Practise reshaping datasets 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 on a Windows based machine.

This lesson uses Power Query to reshape datasets. Power Query is currently only supported on Microsoft Excel when it is run on a Windows based machine.

For more information on the Power Query and non-Windows machines, please see Microsoft tech support (*https://techcommunity.microsoft.com/t5/excel-blog/get-amp-transform-power-query-in-excel-for-mac-phase-1/ba-p/87684*)

Contents

Lesson Description

Lesson Overview	Practise switching between wide and long datasets
Topic	Data manipulation
Book Chapter(s)	Data transformation and Manipulation

NPA level	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, 'Practise reshaping datasets in Excel'
- Question worksheet (for learners) on 'Practise reshaping datasets in Excel' in Excel
- Answers worksheet (for teachers) on 'Practise reshaping datasets in Excel' in Excel

Learning Intentions

We will be learning to reshape data in Excel, specifically to,

- how to **manually reshape** data from wide to long and visa versa
- how to use **Power Query Editor in Excel to reshape** data

Success Criteria

I can *manually reshape* data from long to wide in Excel

I can *use* Power Query Editor in Excel to reshape data in Excel.

Knowledge Prerequisites

Learners should complete the '**Reshaping datasets**' lesson before starting this lesson.

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 and how 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
- How to sort data in Excel

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	DS5.3c, DS6.2b, DS6.3c	C2.1, A1.2, A1.3, A2.1, 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 […] CD7.3a Preparing data for visualisation N.B. out of scope of this lesson, *"WD7.2b …filtering, sorting, combining, separating and grouping"* *"WD8.3c … including joins"*	DS5.3c Perform routine data cleaning and structuring. DS6.2b Explain techniques for data capture, cleaning and transformation DS6.3c Perform data transformation to complete, correct and structure data.	C2.1 Vocabulary used in data science and analytics A1.2 Data quality A1.3 Interpretation and insight A2.1 Use of tools to analyse data A2.3 Data calculation and manipulation
Level	7, 8	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	Manually reshape from long to wide	Recall	2
1.2	Manually reshape from long to wide	Apply	5
1.3	Manually reshape from long to wide	Active	3
2.1	Power Query to reshape from long to wide	Apply	7
3.1	Reshape from wide to long	Recall	2
3.2	Reshape from wide to long	Apply	5
3.3	More grouping	Active	1
Total			**25**

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.