# Data Information Literacy (DIL) Skills

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<th>DIL Skill</th>
<th>Examples of this Skill</th>
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| **Cultures of Practice** | - Recognizes the practices, values, and norms of his/her chosen field, discipline, or sub-discipline as they relate to managing, sharing, curating, and preserving data.  
- Recognizes relevant data standards of his/her field (metadata, quality, formatting, etc.) and understands how these standards are applied |
| **Data Conversion and Interoperability** | - Is proficient in migrating data from one format to another.  
- Understands the risks and potential loss or corruption of information caused by changing data formats.  
- Understands the benefits of making data available in standard formats to facilitate downstream use. |
| **Data Curation and Re-use** | - Recognizes that data may have value beyond the original purpose, to validate research, or for use by others.  
- Is able to distinguish which elements of a data set are likely to have future value for self and for others.  
- Understands that curating data is a complex, often costly endeavor that is nonetheless vital to community-driven e-research.  
- Recognizes that data must be prepared for its eventual curation at its creation and throughout its lifecycle.  
- Articulates the planning and activities needed to enable data curation, both generally and within his/her local practice.  
- Understands how to cite data as well as how to make his/her data citable. |
| **Data Management and Organization** | - Understands the lifecycle of data, develops data management plans, and keeps track of the relation of subsets or processed data to the original data sets.  
- Creates standard operating procedures for data management and documentation. |
| **Data Preservation** | - Recognizes the benefits and costs of data preservation.  
- Understands the technology, resources, and organizational components of preserving data.  
- Utilizes best practices in preparing data for its eventual preservation during its active lifecycle.  
- Articulates the potential long term value of his/her data for him/herself or others and is able to determine an appropriate preservation timeframe.  
- Understands the need to develop preservation policies and is able to identify the core elements of such policies. |
| **Data Processing and Analysis** | - Is familiar with the basic data processing and analysis tools and techniques of the discipline or research area. |

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| **Data Quality and Documentation** | - Recognizes, documents and resolves any apparent artifacts, incompleteness, or corruption of data.  
- Utilizes metadata to facilitate an understanding of potential problems with data sets.  
- Documents data sufficiently to enable reproduction of research results and data by others.  
- Tracks data provenance and clearly delineates and denotes versions of a data set. |
| **Data Visualization and Representation** | - Proficiently uses basic visualization tools of discipline.  
- Avoids misleading or ambiguous representations when presenting data in tables, charts, diagrams, etc.  
- Chooses the appropriate type of visualization, such as maps, graphs, animations, or videos, based on their understanding of the reason/purpose for visualizing or displaying data. |
| **Databases and Data Formats**     | - Understands the concept of relational databases and how to query those databases.  
- Becomes familiar with standard data formats and types for their discipline.  
- Understands which formats and data types are appropriate for different research questions. |
| **Discovery and Acquisition**     | - Locates and utilizes disciplinary data repositories.  
- Evaluates the quality of the data available from external sources.  
- Not only identifies appropriate external data sources, but also imports data and converts it when necessary, so it can be used locally. |
| **Metadata and Data Description**  | - Understands the rationale for metadata and proficiently annotates and describes data so it can be understood and used by self and others.  
- Develops the ability to read and interpret metadata from external disciplinary sources.  
- Understands the structure and purpose of ontologies in facilitating better sharing of data. |
| **Ethics, including citation of data** | - Develops an understanding of intellectual property, privacy and confidentiality issues, and the ethos of the discipline when it comes to sharing and administering data.  
- Acknowledges data from external sources appropriately.  
- Avoids misleading or ambiguous representations when presenting data. |