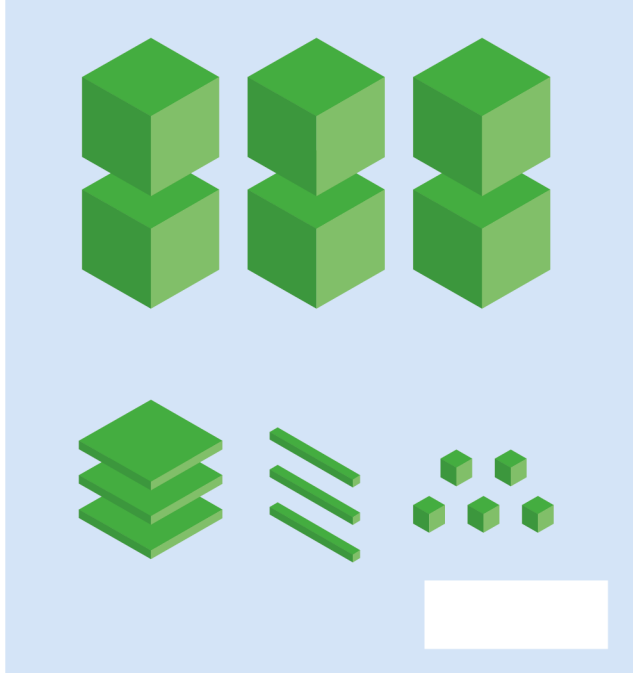
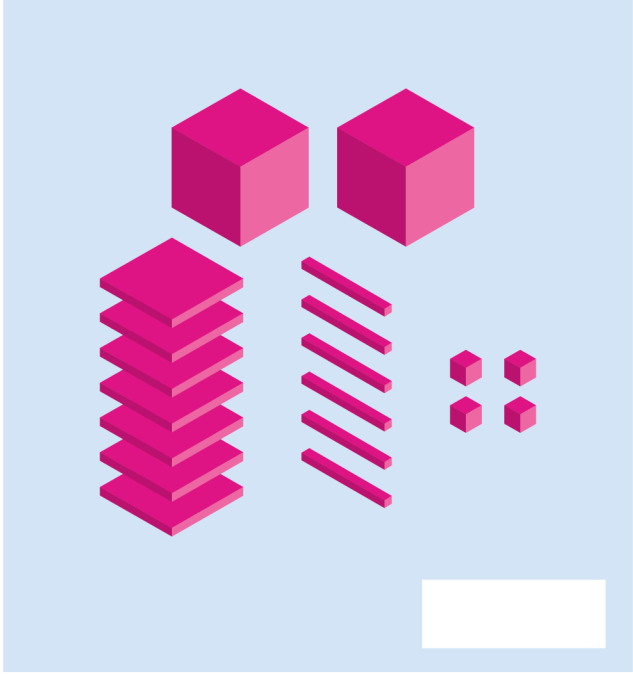
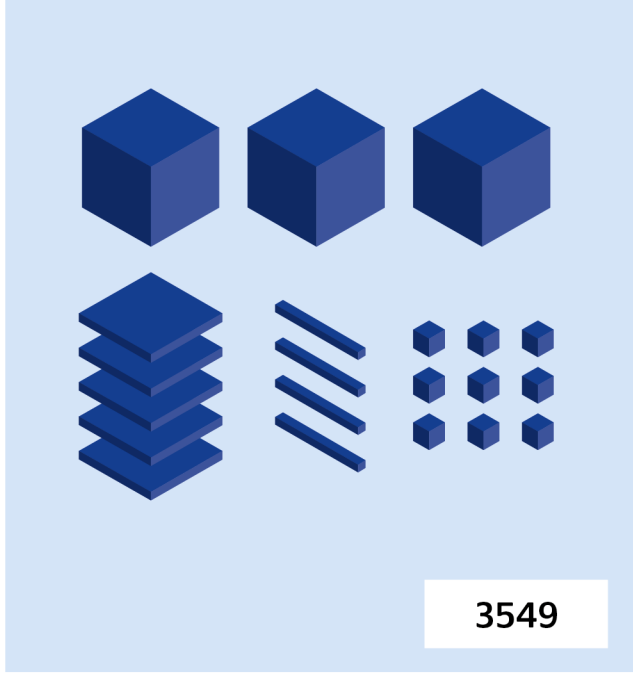
What is the number shown in each group of base ten blocks?

 1000

 100

 10

 1



Number Puzzle:

Hidden Numbers

Can you find the hidden numbers in the grid below?

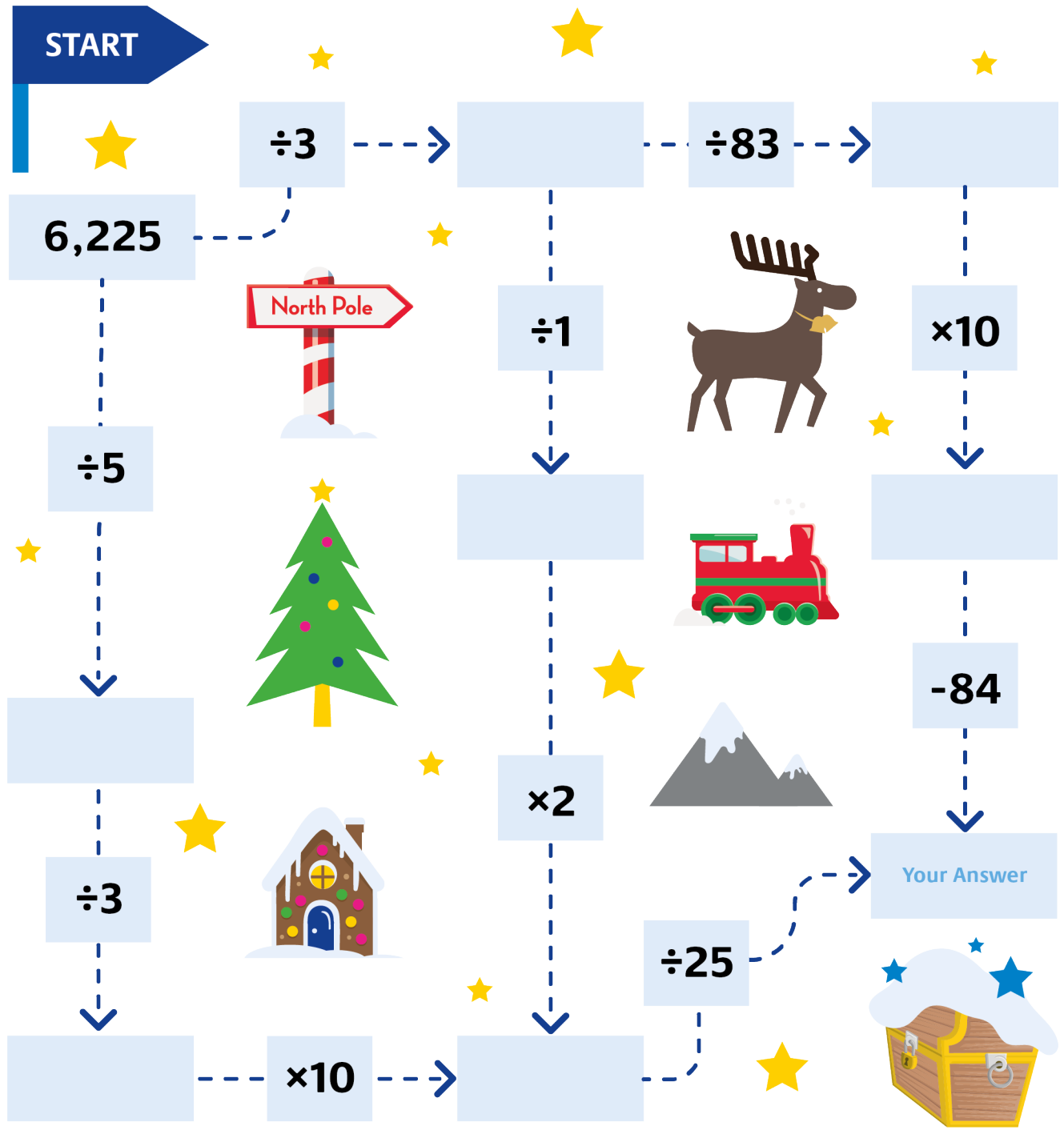
9	5	6	3	4	9	8	8	6	8	1	7
3	8	6	0	2	0	1	7	1	1	5	2
9	4	8	3	3	1	9	7	4	8	1	1
2	1	9	7	5	6	2	2	5	3	5	6
7	8	6	0	3	4	8	3	8	6	3	2
6	5	3	5	0	5	1	4	5	7	1	9
5	4	5	7	3	6	0	3	7	1	6	7
7	1	2	9	4	7	2	8	4	2	8	9
9	9	4	3	2	5	6	4	9	2	5	0
2	0	1	7	3	0	1	2	6	5	7	3
4	9	7	0	8	8	9	3	0	4	1	6
5	9	6	8	2	3	2	8	1	7	7	1

02017	48386	81724	292704	643195
16537	58418	92765	349886	790361
26127	60352	106947	430511	873508
38741	74522	281441	531685	917541

Number Puzzle:

Let's Find the Treasure!

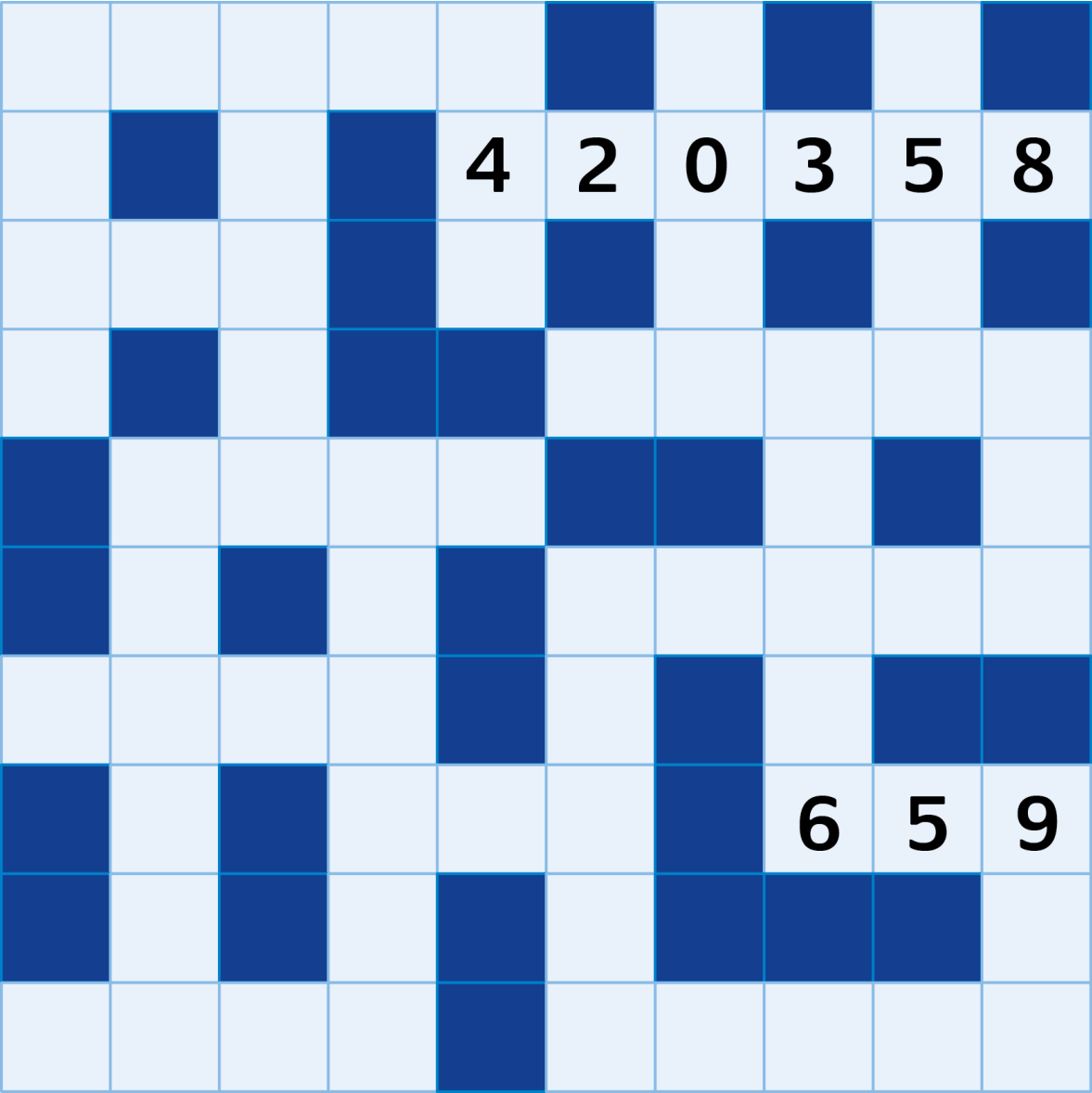
Working through different paths by performing the provided operation.
Hint! No matter which path you choose, they all lead to the same answer.



Number Puzzle:

Fill in Numbers One

Can you work out which of the numbers goes in each space in the puzzle below? *Two of the numbers have been done for you.*



3 Digits

- 143
- 267
- 468
- ~~659~~
- 748
- 946

4 Digits

- 2619
- 3580
- 6034
- 7129
- 7519
- 9256

5 Digits

- 19076
- 20537
- 32706
- 41037
- 41853
- 58321
- 84192

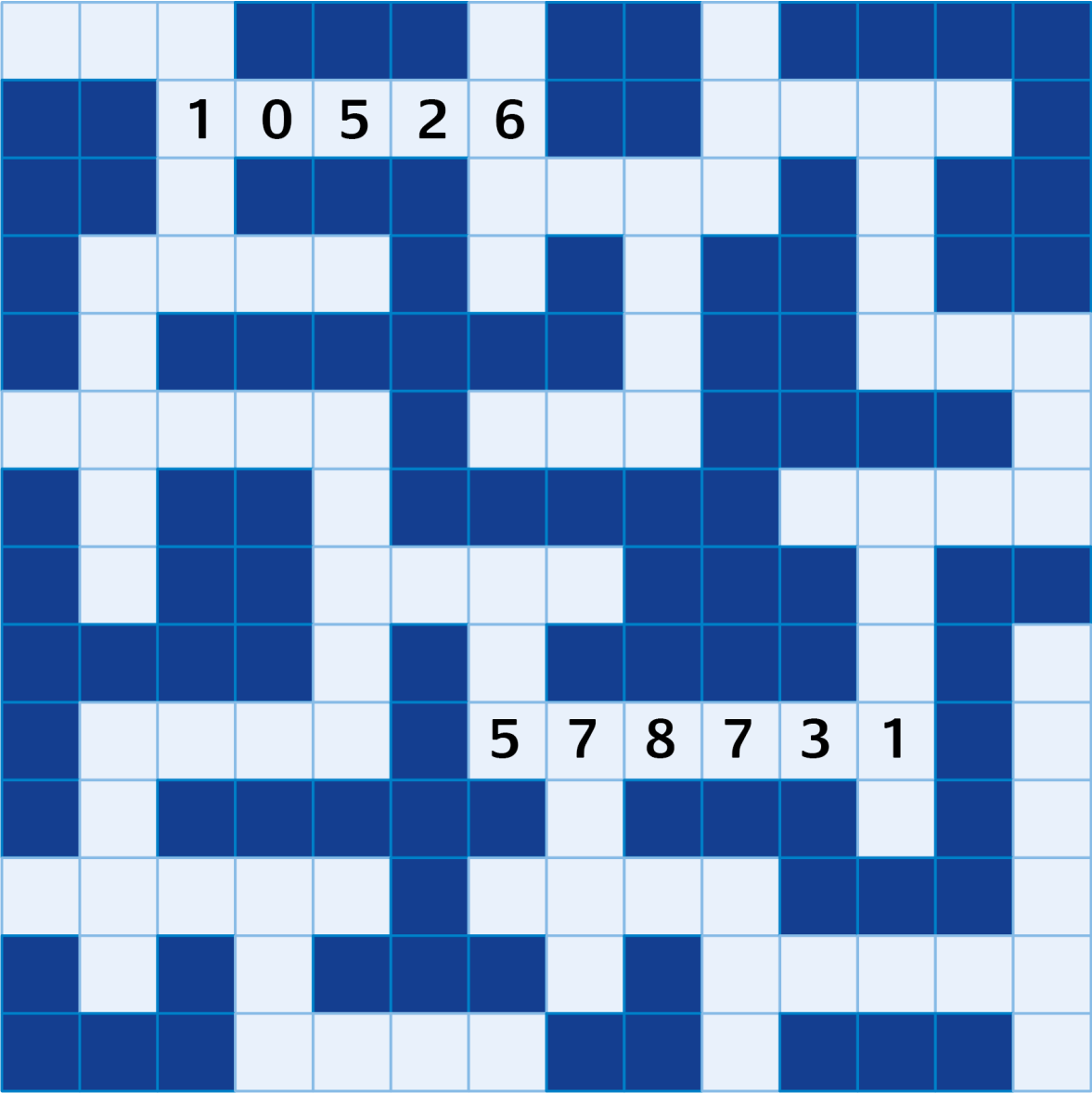
6 Digits

- 210496
- ~~420358~~
- 725692

Number Puzzle:

Fill in Numbers Two

Can you work out which of the numbers goes in each space in the puzzle below? *Two of the numbers have been done for you.*



3 Digits

- 132
- 195
- 349
- 457
- 471
- 551
- 729
- 834

4 Digits

- 1364
- 1679
- 1875
- 2146
- 2951
- 5074
- 5673
- 6219

6874

- 7210
- 7482
- 7729
- 8416
- 9168
- 9628

5 Digits

- 10526
- 17538
- 57809
- 59248
- 59423
- 63410
- 64325

6 Digits

- 578731
- 647982

Number Puzzle:

Circle Division

45

15

3

1

3

5

9

45

9

1

5

45 ÷

3

1

9

9

1

9

9

9

1

9

9

9 ÷

27

1

3

1

27

9

3

27

9

3

27 ÷

21

3

1

3

21

7

21

7

1

21

21 ÷

34

1

34

2

17

34

1

34 ÷

5

1

25

25

1

25

25

25 ÷

32

32

1

2

16

8

4

32

8

4

32 ÷

30

1

2

3

15

10

6

30

10

6

30 ÷

36

4

1

2

18

12

9

36

12

9

36 ÷

3

1

5

15

15

1

5

15 ÷

33

1

3

33

11

33

11

33 ÷

35

35

1

5

7

1

5

35 ÷

Christmas Crossword

MERRY CHRISTMAS

1 →

1 ↓

2

3

4

5

6

1

2

3

4

5

6

1

2

3

4

5

6

Holly

Snowman

Star

Tree

Elf

Santa

Presents

Maths Crossword

Subtraction

Complete the subtraction equations below and fill in the yellow blanks to complete the crossword.

22	-		=			-	18	=		
-				-		-			-	
	-		=	4		6	-		=	4
=				=		=			=	
15		36	-	8	=					

			-	11	=	9			
-			-		-			-	
5		9	-	7	=			6	
=				=		=		=	
27	-		=			-	3	=	

Maths Crossword

Multiplication

Fill in the yellow blanks to make the final sums correct.

		5	×	10	=					
				×						
					×	9	=			
	×				=		×			
	4	×	5	=			×	6	=	18
	=						=			
	28									

Maths Crossword

Multiplication

Fill in the yellow blanks to make the final sums correct.

[illegible]

Maths Crossword

Addition, Subtraction, Multiplication & Division

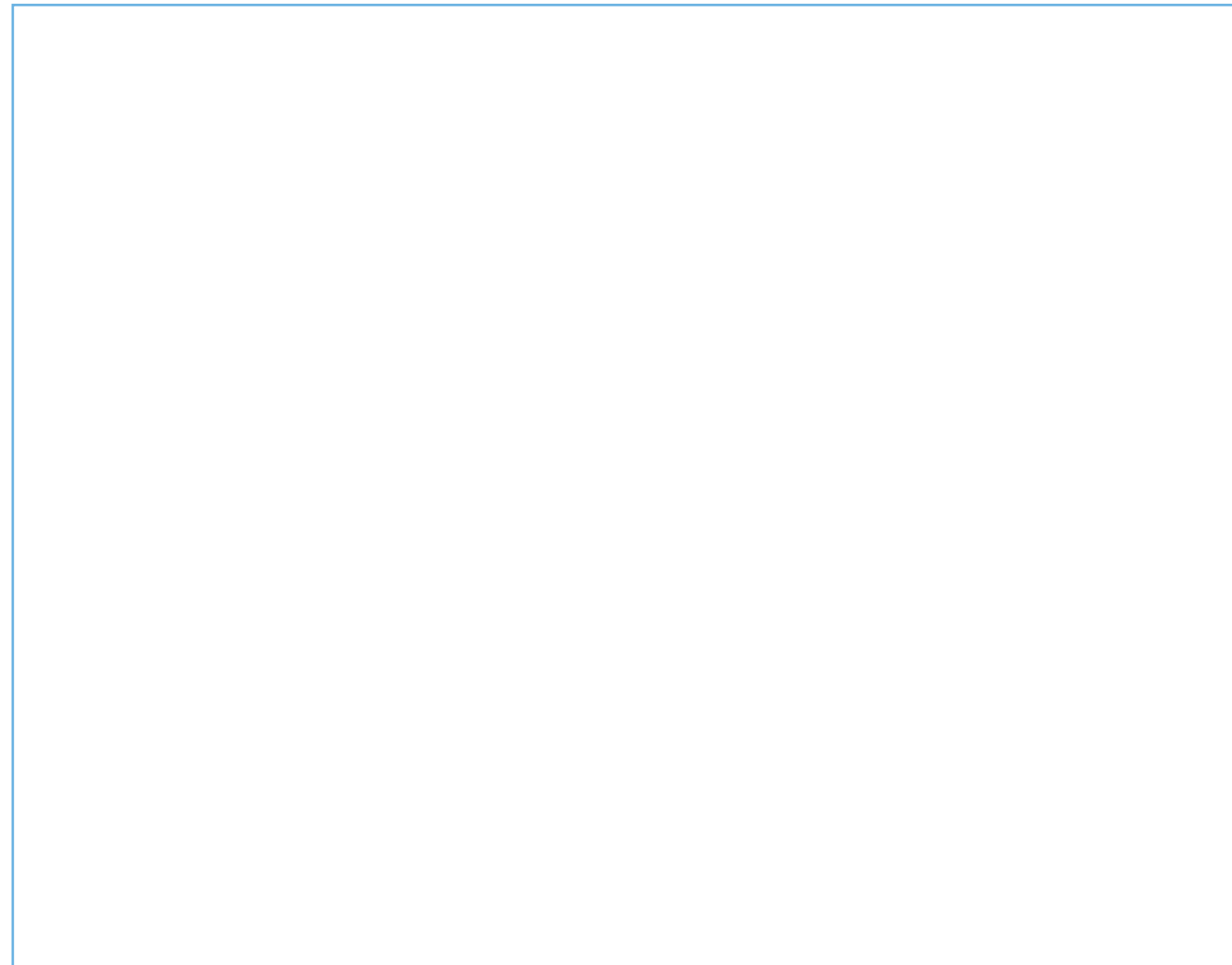
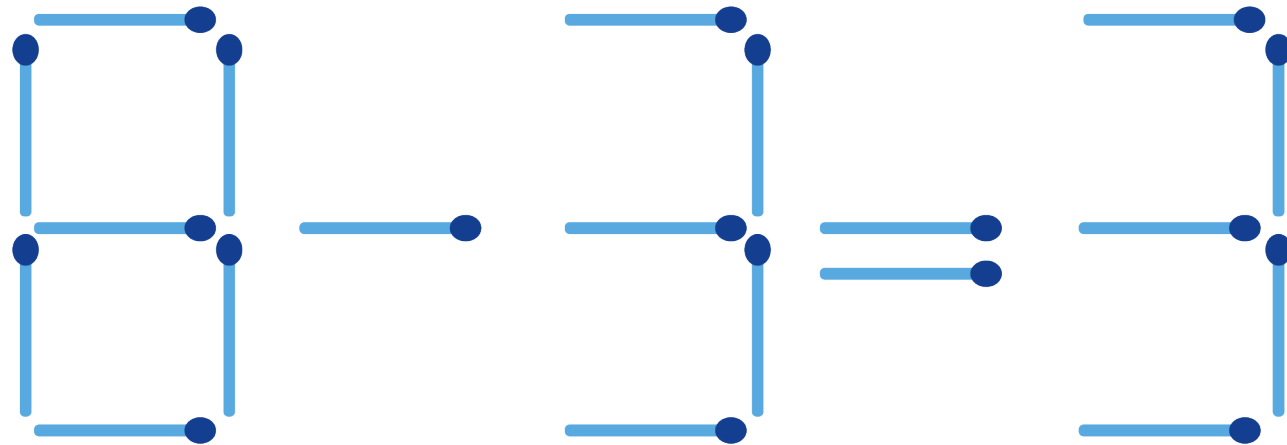
Fill in the gaps to make the final sums correct.

5	+		=	12					
		×		÷				-	
	-		=	4				13	
×		=		=		+		=	
		21			×	4	=		
=						=			
56		20	-		=	11		3	
		+		×				×	
90	÷		=					14	
		=		=				=	
				81	-		=		

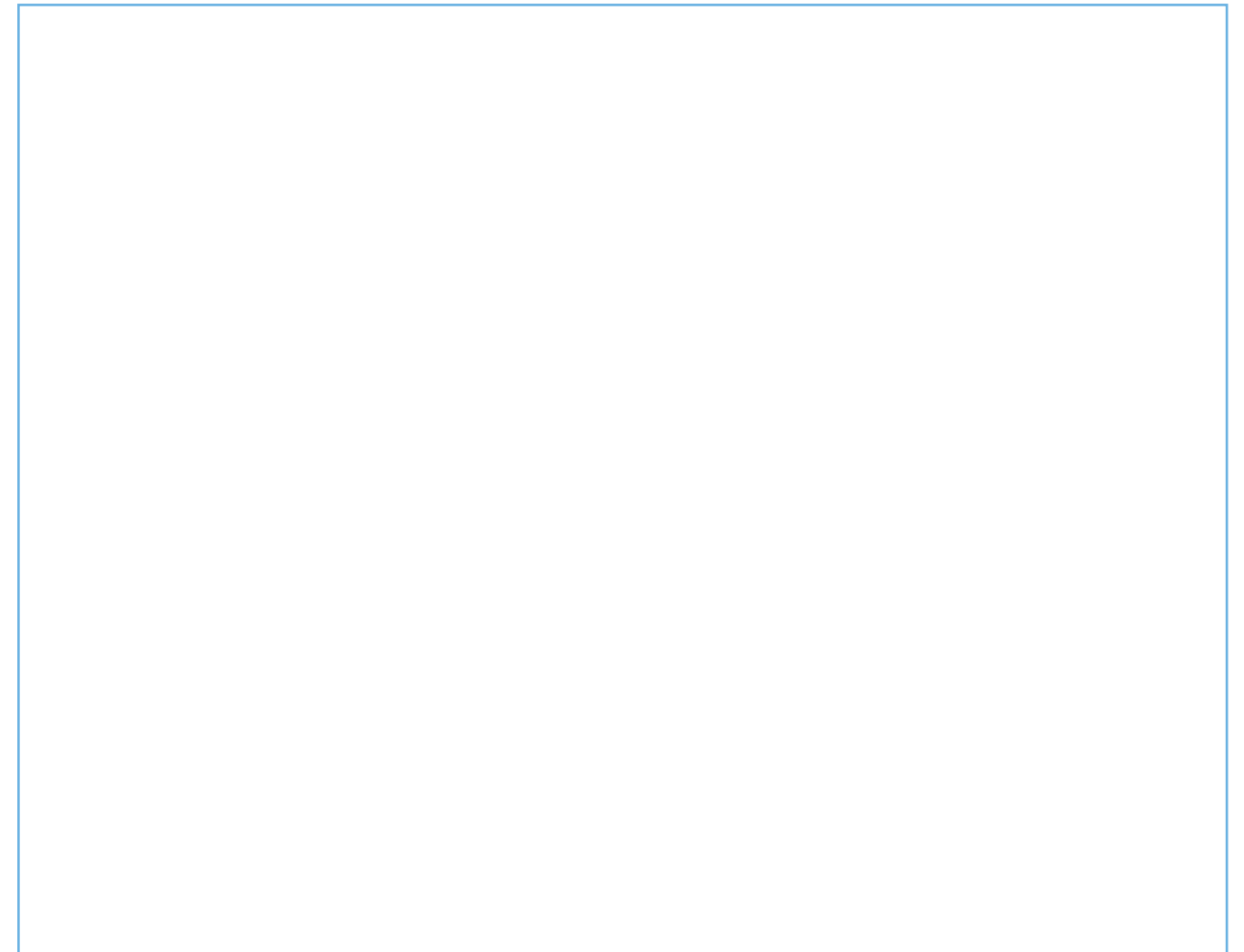
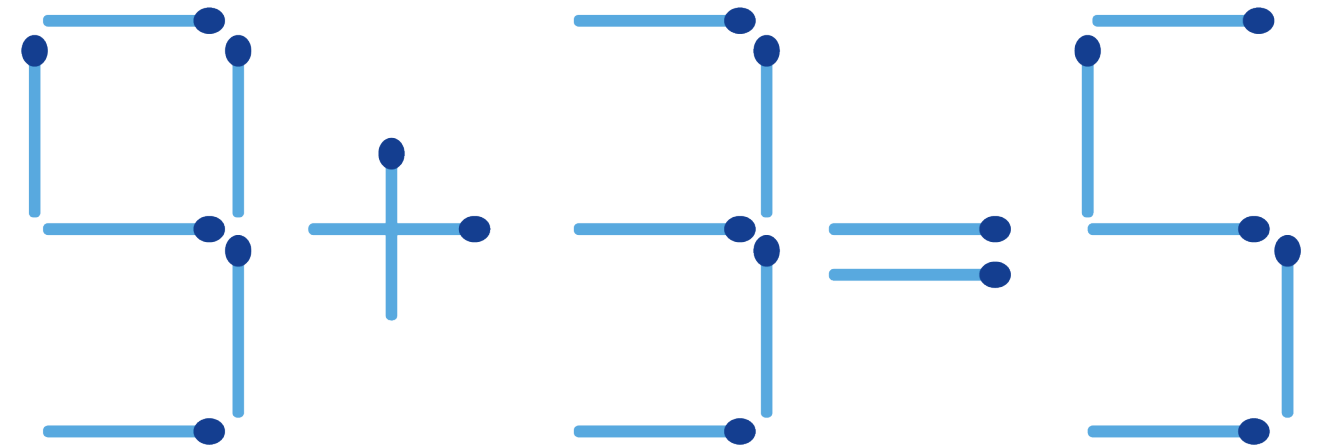
Matchstick equations

1. Can you make the equation true by moving just one matchstick?

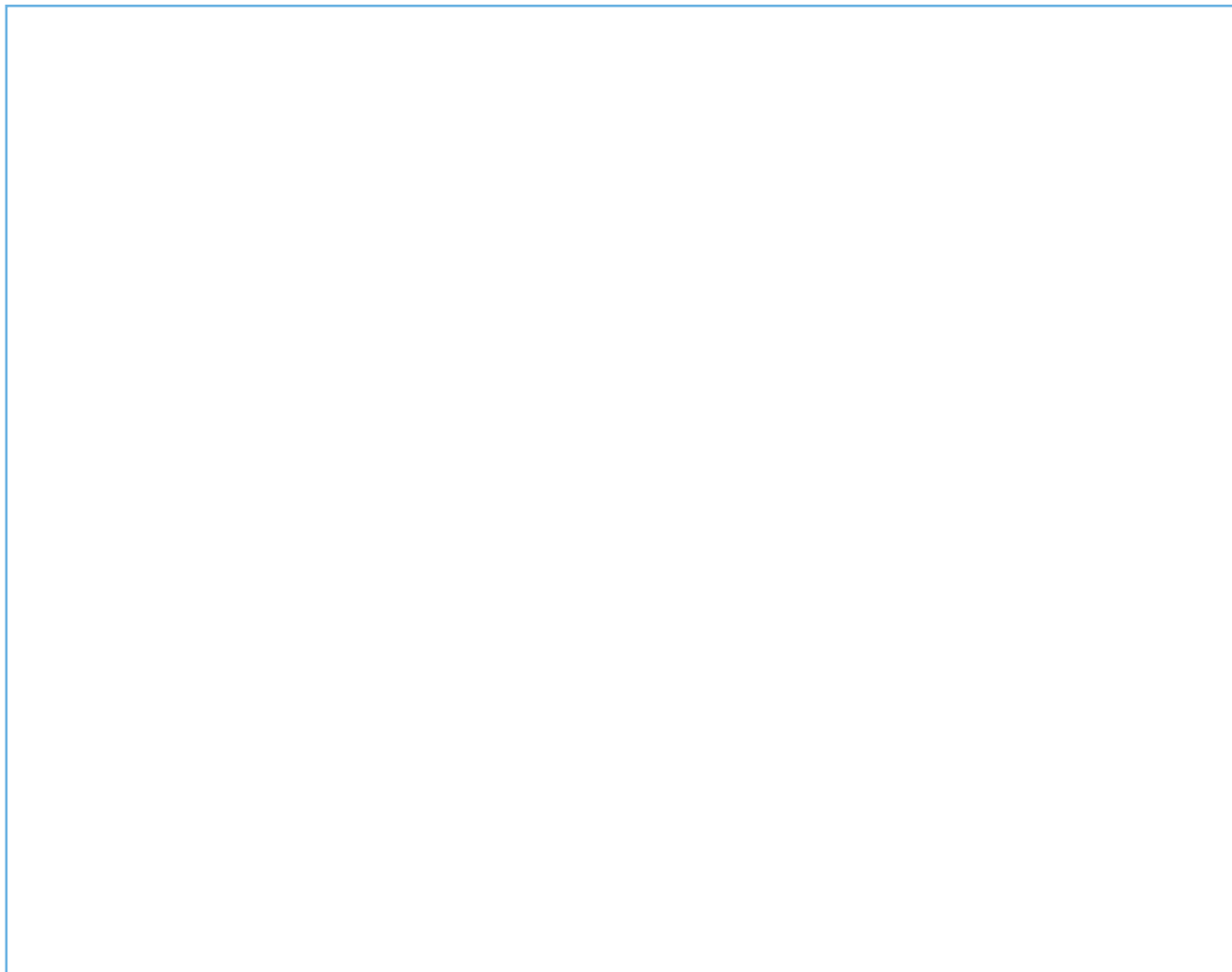
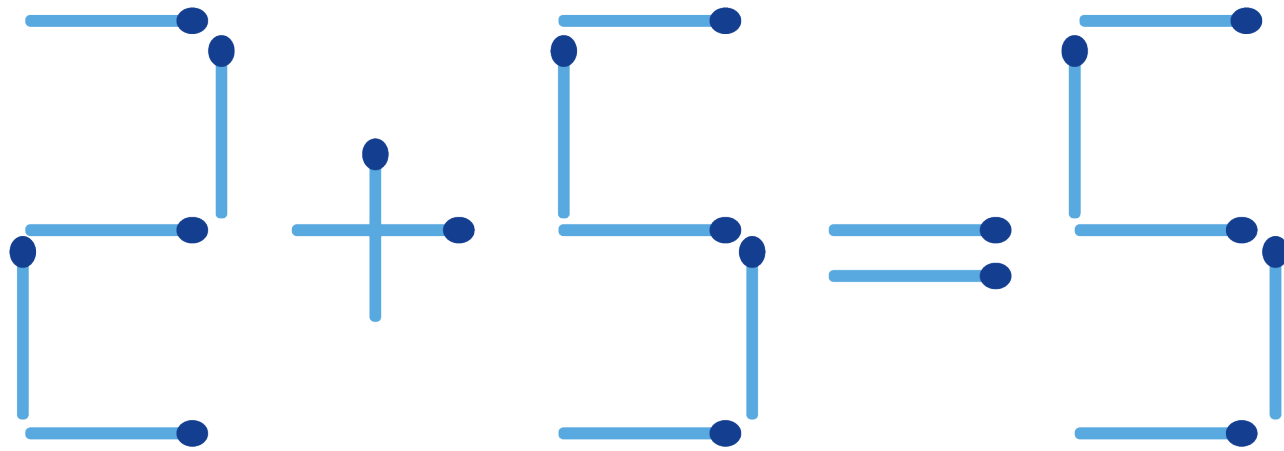
Note: It can be done in at least three ways



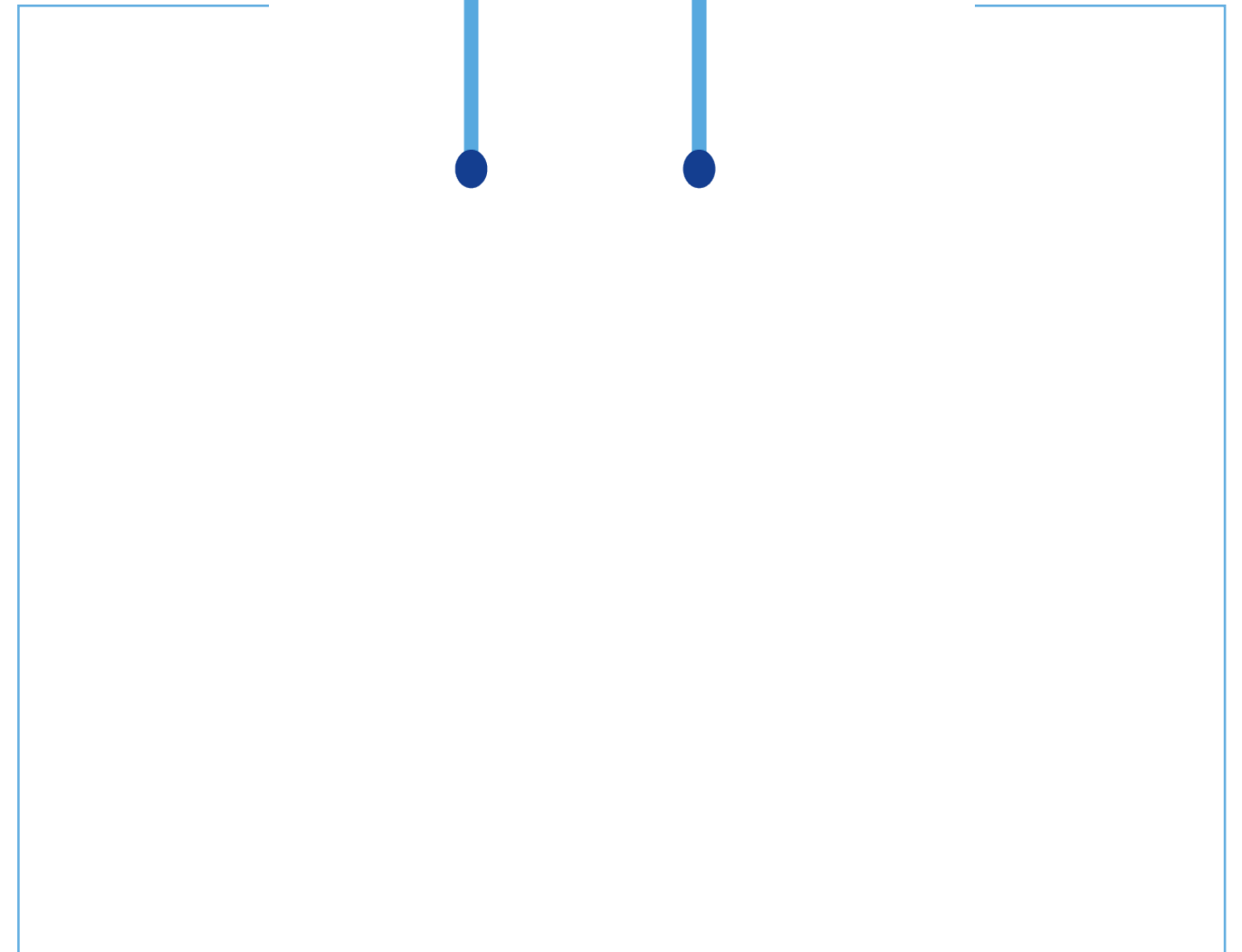
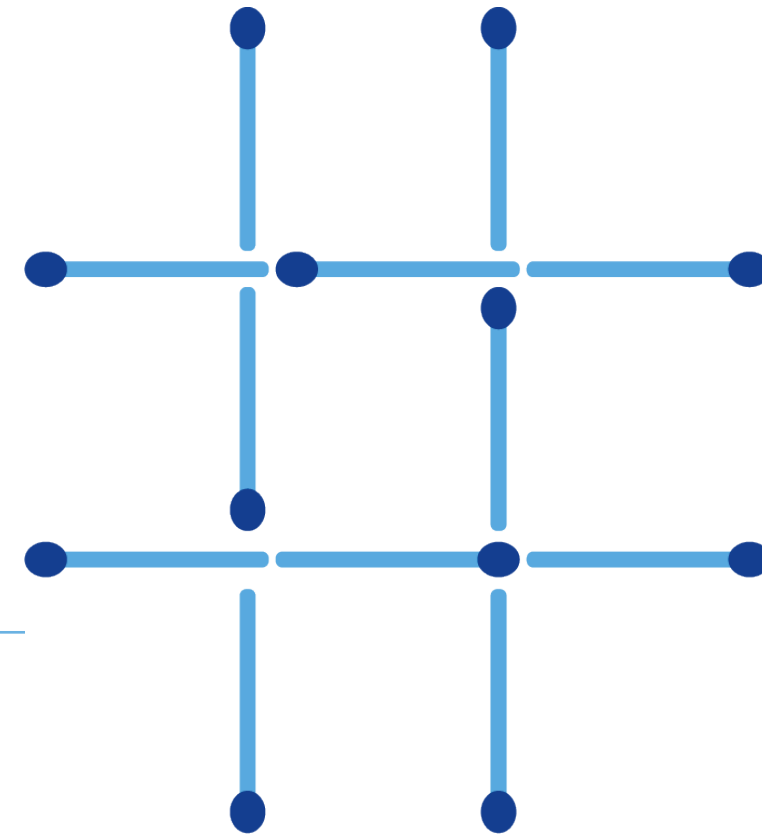
2. Move only one stick so that the equation becomes correct. Can you see if any other solutions are also possible?



3. Move only one stick so that the equation becomes correct. Can you see if any other solutions are also possible?



4. Move three sticks to make 3 squares.



Falling Snowball Puzzle

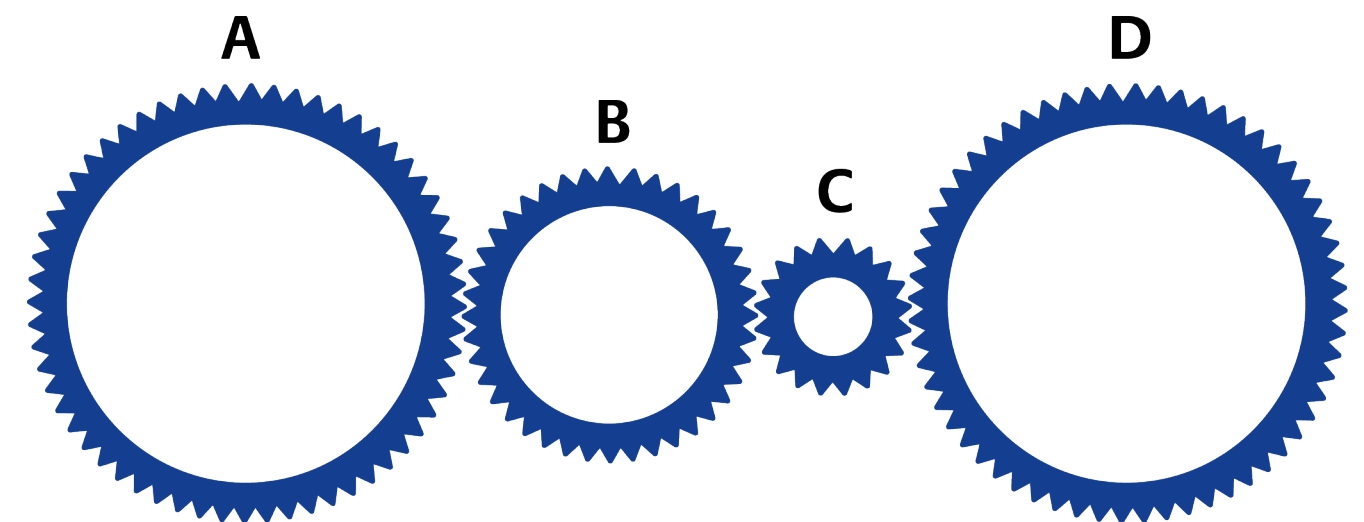
Into which bucket will the heavy snowball fall after it is pushed?



Gear Wheel Physics Puzzle

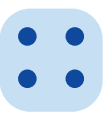








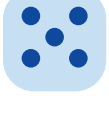
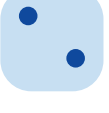
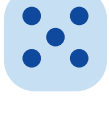




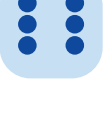






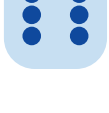








Shown in the picture below are four gear wheels with the following specifications:

- › Gear A has 60 teeth
- › Gear B has 40 teeth
- › Gear C has 20 teeth
- › Gear D has 60 teeth
- › Every minute, Gear B makes 15 complete revolutions



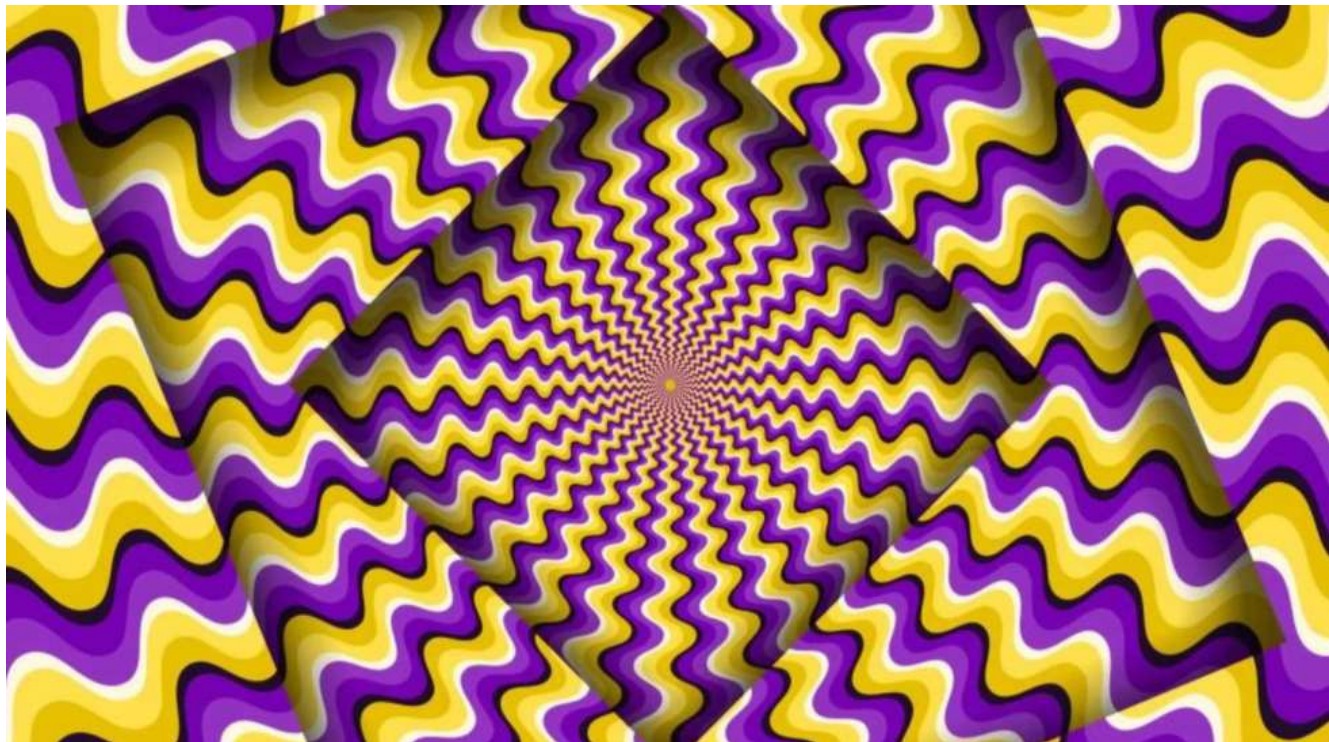
Question: What is the relative speed of Gear A and Gear B?

Multiplication Dice Game

 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>
 ×  = <input type="text"/>	 ×  = <input type="text"/>

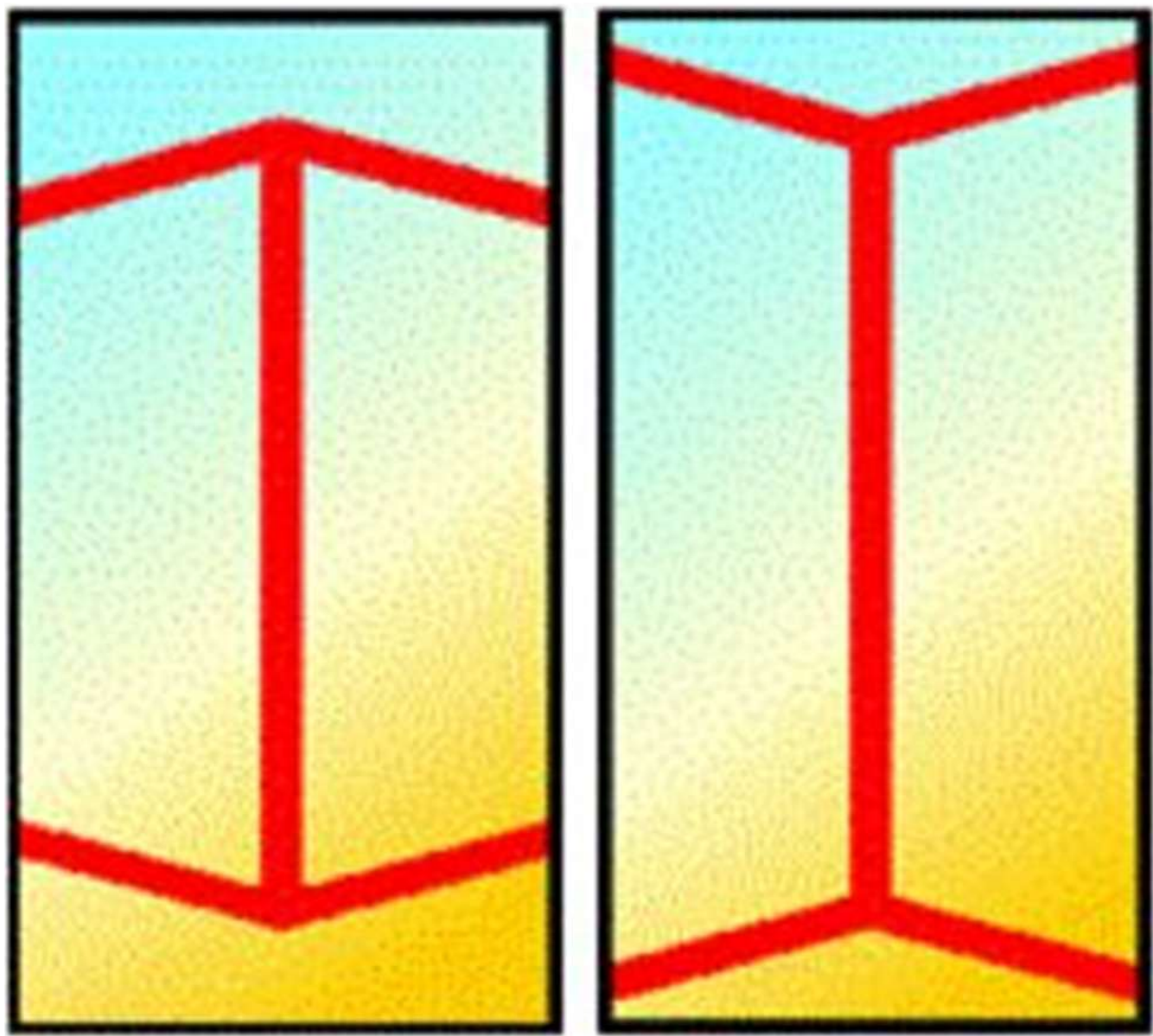
Optical Illusion

This mind-boggling, spinning optical illusion is actually completely still and flat but our brains don't see it that way.



Optical Illusion

Take a very close look at the two vertical lines. Do you think that one line is longer than the other?



Reduce, Reuse and Recycle

Circle the best way to help the environment for each item:



reduce reuse recycle



reduce reuse recycle



reduce reuse recycle



reduce reuse recycle



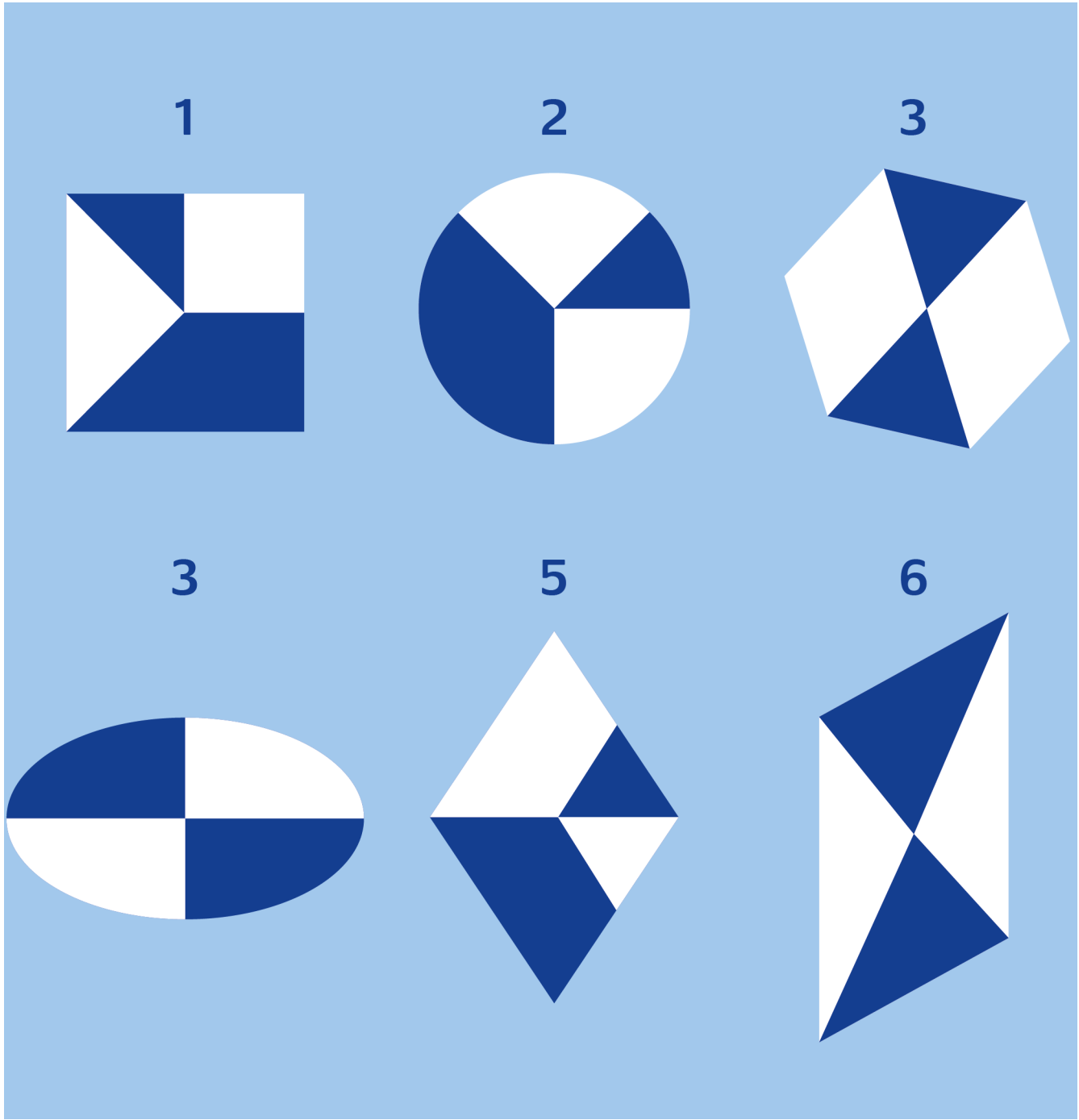
reduce reuse recycle



reduce reuse recycle

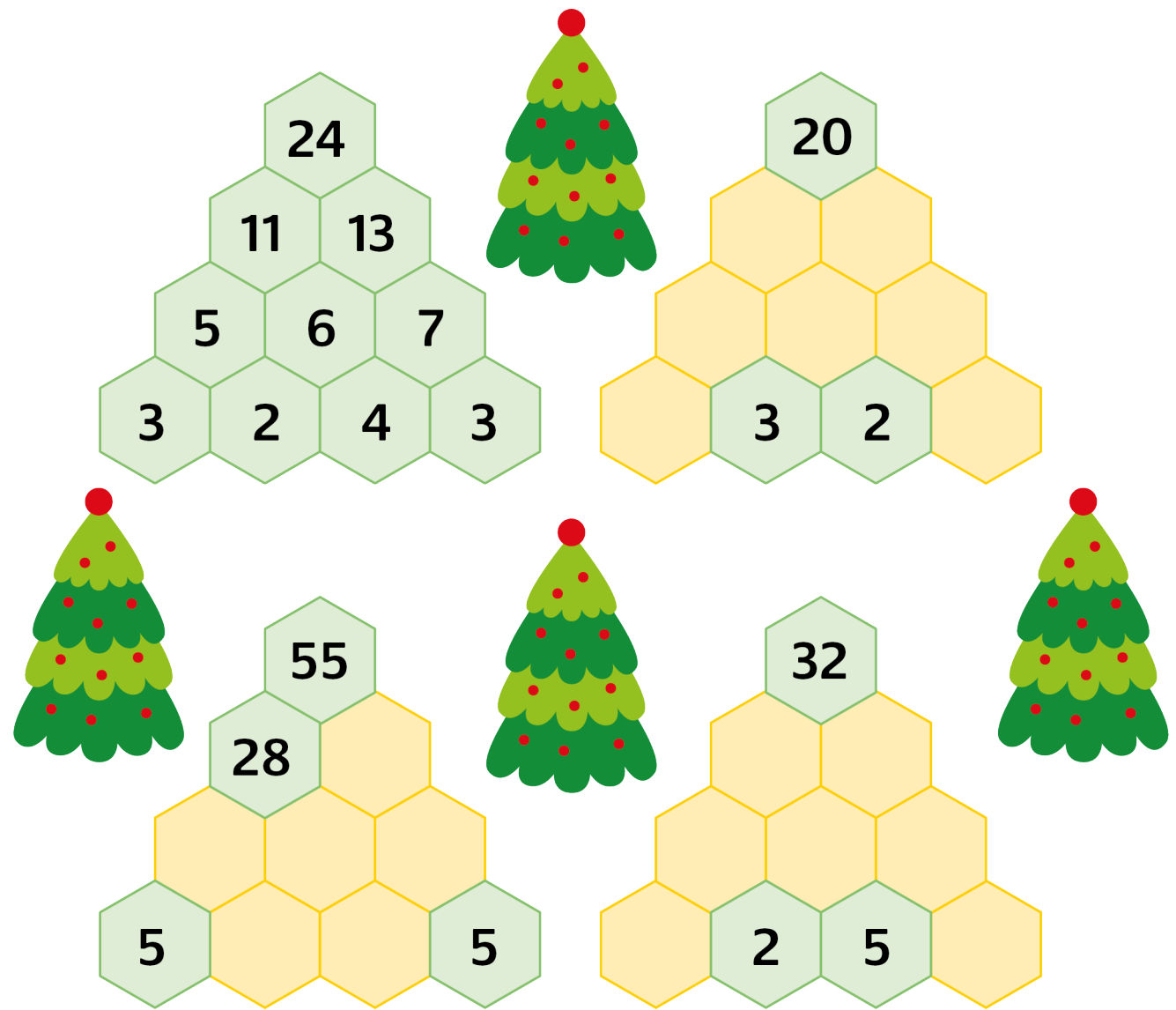
Shapes Puzzle

Which shape 1-6 contains more white than black?



Tree Adding Puzzle

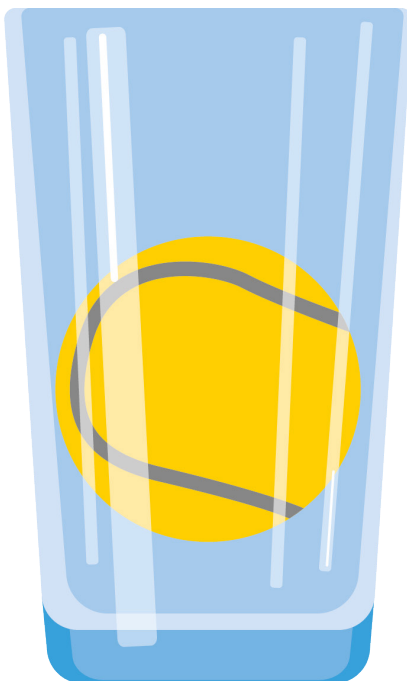
Each number is the total of the two numbers below it. Find a solution for each of the trees shown below. There are many possibilities! The first tree has been completed for you.



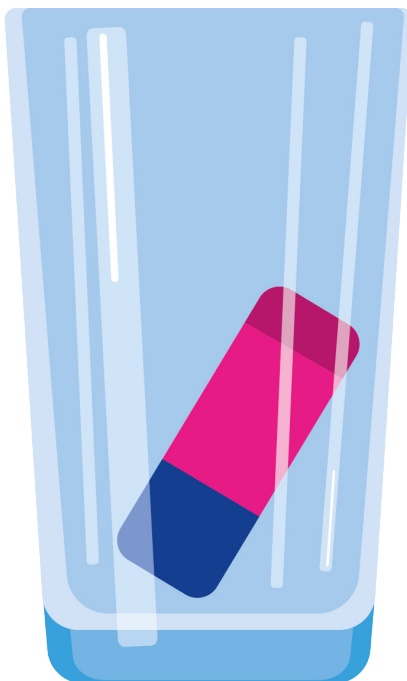
Water in a Glass Challenge

Can you determine which glass contains the most water?

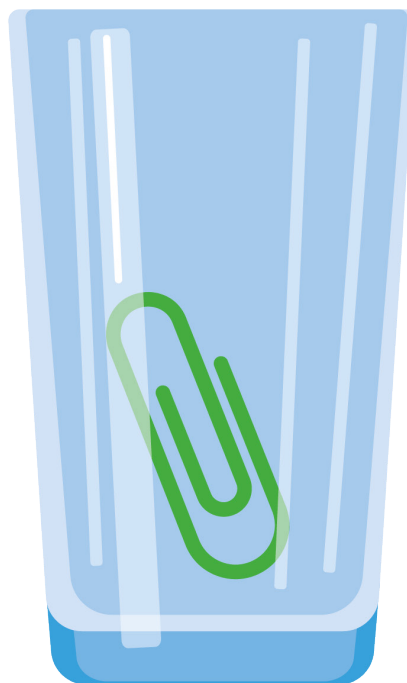
A



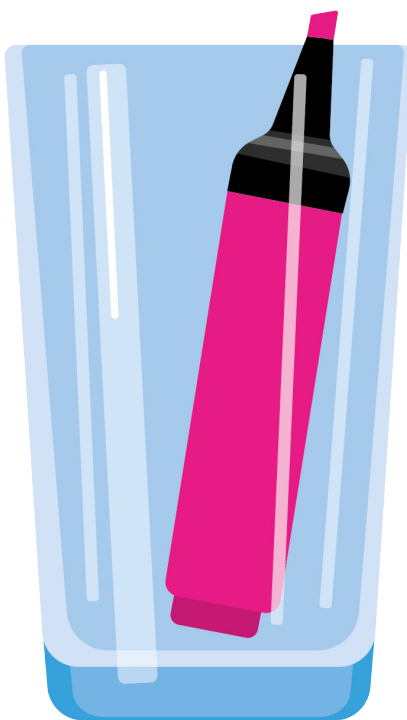
B



C

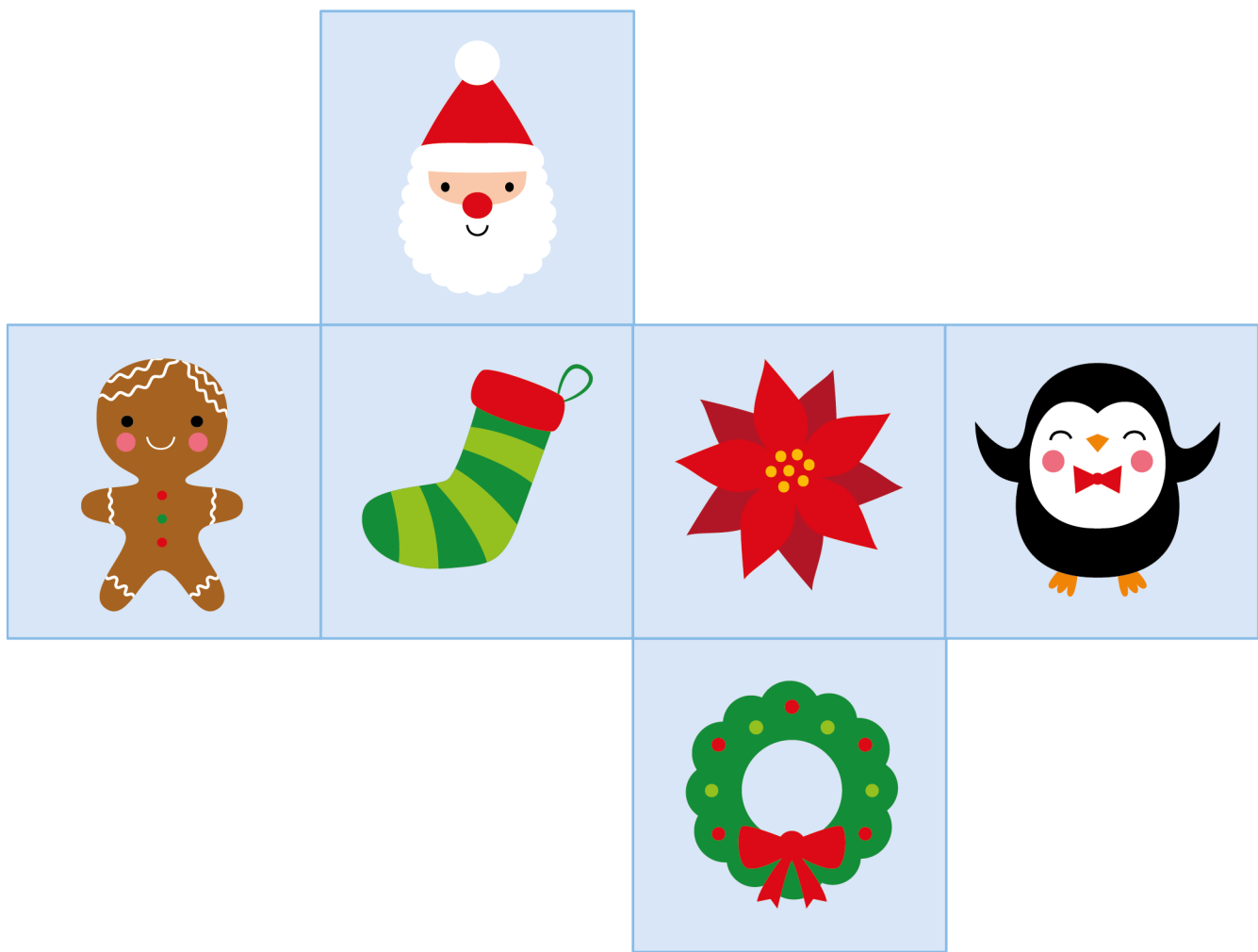


D



Picture Cube Challenge

Which picture cube does this shape make?



A

B

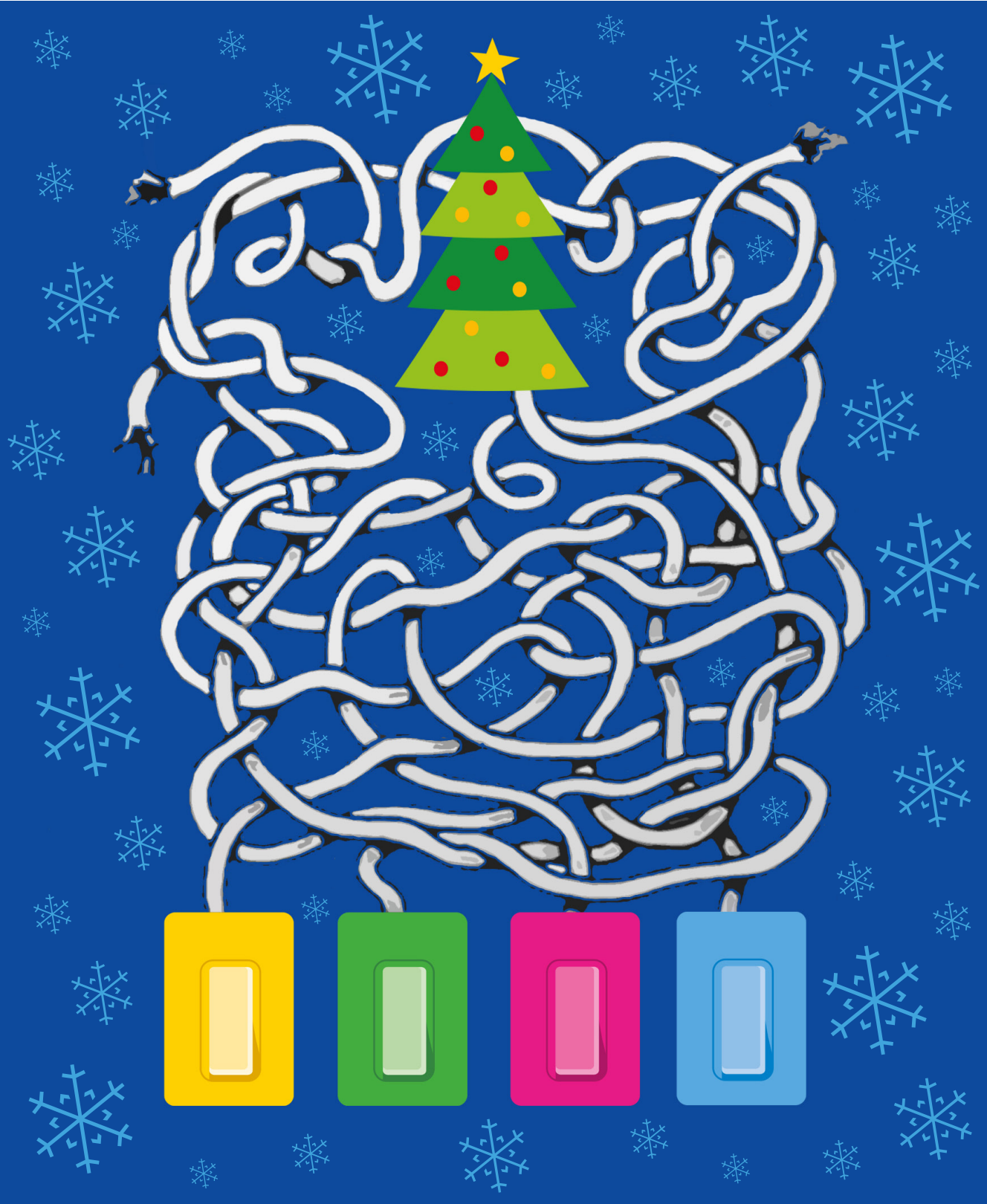
C

D



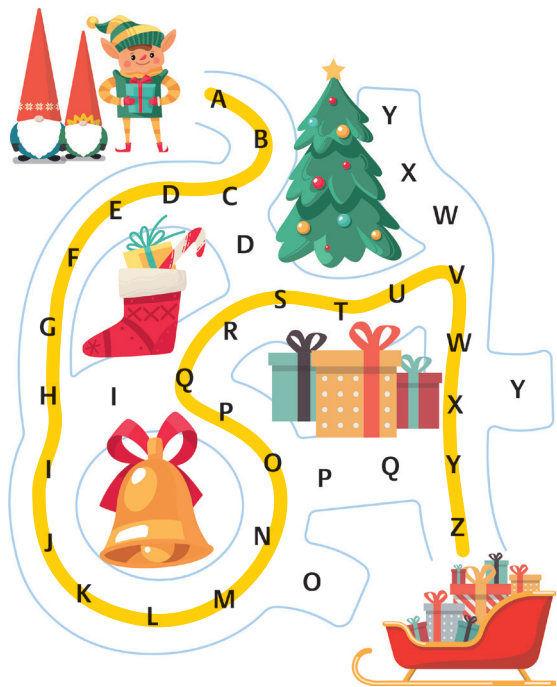
Light Switch Challenge

Which switch will turn on the Christmas Tree lights?



Answers

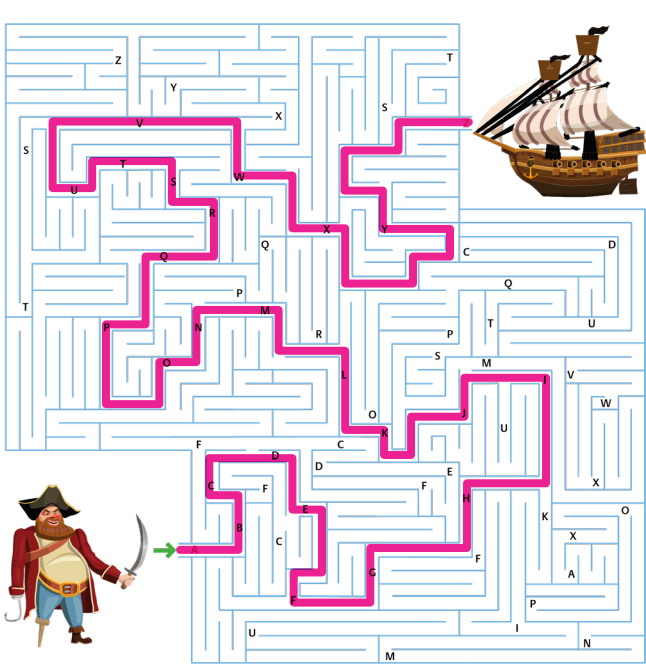
Pg 14. Maze game: Christmas Alphabet



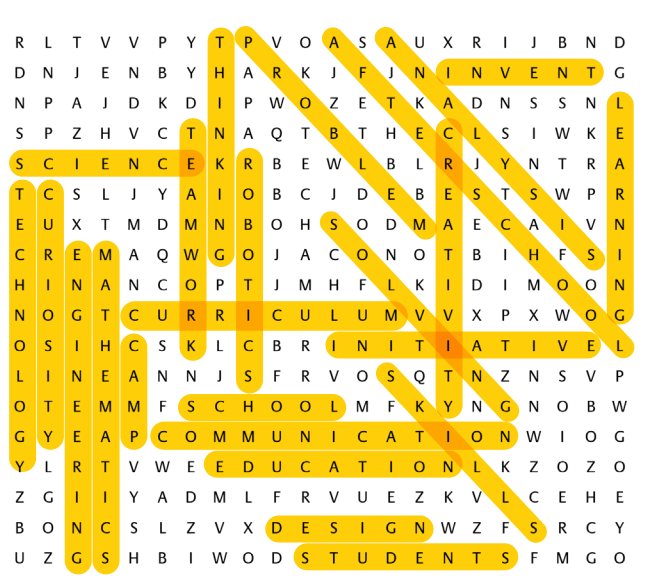
Pg 16. Wordsearch: Christmas Tree



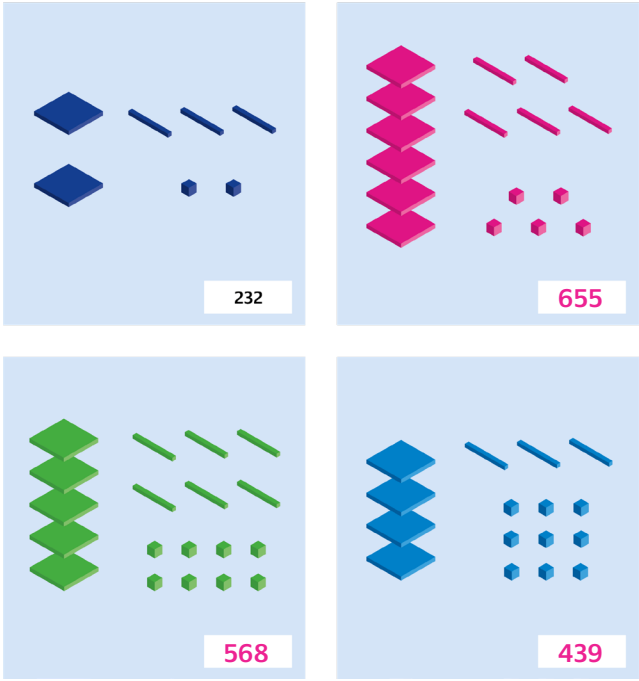
Pg 15. Maze game: Labyrinth Alphabet



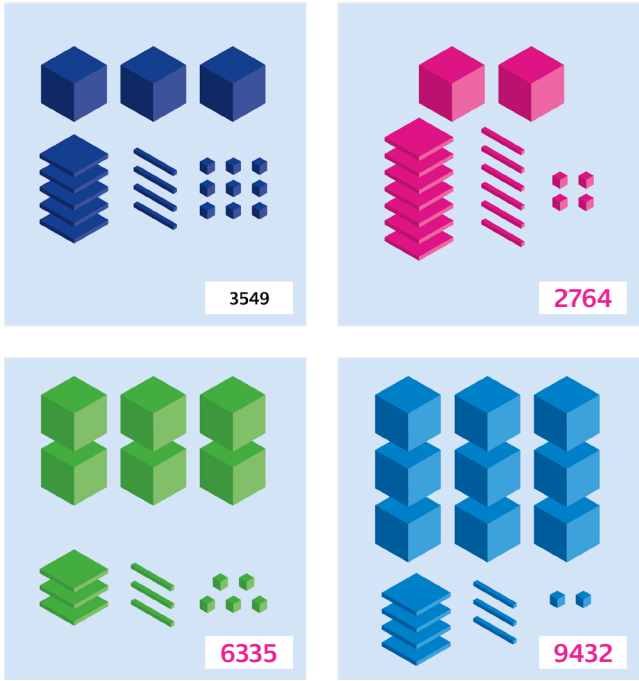
Pg 17. Wordsearch: STEM



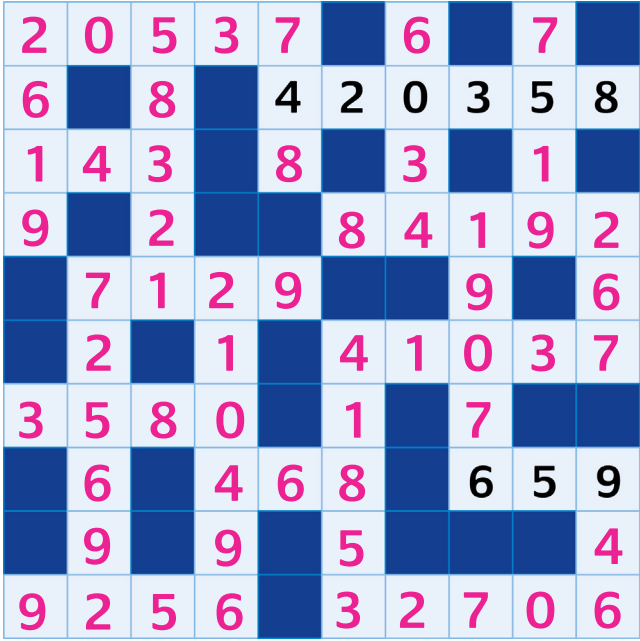
Pg 18. Counting Bricks



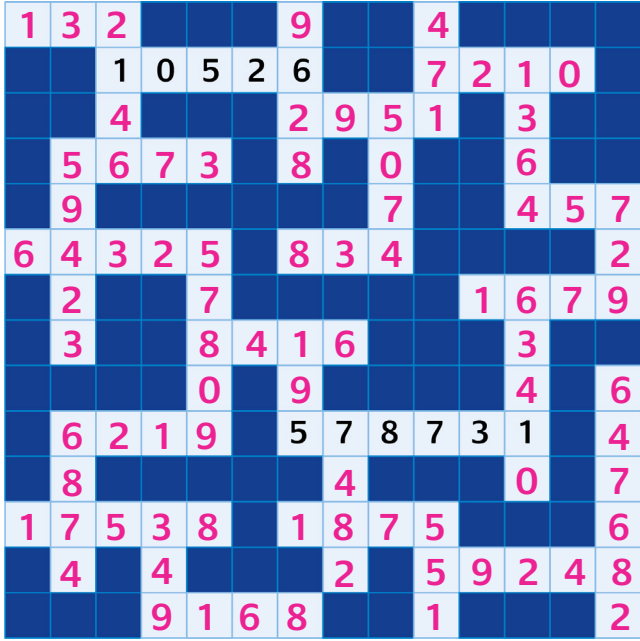
Pg 19. Counting Bricks



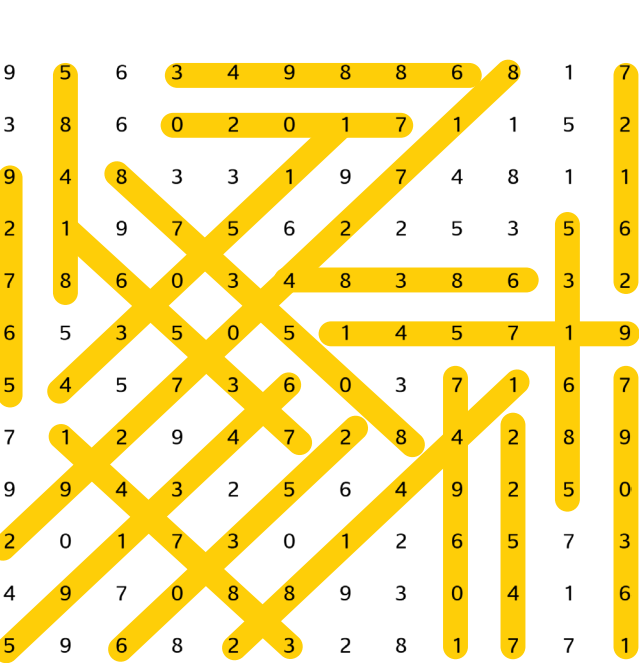
Pg 22. Number Puzzle: Fill in Numbers One



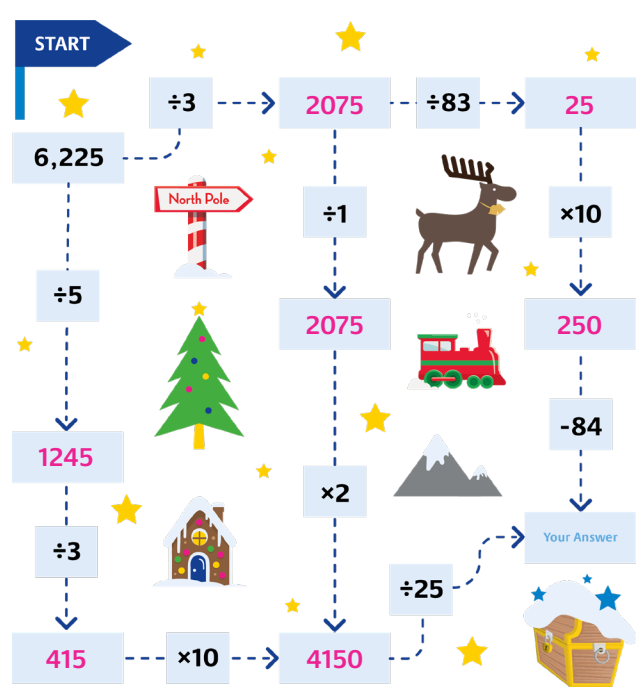
Pg 23. Number Puzzle: Fill in Numbers Two



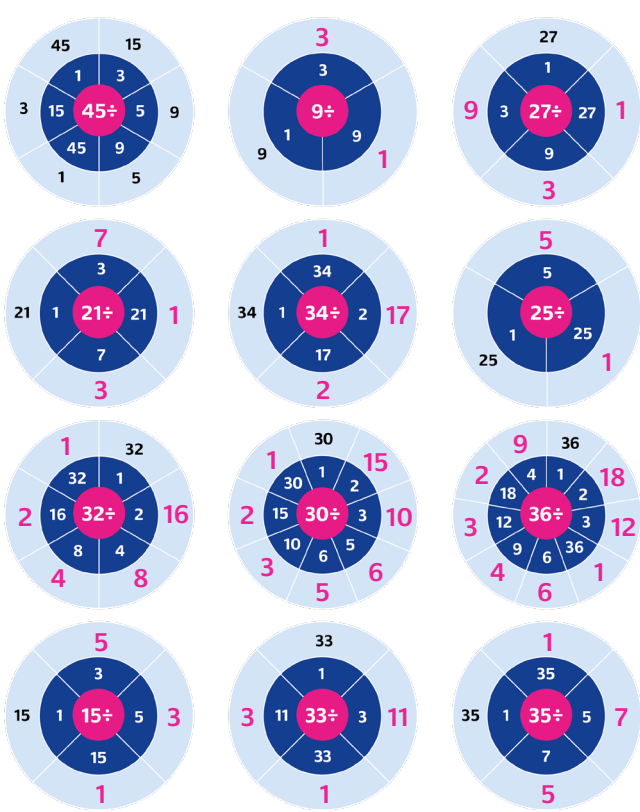
Pg 20. Counting Bricks



Pg 21. Number Puzzle: Let's Find the Treasure!



Pg 24. Number Puzzle: Circle Division



Pg 25. Christmas Crossword



Pg 26. Maths Crossword: Subtraction

22	-	10	=	12	34	-	18	=	16
-			-		-			-	
7	-	3	=	4	6	-	2	=	4
=			=		=			=	
15		36	-	8	=	28			12

32		20	-	11	=	9		12		
-		-	-	-				-		
5		9	-	7	=	2		6		
=		=	=	=				=		
27	-	14	=	13		9	-	3	=	6

Pg 28. Maths Crossword: Multiplication

	5	×	4	=	20				
		×							
10			10	×	6	=	60		
×		=	×						
5	×	8	=	40	7	×	3	=	21
=			=		=				
50					42				

Pg 27. Maths Crossword: Multiplication

	5	×	10	=	50				
		×							
7			2	×	9	=	18		
×		=	×						
4	×	5	=	20	3	×	6	=	18
=			=		=				
28					27				

Pg 29. Maths Crossword: Mixed Sums

5	+	7	=	12		25		
		×		÷		-		
7	-	3	=	4	7	13		
×		=	=	+		=		
8		21		3	×	4	=	12
=			=	=				
56		20	-	9	=	11		3
		+		×				×
90	÷	10	=	9				14
		=	=	=				=
		30		81	-	39	=	42

Pg 30. Matchstick puzzles

1.

2.

3.

4.

Pg 34. Maths Crossword: Subtraction

The answer is the pink bucket (3rd from the left). The ball will miss the yellow and green buckets because the pipe feeding it blocked.

Pg 36. Multiplication Dice Game

⬢⬢

×

⬢

=

8

⬢⬢

×

⬢⬢

=

15

⬢

×

⬢⬢

=

3

⬢⬢

×

⬢⬢

=

36

⬢⬢

×

⬢⬢

=

30

⬢

×

⬢⬢

=

10

⬢⬢

×

⬢⬢

=

12

⬢

×

⬢

=

4

⬢⬢

×

⬢

=

12

⬢⬢

×

⬢⬢

=

9

⬢⬢

×

⬢⬢

=

25

⬢⬢

×

⬢⬢

=

18

⬢⬢

×

⬢⬢

=

20

⬢⬢

×

⬢⬢

=

24

⬢⬢

×

⬢

=

6

⬢⬢

×

⬢⬢

=

16

Pg 40 Shapes Puzzle

The answer is shape 3. All the others contain equal portions of each.

Pg 41. Tree Adding Puzzle

24

11 13

5 6 7

3 2 4 3

20

9 11

4 5 6

1 3 2 4

55

28 27

13 15 12

5 8 7 5

32

15 17

8 7 10

6 2 5 5

w 44 Light Switch Challenge

The answer is pink (third switch from the left).

Pg 35. Gear Wheel Physics Puzzle

Both will rotate at the same speed.

Explanation: Gears of the same size will always rotate at constant speeds despite any smaller or larger gears in between them

Pg 38. Optical Illusion

They are the same size! Hard to believe? Get out your ruler to measure the lines and see for yourself!

Pg 39. Reduce, Reuse and Recycle



reduce reuse **recycle**



reduce **reuse** recycle



reduce reuse **recycle**



reduce reuse recycle



reduce **reuse** recycle



reduce reuse **recycle**

Pg 42. Water in a Glass Challenge

The answer is C.

Explanation:

It Seems, the water level might be even in all the glasses, but what will happened if we remove the objects from the glasses. When you put an object in water, it will displace the water with the mass of the object Hence, the glass that contains the object with the least amount of weight will have the most water in it.

Even though we might not know the exact weight of all those four objects, we can all agree, that the paper clip weighs the least and hence will displace the minimum water.

Pg 43 Picture Cube Challenge

The answer is C.

