# Creating Graphs in Excel

This planning document is intended to support teachers who are delivering the NPA/PDA Data Science or for students who are learning independently. It also aligns with the Data Skills for Work framework.

**The lesson has been designed for learners using Microsoft Excel.** Most of the information in the lesson will work for other spreadsheets tools. However, if another tool is being used by the learners (such as Google Sheets) the step-by-step instructions will need to be adjusted.

## Contents



## Version Control

| Version number | Purpose/Change | By | Date |
|---|---|---|---|
| 1.0 | Published by Effini | Emma Nylk | 12 April 2022 |
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## Lesson Description

| | |
|---|---|
| **Lesson Overview** | Creation of different simple graphics types in Excel:<br>bar chart, histogram, line graph, scatterplot |
| **Topic** | Visualisation and Storytelling |
| **Book Chapter(s)** | Interpreting data |

| | |
|---|---|
| **NPA level** | 4, 5, 6 |
| **PDA level** | 7, 8 |
| **Data skills for work level** | Core, Analysis |

## Lesson Contents

This lesson consists of:

- A lesson plan (this document)
- A PowerPoint/PDF presentation, 'Creating Graphs in Excel'
- Question worksheet (for learners) on 'Creating Graphs in Excel' in Excel
- Answers worksheet (for teachers) on 'Creating Graphs in Excel' in Excel/PDF

## Learning Intentions

We will be learning about creating graphs in Excel, specifically,

- how creating graphs fits into the analysis steps
- process of creating bar charts and histograms
- process of creating line graphs and scatterplots

## Success Criteria

I can *describe* how creating graphs is part of the analysis steps.

I can *create* bar charts in Excel.

I can *create* histograms in Excel.

I can *create* line graphs in Excel.

I can *create* scatterplots in Excel.

## Knowledge Prerequisites

Learners should know:

- what a dataset is
- data can be used to solve problems and find answers to questions
- that identifying patterns is part of the analysis steps

## Lesson Requirements

| | PDA | NPA | Data Skills for work |
|---|---|---|---|
| **Qualification** | Yes | Yes | Yes |
| **Outcome ID(s)** | CD7.3e, CD8.2h | DC4.3a, DC5.3c, DC6.3d | c2.1, a2.1, a2.2, a3.1, a3.2 |
| **Outcome description(s)** | CD7.3e Creating visualisations using software<br><br>CD8.2h Creating visualisations using software | DC4.3a Create visualisation to identify patterns and trends in the data<br><br>DC5.3c Create appropriate visualisations from data.<br><br>DC6.3d Create appropriate visualisations from data. | c2.1 Vocabulary used in data science and analytics<br><br>a2.1 Use of tools to analyse data<br><br>a2.2 Selecting suitable visualisations<br><br>a3.1 Visualisation of data to provide insight<br><br>a3.2 Visualisation of data to tell stories |
| **Level** | 7, 8 | 4, 5, 6 | Core, Analysis |
| **Software language** | Microsoft Excel | Microsoft Excel | Microsoft Excel |
| **Required equipment /software for student** | Lesson: PowerPoint/PDF,<br><br>Worksheet: Excel | Lesson: PowerPoint/PDF,<br><br>Worksheet: Excel | Lesson: PowerPoint/PDF,<br><br>Worksheet: Excel |

## Task-types

In the worksheet for this lesson, there are up to 6 task-types to that become increasingly challenging to support the students learning. Based on the student's previous knowledge it is possible to select the task-types that are relevant to their stage.

| Task-type | Description |
|---|---|
| **1. Recall** | To be able to recognise definitions or procedures. |
| **2. Define** | To be able to define definitions or procedures. |
| **3. Rephrase** | To be able to use their own words to describe definitions or procedures. |
| **4. Apply** | To be able to apply definitions or procedures to problem-solving activities. |
| **5. Create** | To be able to apply definitions or procedures and create their own solutions to a defined problem. |
| **6. Active** | Using knowledge from the lesson which they apply to scenarios they have researched/designed themselves. |

## Worksheet

The worksheet associated with this lesson is available either in Excel or as a PDF that can be printed. The answer worksheet is available in both formats too.

| Worksheet section ID | Description | Task-type | Number of questions |
|---|---|---|---|
| 1.1 | Bar charts | Recall | 2 |
| 1.2 | Bar charts | Apply | 5 |
| 1.3 | Bar charts | Active | 1 |
| 2.1 | Histograms | Recall | 1 |
| 2.2 | Histograms | Apply | 3 |
| 2.3 | Histograms | Active | 1 |
| 3.1 | Line graphs | Recall | 1 |
| 3.2 | Line graphs | Apply | 3 |
| 3.3 | Line graphs | Active | 1 |
| 4.1 | Scatterplots | Recall | 1 |
| 4.2 | Scatterplots | Apply | 3 |
| 4.3 | Scatterplots | Active | 1 |
| **Total** | | | **23** |

## How you can use this lesson

This lesson has been created by Effini in partnership with Data Education in Schools, The Data Lab and Data Skills for Work, with funding from the Scottish Government.






## Alternative format

**If you require this document in an alternative format, such as large print or a coloured background, please contact**

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