ORGANIZING DATA

- Organizing data refers to collecting, organizing, and interpreting data.

- Data is usually mathematical information in a set of numbers. If collecting data about the ages of people living on one street, the data is all the ages.

- The data can then be organized into groups, and evaluated. **Mean**, **mode**, **median** and **range** are different ways to evaluate data.
  - The **mean** is the average of the data.
  - The **mode** refers to the number that occurs the most often in the data.
  - The **median** is the middle number when the data is arranged in order from lowest to highest.
  - The **range** is the difference in numbers when the lowest number is subtracted from the highest number.

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How to use Organizing Data:

- If there is a list of data given, the **mean** or average of the data can be found by adding the numbers together and dividing by the total number of data.

- Given the data below of ages, the mean can be found as follows:

Ex. 23, 35, 22, 45, 40, 22, 16, 33, 41 Added together = **277**

277 ÷ 9 = a mean of 30.777 or 30.8

- If the **mean** is given, but one of the numbers of the data is missing, the missing number can be found.

Example:

Sue wants to have a 90 average in math. Her tests scores are 85, 92, 87, and 95. She has to take one more test. What should her score be to have a 90 average?

Since Sue wants a 90 average, the total she would need is 5 · 90 or 450. So far, she has an 85, 90, 87, and 95 for a total of 357. She would need 450 - 357, or a 93 on her next test to receive a 90 average.

- The **median** of a set of data is the middle number. Given the data below of ages, the median can be found as follows:

  The data 23, 35, 22, 45, 40, 22, 16, 33, 41 is first organized from low to high to become 16, 22, 22, 23, 33, 35, 40, 41, 45.

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  - It is possible for a set of data to have more than one mode. If a list of data has numbers that occur multiple times, then the numbers that occur the most are the mode. If all the numbers occur one time, the set of data has no mode.

- The **range** of the data: 16, 22, 22, 23, 33, 35, 40, 41, 45, is the highest number, 45, minus the lowest number, 16, which equals 29.

- Tables display data so it is easy to read. A **frequency table** is used to display intervals or categories, and how many times that interval or category is picked.
    - For example, if 25 students were asked what their favorite number was out of the numbers 1-6, a frequency table would display the numbers 1-6 and each number would have tally marks to show how many times that number was picked as shown below.

Favorite numbers	Frequency
1	||||
2	𝍸
3	𝍸 |
4	|||

Try This

Find the **m** data:

2, 5, 10, 2, 6, 7, 14, 6, 2, 8, 11, 9, 3

Make a **frequency table** to record the following data:

- sharks- 8
- sea turtles- 4
- angel fish- 15
- dolphins- 2