



Notre Dame High School

## Maths Induction Booklet for Year 6 Students

We are really looking forward to having you join our school community in September. We really hope you enjoy your maths over the next 5 years with us. This booklet will help you get prepared for what maths might look like at Notre Dame.

The first few pages have some standard techniques you may know already - it's all good practice!

After that, our wonderful maths teachers have selected a few puzzles and challenges to get your brain working.

Enjoy! 😊

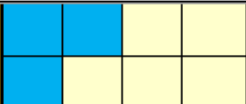
Notre Dame Maths Department

In Year 7 and Year 8, you will work on 'Rainbow' at a colour suitable for you. Have a go at some of these questions - you may have a guess what colour you may start working on. Answers can be found at the back of the booklet.

Red Level

1	If it is Friday 13th October what was the date on Saturday?
2	What is ten more than 14?
3	What is forty less than 83?
4	Work out $9 + 5 - 6 + 1$
5	What is the total of two 1p coins, two 5p coins and two 20p coins?
6	I buy 3 pencils that are 4p each and 3 pens that are 7p each. How much change will I get if I pay with a 50p?

Orange Level

1		What fraction has been shaded?
2	Write 2:51 pm in 24 hour time.	
3	A speech starts at 3:25 pm and lasts for 20 minutes. What time will it finish?	
4	Work out $84 - 35$	
5	If 49% of a class are girls, what percentage are boys?	
6	Put these five numbers in order of size, starting with the smallest: 0.5, 5.6, 0.05, 65, 0.65	
7	Find the difference between 79 and 102	
8	What is half of 114 ?	

### Yellow Level

1	What is $\frac{1}{10}$ of 860?
2	$\frac{1}{6} = \frac{?}{66}$
3	What is 25% of £1740?
4	What is the total of 85, 23 and 12?
5	What is the total cost of 10 items that cost £62 each?
6	$21 + ? = 3 \times 8$
7	In the UK it is 10 degrees celcius. In Iceland it's 14 degrees colder. What temperature is it in Iceland?
8	Work out what the ? stands for in this sequence 10 , 14 , 18 , ? , 26

### Green Level

1	What is $-25 - 6$ ?
2	Find the total cost of 5 items that cost £31.05 each.
3	If 11 cost £836 then what would 20 cost?
4	Split a £209 bill between 4 people.
5	Simplify $\frac{45}{72}$
6	Work out $\frac{11}{12} + \frac{6}{12}$ (if you can, simplify your answer)
7	What is 0.03 as a fraction? (if you can, simplify your answer)
8	I have saved £9 which is $\frac{3}{5}$ of what I need. How much am I trying to save in total?

### Blue Level

1	What is $5 - 1 \frac{1}{7}$
2	Work out $-24.16 + 5.74 + 32.37$
3	Convert $\frac{9}{11}$ into a decimal (if needed, round to 3.d.p)
4	Work out $9 \frac{2}{12} + 5 \frac{11}{12}$ (if you can, simplify your answer)
5	What is the difference between $\frac{1}{6}$ of 552 and $\frac{2}{3}$ of 84?
6	Alice and Beth share 30 sweets into the ratio 4:6. How many will Beth get?
7	Alice and Beth share some sweets into the ratio 2:5. If Beth gets 27 more sweets than Alice, how many sweets were there to start with?
8	Which is larger $\frac{7}{8}$ or 65% ?

### Indigo and Violet Level

1	Work out $6 \frac{2}{7} + 7 \frac{5}{6}$ (if you can, simplify your answer)
2	Work out $5 \frac{5}{8} - 4 \frac{1}{6}$ (if you can, simplify your answer)
3	Work out $0.286 \div 0.4$
4	If 12 packets of biscuits are needed for 3 teachers for 50 meetings how many meetings will 36 packets of biscuits supply 90 teachers?
5	What is the difference between $2.28 + 4.2 \times 2.45$ and $(2.28 + 4.2) \times 2.45$ ?
6	Work out $1 \frac{1}{2} \times 3 \frac{2}{3}$ (if you can, simplify your answer)
7	Work out $1 \frac{4}{9} \div 1 \frac{1}{12}$ (if you can, simplify your answer)
8	A sale item is £63.50 after a 75% discount. What was the original price?

### Puzzle 1

What is each emoji worth?

$$\text{Cat} + \text{Cat} + \text{Cat} = 27$$

$$\text{Cat} + \text{Alien} + \text{Alien} = 19$$

$$\text{Cat} + \text{Alien} + \text{Poop} = 20$$

### Puzzle 2

Colour in the multiples of 7 in black and the multiples of 3 in red. Can you find the hidden shape?

16	25	13	19	23	10	22	26	37	31
34	44	49	7	11	17	56	98	100	43
26	7	3	24	14	28	15	6	35	26
38	35	36	12	6	18	30	18	7	32
29	28	15	9	15	3	33	27	70	16
25	41	14	27	18	12	24	35	10	22
1	26	8	56	6	15	28	41	55	52
19	13	34	22	49	7	32	23	62	34
29	43	2	37	16	4	20	37	17	22

### Puzzle 3

Impress your family and friends by taking them through the steps and then telling them you know their answer!

But can you work out how this works and why it is always 2?

1. Think of a whole number between 1 and 10
2. Double it!
3. Add 4
4. Divide by 2
5. Subtract the original number

Is it the number 2?!

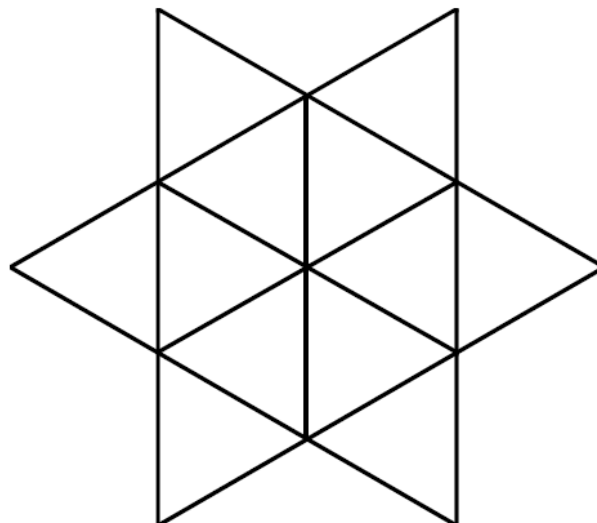
### Puzzle 4

The vowels have been removed from these mathematical words. Can you tell what the words might be? e.g frctn is fraction.

- a) dvd
- b) fv
- c) prcnt
- d) sqr
- e) dcml
- f) ghtyn
- g) r
- h) ntgr

### Puzzle 5

How many triangles can you see in this picture?



**Puzzle 6**

Work out which of the numbers goes in each space in the puzzle below.  
One of the numbers has been done for you.

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

3 DIGITS	4 DIGITS	5 DIGITS	6 DIGITS
143	2619	19076	210496
267	3580	20537	420358
468	6034	32706	725692
659	7129	41037	
748	7519	41853	
946	9256	58321	
		84192	

**Puzzle 7**

There are 30 animals in a field, a mixture of rabbits and ducks. Counting their feet, there are 94 altogether. How many of each animal are there?

**Puzzle 8**

Gryff the dog has one treat on day one and one treat on day two, and every day after that he eats as many treats as the two previous days combined. How many treats does Gryff eat in the second week?

**Answers**

1	$\frac{3}{8}$	1	86	1	-31	1	$3\frac{6}{7}$	1	$14\frac{5}{42}$
2	14 : 51	2	11	2	£ 155.25	2	13.95	2	$1\frac{11}{24}$
3	7th	3	435	3	£ 1520	3	0.818	3	0.715
4	24	4	49	4	120	4	$15\frac{1}{12}$	4	5
5	43	5	51 %	5	£ 620	5	$\frac{5}{8}$	5	36
6	9	6	0.05, 0.5, 0.65, 5.6, 65	6	3	6	$1\frac{5}{12}$	6	18
7	52 p	7	23	7	-4	7	$\frac{3}{100}$	7	63
8	17 p	8	57	8	22	8	15	8	$7\frac{7}{8}$
									£ 254.00

**Puzzle 1**



= 9



= 5



= 6

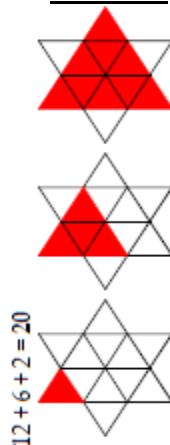
**Puzzle 2**

16	25	13	19	23	10	22	26	37	31
34	44	49	7	11	17	56	98	100	43
26	7	3	24	14	28	15	6	35	26
38	35	36	12	6	18	30	18	7	32
29	28	15	9	15	3	33	27	70	16
25	41	14	27	18	12	24	35	10	22
1	26	8	56	6	15	28	41	55	52
19	13	34	22	49	7	32	23	62	34
29	43	2	37	16	4	20	37	17	22

**Puzzle 4**

- a) divide
- b) five
- c) percent
- d) square
- e) decimal
- f) eightyone
- g) area
- h) integer

**Puzzle 5**



**Puzzle 6**

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

**Puzzle 7** 17 rabbits and 13 ducks

**Puzzle 8** 953