Data Analysis: Inference and Models   Grade: 2

Standard 2.DA.IM.01

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**.

Essential Skills

Collect, record, and organize **data**.

Present a data display and draw a conclusion or make a prediction.

Essential Questions

What information can you learn from a **data** display?

What conclusions and/or predictions can you make from a data display?

Why would you use data when looking for patterns, making predictions, or drawing conclusions?

Explanation

Students will be able to determine what **data** is being displayed in a given **visualization** and use displays of data to draw conclusions, make predictions and identify patterns. For example, students will record the temperature each day to determine that through the spring months the overall temperature increases (even if sometimes a day is cooler than the day before). Using data instead of casual observations provides objective information to draw conclusions, discern patterns, and make predictions.

Think of this as similar to….

When you look at a photograph you can gather information such as place, time of day, etc.

Implementation Examples—What would this look like in the classroom?

Title	Description	Link	Content Connection & Notes
Weather Predictions	**Grade K**- Using picture graphs of the weather (sunny, cloudy, rain, snow) recorded each day, students identify the trends and patterns from data itself (it rained on Friday 3 weeks in a row) and from data displayed cumulatively (it rained more in April than in May). **Grade 1**--Students collect temperature data as well as weather data and use it to predict what the temperatures will be the following week. They should distinguish between the numerical data of temperature and the categorical data of the weather (sunny, cloudy, etc.) **Grade 2**- Students collect and record temperature data at the beginning and end of the school day. They choose method(s) to organize and display their data. Once there is sufficient data, they can analyze displays of the temperatures, identify the patterns of when temperatures rise and fall, and predict if they think the temperature will rise or fall at a particular time of the day, based on the pattern observed. They can also look for patterns that relate temperature to weather (is it usually warmer when it is cloudy or sunny? does the season or time of day affect the pattern?)		This lesson also aligns with **CS** DA.CVT.01, **NGSS** K-ESS2-1 and **MATH** K.CC.B.4a and K.CC.B.5
Cookie Stacking	**Grade 2**- Students estimate how many objects (cookies, checkers, etc.) they can stack and then perform two trials to stack objects as high as they can. They record their results using tally marks and then graph their results. Students should compare the results of their first and second trials to their original estimate and to each other. They should use their data to make a prediction about how many objects they could stack in future trials. Using the data from the whole class will allow for additional analysis (and discussion of the advantages of more data).	Cookie Stacking	This lesson also aligns with **CS** 2.DA.CVT.01 and **MATH** 2.MD.10
Picturing Data	**Grade 2**- Students run a supplied program in Code.org's Play Lab. The program generates a random number of animals each time it is run. Students tally the number of animals on a printed worksheet. Students count the animals and display their data using tally marks, they then use the data to create a bar graph and a pie chart. Students are asked to compare the numbers of different animals and determine which appeared the least and the most.	Picturing Data	This lesson also aligns with **CS** 2.DA.CVT.01 and **MATH** 2.MD.10. The puzzle can be linked directly.

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These annotations are a collaboration between Maryland Center for Computing Education and the Maryland State Department of Education.