



San Diego Unified School District

Instructional Module to Enhance the Teaching of

HARCOURT

Math

California Edition

Grade 4

Module 1 - Revised

Chapters 5 – 6

Data and Graphing

2 Weeks of Instruction

- WORK IN PROGRESS -

Revised 8/03

MODULE 1 – DATA AND GRAPHING

Modules represent individual units of study that lead to the essential learnings

THREADS THROUGHOUT THE YEAR:

The threads represent ongoing learning opportunities in which students should be actively engaged throughout all units of inquiry during the entire school year. These items should not be isolated to any one particular unit of inquiry.

Students will:

- Develop understanding of numbers and the number system and use their understanding to solve problems and recognize reasonable results.
- Develop understanding of and fluency in basic computation and procedural skills.
- Use mathematical reasoning to solve problems.
- Communicate their mathematical thinking by using words, numbers, symbols, graphs and charts and translate between different representations.
- Use equations and variables to express generalizations of patterns and relationships.
- Develop logical thinking to analyze evidence and build arguments to support or refute a hypothesis.
- Make connections among mathematical ideas and between other disciplines
- Develop and use strategies, skills, and concepts to solve problems.
- Use appropriate tools, including technology, as vehicles to learn mathematical concepts.

These are essential learnings that represent bigger ideas/concepts:

- Students make decisions about the organization and display of information in different graphical forms.
- Students analyze and interpret data in various ways including how spread out the data is (range) and how it is centered (median and mode.)

These are essential questions that learners ask themselves in order to achieve the essential learnings:

- How do I collect, organize analyze and interpret data by using different graphical representations?
- How do I find the median, *mode and *range of data?
- How do I compare data in graphs that use different scales?
- How do I determine appropriate scales and intervals when making graphs?
- How do I select the most appropriate display for a particular type of data?
- How do I solve problems by interpreting and drawing conclusions from graphic displays of data?

****Presented in previous grade(s)***

Resources: Van de Walle: Chapter 21 (pp. 386-405)

UNIT 2: Data and Graphing 2 WEEKS

Key Mathematics Concepts:

- The mathematics used for collecting, organizing, and studying data is called statistics.
- It is helpful to collect information in an organized way.
- There are many special ways to collect, organize, and display data collected in surveys:
(The terms below are fully developed in the glossary of the student handbook on pages H79 -H88)

charts	line plot
tally charts	bar graph
tables	double bar graph
frequency table	line graph

- There are many special terms used to interpret and analyze statistical information:

median	trends
mode	scales
range	intervals
outlier	conclusions

Students develop understanding of these terms as they use them to describe and analyze data and graphs.

Chapter 5 <u>Collect and Organize Data</u>	Chapter 6 <u>Analyze and Graph Data</u>
Lesson 1: Collect and Organize Data	Lesson 2: Read Line Graphs
Lesson 2: Understand Median & Mode	Lesson 3: Hands On: Make a Line Graph
Lesson 3: Read & Organize Data in a Line Plot	Lesson 4: Choose an Appropriate Graph
Lesson 5: Scale and	Lesson 5: Problem Solving Skill: Draw Conclusions
Lesson 6: Summarize the Information	Lesson 6: Assessment

**GRADE 4
Harcourt Mathematics**

**UNIT 2: DATA & GRAPHING
Module 1: 2 Weeks of Instruction – Chapters 5 and 6**

<p><u>Day 1:</u> Chapter 5: Collect and Organize Data</p> <p>Lesson 5.1 Collect and Organize Data</p>	<p><u>Day 2:</u> Lesson 5.2 Understanding Median and Mode</p>	<p><u>Day 3:</u> Lesson 5.3 Read and Organize Data in a Line Plot</p>	<p><u>Day 4:</u> Lesson 5.5 Understand Scale and Interval with a Bar Graph</p>	<p><u>Day 5:</u> Lesson 5.6 Summarize the Information in a Graph</p>
<p><u>Day 6:</u> Chapter 6: Analyze and Graph Data</p> <p>Lesson 6.2 Understanding Line Graphs</p>	<p><u>Day 7:</u> Lesson 6.3 Making Line graphs</p>	<p><u>Day 8:</u> Lesson 6.4 Choose an Appropriate Graph</p>	<p><u>Day 9:</u> Lesson 6.5 Draw Conclusions Using Graphs</p>	<p><u>Day 10:</u> Lesson 6.6 Analyze and Graph Data *Performance Assessment 4.2</p>

NOTE: Lessons 5.4 and 6.1 have been purposefully omitted in this module. It is recommended that both be taught the last month of school.

Lessons 5.5 and 6.4 and be eliminated if additional instruction time is needed for other lessons in this module.

***Performance Assessment 4.2:** Strongly recommended

UNIT 2: Data and Graphing
Chapter 5

DAY 1: LESSON 5.1

LESSON FOCUS:	Collect and Organize Data
CALIFORNIA STANDARD:	Statistics, Data Analysis, and Probability: 1.0 Students organize, represent and interpret numerical and categorical data and clearly communicate their findings
Purpose of Lesson:	To learn how to collect and organize data by using tally and frequency tables.
LAUNCH:	<p>Question: For the students in our class, which month will have the most birthdays?</p> <p>Conduct a class survey on birth months. Organize the results in a table, using tally marks. Discuss and analyze the results. Survey Question: What is the month in which you were born? <u>Grade 4: Birth Month Survey</u></p> <p><u>Month</u> <u>Make tally marks to show the number of birthdays</u></p> <p>January February March Continue ...</p> <ul style="list-style-type: none"> • In what month were the most students born? (least) • Discuss and model how to count the tally marks. <p>Convert the data table to a frequency table by replacing the tally marks with numbers.</p>
EXPLORE:	<p>Students Survey Classmates P. 84: Alternative Teaching Strategy Pairs of students decide on a survey question and show the results using a frequency table. Refer the students to the student book pages 82 - 84 for survey ideas.</p> <ul style="list-style-type: none"> • Provide the students with a construction paper folder to save this table and others that will be used throughout the week. <p>Discussion Questions:</p> <ul style="list-style-type: none"> • Explain why is it better to use tally marks when recording the survey results and then converting it to numbers? • What is the same about all the frequency tables?

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