Problem Solving with Length, Money and Data

This module presents an opportunity for students to practice addition and subtraction strategies within 100. They also use problem-solving skills as they learn to work with various types of units within the contexts of length, money and data. Students will represent categorical and measurement data using picture graphs, bar graphs and line plots.

Grade Level Standards
2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4, 2.MD.5, 2.MD.6, 2.MD.8, 2.MD.9, 2.MD.10

Student Report Card
Understands measurements of data, length, time and money.

Key Vocabulary

- **Bar Graph:** Diagram showing data using lines or rectangles of equal width
- **Data:** Facts assembled for analysis or information
- **Degree:** Unit of temperature measure
- **Foot:** ft., unit of length measure, equal to 12 inches
- **Inch:** in., unit of length measure
- **Legend:** Notation on a graph explaining what symbols represent
- **Line Plot:** Graph representing data with an X above each instance of value on a number line
- **Picture graph:** Representation of data like a bar graph, using pictures instead of bars
- **Scale:** System of ordered marks at fixed intervals used as a reference standard in measurement.
- **Table:** Representation of data using rows and columns
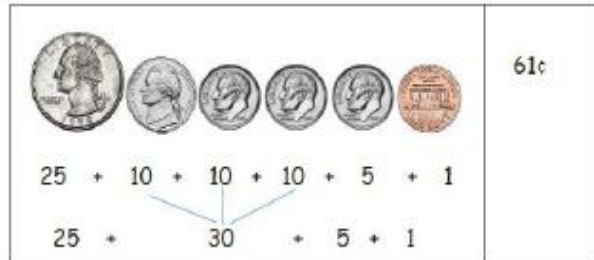- **Yard:** yd., unit of measure equal to 36 inches or 3 feet

How you can help at home:

- Ask your student to count the coins received in change when shopping or to count a handful of coins at home.
- Once students have learned a few ways of representing data, find something around the house you can make a line or bar graph about, e.g., types of stuffed animals, colors of LEGO pieces, etc.

Models and Representations

Students identify the value of coins or bills and use addition strategies to find the sum or value of the money.

$$25 + 10 + 10 + 10 + 5 + 1$$

$$25 + 30 + 5 + 1$$

61¢

Students use the <u>counting on</u> strategy to give change.

$$85 + \underline{} = 100$$

$$85 \xrightarrow{+5} 90 \xrightarrow{+10} 100$$

I spent 85 cents and I paid with a dollar bill. What is my change?

Students find ways to show the same amount of money with the fewest coins.
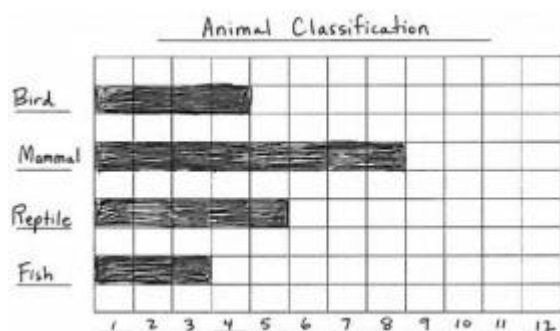
1. 26 cents

2 dimes, 1 nickel, and 1 penny = 26 cents

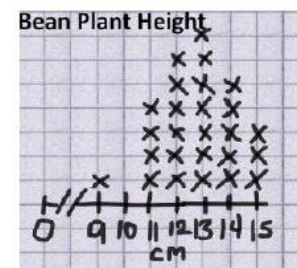Another way to make 26 cents:
Fewest coins

1 quarter and 1 penny

Students will draw and label bar graph to represent data. They will relate the scale of the graph to a number line.

Animal Classification

Bird
Mammal
Reptile
Fish

1 2 3 4 5 6 7 8 9 10 11 12

Students will infer and draw conclusions from data. They will also discover that a table is useful for organizing data, while a line plot allows for visual comparisons of the data.

Height of Bean Plant (cm)	Number of Students
9 cm	1
11 cm	4
12 cm	6
13 cm	7
14 cm	5
15 cm	3

Bean Plant Height

0 9 10 11 12 13 14 15
cm

Table   Line Plot