Manipulating dataset columns 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 checked.

Contents

Lesson Description

Lesson Overview	Selecting columns Reordering columns Reformatting columns
Topic	Data manipulation
Book Chapter(s)	Data transformation and Manipulation

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 presentation, 'Manipulating datasets columns in Excel'
- Question worksheet on 'Manipulating datasets columns in Excel' in Excel
- Answers worksheet on 'Manipulating datasets columns in Excel' in Excel

Learning Intention

We will be learning how to manipulate data in Excel, specifically,

- to be able to **select** columns

- to be able to **reorder** columns

- to be able to **reformat** columns

Success Criteria

I can *describe* what is means to select, reorder and reformat columns in a data frame.

I can *manipulate* data by selecting, reordering and reformatting columns in Excel.

Knowledge Prerequisites

Learners should know:

- How to open/save an Excel file

- That Excel documents have worksheets and use rows/columns

- To be able to enter data into cells

- To be able to select/highlight sections of data

- Headers on worksheet (e.g., A, B, C, D, and rows 1,2,3,4)

- Excel has ribbons at the top for Home, Data, Formulas etc

- To be able to right-click on cells to see options

Lesson Requirements

	PDA	**NPA**	**Data Skills for work**
Qualification	Yes	Yes	Yes
Outcome ID(s)	WD8.3b, WD8.3c, CD8.1g, WD7.2a, WD7.2b, CD7.3a	DS4.2c, DS4.3a, DS5.2c, DS5.3c, DS6.2b, DS6.3c	C2.1, A1.2, A2.3
Outcome description(s)	WD8.3b Types of data transformation

WD8.3c Transformations

CD8.1g Preparing data for visualisation

WD7.2a Types of data transformation

WD7.2b Common transformations including filtering, sorting

CD7.3a Preparing data for visualisation

N.B. out of scope of this lesson,

"WD8.3c … including joins"

"WD7.2b …. combining, separating, and grouping" | DS4.2c Describe simple methods of cleaning and transforming data

DS4.3a Perform simple data cleaning and structuring

DS5.2c Describe methods of cleaning and transforming data

DS5.3c Perform routine data cleaning and structuring.

DS6.2b Explain techniques for data capture, cleaning and transformation including data modelling

DS6.3c Perform data transformation to complete, correct and structure data | C2.1 Vocabulary used in data science and analytics

A1.2 Data quality

A2.3 Data calculation and manipulation

N.B. out of scope of this lesson "A1.1…. quantitative and qualitative" |
| **Level** | 7, 8 | 4, 5, 6 | Core, Analysis |
| **Software language** | Excel | Excel | Excel |
| **Required equipment /software for student** | Lesson: PowerPoint,

Worksheet: Excel | Lesson: PowerPoint,

Worksheet: Excel | Lesson: PowerPoint,

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.

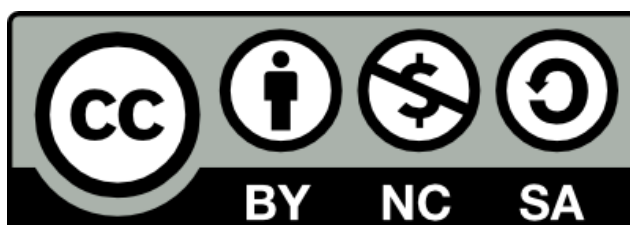| Task-type	Description
1. Recall	To be able to recognise definitions or procedures.
2. Define	To be able to define definitions or procedures.
3. Rephrase	To be able to use their own words to describe definitions or procedures.
4. Apply	To be able to apply definitions or procedures to problem-solving 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	Selecting data	Recall	1
1.2	Selecting data	Rephase	1
1.3	Selecting data	Apply	5
1.4	Selecting data	Active	1
2.1	Reordering data	Recall	1
2.2	Reordering data	Rephase	1
2.3	Reordering data	Apply	5
2.4	Reordering data	Active	1
3.1	Reformatting data	Recall	1
3.2	Reformatting data	Rephase	1
3.3	Reformatting data	Apply	4
Total			**22**

How you can use this lesson