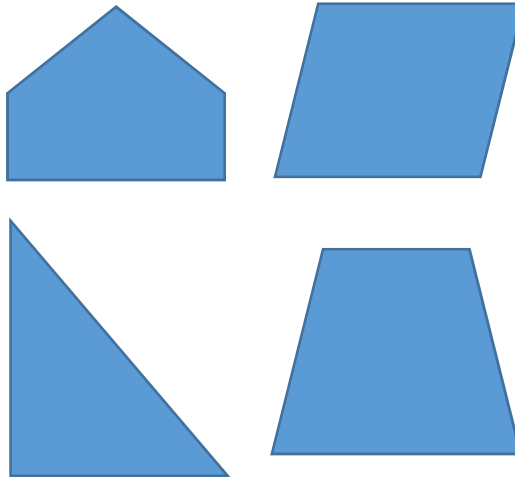


How many can you solve?

I have a 500ml jug. Have many times will I have to fill it to get 8 litres of water?

Name these shapes:



There is a classroom of 34 children. 16 of them are boys. How many are girls?

What is LVI written as a number?

Complete these times table facts:

$$3 \times 2 =$$

$$3 \times 5 =$$

$$3 \times 7 =$$

$$3 \times 8 =$$

$$9 \times 3 =$$

$$10 \times 3 =$$

$$15 \div 3 =$$

$$21 \div 3 =$$

$$27 \div 3 =$$

$$30 \div 3 =$$

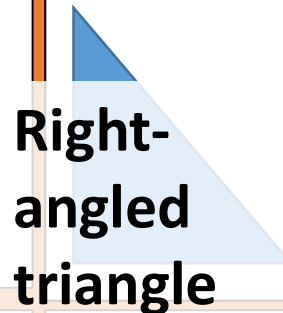
$$33 \div 3 =$$

How many can you solve?

I have a 500ml jug. Have many times will I have to fill it to get 8 litres of water?

16 jugs

Name these shapes:



There is a classroom of 34 children. 16 of them are boys. How many are girls?

$34 - 16 = 18$
There are 18 girls

What is LVI written as a number?

56

Complete these times table facts:

$$3 \times 2 = 6$$

$$3 \times 5 = 15$$

$$3 \times 7 = 21$$

$$3 \times 8 = 24$$

$$9 \times 3 = 27$$

$$10 \times 3 = 30$$

$$15 \div 3 = 5$$

$$21 \div 3 = 7$$

$$27 \div 3 = 9$$

$$30 \div 3 = 10$$

$$33 \div 3 = 11$$



Tuesday, 05 January 2021

Learning Question:

How do I find factor pairs?

Success Criteria:

- ✓ To understand what a factor is
- ✓ To understand what communicative law is.
- ✓ To understand that most effective strategies for finding factor pairs.
- ✓ I can use my times table facts to help me find my factor pairs?

Vocabulary

Multiple
Communicative
Factor
Product
Calculation
Multiplication
Number Facts

What is a factor?

What is a factor?

- **Factors** are often given as **pairs** of numbers, which multiply together to give the original number. These are called **factor pairs**. For example, the **factor pairs** of. A square number will have one **factor pair** consisting of one **factor** multiplied by itself.

What is a factor pair?

How can we find factor pairs?

How can we find factor pairs?

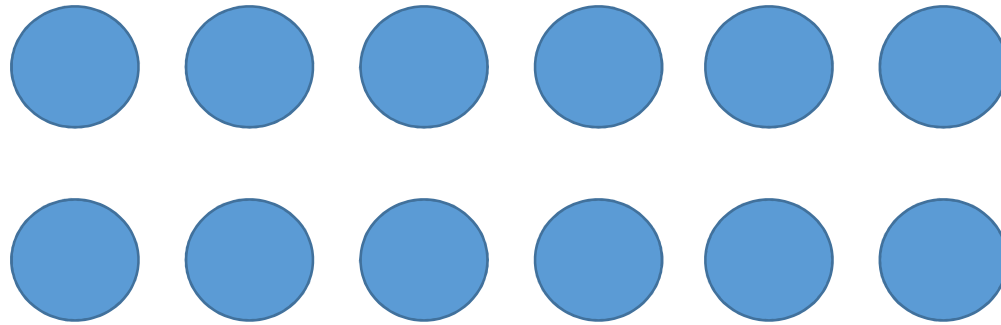
We can use our multiplication facts to help us to find our factor pairs.

Which number is a factor of every number?

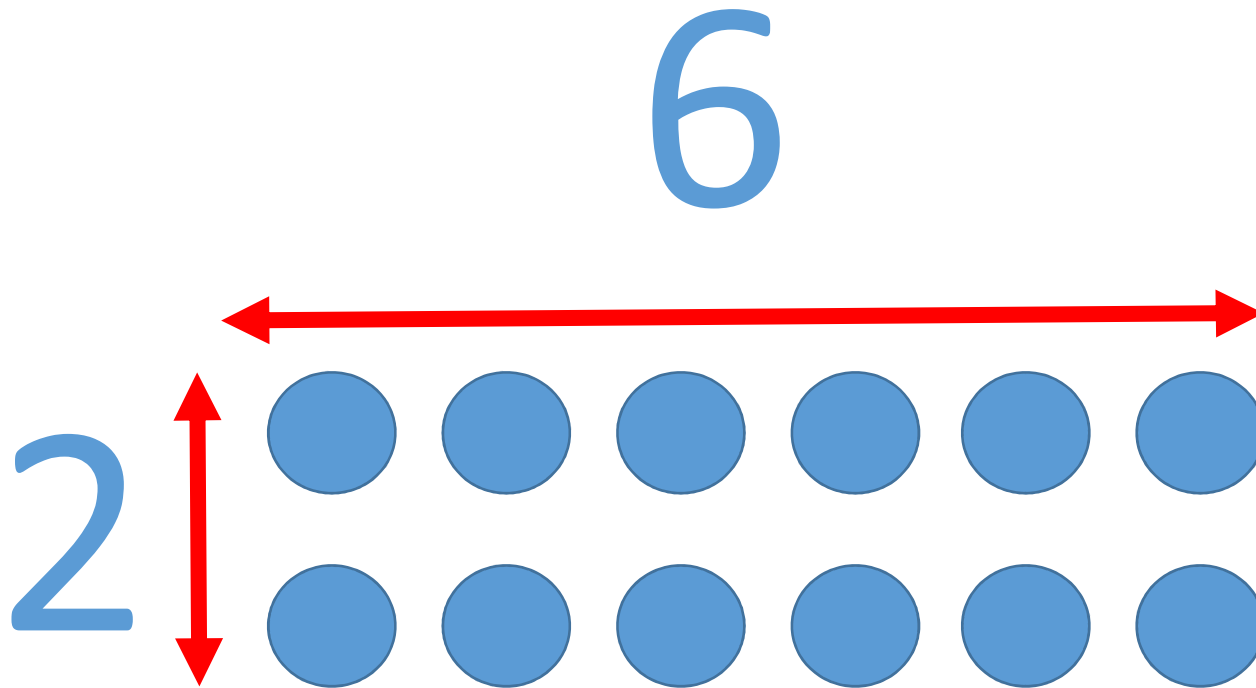
Which number is a factor of every number?

1

How do arrays help support us in finding factor pairs?

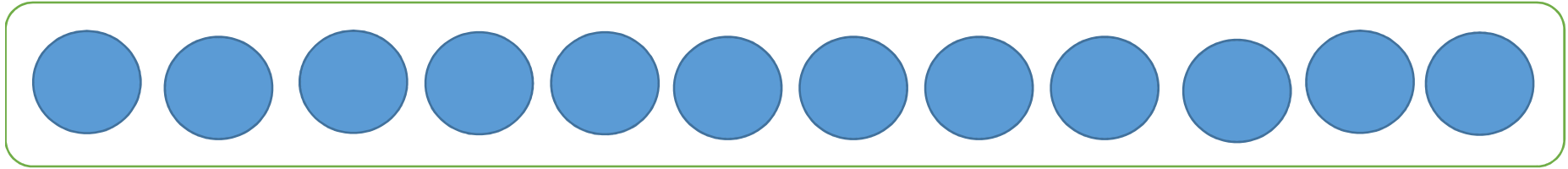


How do arrays help support us in finding factor pairs?

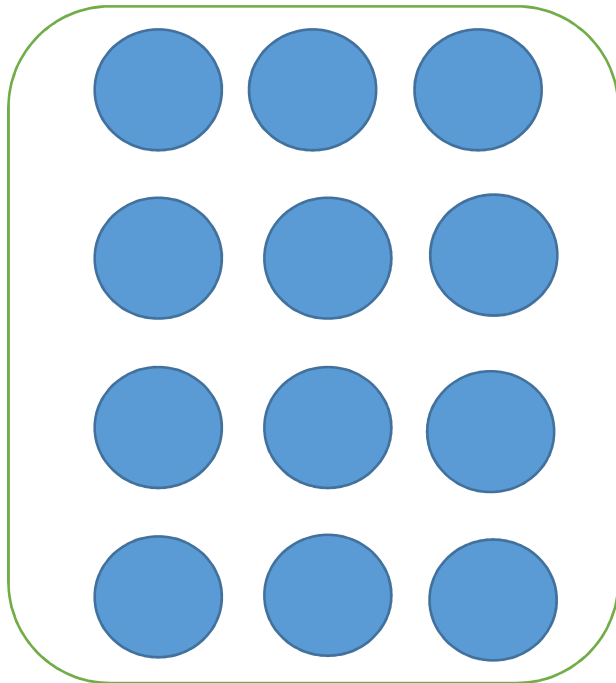


$$6 \times 2 = 12$$

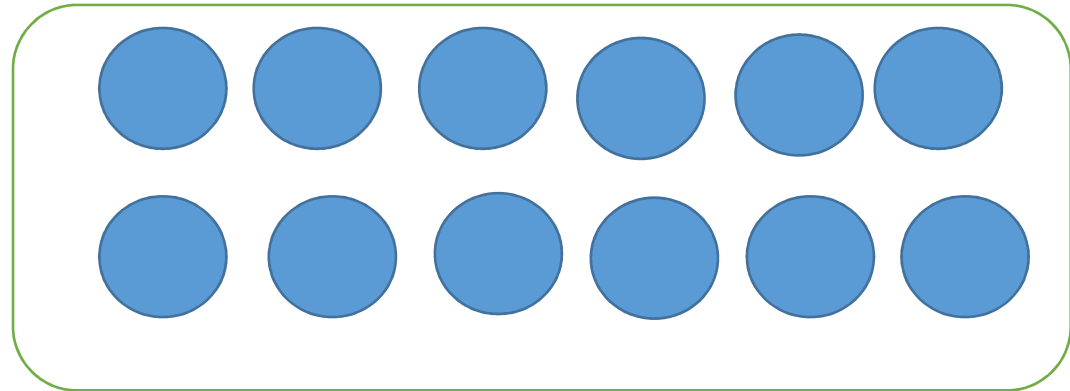
Factor pairs of 12



12×1



3×4



6×2

Draw arrays to help you find the factor pairs of 10.

Draw arrays to help you find the factor pairs of 16.

When is 2 always a factor?

When is 2 always a factor?

- When the product is an even number.
- You can tell it is an even number when it ends in 0, 2, 4, 6 or 8
- E.g . 66, 72, 44, 78, 124, 168 ,200, 3000

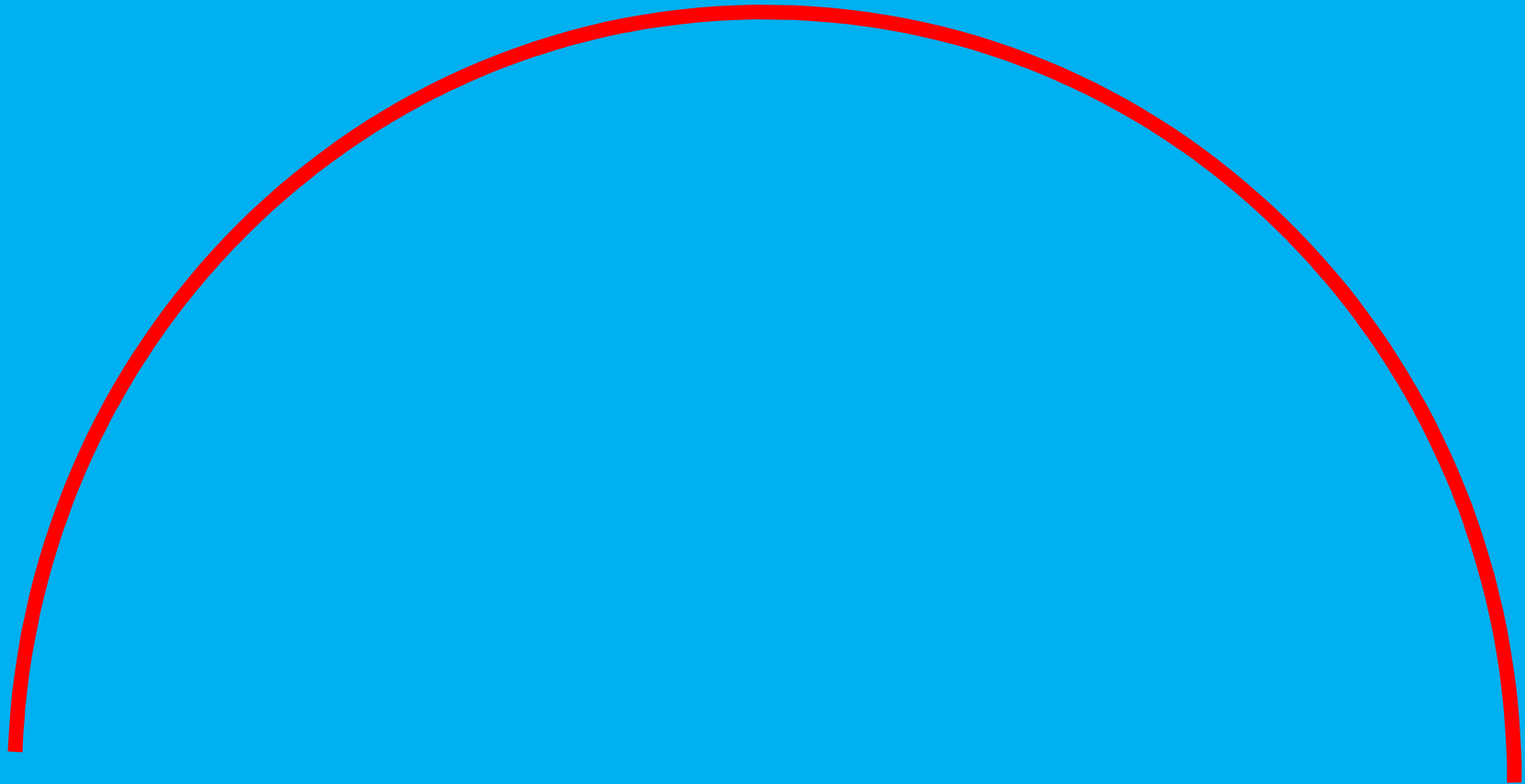
When is 5 always a factor ?

- When the product is a multiple of 5
- You can tell it is a multiple of 5 when it ends in 0 or 5
- E.g. 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125

Factor pairs of 24...

1

?



Factor pairs of 24...

1

24

A thick red arc is drawn on a blue background, connecting the number 1 on the left to the number 24 on the right. The arc is a semi-circle, representing the relationship between the two numbers as a factor pair of 24.

Factor pairs of 24...

1 2

? 24

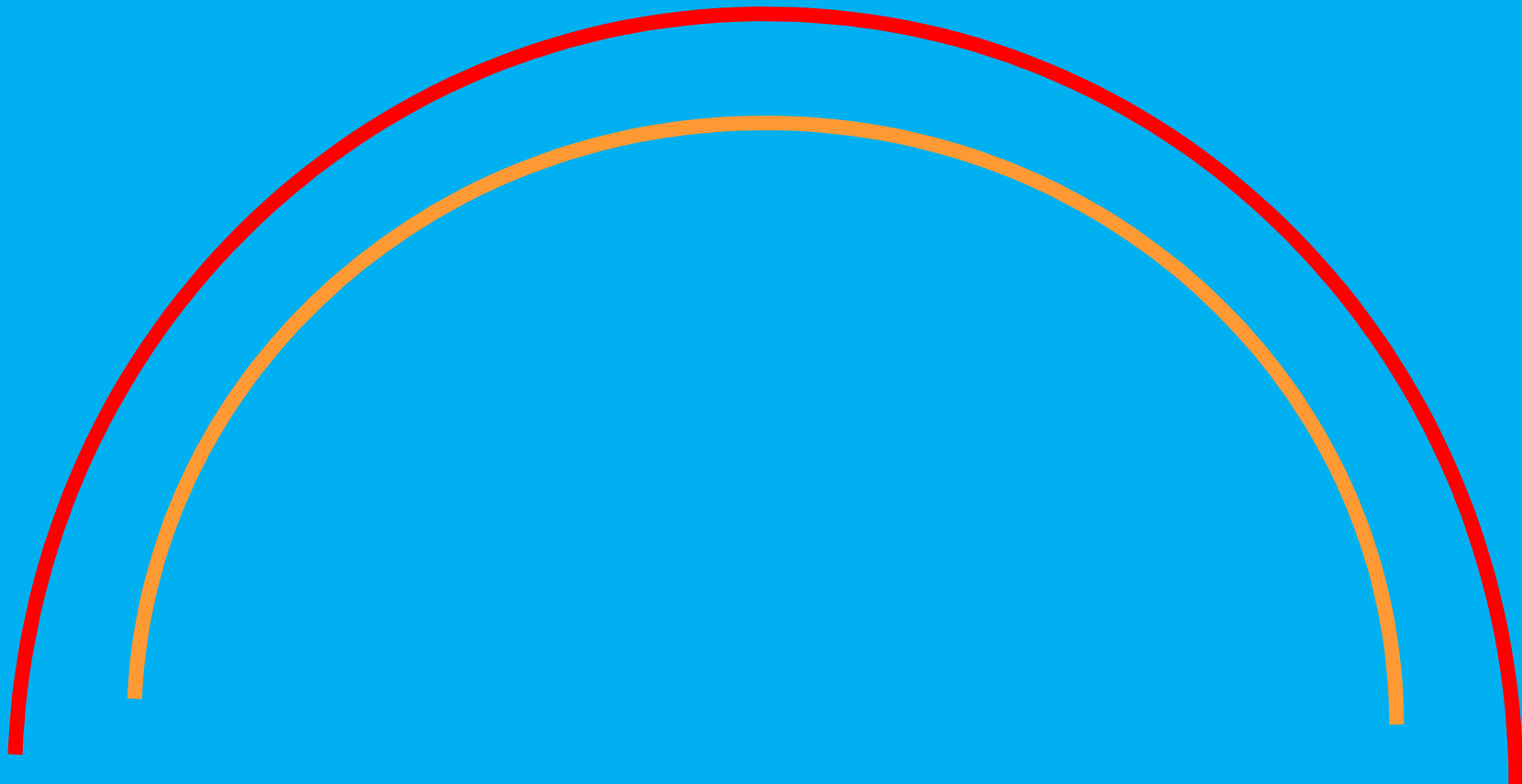


The diagram features a blue background with a white title box at the top containing the text 'Factor pairs of 24...'. Below the title, there are two arcs. The outer arc is red and connects the number '1' on the left to the number '24' on the right. The inner arc is orange and connects the number '2' on the left to a question mark '?' on the right. The numbers '1', '2', '?', and '24' are positioned at the bottom of the diagram, aligned with the ends of the arcs.

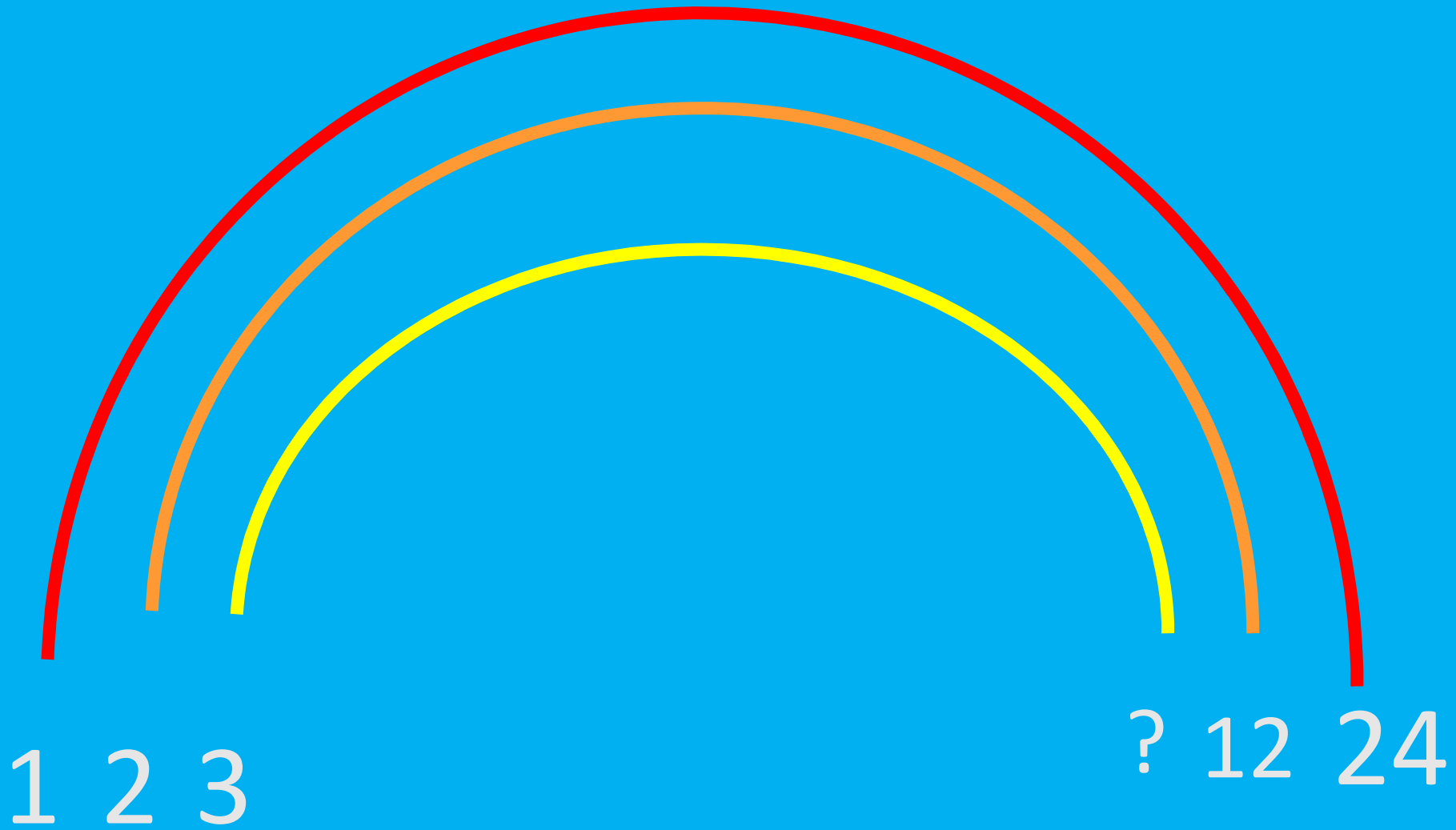
Factor pairs of 24...

1 2

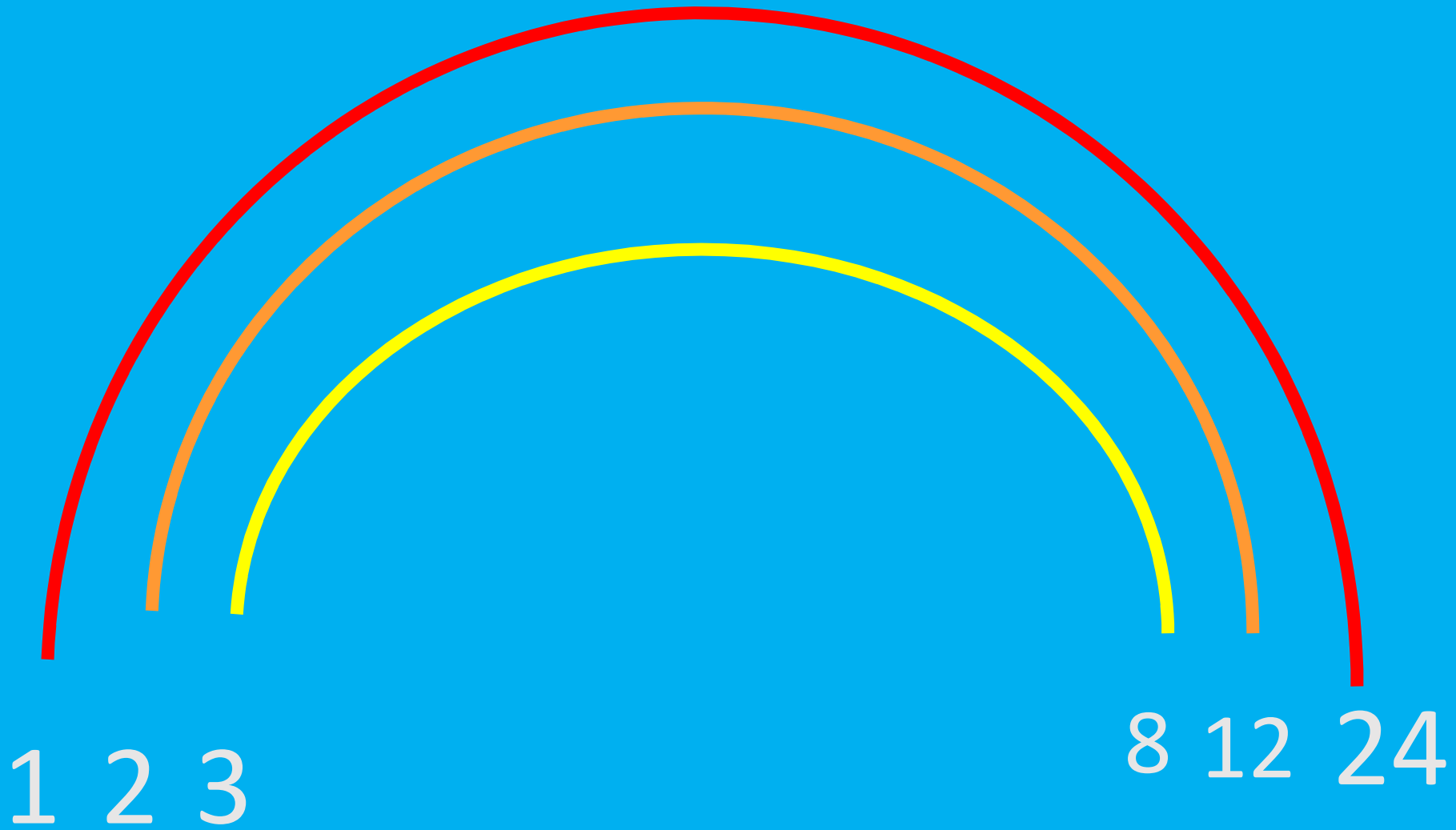
12 24



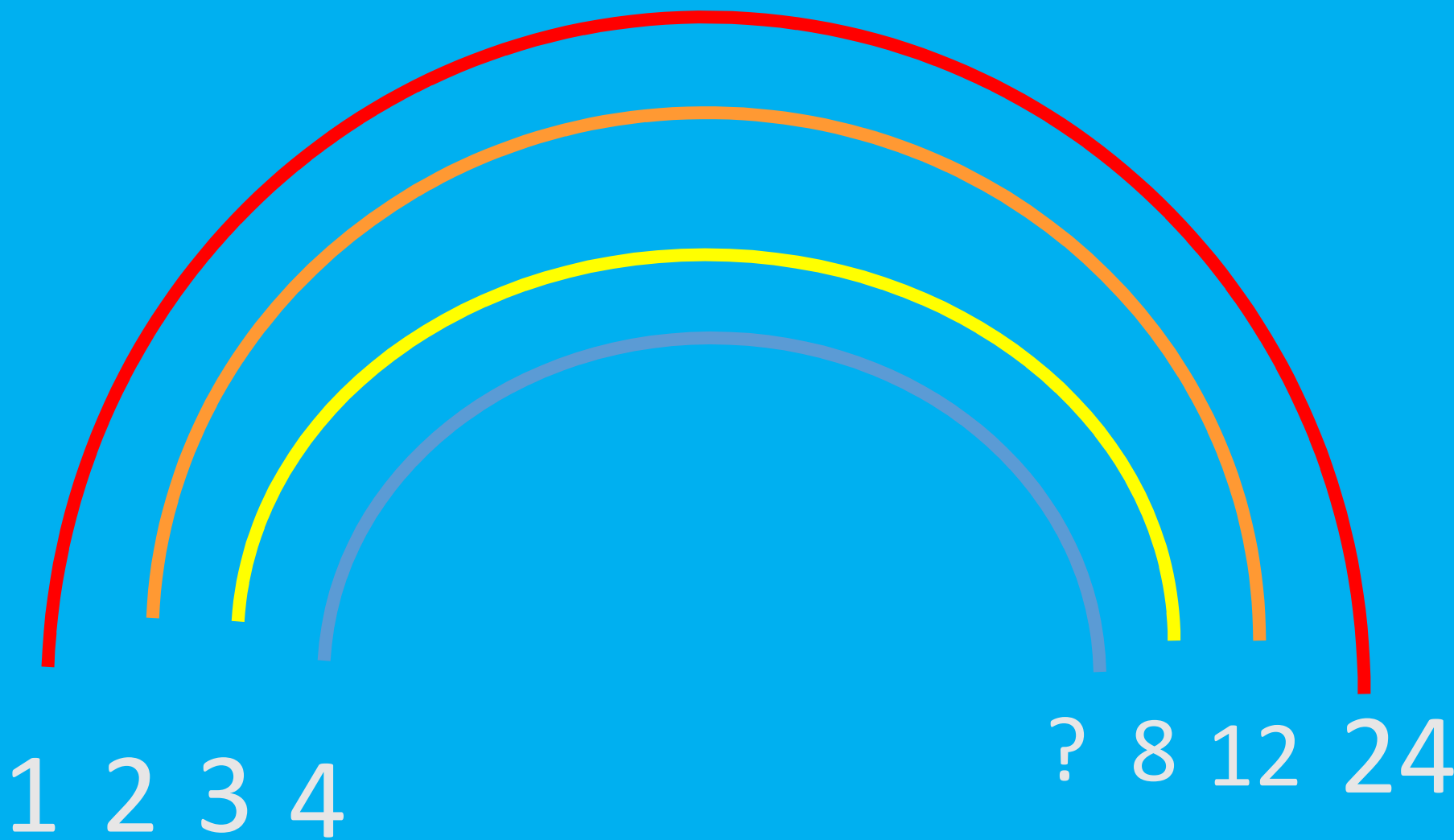
Factor pairs of 24...



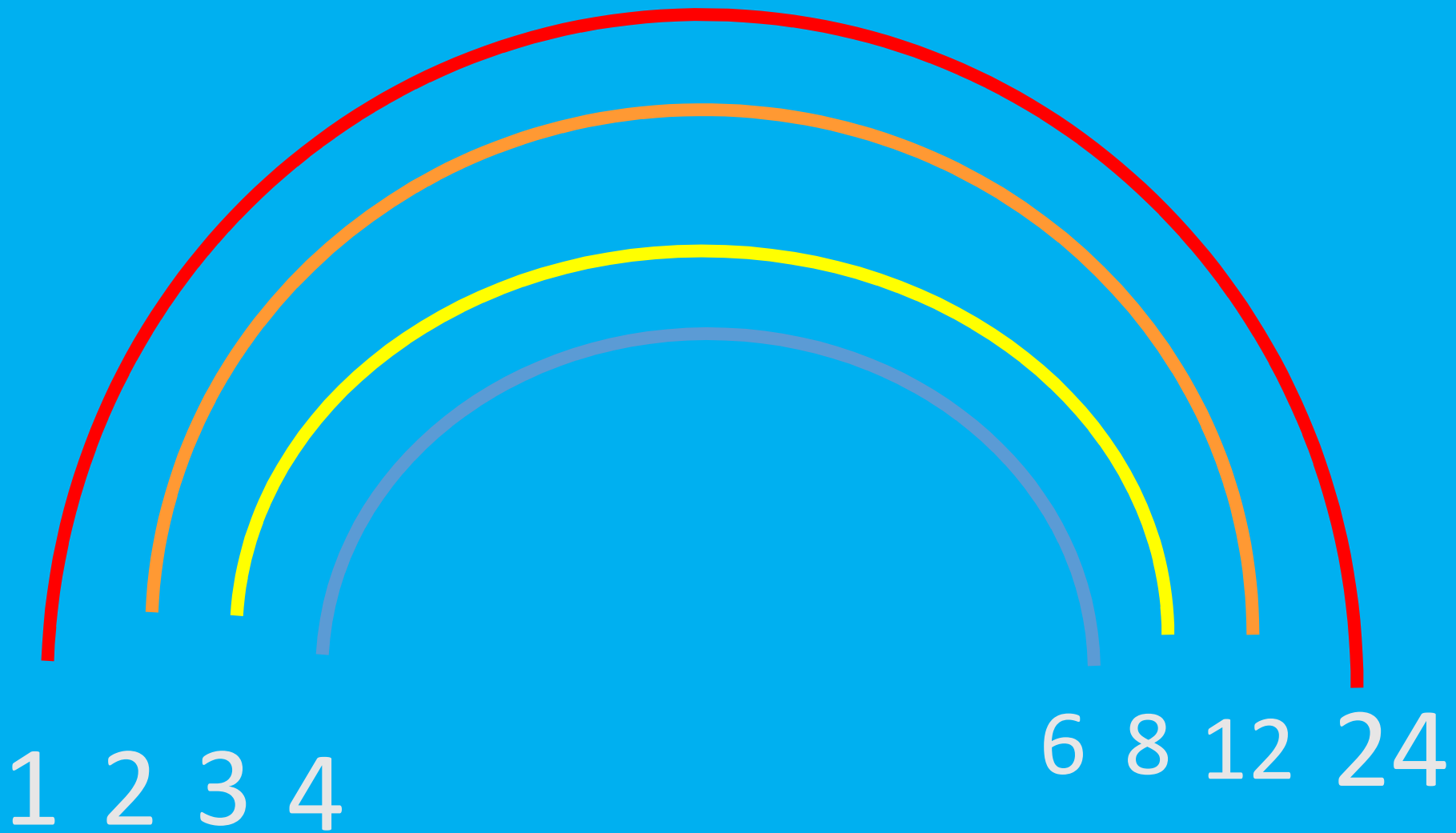
Factor pairs of 24...



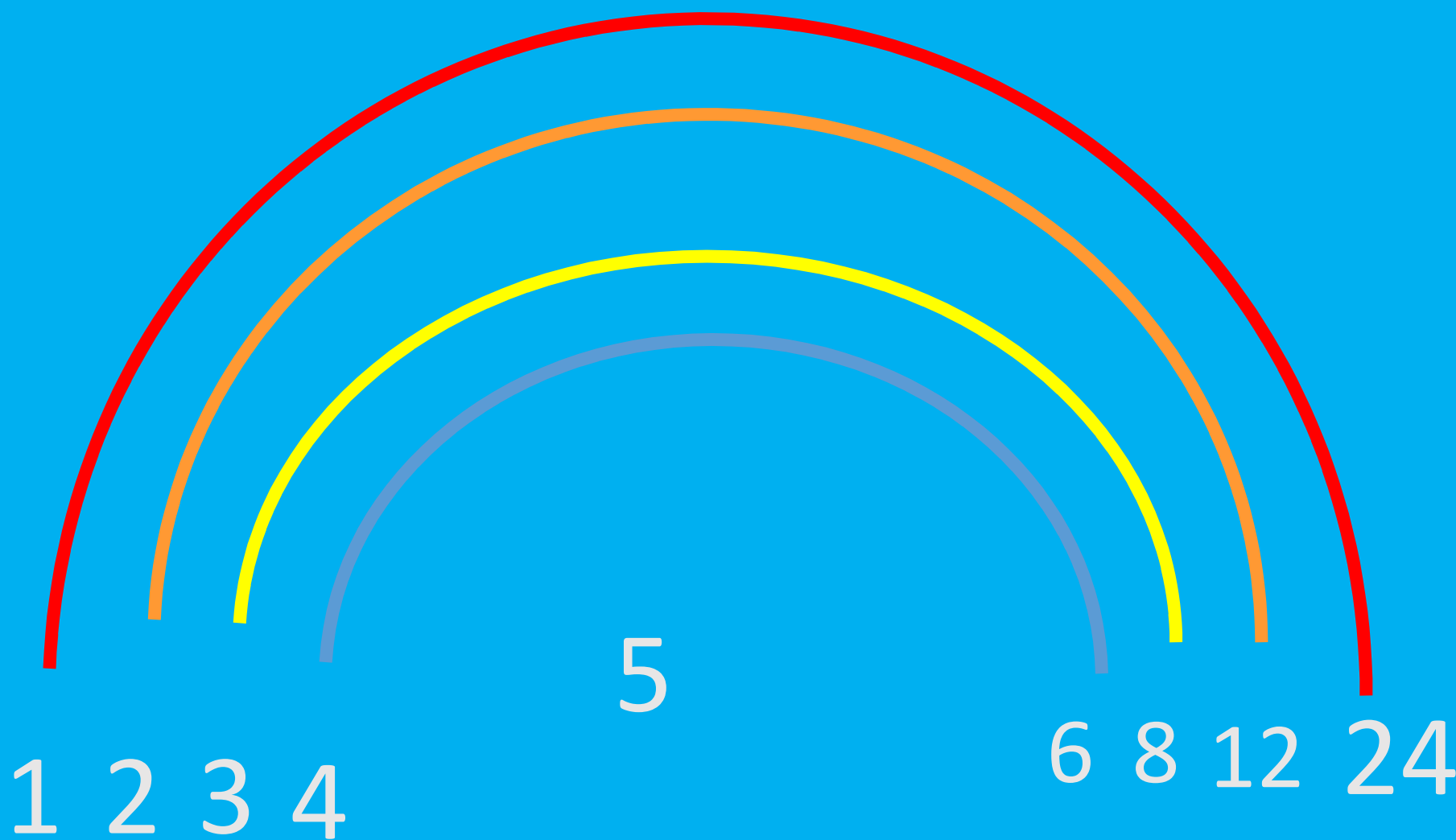
Factor pairs of 24...



Factor pairs of 24...

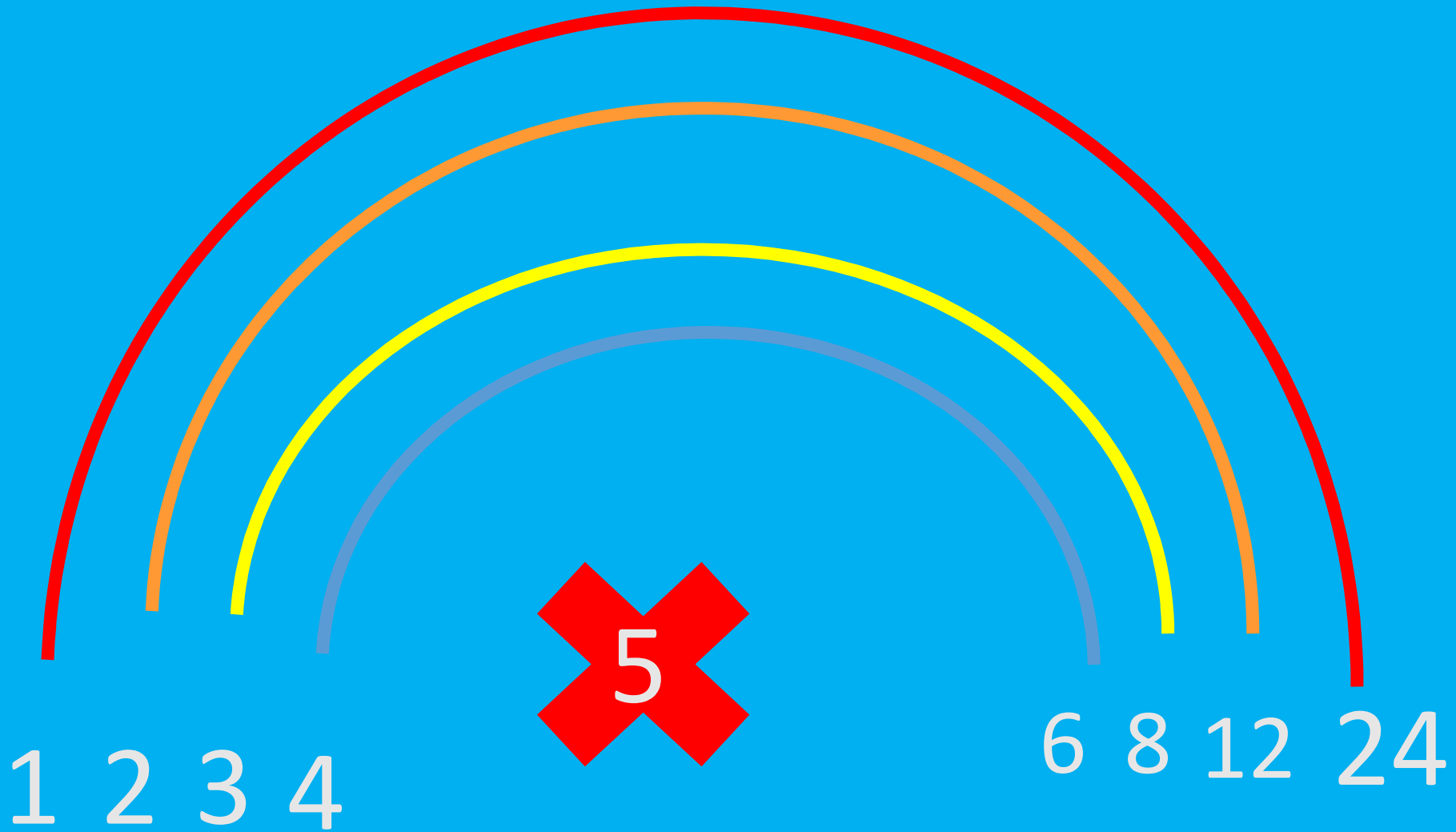


Factor pairs of 24...

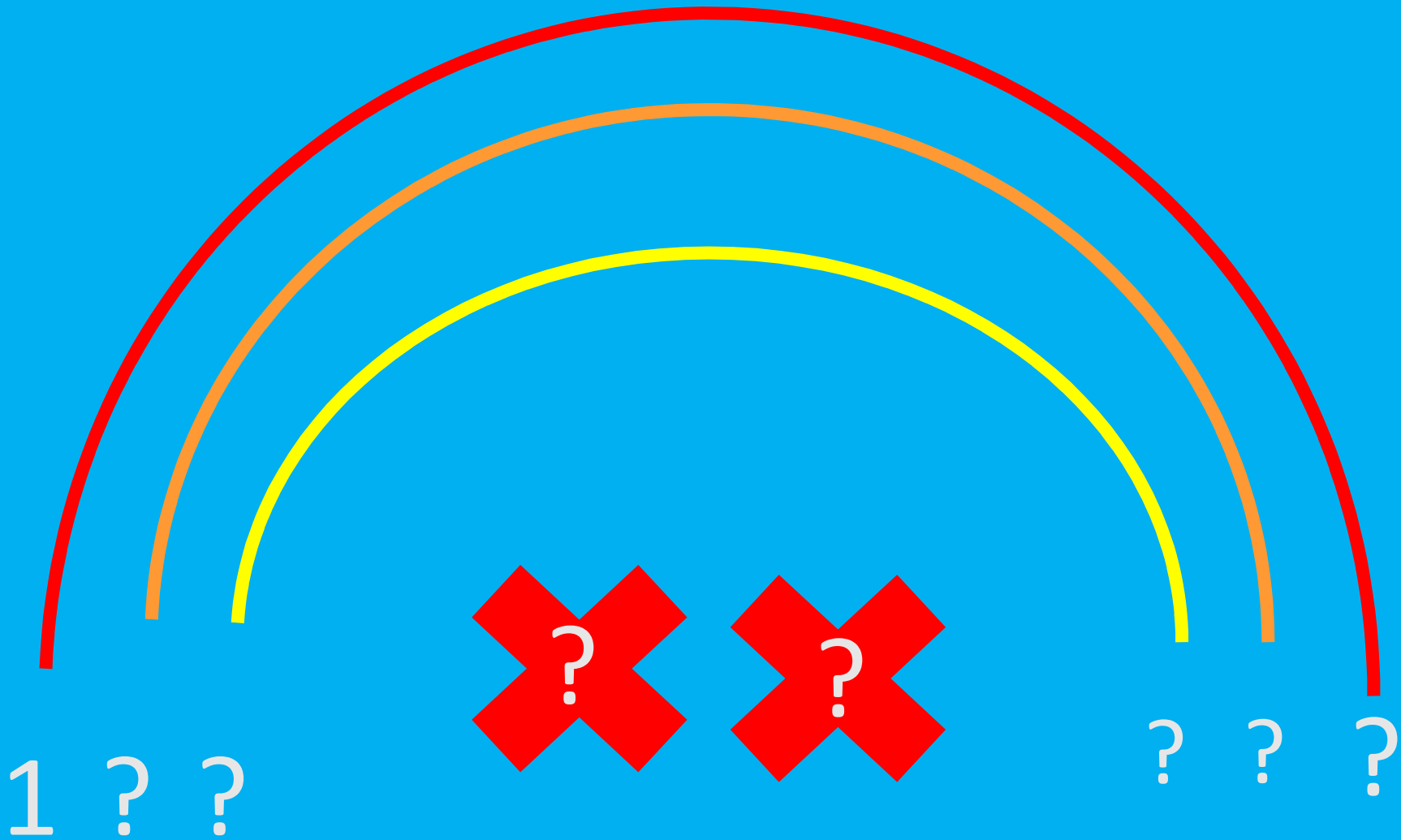


Factor pairs of 24...

1,2,3,4,6,8,12,24

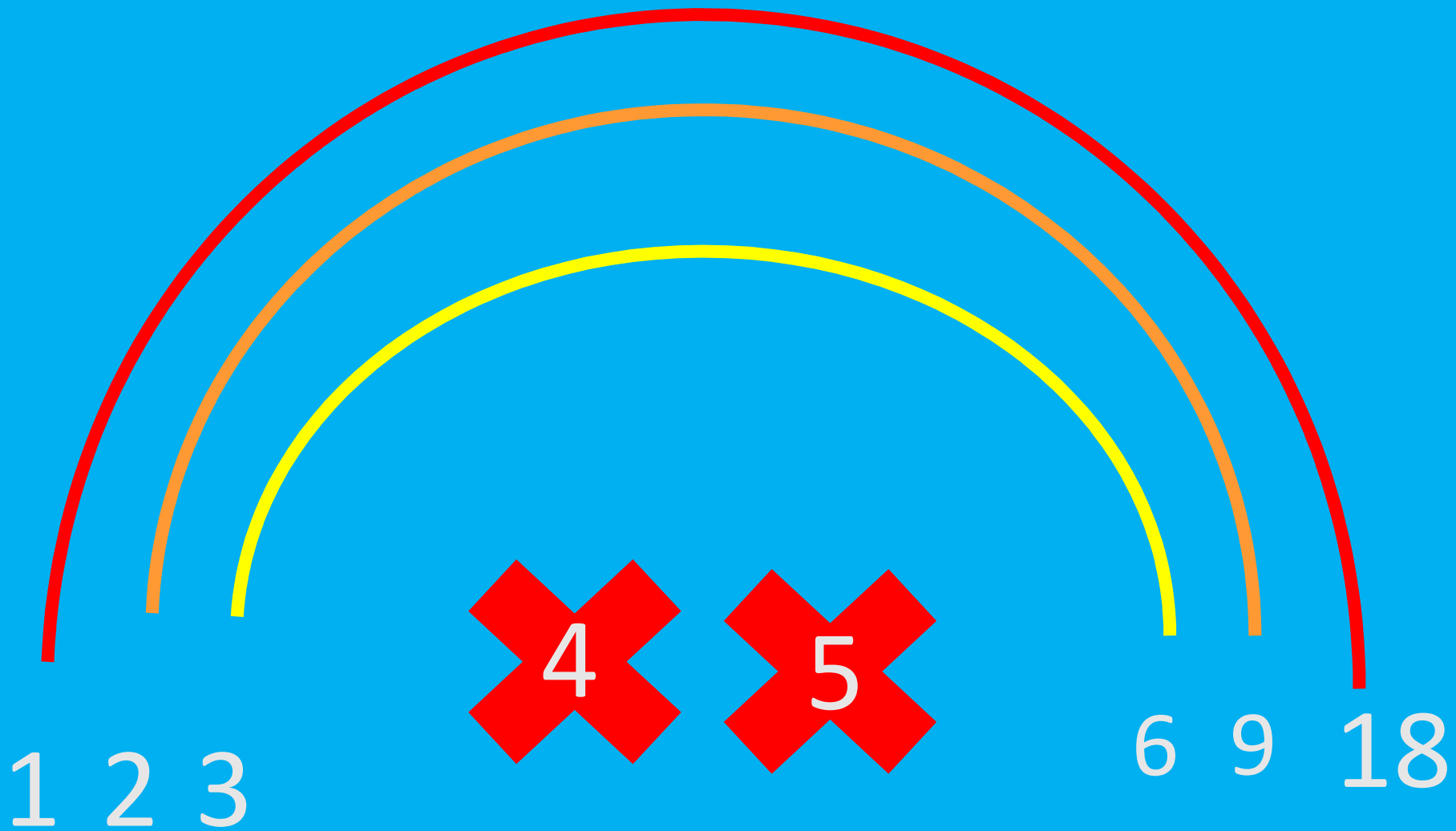


Factor pairs of 18...



Factor pairs of 18...

1,2,3,6, 9, 18



What factor pairs do we KNOW
make 100?

What factor pairs do we KNOW make 100?

- Well we know
 - We know that 1 and the number itself are factor ($1 \times 100 = 100$)
 - It is an even number so 2 is a factor
 - If 2 is a factor then 50 is as well. ($2 \times 50 = 100$)
 - 3 is not a factor
 - 4 – half of 100 = 50 – Quarter of 100 = 25. ($25 \times 4 = 100$)
 - 5 is a factor as it ends in 0. (5×20)
 - It ends in a 0 so 10 is a factor
 - $10 \times 10 = 100$

What factor pairs do we KNOW make 100?

- Well we know
 - 1,2,4,5,10,20,25,50,100 are all factors of 100

Use the rainbow to try and find the factor pairs of the following numbers...

- 14

- 15

- 25

- 72

- 64

- 42

- 35

- 32

- 48

- 108

- 84

- 96

Your task

- Complete as many questions as you can in 20 minutes.
- Check your answers.
- Underneath the task slides, there is a multiplication grid if you need it to help you to find the factor pairs.

HARD

1.

2.

3.

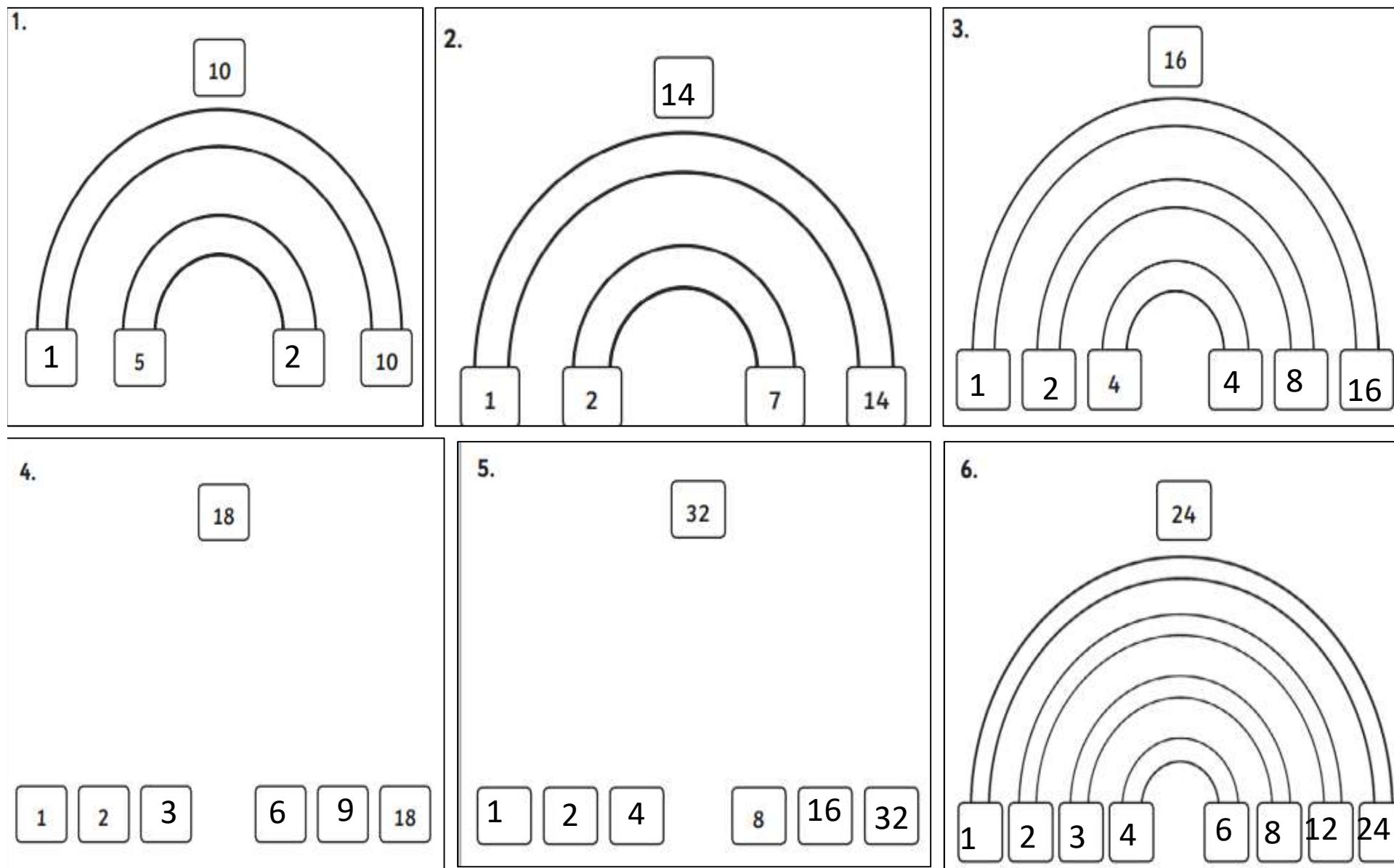
4.

5.

6.

Week 1 Lesson 1 Finding Factor pairs		
Harder – Find the factor pairs for...	Hardest – Find the factor pairs for ...	Herculean – Find the factor pairs for...
1) 16 2) 25 3) 24 4) 28 5) 18 6) 35	1) 48 2) 36 3) 42 4) 84 5) 100 6) 54	1) 108 2) 81 3) 121 4) 132 5) 350 6) 420
<p>Dexter says.. “The bigger the number the more factor pairs it has.”</p> <p>Use example to show that Dexter is wrong.</p> <p>Explain what a prime number is.</p>	<p>What factors do 24 and 27 have in common?</p> <p>Tommy is finding factors of 12 and 18. He says “12 and 18 have the same number of factor pairs.”</p> <p>Is Tommy correct? Explain your answer.</p>	<p>Rosie is investigating factor pairs. She says “6 is a perfect number because when you add its factors together, apart from itself, they equal 6.”</p> <p>$1+2+3=6$</p> <p>What is the next perfect number after 6?</p>

HARD - ANSWERS



Week 1 Lesson 1 – Factor pairs ANSWERS		
Harder – ANSWERS	Hardest – ANSWERS	Herculean – ANSWERS
1) 1, 2, 4, 8, 16 2) 1, 5, 25 3) 1,2,3,4,6,8,12,24 4) 1,2,4,7,14,28 5) 1,2,3,6,9,18 6) 1,5,7,35	1) 1,2,3,4,6,8,12,16,24,48 2) 1,2,3,4,6,9,12,2,18,36 3) 1,2,3,6,7,14,21,42 4) 1,2,3,4,6,7,12,14,21,28,42,84 5) 1,2,4,5,10,20,25,50,100 6) 1,2,3,6,9,18,27,54	1) 1,2,3,4,6,9,12,18,27,36,54,108 2) 1, 3, 9, 27, 81 3) 1, 11, 121 4) 1, 2, 3, 4, 6, 11, 12, 22, 33, 44, 66, 132 5) 1, 2, 5, 7, 10, 14, 25, 35, 50, 70, 175, 350 6) 1, 2, 3, 4, 5, 6, 7, 10, 12, 14, 15, 20, 21, 28, 30, 35, 42, 60, 70, 84, 105, 140, 210, 420
12 has 1,2,3,4,6,12 as factors but 17 has 1 and 17. A prime number is a number that only has 1 and itself as a factor pair. E.g. 1,2,3,5,7,11,13,17,19,23 etc.	1 and 3 Is Tommy correct? Yes 1,2,3,4,6,12 1,2,3,6,9,18	$1+2+4+7+14=28$

1x table	2x table	3x table	4x table	5x table	6x table
$1 \times 1 = 1$ $2 \times 1 = 2$ $3 \times 1 = 3$ $4 \times 1 = 4$ $5 \times 1 = 5$ $6 \times 1 = 6$ $7 \times 1 = 7$ $8 \times 1 = 8$ $9 \times 1 = 9$ $10 \times 1 = 10$ $11 \times 1 = 11$ $12 \times 1 = 12$	$1 \times 2 = 2$ $2 \times 2 = 4$ $3 \times 2 = 6$ $4 \times 2 = 8$ $5 \times 2 = 10$ $6 \times 2 = 12$ $7 \times 2 = 14$ $8 \times 2 = 16$ $9 \times 2 = 18$ $10 \times 2 = 20$ $11 \times 2 = 22$ $12 \times 2 = 24$	$1 \times 3 = 3$ $2 \times 3 = 6$ $3 \times 3 = 9$ $4 \times 3 = 12$ $5 \times 3 = 15$ $6 \times 3 = 18$ $7 \times 3 = 21$ $8 \times 3 = 24$ $9 \times 3 = 27$ $10 \times 3 = 30$ $11 \times 3 = 33$ $12 \times 3 = 36$	$1 \times 4 = 4$ $2 \times 4 = 8$ $3 \times 4 = 12$ $4 \times 4 = 16$ $5 \times 4 = 20$ $6 \times 4 = 24$ $7 \times 4 = 28$ $8 \times 4 = 32$ $9 \times 4 = 36$ $10 \times 4 = 40$ $11 \times 4 = 44$ $12 \times 4 = 48$	$1 \times 5 = 5$ $2 \times 5 = 10$ $3 \times 5 = 15$ $4 \times 5 = 20$ $5 \times 5 = 25$ $6 \times 5 = 30$ $7 \times 5 = 35$ $8 \times 5 = 40$ $9 \times 5 = 45$ $10 \times 5 = 50$ $11 \times 5 = 55$ $12 \times 5 = 60$	$1 \times 6 = 6$ $2 \times 6 = 12$ $3 \times 6 = 18$ $4 \times 6 = 24$ $5 \times 6 = 30$ $6 \times 6 = 36$ $7 \times 6 = 42$ $8 \times 6 = 48$ $9 \times 6 = 54$ $10 \times 6 = 60$ $11 \times 6 = 66$ $12 \times 6 = 72$
7x table	8x table	9x table	10x table	11x table	12x table
$1 \times 7 = 7$ $2 \times 7 = 14$ $3 \times 7 = 21$ $4 \times 7 = 28$ $5 \times 7 = 35$ $6 \times 7 = 42$ $7 \times 7 = 49$ $8 \times 7 = 56$ $9 \times 7 = 63$ $10 \times 7 = 70$ $11 \times 7 = 77$ $12 \times 7 = 84$	$1 \times 8 = 8$ $2 \times 8 = 16$ $3 \times 8 = 24$ $4 \times 8 = 32$ $5 \times 8 = 40$ $6 \times 8 = 48$ $7 \times 8 = 56$ $8 \times 8 = 64$ $9 \times 8 = 72$ $10 \times 8 = 80$ $11 \times 8 = 88$ $12 \times 8 = 96$	$1 \times 9 = 9$ $2 \times 9 = 18$ $3 \times 9 = 27$ $4 \times 9 = 36$ $5 \times 9 = 45$ $6 \times 9 = 54$ $7 \times 9 = 63$ $8 \times 9 = 72$ $9 \times 9 = 81$ $10 \times 9 = 90$ $11 \times 9 = 99$ $12 \times 9 = 108$	$1 \times 10 = 10$ $2 \times 10 = 20$ $3 \times 10 = 30$ $4 \times 10 = 40$ $5 \times 10 = 50$ $6 \times 10 = 60$ $7 \times 10 = 70$ $8 \times 10 = 80$ $9 \times 10 = 90$ $10 \times 10 = 100$ $11 \times 10 = 110$ $12 \times 10 = 120$	$1 \times 11 = 11$ $2 \times 11 = 22$ $3 \times 11 = 33$ $4 \times 11 = 44$ $5 \times 11 = 55$ $6 \times 11 = 66$ $7 \times 11 = 77$ $8 \times 11 = 88$ $9 \times 11 = 99$ $10 \times 11 = 110$ $11 \times 11 = 121$ $12 \times 11 = 132$	$1 \times 12 = 12$ $2 \times 12 = 24$ $3 \times 12 = 36$ $4 \times 12 = 48$ $5 \times 12 = 60$ $6 \times 12 = 72$ $7 \times 12 = 84$ $8 \times 12 = 96$ $9 \times 12 = 108$ $10 \times 12 = 120$ $11 \times 12 = 132$ $12 \times 12 = 144$

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Plenary

A year 3 student needs help finding factor pairs of 16.

What can you tell them to help them solve their problem?