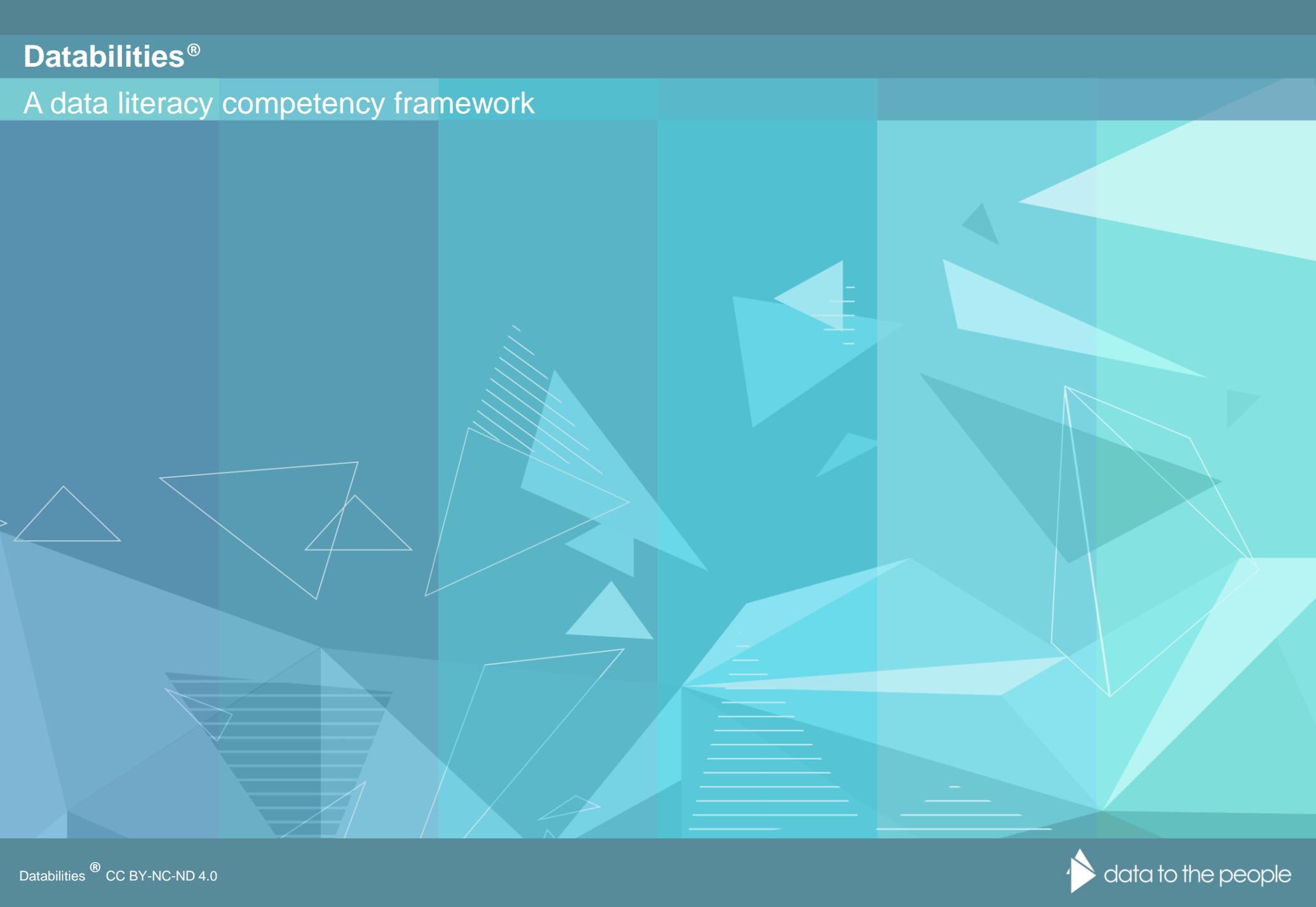


Databilities®

A data literacy competency framework



# Introduction

## Introducing Databilities®

Databilities® is data literacy competency framework, developed as a tool to measure and develop core data literacy skills and competencies.

## What is data literacy?

Data literacy is our ability to **read**, **write** and **comprehend** data, just as literacy is our ability to read, write and comprehend our native language.

## Using Databilities®

Within the three branches of data literacy; **reading**, **writing** and **comprehension**, there are a number of competencies.

Databilities® defines six levels of progression for each of these competencies; an overview of each of the levels is provided on the following page.

Databilities® provides detailed progression statements for each of the competencies, with an emphasis on highlighting additional skills and expertise acquired at each level.

## Competencies and Progressions Defined by Databilities®

### Reading

- Data Discovery
- Evaluating and Ensuring Quality of Data

### Writing

- Data Collection
- Data Management and Organisation
- Data Manipulation
- Data Curation and Reuse
- Metadata Creation and Use
- Data Conversion (Format to Format)

### Comprehension

- Data Analysis
- Data Interpretation (Understanding Data)
- Identifying Problems Using Data
- Data Visualisation
- Presenting Data (Verbally)
- Data Driven Decision Making
- Evaluating Decisions / Conclusions Based on Data

# Overview of Levels

## Level 1

At this level of competency, an individual can complete **simple tasks with instruction.**

Activities to support this level of competency should focus on **remembering.**

## Level 2

At this level of competency, an individual can complete **simple tasks on their own, with guidance where needed.**

Activities to support this level of competency should focus on **remembering.**

## Level 3

At this level of competency, an individual can complete **well defined tasks on their own.**

Activities to support this level of competency should focus on **understanding.**

## Level 4

At this level of competency, an individual can complete **well defined problems and tasks on their own.**

Activities to support this level of competency should focus on **understanding.**

## Level 5

At this level of competency, an individual can **assist others** to complete **simple tasks and problems.**

Activities to support this level of competency should focus on **applying skills.**

## Level 6

At this level of competency, an individual can **teach and assist** others to complete **complex problems and tasks.**

Activities to support this level of competency should focus on **applying skills.**

## Level 1

*With guidance*, I can **open** and use datasets **provided to me**.

## Level 2

I can **open** and **use** datasets **provided to me**.

I can **browse** and **access** various datasets **provided to me**.

## Level 3

I can **identify** and **access** data I need from a range of sources **provided to me**.

I can **browse** and **access** data from a range of locations.

I can **identify** useful data from a variety of sources **provided to me**.

## Level 4

I can **identify**, **locate** and **access** data I need from a variety of sources.

I can **search** multiple sources to **locate** data related to my needs.

I can **locate** and **identify** data from a variety of sources to meet my needs.

## Level 5

I can **assist others** to **identify** and **access** data they need from a range of provided sources.

I can **assist others** to **search** a range of provided sources to **locate** data related to their needs.

I can **assist others** to **locate** and **identify** data from a variety of provided sources to meet their needs.

## Level 6

I can **teach** and **assist others** to **identify**, **locate** and **access** data they need from a variety of sources.

I can **teach** and **assist others** to **search** multiple sources to **locate** data related to their needs.

I can **teach** and **assist others** to **locate** and **identify** data from a variety of sources to meet their needs.

# Evaluating and Ensuring Quality of Data

# Reading

## Level 1

## Level 2

## Level 3

## Level 4

## Level 5

## Level 6

*With guidance*, I can **identify** whether data **provided to me** is trustworthy.

I can **identify** whether data **provided to me** is trustworthy.

I can **identify** whether data I use is trustworthy.

I can **identify** whether data I use is trustworthy and **locate** alternate sources if required.

I can **assist others** to **identify** whether data they use is trustworthy.

I can **teach** and **assist others** to **identify** whether data is trustworthy and **locate** alternate sources if required.

*With guidance*, I can **determine** whether data **provided to me** contains any errors or problems.

I can **determine** whether data **provided to me** contains any errors or problems.

I can **determine** whether data contains any errors or problems.

I can **identify** and take actions to **correct** any errors or problems in a range of data sources.

I can **assist others** to **identify** any errors or problems in a range of data sources.

I can **teach** and **assist others** to **identify** and take actions to **correct** any errors or problems in a range of data sources.

## Data Collection

## Writing

### Level 1

### Level 2

### Level 3

### Level 4

### Level 5

### Level 6

*With guidance*, I can **collect** simple data in a format **provided to me**.

I can **collect** simple data in a format **provided to me**.

I can **collect** data in simple and more complex forms.

I can **collect** data in a variety of forms to support my needs.

I can **assist others** to **collect** data in simple form to support their needs.

I can **teach** and **assist others** to **collect** data in a variety of forms to support their needs.

## Data Management and Organisation

### Level 1

### Level 2

### Level 3

### Level 4

### Level 5

### Level 6

*With guidance*, I can **navigate** structured organisation systems (including folders, directories and file naming) to **find** data I need.

I can **navigate** structured organisation systems (such as folders, directories and file naming) to **find** data I need.

I can **navigate** internal to **find** data I need.

I can **navigate** internal and external systems and collections to **locate** and **access** data related to my needs.

I can **assist others** to **navigate** internal systems and collections to **locate** and **access** data related to their needs.

I can **teach** and **assist others** to **navigate** internal and external systems and collections to **locate** and **access** data related to their needs.

*With guidance*, I can **organise** and **store** my own data in existing organisational structures.

I can **organise** and **store** my own data in existing organisational structures.

I can **organise** and **store** data in internal systems.

I can **organise** and **store** data in internal and external systems.

I can **assist others** to **organise** and **store** data in internal systems.

I can **teach** and **assist others** to **organise** and **store** data in internal and external systems.

# Data Manipulation

# Writing

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

*With guidance*, I can **determine** if my data is 'clean' using frameworks **provided to me**.

I can **determine** if my data is 'clean' using frameworks **provided to me**.

I can **assess** and **determine** if my data is 'clean'.

I can **determine** if my data is 'clean' and take necessary actions to **resolve** any problems identified.

I can **assist others** to **determine** if their data is 'clean'.

I can **teach** and **assist others** to **determine** if their data is 'clean' and take necessary actions to **resolve** any problems identified.

*With guidance*, I can **clean** my data using a method **provided to me**.

I can **clean** my data using a method **provided to me**.

I can **determine** the best method and **use** relevant tools to **clean** my data.

I can **use** a range of methods and tools to **clean** my data.

I can **assist others** to **determine** the best method and use relevant tools to clean their data.

I can **teach** and **assist others** to **use** a range of methods and tools to **clean** their data.

# Data Curation and Reuse

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

I can **prepare** and make my data available to **share** with others.

I can **assist others** to **use** data sources I have prepared and shared.

I can **teach** and **assist others** to **use** data sources I have prepared and shared.

## Metadata Creation and Use

## Writing

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

I can **create** metadata to **enrich** data sources I prepare and share.

I can **teach** and **assist others** to **understand** metadata associated with data sources I have prepared.

## Data Conversion (Format to Format)

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

I can **convert** data sources to a different format as required.

I can **teach** and **assist others** to **use** data in a variety of formats I have prepared.

## Level 1

## Level 2

## Level 3

## Level 4

## Level 5

## Level 6

*With guidance*, I can **describe** the analysis I need to perform.

I can **develop** a plan for the analysis I need to perform using frameworks **provided to me**.

I can **develop** a simple plan for my analysis.

I can **develop** a plan for analysis to better **understand** a range of problems.

I can **assist others** **develop** a plan for analysis.

I can **teach** and **assist others** **develop** a plan for analysis to better **understand** a range of problems.

*With guidance*, I can **use** simple tools **provided to me** to **undertake** analysis.

I can **use** simple tools **provided to me** to **undertake** analysis.

I can **select** and **use** most appropriate tool for my analysis needs.

I can **research**, **select** and **use** the most appropriate tool for my analysis needs.

I can **assist others** to **select** and **use** the most appropriate tool to undertake their analysis.

I can **teach** and **assist others** to **select** and **use** a range of tools to undertake their analysis.

*With guidance*, I can **ask** and **answer** basic questions with data **provided to me**.

I can **ask** and **answer** basic questions with data **provided to me**.

I can **ask** and **answer** a range of questions with data **provided to me**.

I can **ask** and **answer** a range of questions using a variety of data sources.

I can **assist others** to **ask** and **answer** basic questions using a variety of data sources.

I can **teach** and **assist others** to **ask** and **answer** a range of questions using a variety of data sources.

# Data Interpretation (Understanding Data)

# Comprehension

## Level 1

## Level 2

## Level 3

## Level 4

## Level 5

## Level 6

**With guidance**, I can **read and understand** simple tables, charts and graphs **provided to me**.

I can **read and understand** simple tables, charts and graphs **provided to me**.

I can **read and understand** tables, charts and graphs.

I can **read and understand** a range of tables, charts and graphs.

I can **assist others to read and understand** a range of provided tables, charts and graphs.

I can **teach and assist others to read and understand** a range of tables, charts and graphs.

**With guidance**, I can **find** key points of interest in data **provided to me**.

I can **find** key points of interest in data **provided to me**.

I can **find** key points of interest in a variety of data.

I can **identify** points of interest and connections between a range of data sources.

I can **assist others to identify** points of interest in provided data sources.

I can **teach and assist others to identify** points of interest and connections within a range of data sources.

**With guidance**, I can **use** visual methods and tools to **understand and explore** data **provided to me**.

I can **use** visual methods and tools to **understand and explore** data **provided to me**.

I can **use** visual methods and tools to **understand and explore** data.

I can **use** visual methods and tools to **understand and explore** a range of data sources.

I can **assist others to use** visual methods and tools to **understand and explore** data.

I can **teach and assist others to use** visual methods and tools to **explore** a range of data sources.

# Identifying Problems Using Data

# Comprehension

## Level 1

## Level 2

## Level 3

## Level 4

## Level 5

## Level 6

*With guidance*, I can **identify** issues and problems in practical situations using data **provided to me**.

I can **identify** issues and problems in practical situations using data **provided to me**.

I can **identify** and **describe** problems in practical situations using data **provided to me**.

I can **identify** and **describe** problems in practical situations using a range of data sources.

I can **assist others** to **identify** problems in practical situations using provided data sources.

I can **teach** and **assist others** to **identify** and **describe** problems in practical situations using a range of data sources.

# Data Visualisation

## Level 1

## Level 2

## Level 3

## Level 4

## Level 5

## Level 6

*With guidance*, I can **use** templates to **create** simple tables and charts to **visually present** data **provided to me**.

I can **use** templates to **create** meaningful tables and charts to **visually present** data **provided to me**.

I can **create** meaningful tables and charts to **visually present** simple datasets.

I can **create** meaningful tables and charts to **visually present** a range of data sources.

I can **assist others** to **create** meaningful tables and charts to **visually present** simple data sources.

I can **teach** and **assist others** to **create** meaningful tables and charts to **visually present** a range of data sources.

## Presenting Data (Verbally)

## Comprehension

### Level 1

### Level 2

### Level 3

### Level 4

### Level 5

### Level 6

**With guidance**, I can **verbally describe** key points of interest in data **provided to me**.

I can **verbally describe** key points of interest in data **provided to me**.

I can **verbally describe** simple datasets and data visualisations.

I can **verbally describe** a range of data sources and data visualisations.

I can **assist others** to **verbally describe** provided data sources and data visualisations.

I can **teach** and **assist others** to **verbally describe** a range of data sources and data visualisations.

## Data Driven Decision Making

### Level 1

### Level 2

### Level 3

### Level 4

### Level 5

### Level 6

**With guidance**, I can **use** data **provided to me** to **support** my decision-making process.

I can **use** data **provided to me** to **inform** my decision-making process.

I can **use** data to **inform** my decision-making process.

I can **use** data to **analyse** and **inform** my decision-making process.

I can **assist others** to **use** provided data sources to **analyse** and **inform** their decision-making process.

I can **teach** and **assist others** to **use** data to analyse and **inform** their decision-making process.

I can **identify** key actions to take based on data **provided to me**.

I can **identify** key actions to take based on various data sources.

I can **use** a range of data sources to **prepare** and **communicate** actionable information.

I can **assist others** to **use** provided data sources to **prepare** and **communicate** actionable information.

I can **teach** and **assist others** to **use** a range of data sources to **prepare** and **communicate** actionable information.

# Evaluating Decisions and Conclusions Based on Data

# Comprehension

Level 1

Level 2

Level 3

Level 4

Level 5

Level 6

I can **use** a range of data sources to **evaluate** a variety of decisions / actions taken.

I can **assist others** to **use** provided data sources to **evaluate** a variety of decisions / actions taken.

I can **teach** and **assist others** to **use** a range of data sources to **evaluate** a variety of decisions / actions taken.

# License and Acknowledgements

## **License**

Databilities® is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

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C. Ridsdale, J. Rothwell, M. Smit, H. A. Hassan, M. Bliemel, D. Irvine, D. Kelly, S. Matwin, and B. Wuetherick, “Strategies and Best Practices for Data Literacy Education: Knowledge Synthesis Report,” Dalhousie University 2015