Essential Skills for Data Analysis: Storage

Grade	Standards DA.S.01	Essential Skills
K	Identify that information from our everyday lives can be stored and accessed via **computing devices**.	Identify information that can be stored on a **computing device**. Identify the information that cannot be stored in a computing device.
1	Identify, access, modify, and save an existing file with a computing device.	Use and store files on a computing device. Find information in a file on a computing device (may be an image, text, etc.)
2	Create, copy, manipulate, and delete a file on a computing device. Identify the information stored as **data.**	Create, copy, revise and delete files on a computing device. Identify various types of information stored on a computer as **data**.
3	Recognize that different types of information are stored in different formats that have varying characteristics, which could include associated **programs** and storage requirements.	Provide examples of different file types (text, image, video, audio). Identify characteristics of common file types and how to determine those characteristics (for example an image can have.jpg or .png at the end of its name).
4	Store information in various formats for specific purposes (e.g., file type, file size, file compression).	Determine how to store information for a specific purpose (for example: save an image differently for printing than for display on a website)
5	Convert different types of information into various formats to be used across multiple **software**/**hardware**.	Identify the file format that various software and hardware are capable of storing and opening (for example a spreadsheet stored on a laptop can be opened by Excel or Google Sheets). Convert a file from a format appropriate for one device to a format appropriate for another device based on the intended software and/or hardware.

Skills for Standard: DA.S.01 Grades K-5

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Essential Skills Data Analysis: Collection, Visualization, & Transformation

Grade	Standards DA.CVT.01	Essential Skills
K	With guidance, collect **data** on a basic topic (e.g., weather, temperature) and present it visually.	Collect **data** on a familiar topic. Display data.
1	With guidance, collect and organize data. Present data effectively in two different ways	Collect and organize data from a survey or from observations. Display data in two or more ways.
2	With guidance, collect, organize, and present the same data in a variety of visual ways (e.g., bar graph, pie chart, table, etc.)	Collect and organize data (from an experiment, website, data set, survey, etc.) and display it in three or more ways.
3	Collect, organize, and present the same **data** in a variety of visual formats (e.g., charts, graphs, tables, etc.).	Determine how **data** should be collected and organized so it can be presented in at least three different displays.
4	Organize and present collected data in a variety of visual formats to emphasize particular aspects or parts of the data set to make interpretation easier.	Distinguish among different ways of **visualizing** the same data by describing what information is given in each visualization. Analyze different displays of the same data to determine which visualization is most effective to display information and/or support a claim.
5	Interpret and communicate data in a variety of visual formats to highlight the relationships among the data to support a claim.	Interpret data to make a claim. Justify the choice of a visual representation or format of the data to support a claim most effectively or communicate an interpretation.

Skills for Standard: DA.CVT.01 Grades K-5

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Essential Skills for Data Analysis: Inference and Models

Grade	Standards DA.IM.01	Essential Skills
K	With guidance, draw conclusions and make predictions based on picture graphs or patterns (e.g., make predictions based on weather **data** presented in a picture graph, complete a pattern) with or without a **computing device**.	Identify patterns and trends in picture graphs Make predictions, comparisons, and/or draw conclusions from information in picture graphs or patterns.
1	With guidance, identify, interpret, and analyze data from a chart or graphical display (**visualization**) in order to make a prediction, with or without a computing device	Identify what kind of **data** is contained in a data display. Make a prediction, a comparison or draw a conclusion from a data display
2	With guidance, collect, organize, present, and analyze data from a chart or graphical display (visualization) in order to make a prediction, with or without a computing device	Collect, record, and organize data. Present a data display and draw a conclusion or make a prediction.
3	Utilize data to make predictions and discuss whether there are sufficient data to make these predictions and **extrapolations**.	Examine data collected and discuss the reliability of predictions and/or conclusions given that quantity of data.
4	Discuss the potential accuracy of conclusions and predictions based on the adequacy of the data set (number of data).	Identify features that increase the reliability of a data set such as sample size relative to total number, composition of sample relative to composition of whole group, etc. Assess how reliable a prediction is based on the features of the data set.
5	Refer to data sets to highlight or propose cause-and-effect relationships, predict outcomes, or communicate ideas.	Use data to justify how you answer a question, detect a pattern, or infer causation, correlation or draw a conclusion.

Skills for Standard: DA.IM.01 Grades K-5

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