# Lesson 4: What is an attribute?

## Introduction

During this lesson learners will think about ways in which objects can be grouped by attribute. They will then tally objects using a common attribute and present the data in the form of a pictogram. Learners will answer questions based on their pictograms using mathematical vocabulary such as ‘more than’/’less than’ and ‘most’/’least’.

## Learning objectives

To select objects by attribute and make comparisons

* I can tally objects using a common attribute
* I can create a pictogram to arrange objects by an attribute
* I can answer more than/less than, most/least questions about an attribute

## Key vocabulary

Attribute, group, same, different, object, more than/less than, most/least

## Assessment opportunities

**Introduction:** Assess learners’ understanding of the word ‘attribute’ and how objects can be grouped by attribute.

**Activity 1:** Assess learners’ ability to create a tally chart, organising data using a common attribute.

**Activity 2:** Assess the learners’ ability to create a pictogram from their tally chart.

**Activity 3:** Assess the learners’ ability to answer questions based on the data presented in the pictogram.

**Plenary:** Assess the learners’ ability to identify the attribute used to group objects.

## Preparation

**Subject knowledge:**

You will need to have an understanding of ways in which objects can be grouped by attribute (an attribute is a property of an object, e.g. its colour, shape, or size). An understanding of ‘J2Data: Pictogram’ would be an advantage. These skills are supported in the slides.

**You will need:**

* L4 Slides
* A1 worksheet – Creating a tally
* A3 worksheet – Pictogram questions

## Outline plan

Please note that the activities are labelled in the top right-hand corner of the slide deck to help you navigate the lesson.

*\*Timings are rough guides*

|  |  |
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| Introduction (Slides 2–9)  5 mins | **Introduction**  Show slide 2, and introduce the learners to the objectives for this lesson.  Show slide 3. Ask the learners ‘How do you think these objects have been grouped?’ Allow time for learners to think, pair, and share with the class.  Show slide 4. Tell the learners that these objects have been grouped by colour, and that colour is an ‘attribute’. Tell them that an attribute is a way to describe an object. Tell them that we can group objects using different attributes.  Show slide 5. Ask the learners ‘Why do you think these objects have been grouped like this?’ Ask the learners: ‘Have these objects been grouped by colour?’ Look at group one and point out that both the bus and the car are red. Then look at the remaining objects in the circle and explain that these are a different colour, so the attribute can’t be ‘colour’. Ask the learners: ‘Are these objects grouped into ‘car’ and ‘not car’ groups?’ Look again at the left circle. Point to the silver and red cars and point out that both these objects are cars. Then look at the remaining objects in the circle. Point out that, as these are not cars, you can’t have grouped the vehicles by ‘car’/‘not car’. Allow the learners time to think, pair, and share their ideas with the class.  Show slide 6. Tell the learners that these objects have been grouped using the attribute ‘number of wheels’. The objects in the left circle have four wheels and the objects in the right circle have two wheels.  Show slide 7. Show the learners the objects on the slide and ask ‘How would you group these objects?’ Give the learners time to think, pair, and share their ideas with the class.  Show slide 8. Tell the learners that the objects are grouped by colour. As we have seen before, ‘colour’ is an attribute. We can group objects using different attributes.  Show slide 9. Tell the learners that the same objects have been grouped by the number of wheels they have. As we have seen before, ‘number of wheels’ is an attribute. We can group objects using different attributes and we can group them in different ways. We might not always choose to group the objects using the same attribute as other learners.  **Note:** some learners may try to make their own ‘groups’, e.g. the left circle is ‘cars and buses and vans’. If they do this, explain that the attribute of a group can only be one thing, so they need to find what those cars, buses, and vans all share - like spotting patterns. |
| **Activity 1**  (Slides 10–11)  15 mins | **Creating a tally**  Show slide 10, and inform the learners that today they are going to be tallying some objects based on a common attribute: colour.  Colours available in the software include red, orange, pink, yellow, brown, green, purple, light blue, dark blue, black, and white. Tell the learners they need to choose from this selection for their tally chart.  Explain that the learners will be making a tally chart of the different colours of cars they see. Tell them to think carefully about the colours of the cars they see every day as they travel to school, to help them choose appropriate colours for their tally chart.  **Note:** If you are unable to tally cars driving past the school, in the car park, etc. you could use coloured objects in class such as cubes or counters to tally instead. Learners will need to choose appropriate colours for the objects being used.  Show slide 11, with the worksheet they will be completing in this activity. Tell the learners that they should colour in the circles of colour on the tally chart. Remind the learners that each of the colours needs to be different.  Show the learners the ‘other’ box at the bottom of the worksheet. Ask the learners ‘Why do you think I have added the ‘other’ option?’ Explain that they will choose four colours, and that any cars they see that are not one of their chosen colours will be marked in the ‘other’ box.  Allow the learners time to colour in and then complete their tally charts.  **Note:** You should consider the mathematical skills of your learners when deciding on the volume of the data you want them to collect. The more data they collect, the more challenging it will be to manipulate. |
| **Activity 2** (Slides 12–13)  10 mins | **Making my pictogram**  Show slide 12. Tell the learners they are going to create their pictograms using ‘J2Data’, as they have in previous lessons.  Show the learners the video on how to create their own pictogram in ‘J2Data’. This differs slightly from previous lessons, as the learners will need to add the colours to the boxes at the bottom, rather than using the standard images from ‘J2Data: Pictograms’.  Show slide 13, and allow the learners time to move their data from their tally charts to create a pictogram. |
| **Activity 3**  (Slide 14)  10 mins | **Answering questions**  Show slide 14. Tell the learners they will use their completed pictograms to answer questions based on their data.  Read through the questions with the learners and discuss any issues.   1. Which colour was seen the most? 2. Which colour was seen the least? 3. Were any colours seen more than 5 times? 4. Were any colours seen less than 10 times? 5. Were any colours seen 0 times?   Allow the learners time to answer the questions on the worksheet. |
| **Plenary**  (Slides 15–17)  5 mins | **Guess the attribute**  Tell the learners you have grouped some objects using particular attributes, and that you would like the learners to guess which attribute you have used.  Show slide 15. Ask the learners ‘Can you guess the attribute I chose to use?’ Allow the learners time to offer their ideas. Tell the learners that you grouped the objects using the attribute ‘colour’. Click to show the answer.  Show slide 16. Ask the learners ‘Can you guess the attribute I chose to use?’ Allow the learners time to offer their ideas. Tell the learners that you grouped the objects using the attribute ‘number of legs’. Click to show the answer.  Show slide 17. Ask the learners ‘Can you guess the attribute I chose to use?’ Allow the learners time to offer their ideas. Tell the learners that you grouped the objects using the attribute ‘hair colour’. Click to show the answer. |
| **Next time**  (Slides 18–19)  5 mins | Review the ‘Assessment’ and ‘Summary’ slides. |

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