



SAN DIEGO CITY SCHOOLS

Department of Mathematics

Instructional Module to Enhance the Teaching of

PRENTICE HALL

PRE-ALGEBRA

California Edition 2001

GRADE 7

Module 0

Data Analysis

KEY MATHEMATICAL CONCEPTS FOR GRADE SEVEN - BIG IDEAS:

By the end of grade seven, students will:

- **Know the properties of, and compute with, rational numbers by manipulating numbers and equations. Know and use different representations of fractional numbers (fractions, decimals, and percents) and are proficient at changing from one to another. Understand and use factoring of numerators and denominators and properties of exponents.**

Note: Negative fractions are formally introduced and studied for the first time.

- Increase their facility with ratio and proportion, compute percents of increase and decrease, and compute simple and compound interest.
- **Graph linear functions and understand the idea of slope and its relation to ratio. Solve simple linear equations and inequalities over the rational numbers.**
- Know the Pythagorean theorem and solve problems in which they compute the length of an unknown side.

Note: The Pythagorean theorem is probably the first true theorem that the students will have seen.

- **Know how to compute the surface area and volume of basic three-dimensional objects and understand how area and volume change with a change in scale.**
- Make conversions between different units of measurement. Know and use various forms of displays for data sets.

(Notes from Mathematics Framework for California Public Schools, Grade Seven, p149-152.)

Key Mathematical Concepts Addressed:

Module 0 - Data Analysis:

- MR 1.0, 2.0 Students make decisions about how to approach problems and use strategies and skills in finding solutions.
- SDAP 1.0 Students collect, organize, and represent data sets that have one or more variables and identify relationships among variables within a data set.
- SDAP 1.1 Students know various forms of display for data sets, including stem-and-leaf or box-and-whisker plots.
- **SDAP 1.3*** Understand the meaning of, and be able to compute, the minimum, the lower quartile, the median, the upper quartile, and the maximum of a data set

(* Denotes KEY GRADE LEVEL STANDARD)

MODULE 0: Data Analysis

DAY 1: LESSON 1

LESSON FOCUS:	To begin to establish collaboration group norms - listening
CA STANDARD:	MR 1.0, 2.0
Purpose of Lesson:	Students collaborate in small groups to <u>listen</u> closely to one another in order to find number information & to solve number sense problems.
Warm-up/Routines:	(Give each entering student a playing card. They are seated at tables of four corresponding to their card number.) As a group, they are to make up a number sentence that results in their number, i.e. for the number 8: "Every weekend for four weeks I bought 2 new DVD's. That makes 8 DVD's!" Share out with the class.
LAUNCH: Materials: Envelopes w/Clues (1 per group), Hundred charts (2/group) Vocabulary: Digit, Even, Odd, Sum, Difference, Multiple	Tell students that they are to find out information about each other that has to do with numbers. Listening closely to one another is the key! Heart card students talk with diamond card students & club and spade card students talk with one another. They might ask questions such as: birth date, height, number of people in family, number of pets, favorite radio station, time they get up in the morning/go to bed at night, house number, last two digits of their phone number, shoe size, lucky number, etc.
EXPLORE: Materials: Start collecting old newspapers, magazines for students to use for homework Days 5 & 6	Red card students introduce each other to the black card students in their group. Have them look for similarities and anything they hear that is very different (outlier). Once students have had time to share their number information at their tables, pick a student from each table at random to introduce someone in their small group to the class & share any similarities or marked differences they found. Give each table group a problemsolving envelope with clues for <i>Tim's Number</i> and a Hundred chart (see following pages). Explain that each person takes one clue from the envelope; the remaining clues are placed face down on the table. Each person reads their clue to the group & then adds it to those on the table which may then be turned over & read. The group needs to use the clues to find a particular number on the Hundred chart.
Practice:	If time allows, do <i>Meg's Number</i> .
SUMMARIZE:	Class discussion: <i>Did you need everybody's clue to solve the problem? Did you notice any patterns on the chart for even numbers? Multiples of five? Of three?</i>
Closure:	Working successfully in a mathematics collaborative team involves listening closely to what other people have to say.
Homework:	Make a list of the ways you use numbers every day.

MODULE 0: Data Analysis

DAY 2: LESSON 2

LESSON FOCUS:	To begin to establish collaboration group norms - everyone participates
CA STANDARD:	MR 1.0, 2.0
Purpose of Lesson:	In addition to active listening, students collaborate in small groups making sure that everyone in the group participates in order to solve number sense problems. Students gather and display data.
Warm-up/Routines: Materials: 2 Line Plot charts to post in room for student data, overhead pens/markers or stickie colored dots	Students share their lists (homework) with one another at their table groups. Everyone has an opportunity & <u>responsibility to participate</u> . Look for similarities/differences. While this sharing is going on, call each table group to put their mark or colored stickie onto Line Plot charts posted in the room: <i>Birthdays Month</i> and <i>How Many Movies Did You See During the Summer?</i>
LAUNCH: Materials: Envelopes w/Clues (1 per group) Hundred charts (2/group)	Have table groups talk & <i>listen closely to one another</i> about what they notice on the completed line plots. Ask a few students at random to tell the class <u>what they heard someone from their group say</u> . Record any vocabulary words (mode, range, outlier, etc.) that might come up. You'll come back to these charts in more depth later in the module.
EXPLORE:	Explain again that students are going to receive a Hundred chart and 6 clues to help them solve a problem. Each person takes one clue to share with the group - any additional clues are placed face down on the table until all clues are read aloud. Group expectations are that everyone participates. Listen to what others say and <u>try to give reasons for what you say</u> . (You may want to model this: "I don't think that the number can be 53 because Juan's clue says that the number is even." Do Paul's Number followed by Keisha's Number. (See following pages.)
Practice:	If time allows, as a group have student pick a number from the Hundred chart and try to write their own number clues.
SUMMARIZE:	Class discussion: <i>Were some clues more helpful than others? Why? Were some clues better to begin your search with than others? Explain your thinking. Did you need everybody's clue to solve the problem? Could you eliminate a clue?</i>
Closure:	Working successfully in a mathematics collaborative team involves everyone being an active participant, listening closely to what other people have to say and giving reasons for what you say.
Homework:	Pick a number from 1 - 100 and write 5-6 number clues to find your number. Gather data: Count the number of phones & cell phones in your family.

MODULE 0: Data Analysis

DAY 3: LESSON 3

LESSON FOCUS:	To begin to establish collaboration group norms - get help if you need it - this help should come from the group first and the teacher last.
CA STANDARD:	MR 1.0, 2.0; SDAP 1.0
Purpose of Lesson:	In addition to listening & full participation, students collaborate in small groups helping each other answer questions that arise within the group as they solve number sense problems. Students gather and display data.
Warm-up/Routines:	<p>Number Sense: Mental Math</p> $5 + 7 + 3 = \qquad 8 \times 4 \times 5 =$ $14 + 19 + 6 = \qquad 50 \times 13 \times 2 =$ <p>Materials: 2 Frequency Table charts to post in room for student data, overhead pens/markers</p> <p>Students talk with one another about how they found their answers. Share out as a class - focus on different strategies used. While students are doing Warm Up, call groups to put their tally marks on the Frequency Tables charts (Re: p. 608) posted in the room: <i>Number of People in Your Family</i> and <i>Number of Phones/Cell Phones in Your Family</i></p>
LAUNCH:	<p>Tell students that today they will be trying to use clues to find a number that is probably not on the Hundred Chart. Each individual clue will help narrow down the possible solutions. A calculator might be a useful tool in finding the number. Remember to rely on the members of your group when you need help or don't understand something given in a clue. Make sure everyone agrees that they need help before asking for help outside the group. (Note: You may need to give example of a palindrome.)</p> <p>Materials: Envelopes w/ Clues (1 per group) Calculators (2/group) Vocabulary: Prime, Product, Divisible, Square Root, Palindrome</p>
EXPLORE:	<p>Give each small group two calculators and an envelope with clues for <i>Andrea's Number</i> followed by <i>Natalie's Number</i>. (Additional problems are included - they get harder! - should you wish to use them.) (Collect homework clues for use as possible homework/practice next week.)</p>
Practice:	<p>As a group, list as many three-digit palindromes as you can. How many did your group find? (Ex: 101, 202, 303, 404, . . . 111, 212, 313, 414, . . .)</p>
SUMMARIZE:	<p>Class discussion:</p> <p><i>How did these problems differ from the Hundred Chart problems?</i></p> <p><i>What different strategies did you use to find the number?</i></p> <p><i>Did anyone come across any words that you didn't know?</i></p> <p><i>Do you think you could decide on one clue that told you the most?</i></p>
Closure:	<p>Working successfully in a mathematics collaborative team involves helping each other to answer questions or resolve misunderstandings that arise within the group. Make sure that everyone in the group agrees that they need help, before asking for help outside the group.</p>
Homework:	<p>How many four-digit palindromes are there? Make a list.</p> <p>Gather data: <i>Minutes It Takes You to Travel to School from Your Home</i></p>

MODULE 0: Data Analysis

DAY 5: CHAPTER 3-3 (TE pp131-135)

LESSON FOCUS:	Assessing the student's prior knowledge re: finding the mean, median, and mode of a data set and to determine which measure of central tendency best for given data.
CA STANDARD:	NS 1.2 (Key Standard)
Purpose of Lesson:	At the end of the lesson students will be able to make sense of multiple representations of data and find the mean, median & mode of a set of data.
Warm-up/Routines: Materials: Grid Chart to gather student data	Number Sense: Mental Math <i>A customer buys a latte for \$2.75 and a cinnamon roll for \$1.45. He gives the clerk a five-dollar bill. How much change would he receive?</i> Students put their data on the Grid Chart: <i>I Talk to My Friends by Phone/E-mail</i>
LAUNCH: Vocabulary: Outlier, Range Materials: Have old newspapers, magazines available for student homework.	Direct the students' attention back to the four charts. 1) Venn Diagram: "Indoor/ Outdoor Time" 2) Grid: "Phone/ Email Talk" 3) Line Plot: "How Many Movies Did You See During the Summer?" 4) Line Plot: "Birthday Month" Small table groups discuss the multiple ways of representing data & how that effects the interpretation of the data. <i>Could you take the data from chart #1 & represent it as a line plot? What would that tell you? Would there be some information lost/gained?</i> <i>How about chart #2? Would it be possible to represent charts #3 & #4 as Venn Diagrams? Why or why not?</i> The teacher moves from table to table listening to the discussion(s) - Asks questions to help stimulate the students' thinking, where necessary.
EXPLORE: Vocabulary: Mode, Median, Mean, Measure of Central Tendency	To assess prior knowledge: Small groups work together to find the mean, median and mode of the "Movie" data. Was there an "outlier"? How will that be dealt with? Teacher moves from group to group, facilitating efforts as necessary. (Some direct teaching may be needed.) Things to think about/discuss: <i>What does each measure of central tendency tell us about the data gathered? Who might be interested in it? How might it be used? Which measure of central tendency would be the best to describe this data? Why?</i>
Practice:	After the Lesson: Lesson Quiz TE p132 (OH)
SUMMARIZE:	Whole class discussion: <i>How does the way data is represented help you interpret it?</i>
Closure:	Multiple ways of representing data, and data interpretation. Outlier and range (possibly) will come into the discussion.
Homework:	Find a display of data from newspaper, magazine, TV, Internet. How is the data represented? From this representation, what can you infer? Be prepared to discuss with your small group tomorrow.

MODULE 0: Data Analysis

DAY 6: CHAPTER 12-1 (TE pp608-611)

LESSON FOCUS:	Re-representing data from Frequency Tables to Line Plots & from Line Plot to Frequency Table to better understand data sets.
CA STANDARD:	SDAP 1.1
Purpose of Lesson:	At the end of the lesson students are able to change the representation of a set of data and determine how the new representation helps them to better understand the data.
Warm-up/ Routine(s):	Students find the mean, median and mode of the "Birthday" chart.
LAUNCH:	Direct students' attention to the three charts. 1) Frequency Table: "Number of People in Your Family" 2) Frequency Table: "Number of Phones/ Cell Phones in Your Family" 3) Line Plot: "Number of Minutes You Travel to School" Small table groups discuss why the data may have been gathered & represented in this manner. <i>What can you determine/infer from the three charts? Would there be other representations that might help you better understand these sets of data? What might you use?</i>
EXPLORE:	Using the frequency tables - "Phone/Cell Phone" and "Family Members", students use the data to build line plots. Compare the line plots with the frequency tables. <i>How are the two similar? Different? Which do you think is the better way to represent this data? Explain your reasoning?</i>
Practice:	Students work backwards to form a frequency table from a line plot using the "Movie" Line Plot (Day 1).
SUMMARIZE:	Whole group discussion of the data of each graph and what it represents. Try to elicit from the students the fundamental differences between a frequency table & a line plot and how the representation helps us to better understand what the data means. Data in a frequency table, lists each data item and how many times that item occurs. A line plot, pictures the data from a frequency table in the form of "X" marks above a number line.
Closure:	Making sense, organizing and developing a line plot from data in a frequency table.
Homework:	Students find another display of data from the newspaper, magazine, TV, Internet, etc. Record <u>where</u> the data display was found; <u>how</u> the data is represented; <u>what</u> the data tells us; and <u>how</u> the data could be/ is used. Is there another representation that could be used to represent this data? How would it help build understanding? Be prepared to discuss with your group tomorrow.

MODULE 0: Data Analysis

DAY 7: CHAPTER 12-2 (TE pp618-619)

LESSON FOCUS:	Students make and interpret stem-and-leaf plots
CA STANDARD:	SDAP 1.1
Purpose of Lesson:	At the end of the lesson students are able to record data from a line plot to create a stem-and-leaf plot & compare how the two representations provide information about the data.
Warm-up/ Routine(s):	Find the mean, median and mode from the data on the "How Many People in Your Family" chart.
LAUNCH: <u>Vocabulary:</u> Stem-and-Leaf Plot, Frequency Distribution	"How Long Can You Hold Your Breath?" In pairs, have one student hold their breath while their partner records how many seconds. Reverse roles. Small groups discuss how the class data might be collected/ recorded. As a class, make a line plot first, then teacher demonstrates a "new" way to display data--- a stem-and-leaf plot.
EXPLORE:	<u>Direct Teaching:</u> Reference: TE p618 Additional Example 1 Make a stem-and-leaf plot to show the ages of the people in your class (make sure to include yourself!). Reinforce that a stem-and-leaf plot displays data beginning with a frequency distribution that arranges data in order from least to greatest. A stem-and-leaf plot arranges the data by separating the last digit (leaves) from the previous digits (stems). Students make a stem-and-leaf plot with the data from the LAUNCH activity. Find the mode - most repeated leaf, the median - midpoint and range - difference of the greatest & least values.
Practice:	Interpret and explain your thinking: <i>In a survey of 20 students, 6 students liked vanilla ice cream and 11 students liked chocolate. Is it possible to get results less than the number in the survey group? Explain... Greater?</i>
SUMMARIZE:	Interpretation of the data that is now presented in a stem-and-leaf plot. <i>How does the stem-and-leaf plot represent the same meaning as the frequency table of line plot? How does that help build understanding?</i>
Closure:	Discuss the progression from a frequency table to a line plot to a stem-and-leaf plot.
Homework:	Student textbook: p618, #1 a, b, c, d, e ("Average Longevity") <u>OR</u> QUICK WRITE: <i>Write a letter to a student who was absent today explaining how to make a stem-and-leaf plot and how to interpret the data.</i>

MODULE 0: Data Analysis

DAY 8: CHAPTER 12-2 (TE pp613-617)

LESSON FOCUS:	Students use data to make a box-and-whisker plot.
CA STANDARD:	SDAP 1.1 SDAP 1.3 (Key Standard)
Purpose of Lesson:	At the end of the lesson students will begin to be able to analyze student-generated data represented as a box-and-whisker plot.
Warm-up/ Routine(s):	In table groups, discuss the type of data displayed in the "Travel Time to School" chart. <i>How was the data displayed? Find the mean, median & mode.</i>
LAUNCH: <u>Vocabulary:</u> Box-and-Whisker Plot, Quartile	<i>What measure of central tendency might the best to describe this data? Explain your thinking.</i> <u>Direct Teaching:</u> Using the data from the "Travel Time to School" chart, Demonstrate how to create a box-and-whisker plot, as a whole class. Use class specific data. (Reference:TE p613: Example 1)
EXPLORE:	Small groups revisit the line plot: "Movies Watched During the Summer" finding the different information they would need to construct a box-and-whisker plot. Teacher facilitates with the following questions: <i>What would you need to do with the data in order to make a box-and-whisker plot? (Arrange data from least to greatest. Find the median.)</i> <i>How do you determine the quartiles? (Find the medians of the upper & lower halves.)</i> <i>Whisker starting points? (Find the least & greatest values.)</i> (Focus is on making sense of the representation, NOT construction of it.)
Practice:	If time allows, use the Explore information to construct a box-and-whisker plot.
SUMMARIZE:	Class discussion: <i>How does a box-and-whisker plot differ from a line plot? In what way might it help you understand the data?</i>
Closure:	A box-and-whisker plot displays data items below a number line in Quartiles. The median is the middle quartile.
Homework:	P615, Students READ EXAMPLE 3 and use it as a model to complete TRY THIS, p615, # 3 & 4 (Use a few student clues written for Days 2 & 4 to supplement homework. Make sure to include the student's name or initials as the author!)

MODULE 0: Data Analysis

DAY 9: INTRODUCE MINI-PROJECT

LESSON FOCUS:	Assessment tool - Introduce the mini-project "48 Hours". Students will gather and record data, estimate and represent the data in multiple ways. <i>*Introduce Math Notebook (See following pages for example.)</i>
CA STANDARD:	MR 2.5
Purpose of Lesson:	Students will record their own "48 Hours" weekend data for a "48 Hours" mini-project. Data will be displayed in at least 2 different representations. DUE: _____
Warm-up/ Routine(s):	Introduce components of Math Notebook. Have students put today's Warm Up in their notebook. <i>Mental Math: Today's Number: 12</i> (Sept. 12 or whatever date may be) <i>Record combinations of numbers/expressions that are equal to 12.</i> <i>Teacher records/ charts and helps make connections of student responses.</i> <i>EX: $3+3+3+3 = 12$; $\sqrt{144} = 12$; $-16 + 28 = 12$; half of 24; one dozen;</i> <i>Encourage multiple representations.</i>
LAUNCH:	Teacher models their (or hypothetical) model of 48 hours. Brainstorm different ways to display data (prior experiences): Examples: bar, line, circle, pictograph, frequency table, line plot, box-and-whisker plot, stem-and-leaf plot, etc. Discuss organization and expectations that should be included to make a quality, informative mini-report/ presentation. (This should include at least 2 different graphs with written work that supports the graphical display(s)). Refer students to pp 98-99 for additional representations of data (line graph & bar graph). Teacher charts expectations and required components of the project.
EXPLORE:	By small groups students discuss how they spend their time during weekends. How much of the time is spent in sleeping? Eating? Play? Etc. What would be the best, most accurate and informative way(s) to display the type of data they will collect.
Practice:	Students discuss categorization and rounding of data, (minimum 1-hour categories) and estimate percentage of time for each activity.
SUMMARIZE:	REFLECTION: Students write a brief reflection in math notebook about mathematics foci during the first two weeks of school. <i>What do they know how to do now/ better now than they did 9 days ago?</i>
Closure:	Students share their thinking about best graphical display(s) to give the greatest and most accurate information for their data.
Homework:	Record data in full hour increments over the weekend for "48 Hours" mini-project.

MODULE 0: Data Analysis

DAY 10: CHAPTER 12-1 (TE pp 608- 609)

LESSON FOCUS:	Students collect, organize and analyze data.
CA STANDARD:	SDAP 1.1 SDAP 1.3 (Key Standard)
Purpose of Lesson:	Students extend their experiences with collecting, organizing & analyzing data that is represented in a variety of ways.
Warm-up/ Routine(s):	p. 615, TRY THIS, #5 Students look at box-and-whisker plots and draw conclusions about heights of Olympic Basketball Players. Discuss in small groups.
LAUNCH:	You can change data into information that people can quickly understand by organizing the numbers into frequency tables and line plots. A frequency table shows each data item and a count of how many times that item occurs. A line plot pictures the data in the form of marks above a number line. Both representations help us to understand & more efficiently use the data.
EXPLORE: <u>Materials:</u> 1 die for each pair of students	Give every pair of students a die. They are to roll the die 20 times and record the numbers. Then students represent their data in the form of a frequency table and a line plot. -Find the mode. Compare results with another pair of students. <i>What was the same/different in your representations?</i> <i>Did you both find the mode to be the same?</i>
Practice:	Find the mean of the data collected. Compare results with another pair of students.
SUMMARIZE:	On overhead, display a set of disorganized data for 10 seconds or so, ask students what they know & can tell about it. Partner-talk first. As class, discuss how organizing data helps to more quickly & easily interpret it.
Closure:	Reinforce that a box-and-whisker plot displays data divided into quartiles (below the number line). A frequency table uses tally marks to plot data; and a line plot pictures the data above a number line.
Homework:	Student Textbook p 608, TRY THIS, #4; p 609, TRY THIS, #5& #6. Additionally: "48 Hours" mini-project

MODULE 0: Data Analysis

DAY 11: CHAPTER 12-3 (TE pp620-625)

LESSON FOCUS:	Using graphs to persuade
CA STANDARD:	SDAP 1.1
Purpose of Lesson:	At the end of the lesson students can identify label(s) and scale(s) that might make a graph misleading in order to persuade or present a particular viewpoint. Students begin to interpret graphs with more accuracy.
Warm-up/ Routine(s):	Transparency 86; <i>Misleading Graphs</i> , TE p607 <i>Afterschool Activities</i> (only, return to OH tomorrow) Small Group discussion/ interpretation - whole class discussion.
LAUNCH: <u>Materials:</u> A few misleading graphs from newspaper - make overhead transparency	Ask students when they might have seen misleading graph(s). If students are unable to give examples, use teacher made transparency to generate thinking/conversation. Draw attention to all the labels on the graphs & the scales used.
EXPLORE:	By small table groups (from the student textbook): Assign two groups to explore each graph & write down their thoughts about possible misinterpretations: → Example 1; p620, do TRY THIS, #1, p 621 → Example 2; p621, do TRY THIS, #2, p 621 → Example 3; p622, redraw this bar graph with bars of equal width → TRY THIS; p622, #5
Practice:	TRY THIS, p621, #3
SUMMARIZE:	Group presentations: 1-2 minutes explaining why the original graph may be misleading/share their representation of a more accurate display of data.
Closure:	QUICK WRITE: Give an example of when a graph might be misleading & tell why.
Homework:	Student Textbook: p621, #4, Critical Thinking Page 625; #17 Additionally: Continue "48 Hours" mini-project/practice *presentation *Review behavior expectations as a presenter & as an audience member. Make sure to give the audience something to DO during presentation - take notes on similarities/differences; note the different representations used & which was most helpful for your understanding of the data, etc.

MODULE 0: Data Analysis

DAY 12: CHAPTER 12-3 (TE pp620-625)

LESSON FOCUS:	Using graphs to persuade
CA STANDARD:	SDAP 1.1
Purpose of Lesson:	At the end of the lesson students will be able to interpret graphs accurately and pay attention to label(s) and scale(s) that might make a graph misleading.
Warm-up/ Routine(s):	Transparency 86; Misleading Graphs, TE p607 <i>Monthly Normal Temperatures</i> Small Group discussion/ interpretation - whole class discussion.
LAUNCH:	Draw <i>Magazine Circulation</i> graph (top right, p623) Ask questions #1 & 2 of the class. Have students do a <u>QUICK WRITE</u> : <i>Explain why the graph is misleading.</i> Students read their quick writes with a partner.
EXPLORE:	By small table groups (from the student textbook): Assign two groups to explore each graph & write down their thoughts about how these graphs might be misleading: → Computer Graph; #9; p624 - do #10, p624 → Milk Graph; # 11-12; p624 - redraw to give more accurate representation → Sales Graph; #13; p624 - do #14a & b, p624
Practice:	p624, #15
SUMMARIZE:	Group presentations: 1-2 minutes explaining why the original graph may be misleading/share their representation of a more accurate display of data.
Closure:	<i>Class discussion: What things do you have to consider when analyzing a graphic representation of data? Chart list.</i> *Have students restate expectations - you might want to chart in their words! **Have students help make a rubric for scoring the presentations! (Buy in!!)
Homework:	Reteaching worksheet: TE p625 Additionally: Complete "48 Hours" mini-project/practice *presentation

MODULE 0: Data Analysis

DAY 13: TEXT STUDY/ASSESSMENT

LESSON FOCUS:	Getting to know the Prentice Hall Pre-Algebra text
CA STANDARD:	SDAP 1.0 MR 2.5
Purpose of Lesson:	At end of the lesson students understand how the text is organized & can better access it. Begin "48 Hours" presentations.
Warm-up/Routines:	Study the following data: Scores on a math quiz: 70 70 65 35 80 75 75 68 68 70 Retake scores: 75 85 88 90 74 85 95 70 80 85 <i>Write 3 statements about what you can tell from this data.</i> (Refer students to charts around the room where they identified range, outlier, mean, mode, median, etc.)
LAUNCH: Materials: Scavenger Hunt worksheets (1 /partners)	Pass out Scavenger Hunt worksheet (See following pages). Have students work with a partner to fill in the blanks. Stop & process by Parts.
EXPLORE:	Review established expectations of behavior when one is the presenter and when one is the listener, including eye contact, body language, positive and constructive questions, suggestions and comments for future work. Begin presentations of "48 Hours" mini-projects. Students take notes of similarities & differences in activities & percentages of time allotted, any unique activity in which a student may participate & types representations that most helped them make sense of the data.
Practice:	Individuals share their notes with a partner. Practice giving their presentation w/partner.
SUMMARIZE:	Class discussion focused on the graphical displays students presented that were easy to understand & clearly depicted the data.
Closure:	Refer back to mathematics classroom expectations for giving a student presentation & being an active listener and supporter.
Homework:	Practice worksheet: TE p625 OR Enrichment , p625

MODULE 0: Data Analysis

DAY 14: ASSESSMENT

LESSON FOCUS:	Culmination of the mini-project "48 Hours".
CA STANDARD:	MR 2.5
Purpose of Lesson:	Students make presentations of information recorded for "48 Hours" mini-project. Data should be represented in at least in 2 different graphical displays with explanation of why those representations were chosen & how they help build understanding.
Warm-up/ Routine(s):	<u>Mental Math:</u> Target Number: 25 Quickly write down EVERYTHING that you know about the number 25. Teacher makes real world connections (i.e. "a quarter, five minutes less than a half hour") where possible.
LAUNCH:	Review expectations about behavior when one is the presenter and when one is the listener.
EXPLORE:	Continue presentations of "48 Hours" mini-projects. Students make note of similar graphical displays, similar/ different percentages of time for same activity AND note any unique activity that a student may participate in.
Practice:	Talk with partner about presentation that you found to be closest to yours in activities and percentage of time increments.
SUMMARIZE:	Students respond to the whole class: Similar graphical displays, similar/ different percentages of time for same activity AND note any unique activity that a student may participate in. Discussion of the graphical display(s) that gave the greatest and most accurate information and why.
Closure:	QUICK WRITE: Unit of Study Reflection Lay the foundation of the "habit of mind" that at the end of a unit BOTH teacher and student reflect on their learning/ understanding(s).
Homework:	Look through newspapers, magazines, Internet & TV advertisements for examples of graphs. Are any of them misleading? How? Bring to class.

PRE ALGEBRA SCAVENGER HUNT KEY

PART 1 - Getting to Know Your Pre Algebra Text

1. 13 Chapters
2. Ratios, Proportions, and Percents
3. Skills and Concepts You Need for Chapter 6; Yes
4. 10 Lessons
5. a. Checkpoint
b. Standardized Test Prep
c. Chapter Assessment
d. Practice Multiple Choice

PART 2 - Lesson 6.6 Proportions and Percent (page 305)

1. Mathematical Reasoning 3.1; Number Sense 1.3
2. Two PARTS
3. a. Finding Probability
b. 2 Examples
c. Board game - rolling 2 number cubes
4. a. Finding Odds
b. One example (Example 3)
5. Check - 5; Practice 30 (#6-35); Mixed Review 9 (#36-44)
6. A problem where a friend makes a mistake (error) & we have to explain what the error is.
7. Prentice hall website: www.phschool.com

PART 3 - The Rest of the Book

1. It's a review with examples of the "big ideas" (key learnings) in the chapter.
2. Selected Answers, Wrap Up, page 791
3. Writing Equivalent Fractions
4. 19 Skills Retaught
5. The area of a figure is the number of square units it encloses. (p749)
6. EXAMPLE: $b = 4$ ft and $h = 6$ ft, so the area is 24 ft^2
7. Lunch time is: _____

The Mean Bean: (Suggested for use with Module 0)

Topic: Collecting Data, Analyzing Data (mean, median, mode, range and outliers)

Standards: SDAP 1.0, 1.1, *1.3 **Key:** MR 1.0, 2.0

Materials: Small cup (1 per person), Beans

Goals: By the end of this lesson, students will demonstrate a moderate understanding of mean and median, and a clear understanding of range and outliers. They should be able to find the range of a data set and with minimal prompting be able to describe mean.

Launch: The Launch will start with a brief overview of the activity including describing some of the procedures, and what is expected as an outcome. You will begin with a short journal entry about the terms mean, median, range, and mode. You might also talk about terms like data, estimate, and average.

Explore: Students will begin writing at their desks as individuals and then move into one large group. Directions for the activity are as follows:

1. Have students make an estimate of how many times their heart beats in a minute. Teacher will collect the data on overhead and then slowly determine the mean, median, mode, and range of the estimates.
2. Have each student take his/her pulse for 10 seconds. Do 3 trials and average the results (Students may need to be shown how to find the average.).
3. Next have each student put that number of beans into their cup.
4. Have the class arrange themselves in order from least to greatest. With the students in this order discuss how you might find the range and the median of the number of beans in the cups.
5. You can also put them in a line-plot and discuss mode.
6. Have students find the mean by "equalizing" the number of beans in each cup by taking & giving beans to other members of the class without splitting them. When each student has the same number of beans or at least within one, you can take one bean from the students who have an extra, and you have found the mean.
7. Discuss mean.

Summarize: Have students finish with a brief synopsis of the day's events and what they learned about mean, median, range, and mode with regard to the beans in the activity.

Time: One class period. Be sure to pace the time appropriately so that the students have enough time to do the summary piece.

Homework: Have students think about three common uses of terms such as mean, median, mode, and range . . . where would this knowledge be beneficial?

QUICK WRITES - JOURNAL QUESTIONS

- *What is MATHEMATICS?*
- *What math did you use during the summer?*
- *What math is there on your way to school?*
- *What does learning mean to you?*
- *How do you learn best?*
- *What did you learn this week?*
- *What does it mean to be smart? To work smart?*
- *How do you rate yourself as a math student? Why?*
- *What challenges you the most in school?*
- *What do you enjoy the most about school?*
- *Describe a math teacher's job.*
- *What makes a good teacher?*
- *What is the best way to become an excellent student?*
- *If you could learn only one thing in math this year, what would you like it to be?*
- *What do you do really well in math?*
- *What do you like best about this class?*
- *What would you like to change about this class?*
- *How do you feel about using calculators in math class?*
- *What is your favorite number and why?*
- *What is your favorite math topic and why?*
- *What speaker would you like to invite to math class and what two questions would you like to ask him/her?*
- *"Homework + Determination = Success" Do you agree or disagree? Why?*
- *Why is school important?*
- *What is your goal for this quarter in math?*
- *Helping other people is important because . . .*
- *Sharing with other people is important because . . .*
- *When I don't understand how to solve a problem, I . . .*
- *Write at least three sentences to complete this statement: "When I work in a group, . . ."*
- *How is this year's class different from last year's? The same?*
- *Write a letter to an incoming 6th/7th grader telling him/her what to expect next year in math.*