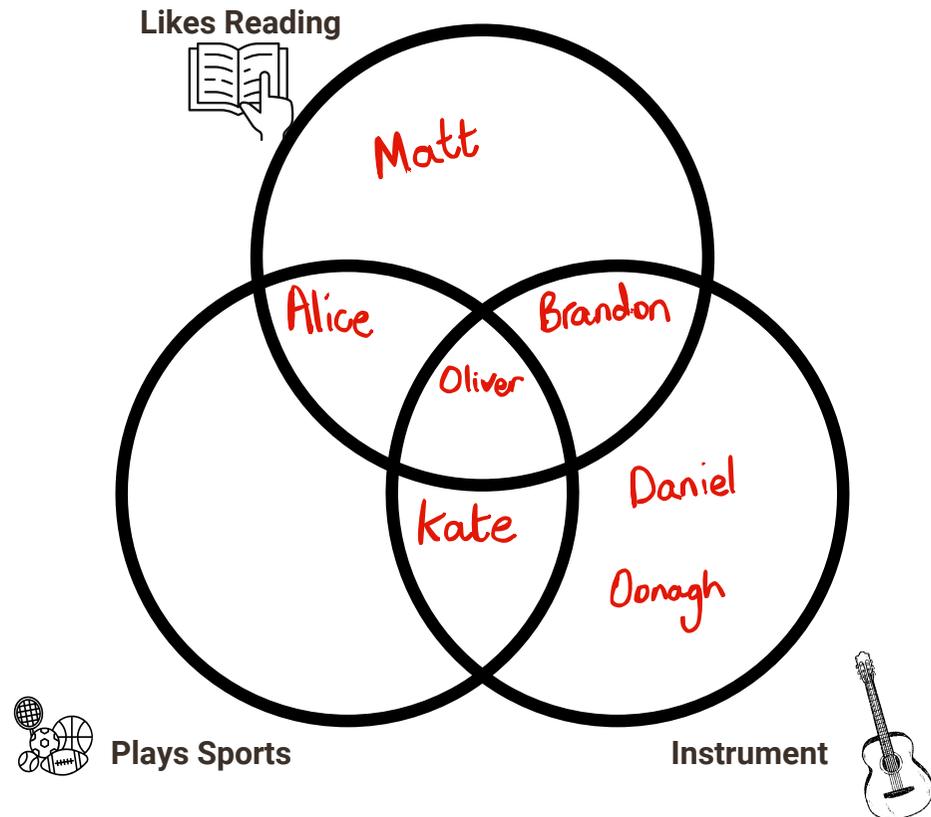# VENN DIAGRAMS

## Task 1: Student Hobbies

The table below shows information about the hobbies of a group of students. Use the data to **place each name in the correct section** of the Venn diagram.

| Name | Likes Reading | Plays Sport | Can Play an Instrument |
|------|---------------|-------------|------------------------|
| Alice | Yes | Yes | No |
| Kate | No | Yes | Yes |
| Brandon | Yes | No | Yes |
| Oliver | Yes | Yes | Yes |
| Daniel | No | No | Yes |
| Matt | Yes | No | No |
| Oonagh | No | No | Yes |

**Likes Reading**

Matt

Alice    Brandon

Oliver

Daniel

Kate

Oonagh

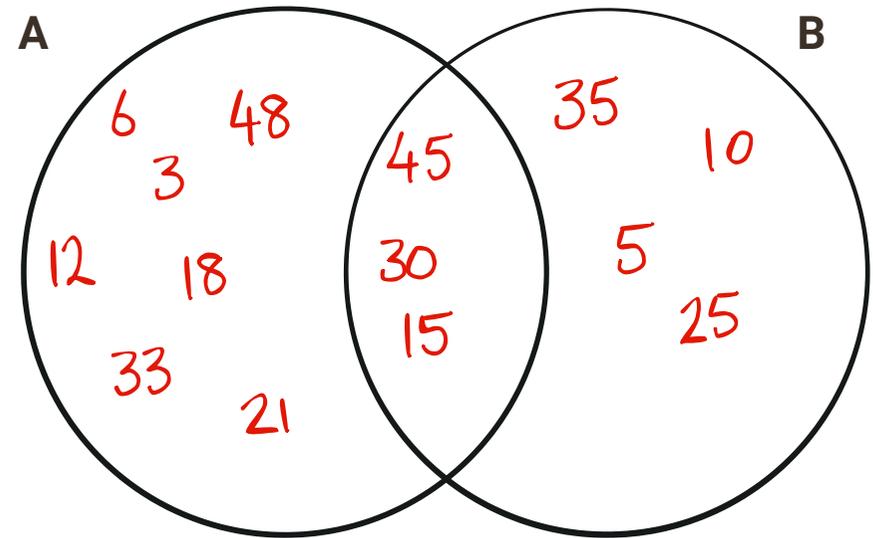**Plays Sports**          **Instrument**
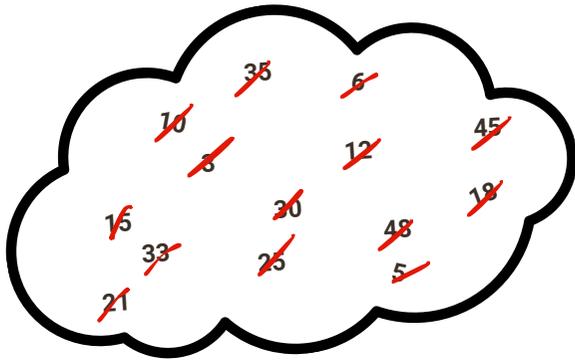
# VENN DIAGRAMS

## Task 2: Sorting Numbers

This Venn Diagram sorts numbers based on the following criteria:
**A = Multiples of 3**
**B = Multiples of 5**

Place the numbers from the cloud into the correct sections of the Venn Diagrams. Some numbers may belong in more than one section!

Cloud numbers: 35, 6, 10, 12, 45, 8, 15, 30, 19, 33, 20, 48, 5, 21

**A**

6  48
3
12  18
33
21

45
30
15

**B**

35
10
5
25

**Extension:** Add **three** more numbers of your choice to the 'cloud' that belong to **each** section of the Venn diagram. Justify why each fits that section.

### Example Answers

Only A → 24, 27, 36
A and B → 60, 75, 90
Only B → 40, 50, 55

**Learn these divisibility tricks:**

**Divisible by 3**: Add all the digits together. If the total is a multiple of 3, then the whole number is divisible by 3.
**Example**: For 45, add 4 + 5 = 9. Since 9 is divisible by 3, 45 is also divisible by 3.

**How can you check that you have placed all numbers correctly?**

**Divisible by 5:** A number is divisible by 5 if it ends in a 5 or a 0.
**Example**: 30 ends in 0, so it is divisible by 5.

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# VENN DIAGRAMS

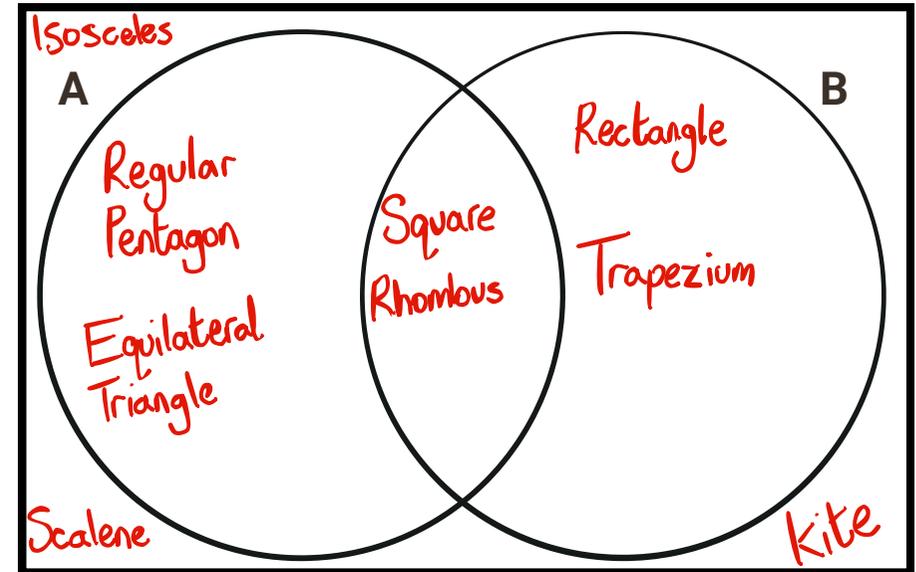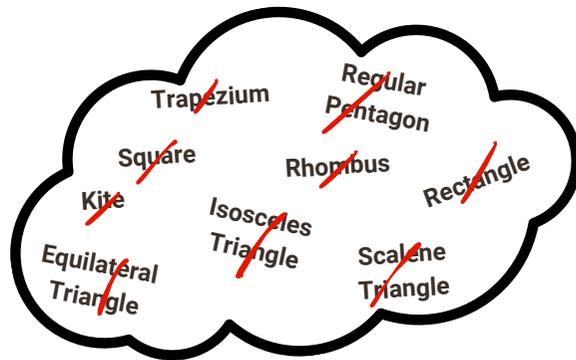## Task 3: Sorting Shapes

Use the Venn diagram to sort the shapes from the list into the correct sections
**A = Shapes with all sides equal in length.**
**B = Shapes with at least one pair of parallel sides.**

Trapezium
Regular Pentagon
Square
Rhombus
Kite
Rectangle
Isosceles Triangle
Scalene Triangle
Equilateral Triangle

Isosceles

A

Regular Pentagon

Equilateral Triangle

Square
Rhombus

Rectangle

Trapezium

B

Scalene

Kite

**Extension:** Can you **add another shape** to this Venn Diagram? What would it be, and where would it go?

Example Answer
↳ Only A: Regular Octagon

There are some shapes that don't fit in either category.

Why does this Venn Diagram need a border around the outside?

# VENN DIAGRAMS

## Task 4: Analysing

Below is a **completed** Venn diagram, where the numbers have been placed into one of four regions:

- Set A = Prime numbers less than 20.
- Set B = Multiples of 3 less than 20.
- In both A and B = common to both sets.
- Outside the circles neither prime nor multiple of 3.

A
1
2
5
3
18
12
9
19
6
7
13
17
15
4
11
16
8
14
10
B
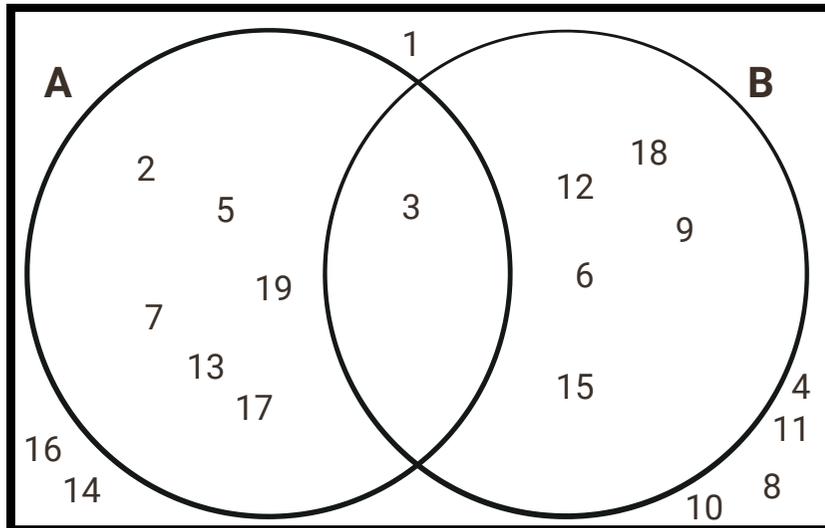
**1** First analyse the Venn Diagram, then answer these True or False Questions:

- **All** multiples of 3 must appear in the intersection. **True /** **False.**

- **Every** number in the left circle is **divisible** only by **1** and **itself**. **True** **/ False**.

- Any number outside both circles is **neither** prime nor a multiple of 3. **True** **/ False**.

- **15** is placed in the correct region because it is **both** prime and a multiple of 3. **True /** **False.**

- **1** is outside the circles because it is **not** prime or a multiple of 3. **True** **/ False**.

**2** **Extension:** Using the skills you have learned, create your own Venn diagram. You can choose any topic you like**!**

- Use hobbies (like task 1) or create categories based on different maths facts.
- Try creating a **three-way Venn diagram** to challenge yourself!
- Make sure you have **clear categories** and label them.
- **Don't forget**: some items may not fit into any category and can be placed outside the circles.