

4

7



Year 6

# Factors



5

3

2

# Let's Recap



## Multiples

Multiples are numbers that result from multiplying by an integer.

For e.g., multiples of 4 are 4, 8, 12, 16, 20..., the 4 times table.

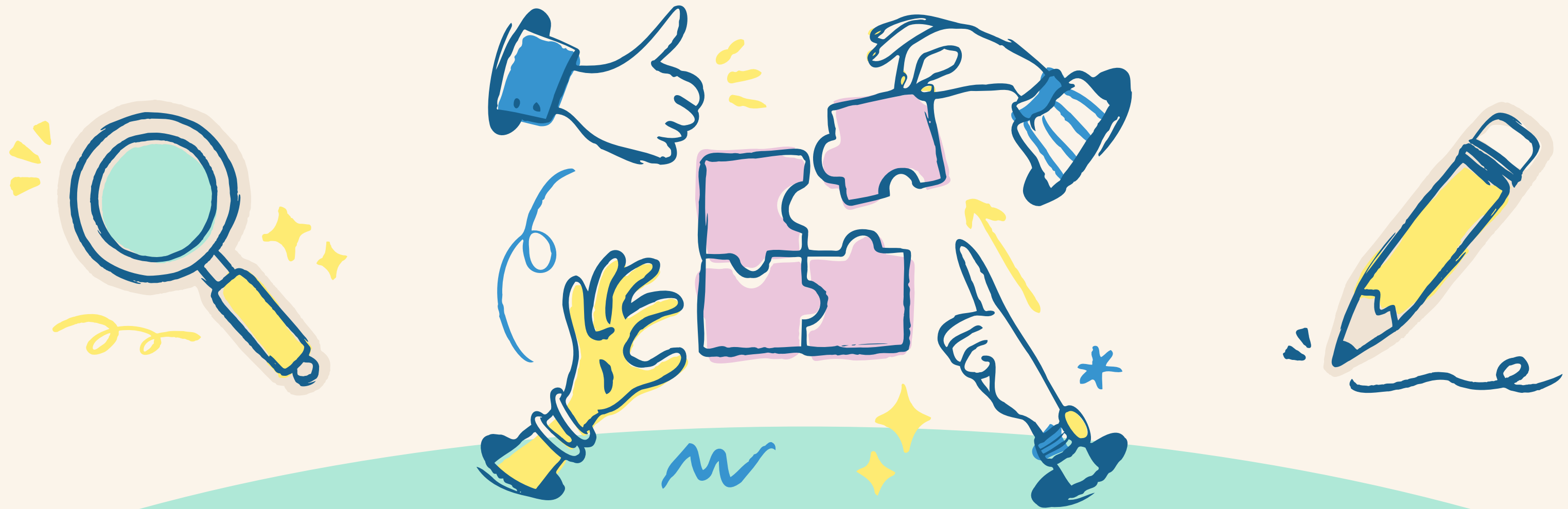


## Factors

Factors are numbers that can be multiplied to get another number.

For example, factors of 6 are 1, 2, 3 and 6.

# LET'S SEE SOME EXAMPLES!



# WHAT ARE THE FACTORS OF 6?

$$1 \times 6 = 6$$

$$2 \times 3 = 6$$

So, the factors of 6  
are 1, 2, 3, and 6.



Think about all the  
whole numbers you  
can multiply to get 6.



# WHAT ARE THE FACTORS OF 12?

Remember:  
A factor of a number  
divides the number  
evenly, with no  
remainder.

$$1 \times 12 = 12$$

$$3 \times 4 = 12$$

$$2 \times 6 = 12$$

Can we multiply  
something by 5 to  
get 12?

6 was already used!  
So we are done.

So, the factors of 12 are  
1, 2, 3, 4, 6, and 12.

# WHAT ARE THE FACTORS OF 16?

$$1 \times 16 = 16$$

$$2 \times 8 = 16$$

$$4 \times 4 = 12$$

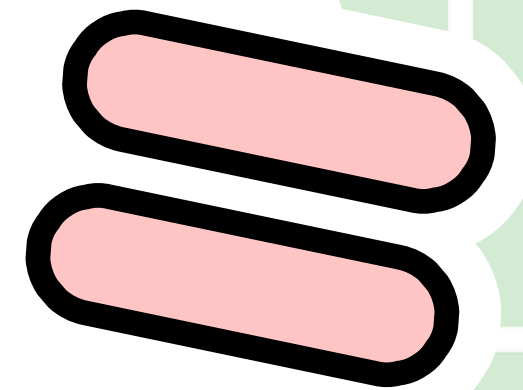
Can we multiply something  
by 3 to get 16?

4 was used twice,  
so that means we  
stop there!

So, the factors of 16 are  
1, 2, 4, 8, and 16.



Ask yourself:  
“Can I multiply this  
number and something  
else to get 16?”



**Prime  
Factorization**

**The prime factorization of a number is all the prime numbers that multiply together to make that number.**



# HOW DO I FIND ALL THE FACTORS OF 24?

Start with 1.

You can multiply  $1 \times 24$ . So, 1 and 24 are both factors of 24.

Put 1 at the beginning of your factor list and 24 at the end.



**1**

**24**

# HOW DO I FIND ALL THE FACTORS OF 24?

Now try 2.

You can multiply  $2 \times 12$  to get 24. So, 2 and 12 are both factors of 24.

Add them to our list.

**1**

**2**

**12**

**24**




# HOW DO I FIND ALL THE FACTORS OF 24?

Now try 3.

You can multiply  $3 \times 8$  to get 24. So, 3 and 4 are both factors of 24.

Add them to our list.



**1   2   3                      8   12   24**

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# HOW DO I FIND ALL THE FACTORS OF 24?

Now try 4.

You can multiply  $4 \times 6$  to get 24. So, 4 and 6 are both factors of 24.

Add them to our list.



**1   2   3   4   6   8   12   24**

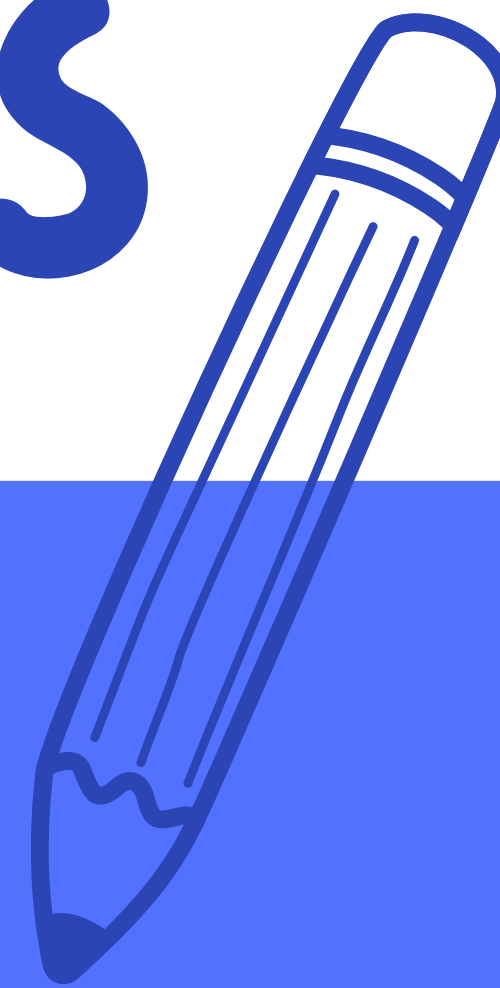
# HOW DO I FIND ALL THE FACTORS OF 24?



The factors of 24 are  
**1, 2, 3, 4, 6, 8, 12, and 24**



# FACTOR TREES



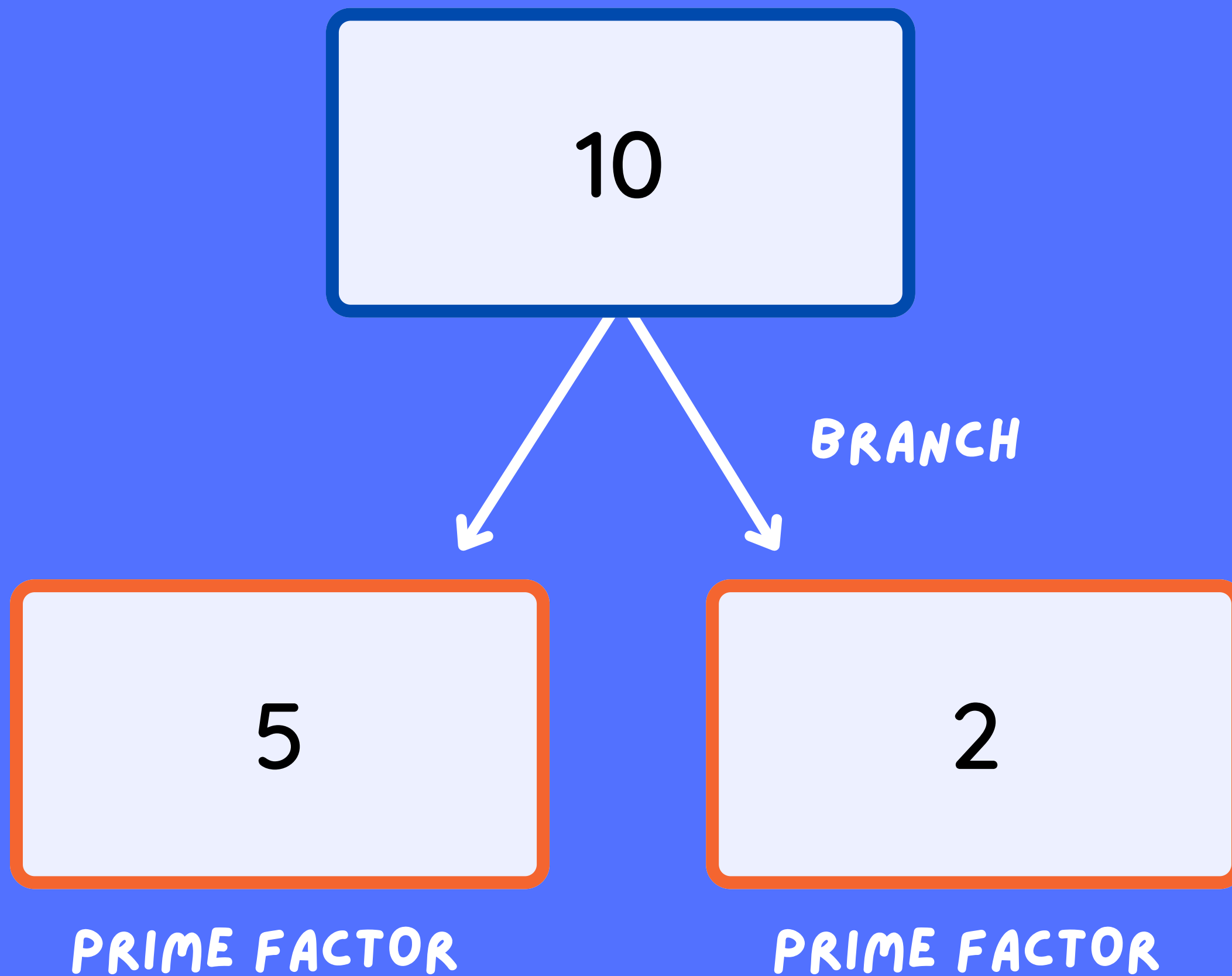
# WHAT IS A FACTOR TREE?

- A factor tree is a great tool to find all the prime factors of a number.
- Each branch in the tree is split into factors.
- When a factor is a PRIME NUMBER, no new branches are added.

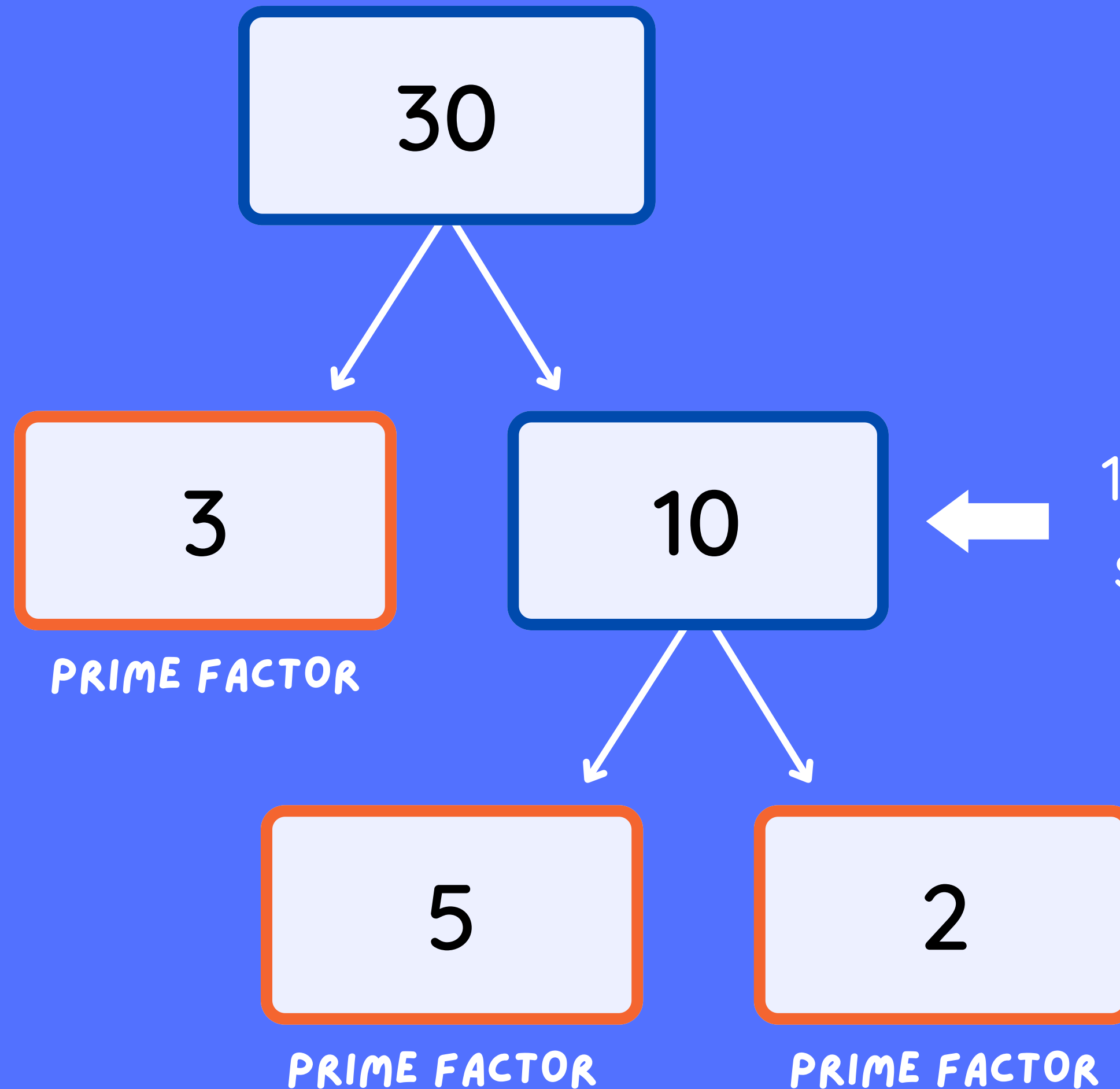
LET'S LOOK  
AT ONE!







Prime factorisation:  
 $2 \times 5 = 10$



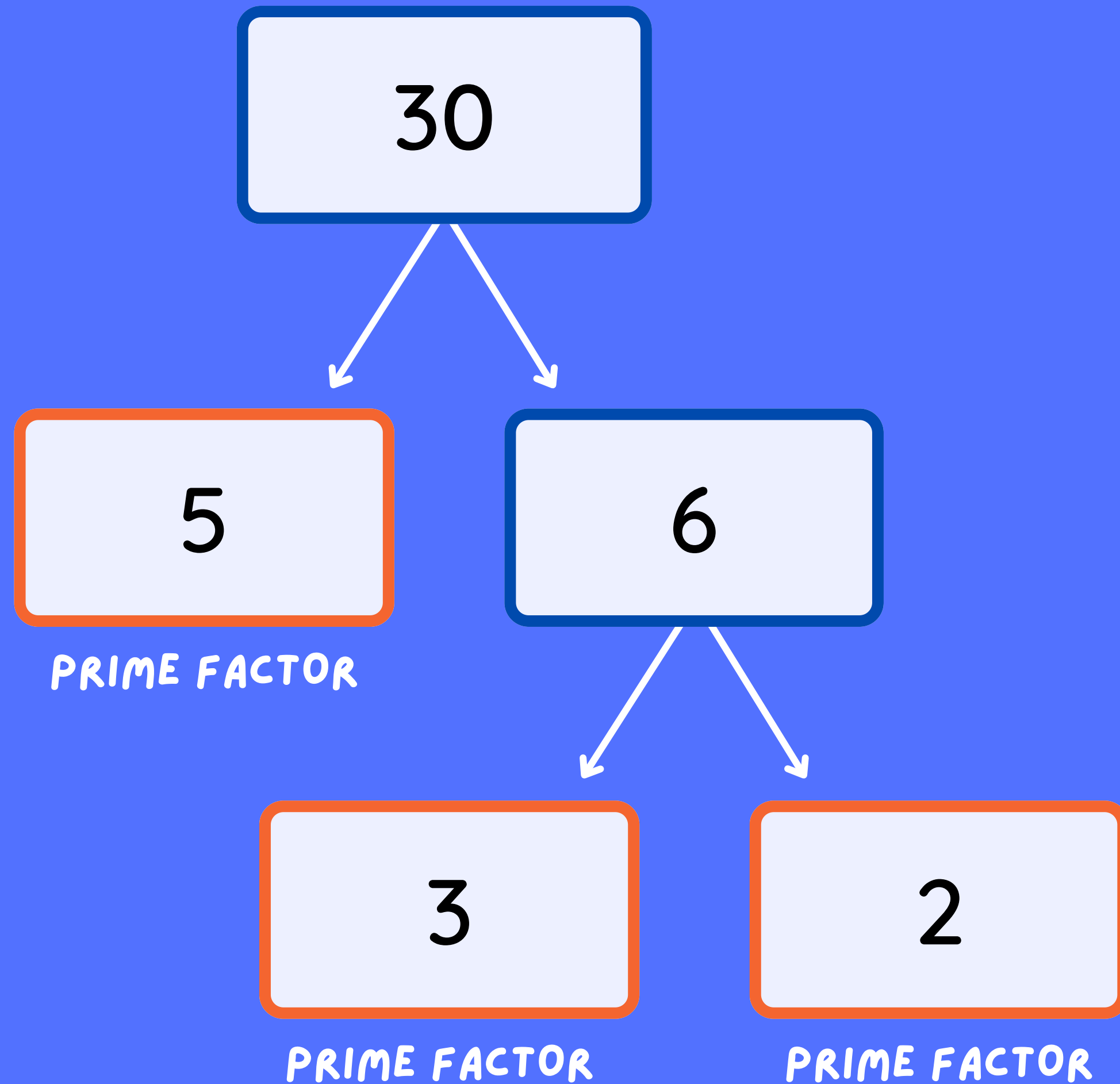
10 is not a prime number,  
so the branch continues.

Prime factorisation:  
 $2 \times 3 \times 5 = 30$

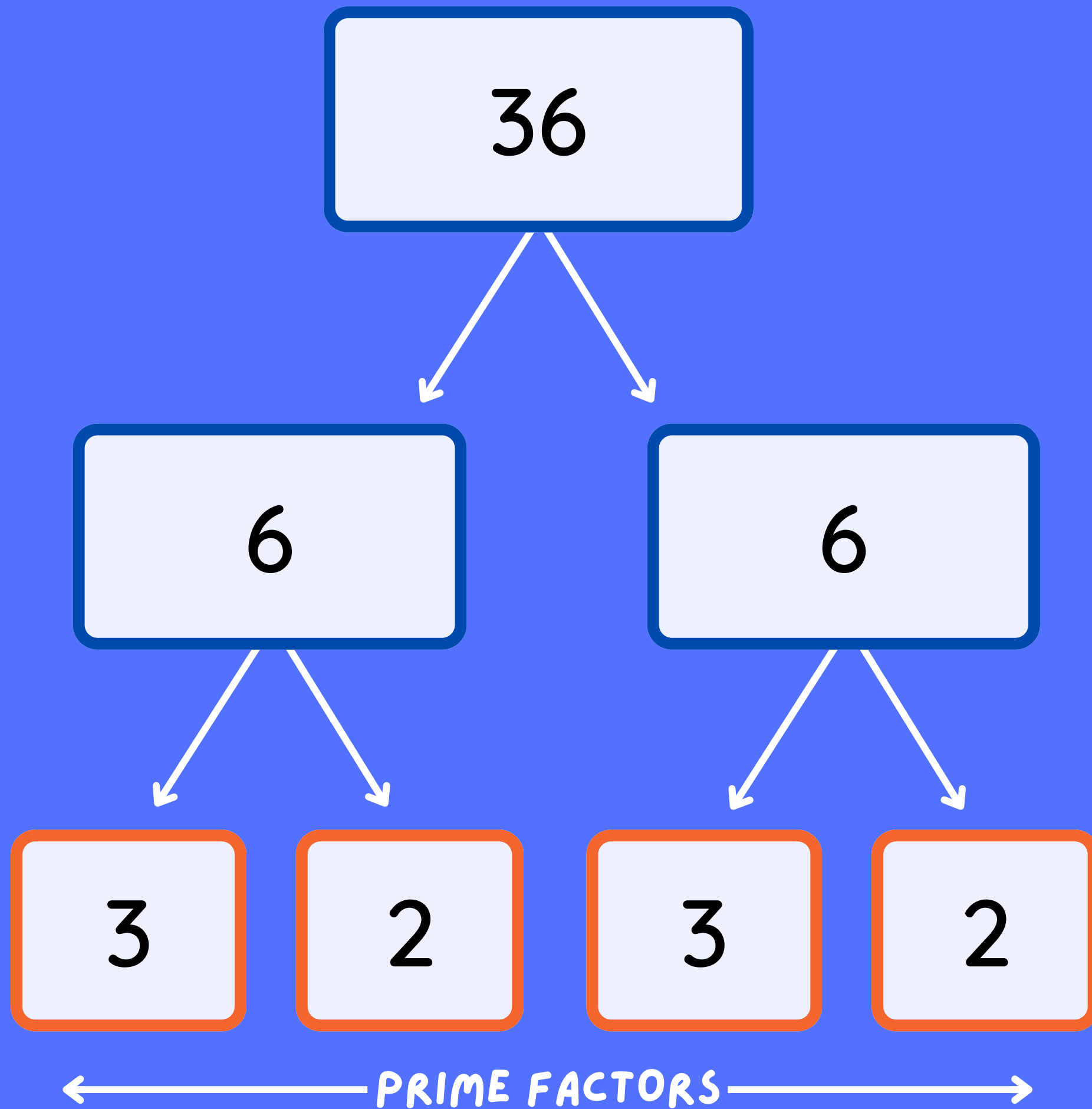


**BUT WHAT IF WE  
DO 30 AGAIN?**

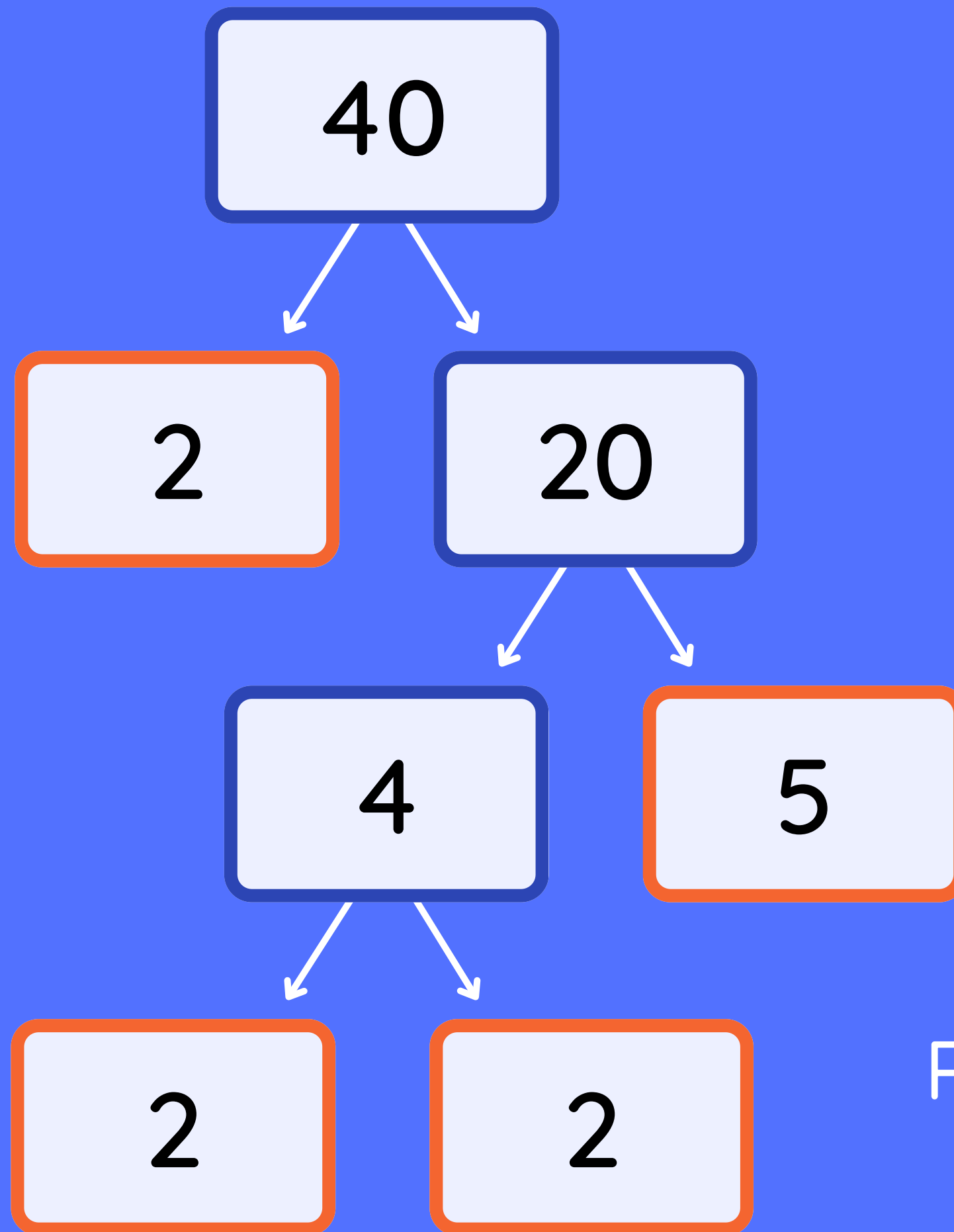
This time, we'll start with  $5 \times 6$  instead of  $3 \times 10$ .



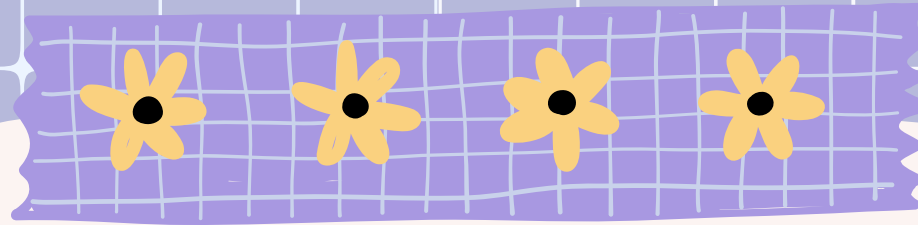
We still get the SAME  
prime factorisation:  
 $2 \times 3 \times 5 = 30$



Prime factorisation:  
 $2 \times 2 \times 3 \times 3 = 36$



Prime factorisation:  
 $2 \times 2 \times 2 \times 5 = 40$



# Composite & Prime Numbers

Mathematics Lesson

# Composite Numbers

A composite number has more than two factors.

4

**Factors : 1, 2, 4**

21

**Factors : 1, 3, 7, 21**



# Prime Numbers

A prime number has exactly two factors; 1 and itself.



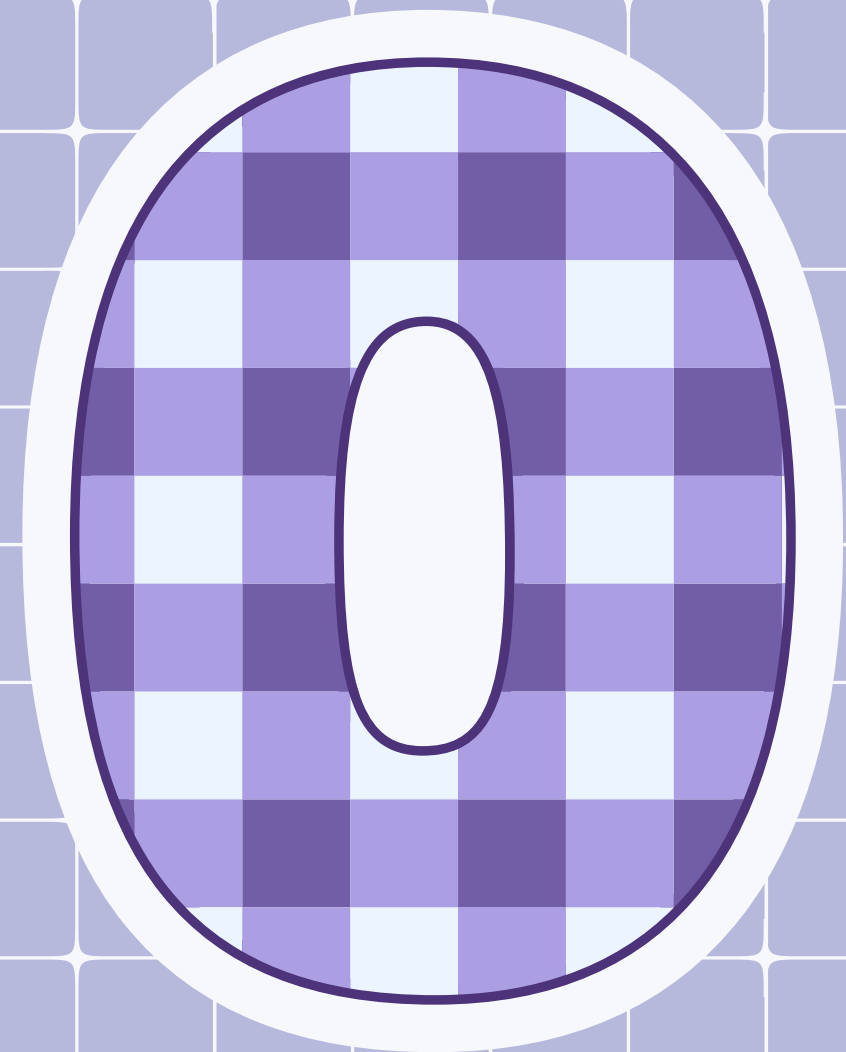
**Factors : 1, 2**



**Factors : 1, 5**

## Trivia

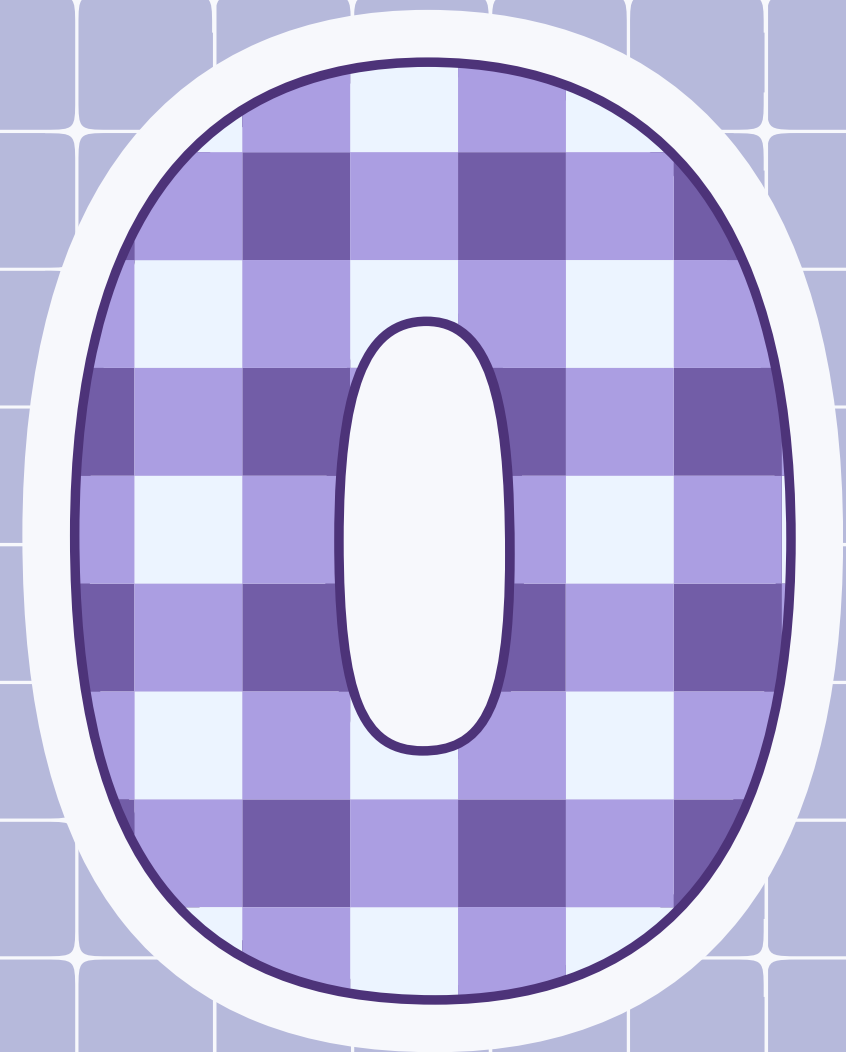
**Is 0 a composite  
number or a prime  
number?**



# Answer

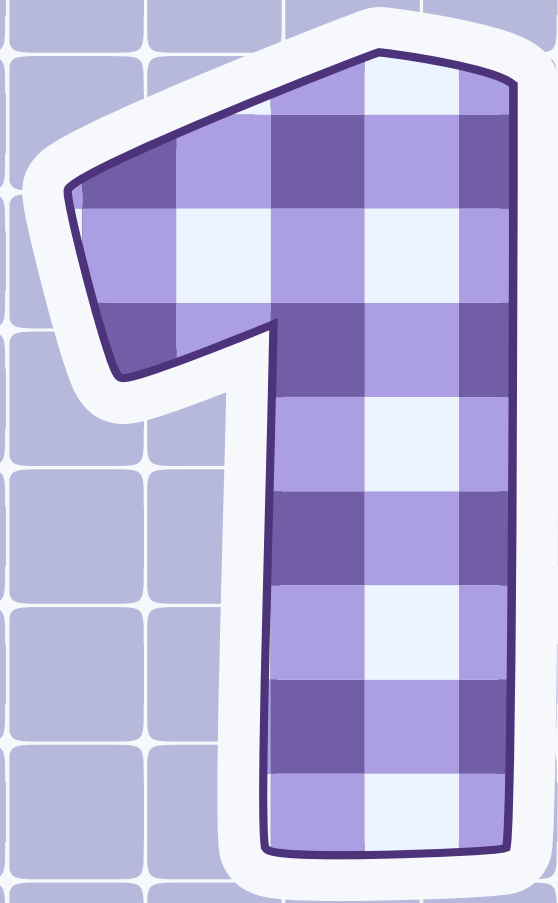
**0 is neither a composite number nor a prime number.**

Reason: 0 has infinite number of factors. To be a composite number it must have finite number of factors. Thus 0 is not a composite number.



## Trivia

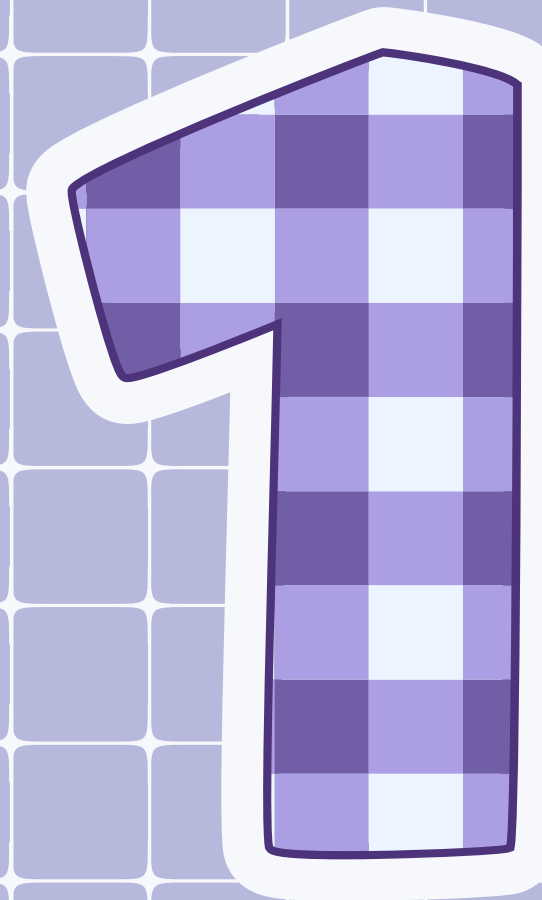
Is 1 a composite  
number or a prime  
number?



# Answer

**1 is neither a composite number nor a prime number.**

Reason: 1 has only one factor, so it doesn't satisfy the definition of the composite or prime numbers.



# Prime Numbers 1-140

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

# Prime Numbers 1-140

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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140