

# Using factors to multiply

## Worksheet

Mr Ward

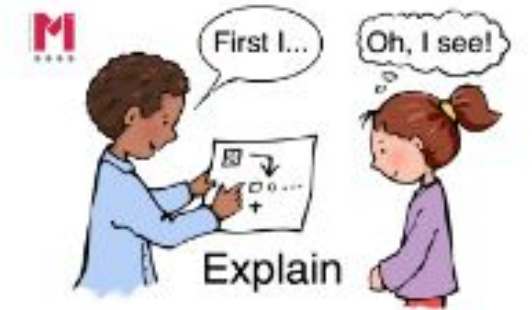


# Warm up - Prime Numbers



**Prime numbers are numbers which have exactly two factors: 1 and itself.**

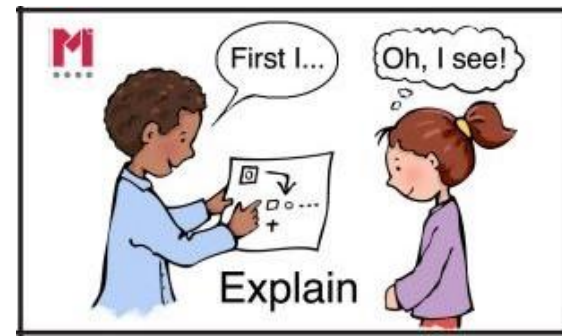
**Can you identify all prime numbers under 100?**



|    |    |    |    |    |    |    |    |    |     |
|----|----|----|----|----|----|----|----|----|-----|
| 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  |
| 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 |



# Talk Task - Using factors to multiply



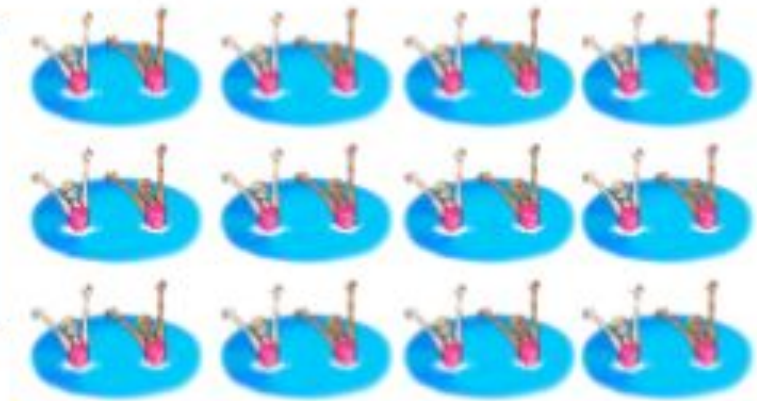
There are 24 swimmers in each squad  
and there are six squads.  
How many swimmers in total?



## Strategy 1:

Each squad has 12 pairs.  
How many pairs in six squads?

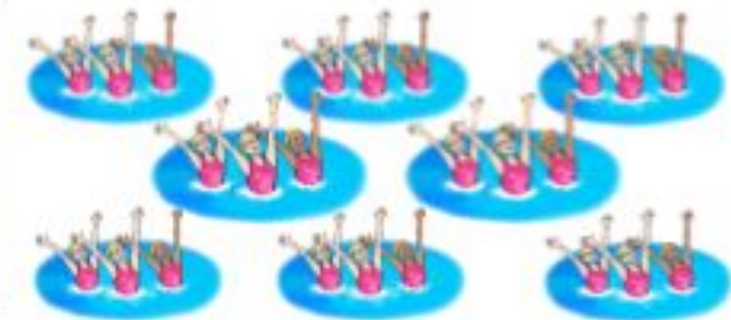
An image of one squad:



## Strategy 2:

Each squad has four groups of  
six swimmers.  
How many groups in six squads?

An image of one squad:



## Strategy 3:

Each squad has eight groups of  
three swimmers.  
How many groups in six squads?

An image of one squad:



How many other ways can you use factors to solve the problem?

Which strategy do you  
prefer and why?

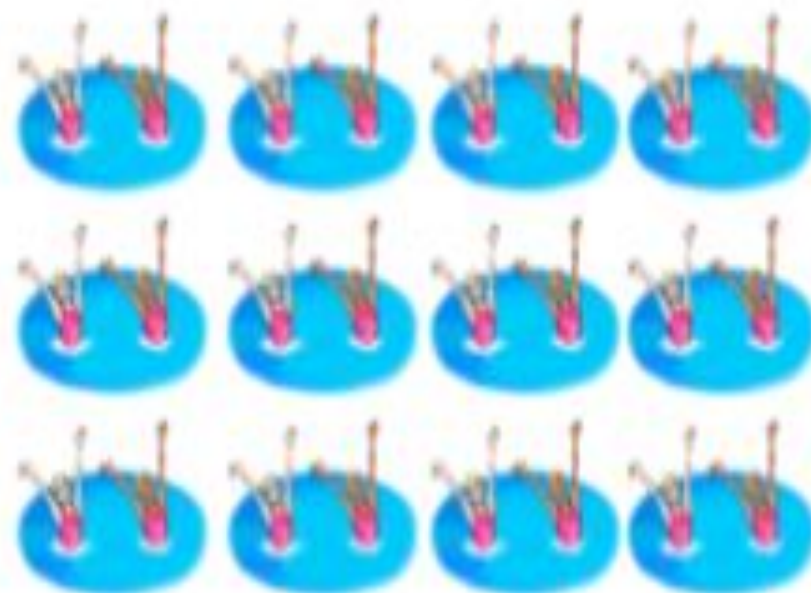




**Strategy 1:**

Each squad has 12 pairs.  
How many pairs in six squads?

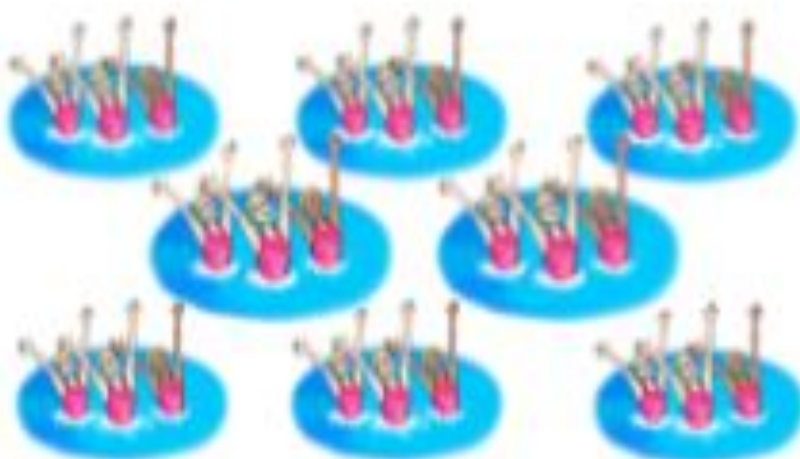
*An image of one squad:*



**Strategy 2:**

Each squad has four groups of  
six swimmers.  
How many groups in six squads?

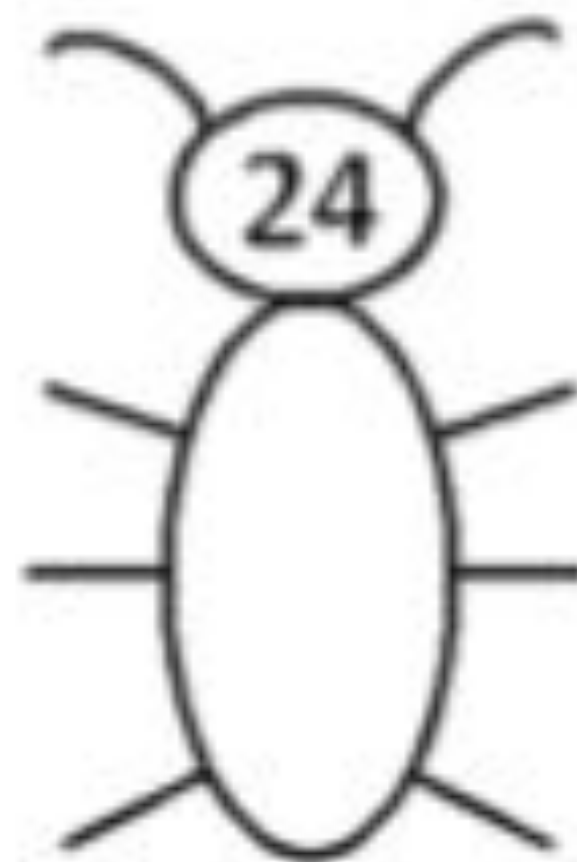
*An image of one squad:*



**Strategy 3:**

Each squad has eight groups of  
three swimmers.  
How many groups in six squads?

*An image of one squad:*



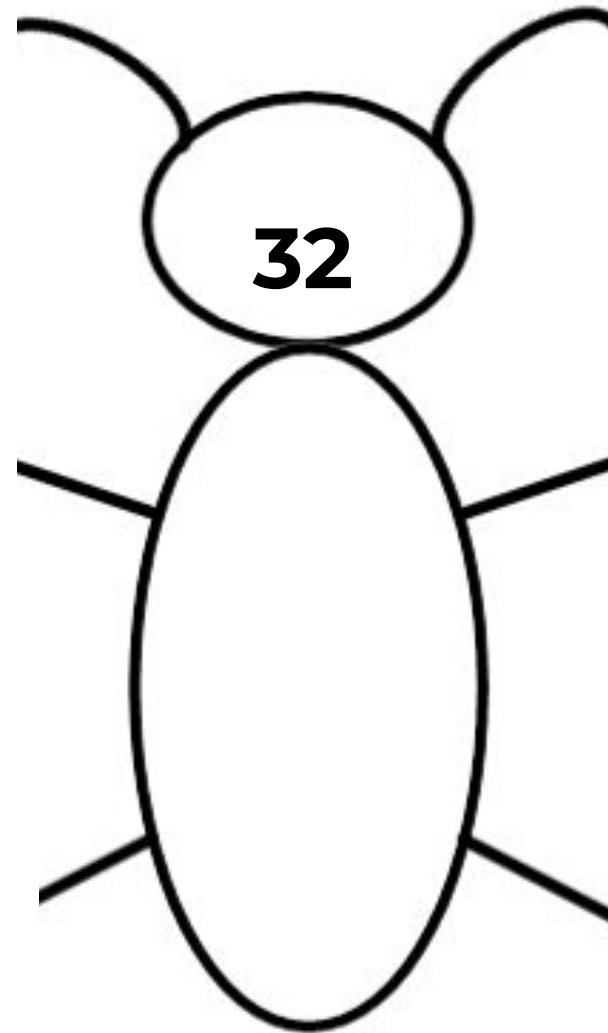
How many other ways can you use factors to solve the problem?



# Multiplication strategies

There are 32 athletes staying on each floor of an apartment block in the Olympic village.

How many athletes are there on five floors?





# Use different strategies to complete the two questions



1. Use your knowledge of factors
2. Try at least 3 different strategies from today's lesson
3. Use jottings and drawings to represent your working.

## Multiplication strategies

How many different strategies can you use?



There are seven squads with  
36 swimmers in each.  
**How many swimmers in total?**

$$36 \times 7$$

There are 24 athletes staying on  
each floor of an apartment  
block. **How many athletes on  
nine floors?**

$$24 \times 9$$



## Multiplication strategies

How many different strategies can you use?



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# Challenge Slide

How many different ways can you rewrite the following calculations using distributive law?



Eg  $24 \times 4$  could be:

- $24 \times 2 \times 2$
- $12 \times 2 \times 4$
- $3 \times 8 \times 2 \times 2$
- $2 \times 4 \times 3 \times 2 \times 2$
- $48 \times 2$
- $6 \times 2 \times 2 \times 4$
- $4 \times 6 \times 2 \times 2$

$$32 \times 8 \quad 42 \times 12 \quad 28 \times 6$$

**DISTRIBUTIVE LAW**

Use bar models and area models to help represent your jottings and reasoning.

