# Living things & their habitats

## Which living things can we identify in our local area?

**Lesson 1:** How do observable features help us group and sort things?



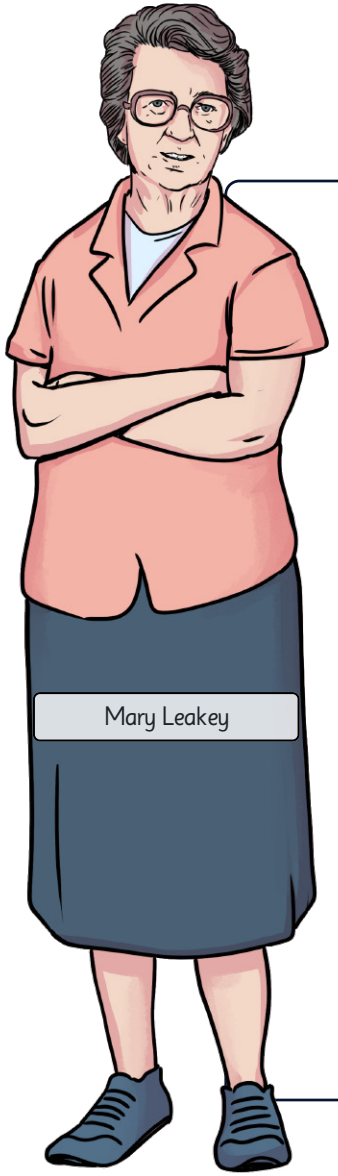






Grammarsaurus

# Scientific enquiry types and skills




## Scientific enquiry types

- Testing
- Researching
- Observing
- Pattern seeking
- **Identifying & classifying** ✓
- Problem solving

## Working scientifically skills

- Asking questions
- Making predictions
- Setting up tests
- **Observing & measuring** ✓
- **Recording data** ✓
- Interpreting & communicating results
- Evaluating

# Which living things can we identify in our local area?



Alfred Russel Wallace

**Lesson 1: How do observable features help us group and sort things?**

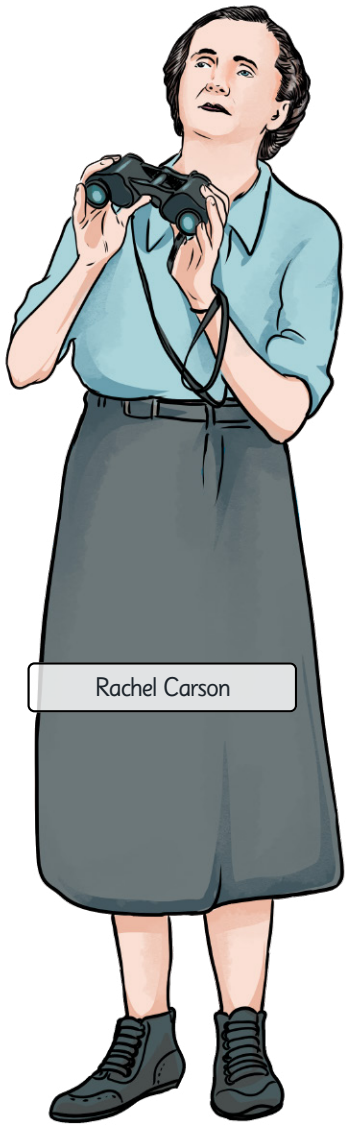
**Lesson 2:** Which observable features can we use to group animals?

**Lesson 3:** What features help us to group different types of plants?

**Lesson 4:** How can classification keys help us to identify living things?

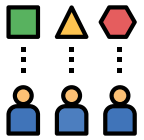
**Lesson 5:** Which living things can we identify in our local area?

**Lesson 6:** How is our environment changing?



Rachel Carson

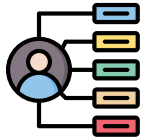
# Key vocabulary for this lesson



**characteristic** – a feature or part of something that helps with identification



**classify** – to group things based on similarities



***feature*** – a distinctive part of something



**observe** – to look at something carefully to notice details about it

# Identifying and classifying





Hi! I'm **Zoe**, a **naturalist**. My job is to study living things by examining their features closely. Scientists group and sort things to help them understand patterns in nature. They look at different ways of sorting depending on the question they want to answer. Today, we will learn how to group and sort using different diagrams. You will think like a scientist by choosing features, comparing objects and explaining your ideas.







# What is an observable feature?





A ***feature*** is something we can **observe** with our eyes. Features might include **colour**, **shape**, **size**, **pattern**, **number of parts** or **texture**. Scientists choose features carefully because different features create different groups.



# What is not an observable feature?





Some ***features*** **cannot** be seen at first glance. These are **not observable features**. For example, we cannot see how old something is, how it behaves or how fast it can move just by looking at it. We also cannot see what something is made of on the inside, or how it grows or reproduces, unless we study it over time.



# Let's discuss

Observing & measuring

Identifying & classifying

Scientists always begin by observing before they start sorting.
Here are some buttons. Look carefully at each one.



Discuss the following question with your learning partner.
What features can you see that you could use to sort the buttons?
Be ready to **share your feedback** with the class.

# Let's discuss

answers

Observing & measuring

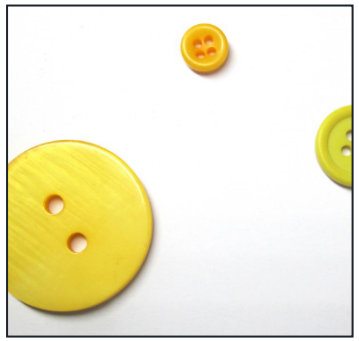
Identifying & classifying



Scientists choose ***features*** that are clear and easy to compare.











We might choose to sort the buttons by **colour**.

# Sorting and grouping

Observing & measuring

Identifying & classifying



The same objects can be sorted in different ways. It depends on the ***feature*** we choose. This is the same for living things. There is not just one correct way to group them. Sometimes sorting can lead to important questions.







Discuss the following question with your **learning partner**.
What feature has been used to sort these buttons?
Be ready to **share your feedback** with the class.

# Sorting and grouping

answers

Observing & measuring

Identifying & classifying



The buttons have been sorted by the number of holes each of them has.







# What is a Venn diagram?



A Venn diagram is a way to sort or **classify** things by their ***features*** or **characteristics**. We group things together that share similar features. Sometimes those groups are separate.

**Large buttons**



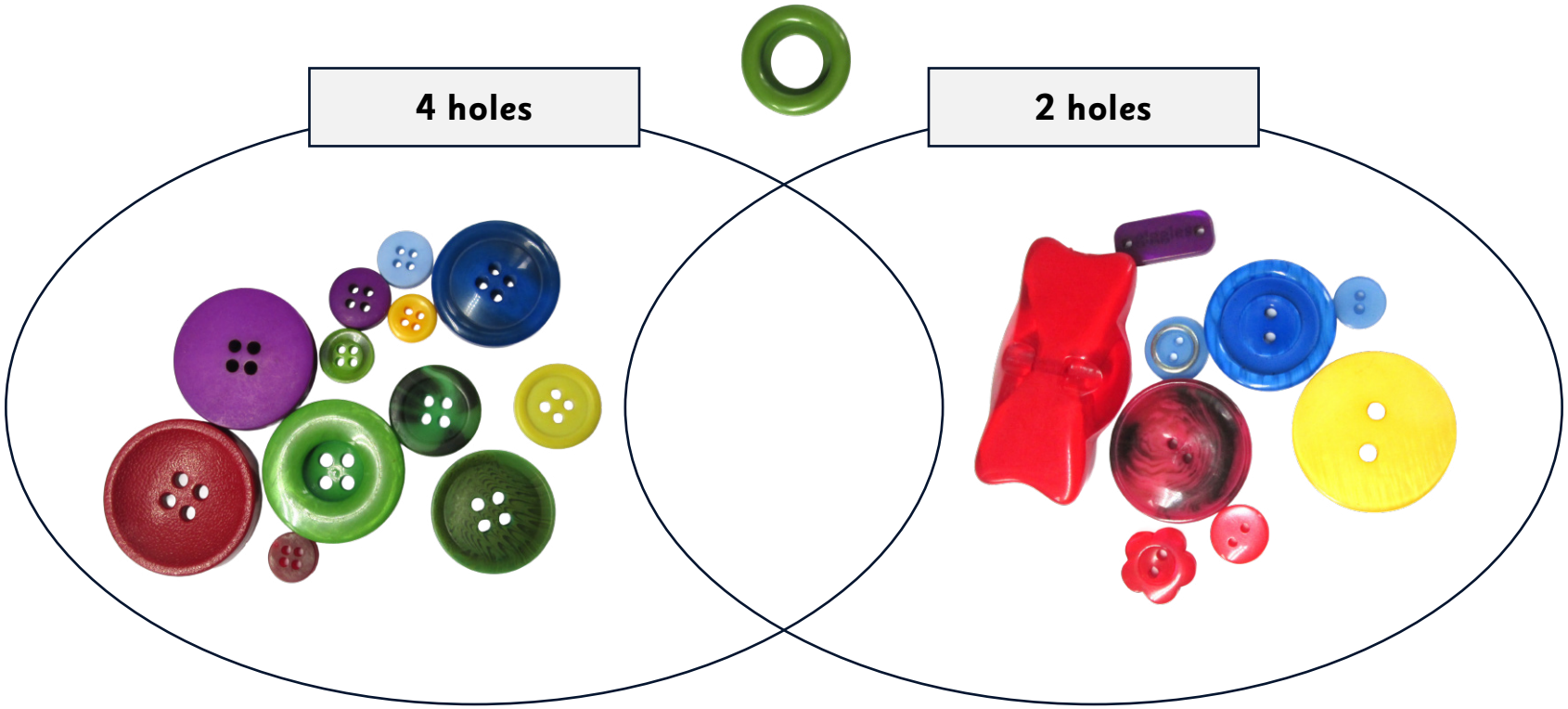
**Small buttons**



# Venn diagram

Observing & measuring | Identifying & classifying | Recording data

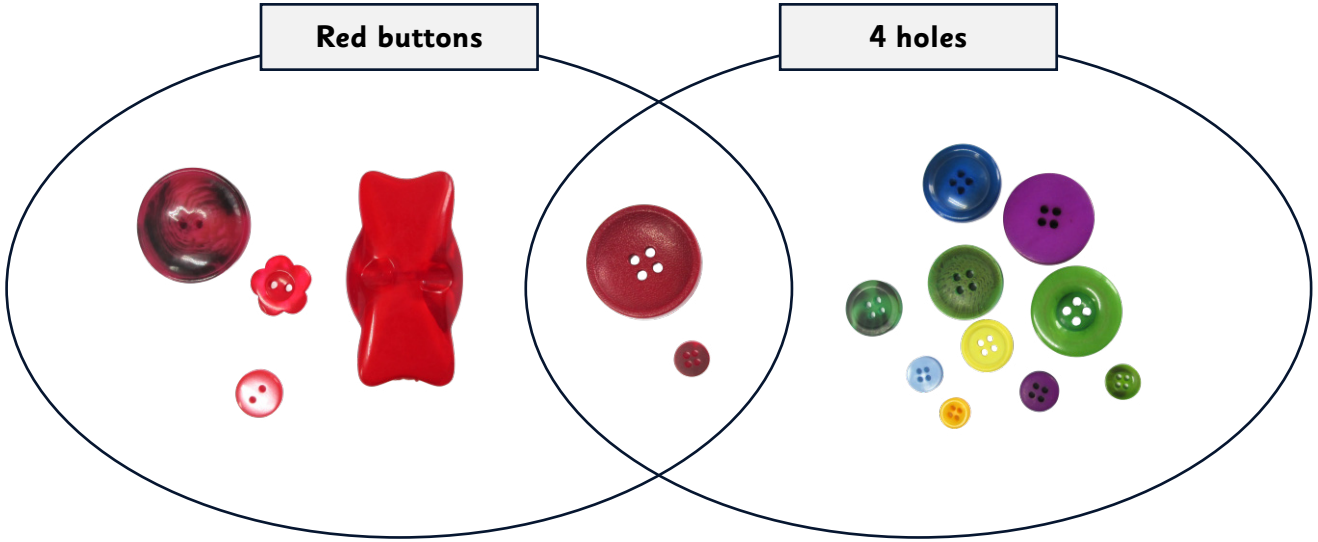
When an object doesn't fit into one of our groups, it stays outside the shape in a Venn diagram.



# Classifying objects using a Venn diagram



A Venn diagram can also help us sort or **classify** objects using two different ***features*** at once. In this case, we need to make the groups overlap. It can show us what is the same and what is different.






When buttons belong in both groups, they sit in the middle where the shapes overlap.

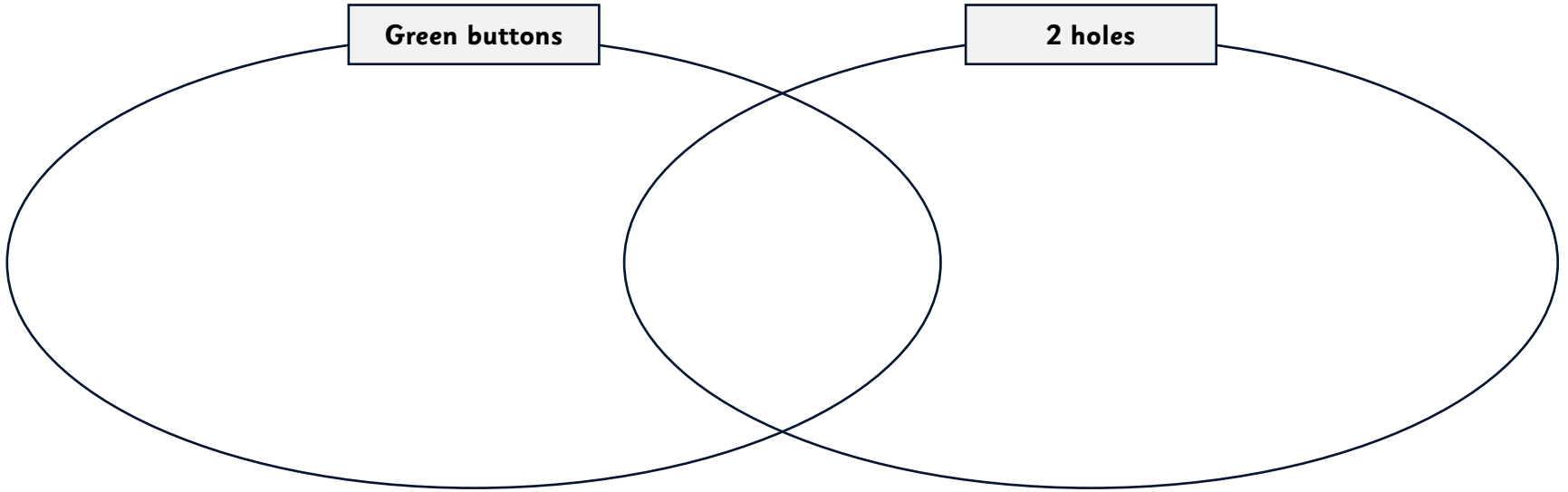
When buttons don't belong in either group, they sit outside the Venn diagram.

# Using a Venn diagram

Observing & measuring

Recording data

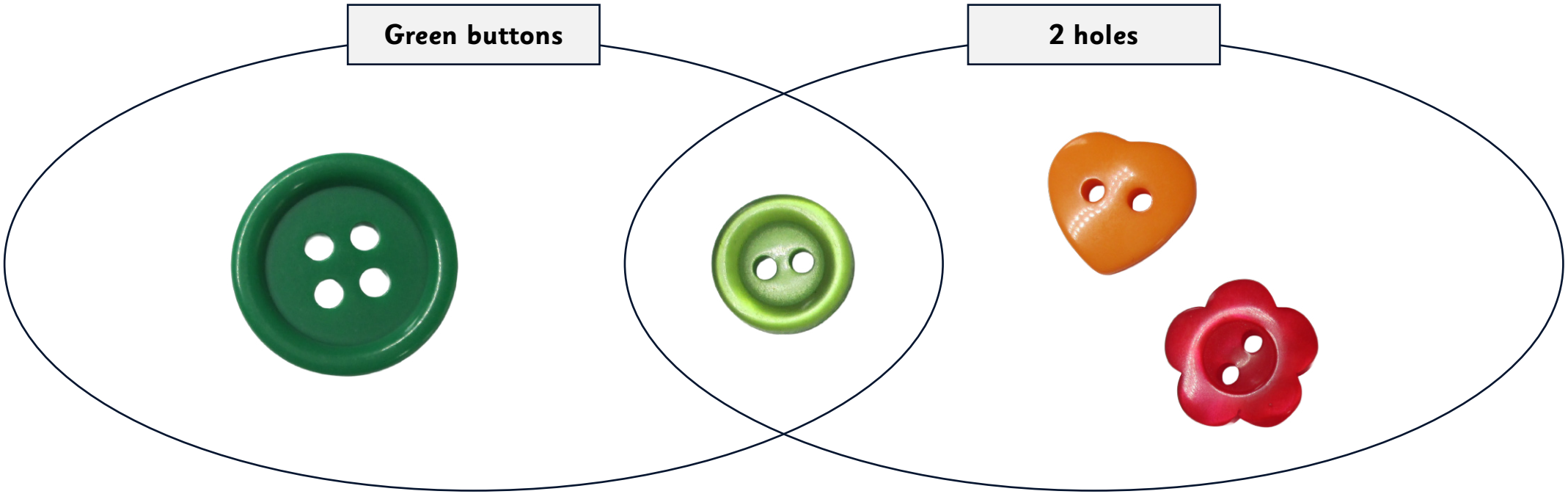
Discuss the following question with your learning partner.
Where would you place these buttons in the diagram?
Be ready to **share your feedback** with the class.






# Using a Venn diagram

answers

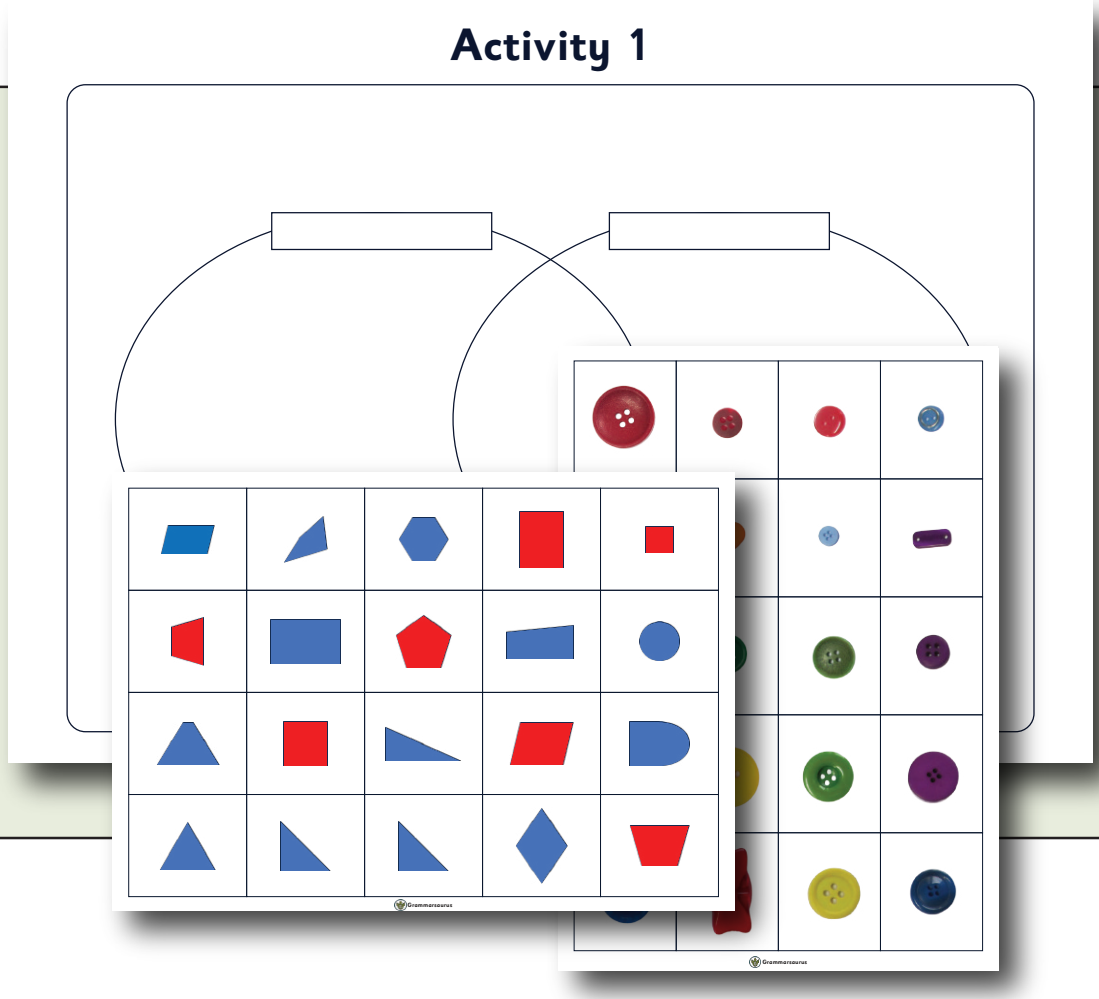


# Activity 1

Observing & measuring | Recording data | Identifying & classifying



**Now it's your turn to think like a scientist**. Using the button or shape activity cards or objects that your teacher has given you, **choose two *features*** you can see and use them as the headings for your own Venn diagram on your activity 1 worksheet. Think carefully about which features will help you sort the objects clearly. Can you sort them in different ways?



# What is a Carroll diagram?

Recording data

Identifying & classifying



A Carroll diagram sorts or classifies items using **yes/no** questions. Each box shows whether an item fits each question. Carroll diagrams are useful when ***features*** do not overlap. Every item **must** go in exactly one box. Scientists use Carroll diagrams when they want clear, separate groups.

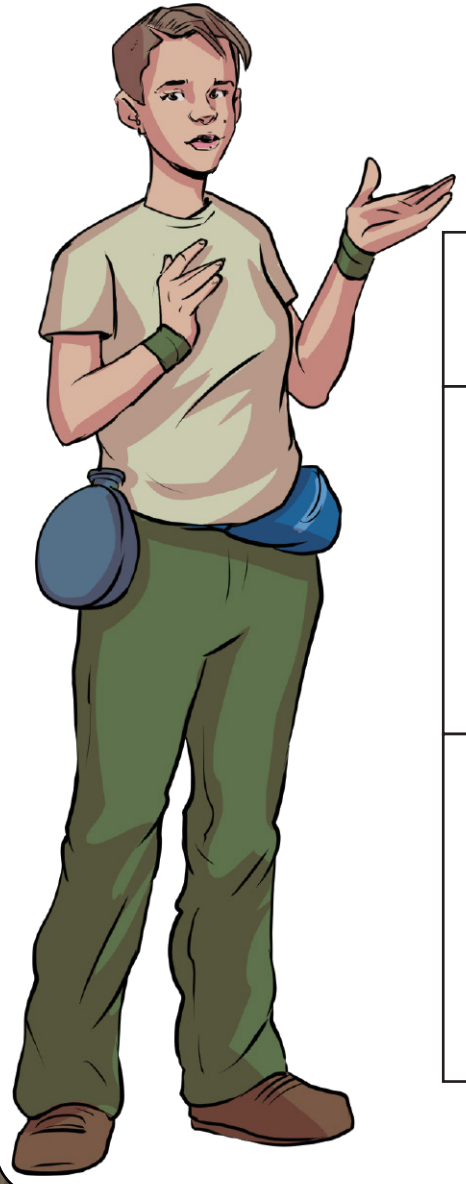
We can start with one question: Is it green?

| Green | Not green |
| --- | --- |
|  |  |

# Carroll diagrams

Recording data

Identifying & classifying



Then we can add a second question to group the objects again.
Does it have 2 holes?

| | Green | Not green |
|---|---|---|
| 2 holes |  |   |
| Not 2 holes |  |  |

# Using a Carroll diagram

Observing & measuring | Recording data | Identifying & classifying



Where would you put this 'button' in the table below?
Discuss this question with your learning partner.
Be ready to **share your feedback** with the class.



| | Green | Not green |
|---|---|---|
| 2 holes |  |   |
| Not 2 holes |  |  |

# Using a Carroll diagram

answers

Observing & measuring | Recording data | Identifying & classifying



It is green. It does not have 2 holes. All objects fit into a Carroll diagram. Nothing sits outside the sorting diagram this time!

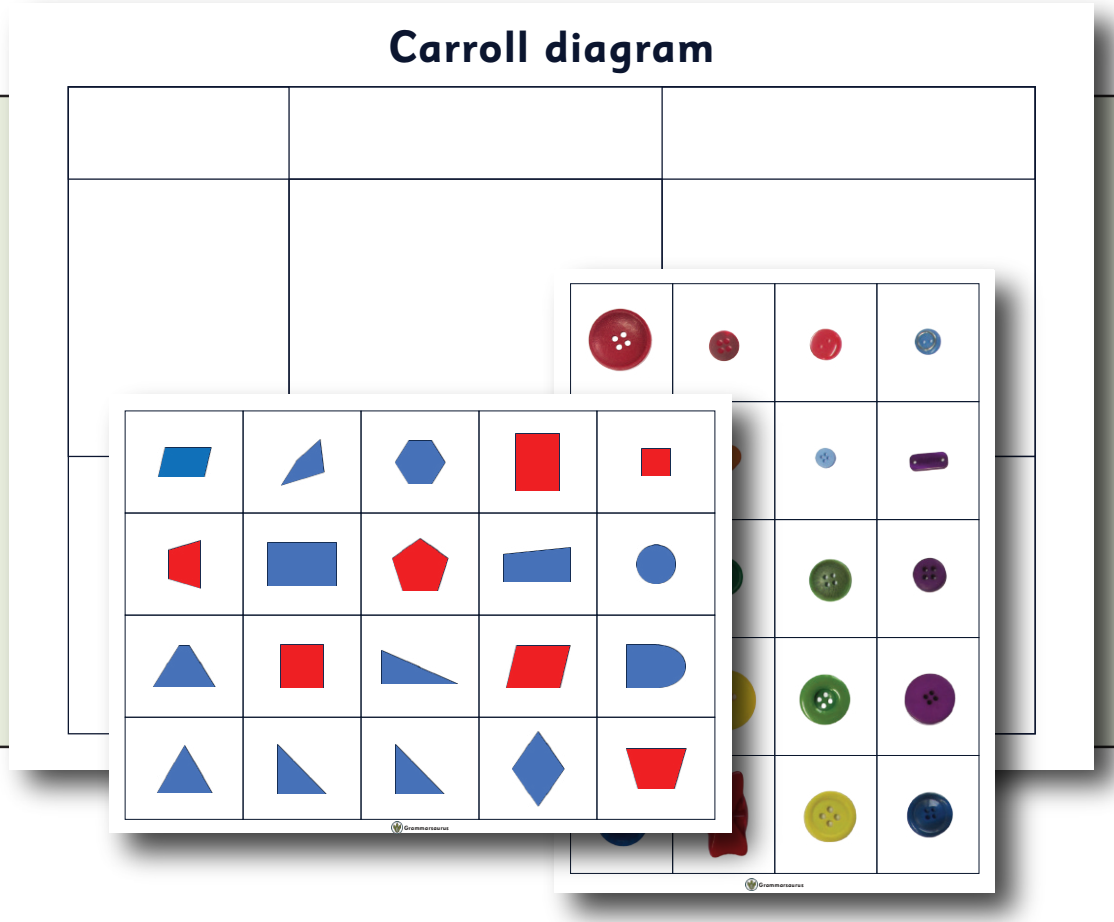
| | Green | Not green |
|---|---|---|
| 2 holes |  |  |
| Not 2 holes |  |  |

# Activity 2

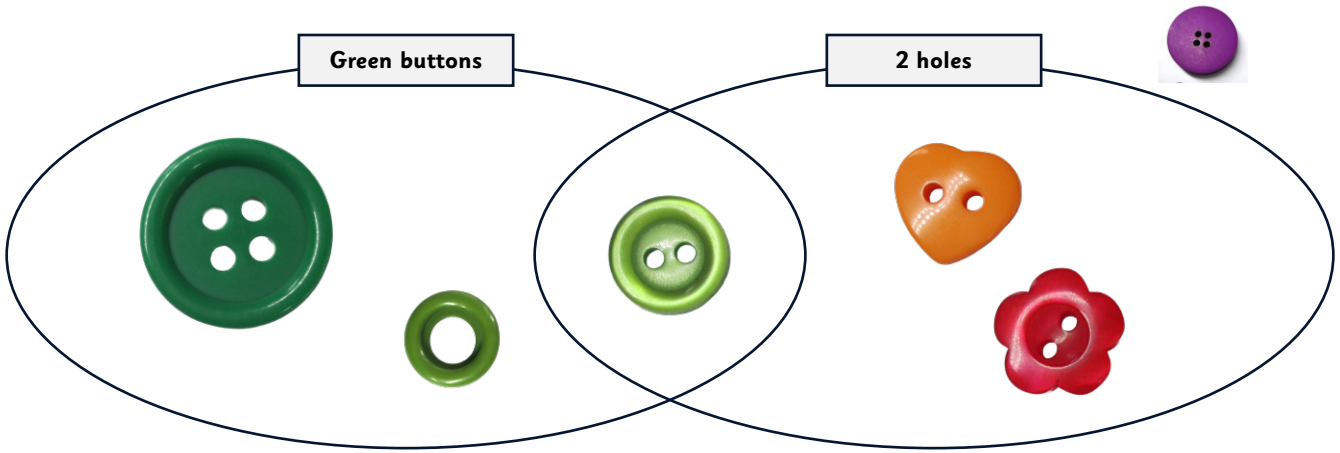
Observing & measuring | Recording data | Identifying & classifying



Now choose two yes/no questions for your own Carroll diagram on your activity 2 worksheet. Sort the buttons, shapes or other objects into the correct boxes. Explain your choices to your learning partner.



# Venn and Carroll diagrams



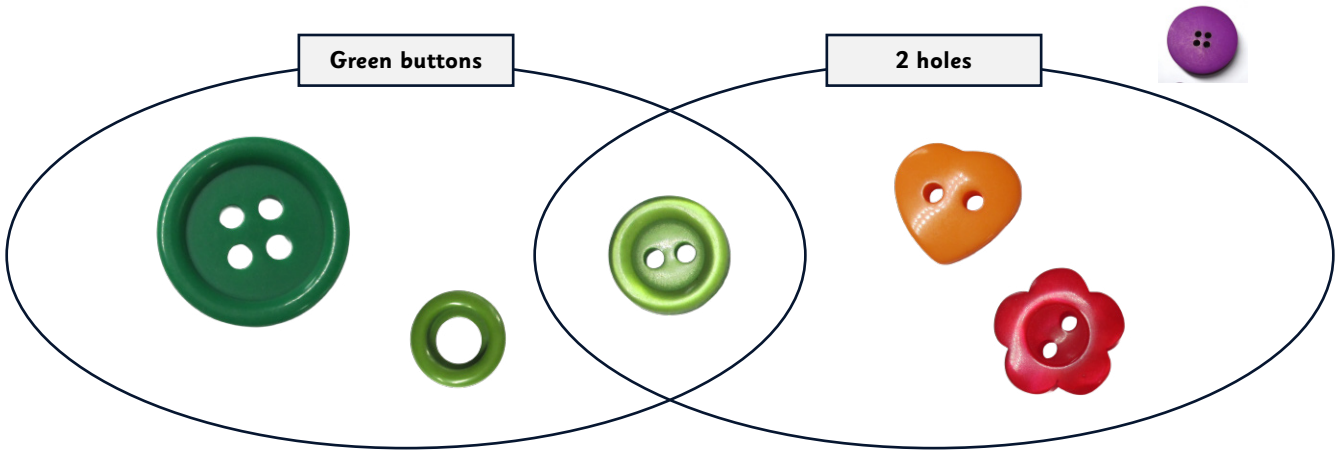

| | Green | Not green |
|---|---|---|
| 2 holes |  |  |
| Not 2 holes |   |  |

A Venn diagram shows when things share **features**.

A Carroll diagram will show us how things differ.

There is not one best diagram to use. It depends on the features you are using to sort and group.

# Let's discuss




| | Green | Not green |
|---|---|---|
| 2 holes |  |  |
| Not 2 holes |   |  |

Discuss the **following questions** with your **learning partner**.

Which sorting diagram was easier to use?

Did you prefer the Venn Diagram or the Carroll diagram? Why?

Be ready to **share your feedback** with the class.

Use the following sentence starters to help you.

**"I find it easier to use the…"**

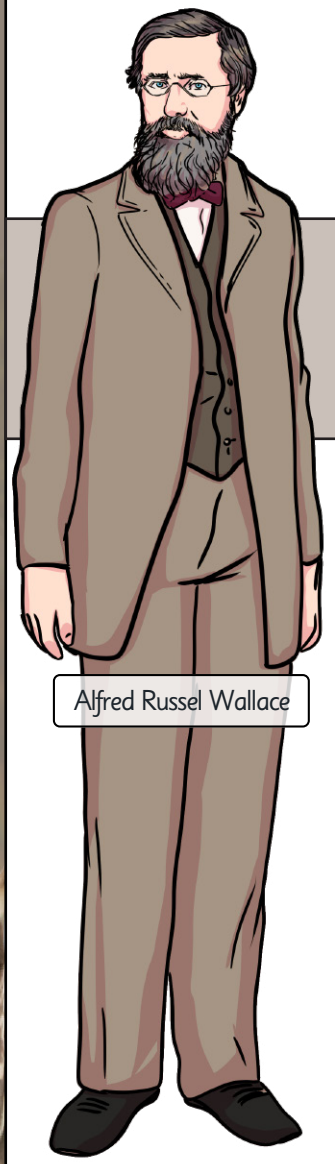
**"I prefer to use the…"**

**"This is because…"**

# Challenge

Observing & measuring

Identifying & classifying



Alfred Russel Wallace

Look carefully at these three animals: a dolphin, a shark and a salmon.

- **Which observable features will put them in the same group?**
- **Which observable feature would put them in two different groups?**



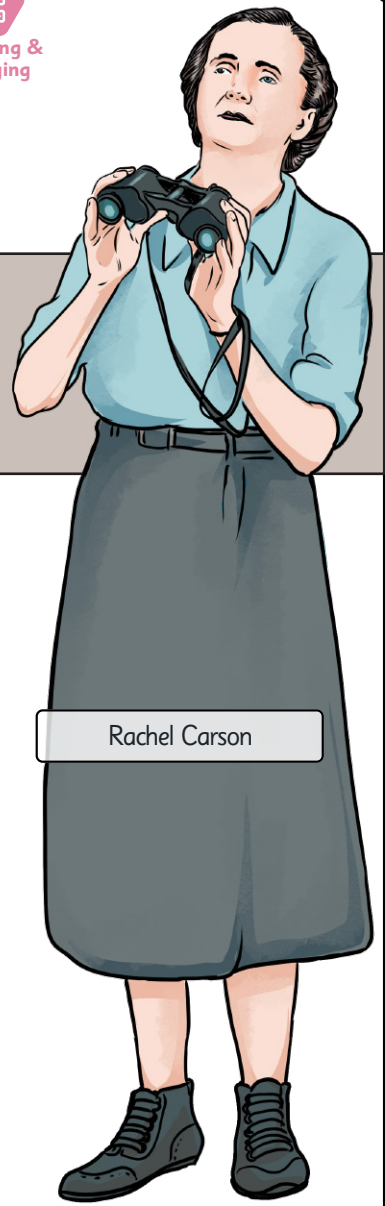
**shark**



**dolphin**



**salmon**



Rachel Carson

Discuss these questions with your **learning partner**.

Be ready to **share your feedback** with the class.

# Challenge answers

Observing & measuring

Identifying & classifying



Alfred Russel Wallace

The ***features*** that would put them in the same group include fins, a tail and a smooth, streamlined body for swimming. The main observable feature that puts them into two different groups is the gills. The dolphin has no gills, while the shark and salmon both have gills.



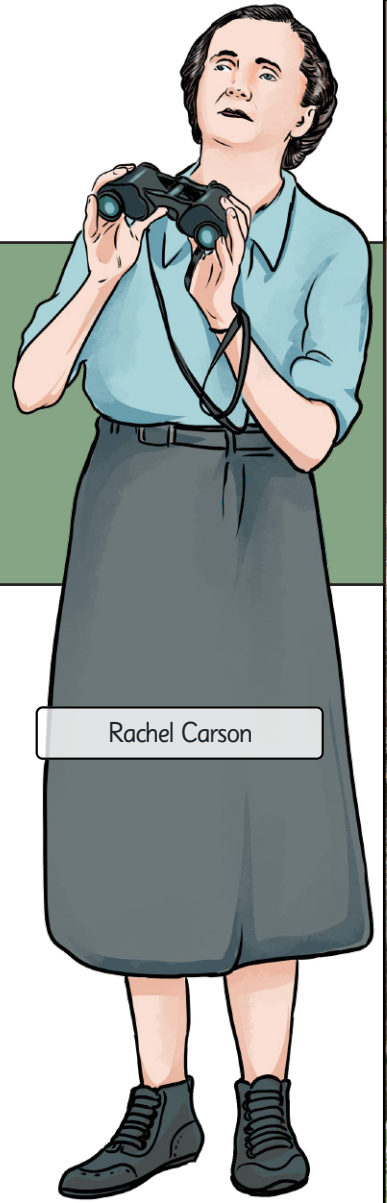
**shark**



**dolphin**



**salmon**



Rachel Carson