

# Everyday Math

# Connections



# Everyday Math Connections

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Los Angeles Times | IN EDUCATION

# Introduction

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**W**elcome to *Everyday Math Connections*. This Times in Education guide supports the California Math standards, because we believe that math skills reach far beyond the pages of textbooks. The daily newspaper is filled with mathematics that helps students make “*everyday math connections*.”

The guide provides resources in four sections. *For Starters* are activities and lessons that will help introduce your students to math in the newspaper. The *Daily Connections* lessons support a variety of skills across grade levels using a variety of newspaper content — news, graphics, features and advertising. The lessons can be used in any order and many provide extensions to help adapt the lessons for different skill and grade levels. *Hands-On Math* activities provide a few practical and fun experiences using math skills. *Quick Calcs* offer several quick math ideas for use in your classroom. The guide concludes with *Teacher Resources*, which includes special newspaper measurements and rates, a correlation of these math lessons to math standards, and a performance indicator assessment tool.

We want to hear your comments and suggestions on this guide. Please send your comments by fax to 1-800-833-0200. Your feedback is helpful in planning future programs and seeking additional partnerships.

We hope these newspaper-based lessons and activities will be a valuable curriculum resource to support the California math standards and that they will help your students make “*everyday math connections*” with The Times.

Times in Education

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# Math Scavenger Hunt

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**DIRECTIONS:** Look through The Times or The Times electronic edition to find the following math items. When you find the item, cut it out and paste it on this page. If you are using The Times electronic edition, you will need to print items and then cut them out.

1. An even number
2. An odd number
3. A fraction
4. A number word
5. A measurement
6. A temperature
7. Dollars and cents
8. A shape (triangle, square or circle)
9. A date or time
10. A really BIG number

# Math Scavenger Hunt

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**DIRECTIONS:** Using copies of The Times or The Times electronic edition, find examples of each of the following items. Record the example and the section and page number for each item located.

	EXAMPLE	SECTION/PAGE #
--	---------	----------------

A number greater than 1 million  
\_\_\_\_\_

A primary number  
\_\_\_\_\_

A square root  
\_\_\_\_\_

A metric measurement  
\_\_\_\_\_

A percentage  
\_\_\_\_\_

A number or math-related word  
\_\_\_\_\_

An average (mean, median or mode)  
\_\_\_\_\_

A number that expresses velocity  
\_\_\_\_\_

A ratio  
\_\_\_\_\_

An estimate  
\_\_\_\_\_

# Numbers 1, 2, 3, 4, 5

## **RECOMMENDATIONS:**

Basic lesson for grades K-2. Extension activities for grades 1-7. Excellent for ESL and LEP students.

## **OBJECTIVE:**

Students will identify number words and numerals in The Times and create a number word book.

## **MATERIALS:**

Classroom set of The Times or The Times electronic edition, scissors, glue, paper.

## **SKILLS:**

Counting, graphing, averaging.

## **PROCEDURES:**

1. Teach the concept of number words.
2. Select a section or page of The Times to find samples of number words and numerals.
3. Students will look through The Times to find samples of number words and numerals.
4. Students will match number words and numerals, cutting and pasting them into a "Number Word Book." If using the electronic edition, students will need to print their items and then cut them out.

## **EXTENSIONS**

Develop sets of items to add to each page of the number word book.

Substitute whole numbers with fractional numbers and larger units such as hundreds, thousands, and millions.

Students will identify patterns and writing style by counting the occurrences of number words and numerals in a news article or on the front page.

- Ask students to look for patterns in the news stories where the writer expresses a number as a word or as a numeral.
- Have students share their findings with one another.
- Students can present their findings with a graph or poster.
- Have students compare and contrast their findings from The Times with other written media, such as magazines.

Older students can create a "Number Word Book" for younger students.

# Shopping With a Budget

## **RECOMMENDATIONS:**

Basic lesson for grades 3 and up.  
Extension activities for grades 5 and up.

## **OBJECTIVE:**

Students will shop with a set amount of money for specific items using advertisements from The Times.

## **MATERIALS:**

Classroom set of The Times or The Times electronic edition, calculators,  
Shopping With a Budget worksheet.

## **SKILLS:**

Estimating, adding.

## **PROCEDURES:**

1. Students will be given an imaginary amount of \$1,000 and a time limit to “shop” through the newspaper. Students will find as many items as possible, spending as much of their budget as possible without overspending.
2. Using the accompanying worksheet, students will record the section and page number, the item, and the price of each purchase they select.
3. At the end of the assigned time, students will first estimate the total of their expenditures and then will calculate the exact amount of the total spent.
4. Students will receive ten points for each item purchased and will lose two points for each dollar unspent.
5. Students will explain what they purchased and why they selected the particular items.

## **EXTENSIONS**

Students will find the average (mean) cost of the items purchased.  
Then students will determine the mode and median of their purchases.

Students will calculate sales tax on their purchases and if their adjusted spending total exceeds their budget, they will determine as a group which item to deduct in order to stay within their budget.





# Graph It!

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**RECOMMENDATIONS:**

Basic lesson for grades 5 and up.  
Extension activities for grades 9 and up.

**OBJECTIVE:**

Students will analyze graphs and construct a graph to see the relationships between variables.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, scissors, glue, Graph It! worksheet.

**SKILLS:**

Data interpretation, graphing.

**PROCEDURES:**

1. Students will find three types of graphs in The Times, such as a line graph, bar graph, and pie chart.
2. Have students cut and paste the examples in the appropriate category on the worksheet. If students are using The Times electronic edition, they will need to print examples and then cut and paste them on the worksheet.
3. Students will write a brief description of each graph and the information expressed in each example.
4. Students will select one graph type and reconstruct the data into a different graph type.

**EXTENSIONS**

Have students identify a news story or news analysis with statistical information that interprets relationships among data. Students will design a statistical presentation that includes graphs and/or charts.

# Graph It!

.....

Name: \_\_\_\_\_

Date: \_\_\_\_\_

<b>PIE CHART</b>	<b>BAR GRAPH</b>
<b>LINE GRAPH</b>	<b>NEW GRAPH</b>



# What's My Rule?

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**RECOMMENDATIONS:**

Kindergarten through 3rd grade.

**OBJECTIVE:**

Students will find similarities in newspaper advertisements and classify the ads in specific groups or sets.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, scissors, glue, chart paper.

**DEMONSTRATION:**

1. The teacher will select a few advertisements from The Times with similar characteristics.
2. Without stating the rule, the teacher will group the ads that match the "rule" onto a chart. (For example, ads for vehicles, things that "go," or things with wheels.)
3. Students will guess the characteristic or "rule" the teacher used based on the ads.

**PROCEDURES:**

1. Students will select ads with similar characteristics from The Times.
2. Students will cut out the ads and glue them onto a student-created chart, describing the similar characteristic or rule for their selection. If using the electronic edition, students will need to print their items and then cut them out.
3. Students will cover the rule and challenge other students to guess their rule.

**EXTENSIONS (for older students)**

- Use multiple characteristics in the above activity.
- Have students use a Venn diagram to determine what is similar or different in the ads selected. (Use the Venn diagram worksheet in the Teacher Resources section of this guide.)

# Graphic Weather

## RECOMMENDATIONS:

Grades 3 and up.

## OBJECTIVE:

Students will collect weather data from The Times, predict weather patterns, and graph the information for a determined period of time.

## MATERIALS:

Classroom set of The Times or The Times electronic edition, rulers, scissors, tape, paper (or quad rule paper).

## DEMONSTRATION:

1. Determine how many days students will collect weather data.
2. Students will locate the weather map of the United States in The Times, cut it out, and tape it to a worksheet. If using the electronic edition, students will need to print the page containing the map and then cut it out.

3. Students will identify the different parts of the map, cold and warm fronts, high and low pressure areas, and the jet stream.
4. On the second day, students will cut out the same map and tape it below the first. Make sure they put the date on both maps.
5. Have students make a prediction of the weather patterns for the third day.
6. Hand out the weather page for the third day. Have students compare their predictions with what is printed on the weather page.
7. Continue to collect maps, make predictions, and evaluate the results for the desired period of time.
8. Students should write a paragraph explaining why their predictions were different from what they observed and how they could improve their weather predictions.

## EXTENSIONS

- Collect data on high and low tides for a similar period of time.
- Have students record data on a graph with the X coordinate as the time of day and the Y coordinate as the height of the tide.
- After a period of time, ask students to look for patterns in their graphs and use the patterns to predict when there will be high and low tides. Students can check their predictions with what is reported in The Times.
- Incorporate data into various kinds of graphs, such as coordinate graphs, bar graphs, and circle graphs. For example, sunrise and sunset data could be presented as a bar graph stating daylight hours.
- Select a city in another state or country. Track temperatures and weather conditions for one month. Graph the results and calculate the average temperature for that month.

# Food for Thought

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**RECOMMENDATIONS:**

Grades 4 and up.

**OBJECTIVE:**

Students will calculate the percentage of fat, carbohydrate, and protein calories in a recipe from The Times Food section.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition Thursday Food section, Food for Thought worksheet.

**PROCEDURES:**

1. Select a recipe from the Thursday Food section of The Times.
2. Review the recipe with your students. Direct their attention to the summary at the end of the recipe which includes the number of servings, total number of calories, and grams of fat, protein, and carbohydrates.

3. Give students the following formulas:  
Fat calories: one gram = 9 calories,  
Carbohydrate calories: one gram = 4 calories,  
Protein calories: one gram = 4 calories.
4. Have students calculate the number of fat, protein and carbohydrate calories in the recipe based on the above formulas.
5. Have students select another recipe to complete the Food for Thought worksheet.
6. Have students calculate the percentage of fats, carbohydrates and proteins, and show these percentages on a pie chart in which the pie equals the total number of calories per serving.

**HEALTH TIP:**

No more than 30% of all food calories we eat should come from fat. The rest should come from proteins and carbohydrates.

**EXTENSIONS**

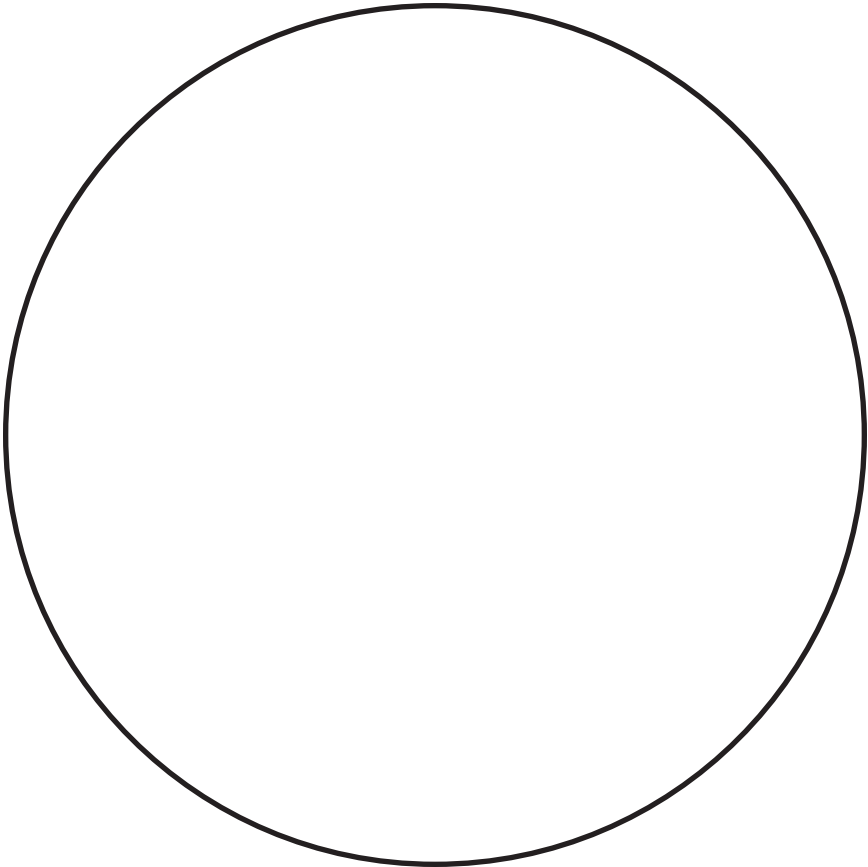
- Students can select various nutrient labels from food items and compare total calories per serving with the percentage of calories from fat, protein and carbohydrates. Students can percent data graphically.
- Students can keep a food log of their daily food intake. Research fat, protein and carbohydrate information to determine the percentage of each. Have students calculate their daily calorie intake.

# Food for Thought



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**DIRECTIONS:** Select a recipe from The Times. Determine the total number of calories per serving and the number of calories from fat, protein and carbohydrates. Calculate the percentage of calories from fat, protein and carbohydrates and show them on the pie chart below.



TOTAL CALORIES PER SERVING = \_\_\_\_\_

<b>Fat calories:</b>	1 gram = 9 calories
<b>Protein:</b>	1 gram = 4 calories
<b>Carbohydrates:</b>	1 gram = 4 calories



# Company's Coming

## **RECOMMENDATIONS:**

Grades 4 and up.

## **OBJECTIVE:**

Students will use a recipe found in The Times and calculate the changes needed to increase the number of servings.

## **MATERIALS:**

Classroom set of The Times or The Times electronic edition Thursday Food section, index cards.

## **PROCEDURES:**

1. Review kitchen measurements with students. (A table of weights and measurements is included in the Teacher Resource section of this guide.)
2. Have students work in cooperative groups of 3 or 4 students.
3. Direct students to select a recipe from the Thursday Food section of The Times.
4. Have students calculate the "per serving" amount of each item in the recipe.
5. Have students increase the size of the recipe to provide more servings.
6. Have students record the final, increased recipe in recipe form on an index card.

## **TEACHER HINT:**

Following is a sample recipe for 4 servings and an expanded version for 1 additional guest for dinner:

### **Spiced Carrots** (for 4 servings)

1 lb. frozen sliced carrots  
3 tbsp. butter  
1 tsp. sugar  
1/4 tsp. ginger  
dash of cinnamon, nutmeg, salt and pepper

### **Spiced Carrots** (for 5 servings)

1-1/4 lb. frozen sliced carrots  
4 and 1/3 tbsp. butter  
1-1/4 tsp. sugar  
1/3 tsp. ginger  
dash of cinnamon, nutmeg, salt and pepper

## **Directions:**

- Thaw carrots in microwave (follow package directions).
- Melt butter in skillet and add sugar, ginger, cinnamon and nutmeg.
- Toss carrots in spiced butter over medium heat and cook until just tender, about 5 minutes. Stir frequently.
- Season to taste with salt and pepper.

## **EXTENSIONS**

Recalculate the expanded recipe to serve all of the members of the class. Using a separate sheet of paper, make a shopping list of items needed for the new recipe. With a measurements table, calculate the amount of each item needed for the recipe in ounces or pounds.



# Best Buys

## RECOMMENDATIONS:

Grades 3 and up.

## OBJECTIVE:

Students will multiply and divide numbers involving money to compute the unit price of a product.

## MATERIALS:

Classroom set of The Times or The Times electronic edition, calculator, scissors, glue, Best Buys worksheet.

## PROCEDURES:

1. Explain to students that they are going to look for the “best prices” on items they would like to buy. They may shop in any section of The Times – Classified section for cars, boats or homes; Main News section for department store items; Food section for food; Business and Sport sections for electronic equipment; etc. Students must find two different prices for each item they select to purchase.
2. Review place value using dollars and cents with students. Also review greater than, less than, and equals. Check for students’ understanding before proceeding to next step.
3. Pre-select an advertised item in The Times with two different prices (from two different ads) for the same item. Write the equation on the board using the greater than or less than signs. For Example,  $\$2.15 < \$3.47$ .
4. Repeat step 3 with a different item. Write the two prices on the board and have the students tell you which sign to put between them.
5. Distribute The Times or direct students to log on to The Times electronic edition. Have students select their own two similar items from the newspaper and then write an equation using the greater than, less than, or equal signs. Check their work.
6. Distribute worksheets and have students complete them by cutting out two items from The Times, pasting them on the worksheet, and writing an equation using either the greater than, less than or equal sign. If using the electronic edition, students will need to print their items before cutting them out.

## EXTENSIONS

- Have students turn their equations into word problems by writing an equation or a fill-in-the-blank sentence about the relationship between the prices of two items. Then have students exchange their word problems with another student, solve them, and check each other’s work.
- Have students calculate the difference between the two prices they found for the item on their worksheet and include the difference on their worksheet. Students can also calculate the percentage difference between the two prices.

# Best Buys

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Item #1**

**Item #2**

EQUATION:

**Item #3**

**Item #4**

EQUATION:

**DIRECTIONS:** Select a section of The Times and find ads for two similar items with different prices. (Example: a video priced at \$14.95 at one store and \$19.95 at another store.) Cut and paste the items with their prices in the space below. If using the electronic edition, students will need to print their items before cutting them out. Write an equation stating that one item's price is greater than the other's. Find two different items and write an equation stating that one item's price is greater than the other's.

# Ad Smarts

## RECOMMENDATIONS:

Grades 4 and up.

## OBJECTIVE:

Students will calculate the cost of an ad in The Times.

## MATERIALS:

Ad pages from The Times or The Times electronic edition, calculators, rulers.

## PROCEDURES:

1. Define for students newspaper measurements for advertisements.  
TEACHER NOTE: The advertising rate is determined by the size of an ad. The standard measurement of a newspaper is in "column inches." A column inch is the area measurement of the advertisement, which is one column wide by the number of inches in length. For example, the size of an ad that is 2 columns wide and 3 inches long is 6 column inches.

2. Students will select an ad in The Times.
3. Students will determine how many columns the ad has and then measure the length of an ad in inches with a ruler.
4. Students will multiply the column width by the column length to determine the size of the ad in column inches.
5. Assign an "ad rate" for the students to use to calculate the cost of an ad. For example, if an ad is 2 columns wide by 3 inches long, the ad measures 6 column inches. If the ad rate is \$5 per column inch, then the cost of the ad would be \$30.
6. Have students calculate the cost of their selected ad.

## EXTENSIONS

Have students select a page from The Times that contains several ads and news content. Then have students measure each of the ads and total the column inches for all of the ads on the page. Then have students measure the news content in column inches and determine the ratio of news to ads for that page.

The Times has a variety of "ad rates." Some are negotiated for frequent advertisers and some are by category, edition, or color vs. black and white. An average "open rate" for an advertisement in The Times is \$356.25 per column inch. Using this average "open rate," have students determine the column inch measurements and cost for a full-page ad, a half-page ad, and a quarter-page ad in The Times. (For your convenience, measurements of Times column widths included is the Teacher Resource section of this guide.)

# Words, Words and More Words

## **RECOMMENDATIONS:**

Grades 3 and up.

## **OBJECTIVE:**

Students will calculate how many words The Times contain by using a multiple random sampling technique. This models how biologists take samples from a population to determine the total size of the population.

## **MATERIALS:**

Classroom set of The Times or The Times electronic edition, calculators, rulers, worksheet.

## **PROCEDURES:**

- Students choose partners. Each partnership should choose a different section of the newspaper.
- Students measure the newspaper to find the area of one full page. If using the electronic edition, students will need to print the page at 100% to continue the lesson.
- Students then make a cardboard square that is 1% of the size of the full page of The Times. This will be used for sampling the number of words on a page.
- Students should spread out The Times on a table and toss the cardboard square onto a page of the newspaper.
- Students should draw an outline of the cardboard square where it landed on the newspaper.
- Students then count the number of words within the square outline.
- Students repeat steps 4 through 6 ten times and calculate the average number of words that fit within a 1% square. Multiply this number by 100 to obtain the predicted number of words on a full page.
- Lead a class discussion about whether or not this sampling method is accurate.

## **EXTENSIONS**

Students can estimate the number of words in a section of the newspaper and in the entire newspaper. Student can compare estimated word counts among different sections of the newspaper, and then calculate the ratio or percentage of words in their section to the number of words in the entire newspaper.

# Sports Divisions

## **RECOMMENDATIONS:**

Grades 4 and up.

## **OBJECTIVE:**

Students will determine sports standings in percentages rounded to the nearest thousandth.

## **MATERIALS:**

Classroom set of The Times or The Times electronic edition, Sports Division worksheet.

## **PROCEDURES:**

1. Begin a short class discussion about sports. What are students' favorite sports and teams? Discussing different ways of comparing and ranking the performance of teams. Note that the team which has won the most games is not necessarily the best team.
2. Select an appropriate sport, depending on the time of year. Discuss the different kinds of information contained in sports standings tables, which include wins, losses and percentage of games won.
3. Check for understanding of what a team's winning percentage means. If necessary, explain that a team's winning percentage is one way of comparing all the teams, because not all the teams have played the same number of games.
4. Review the two-step math problem to determine a team's winning percentage. First, determine how many games the team has played to date (add wins, losses and ties, if applicable). Then, divide the number of games won by the total games played. Round the answer to the nearest thousandth.
5. Have students work in pairs using the Sports section of The Times. One student should select a team and provide the data for wins, losses and ties (if applicable). The first student should not provide any percentage data from the Sports section. The second student should use the win, loss and tie data to calculate the winning percentage, then check his or her answer with the first student. Students can then switch roles.

## **EXTENSIONS**

TEACHER NOTE: Depending on the time of year you use this lesson, you may want to adapt it to use different sports.

Additional division problems can include calculating home and road winning percentages.

# Sports Divisions

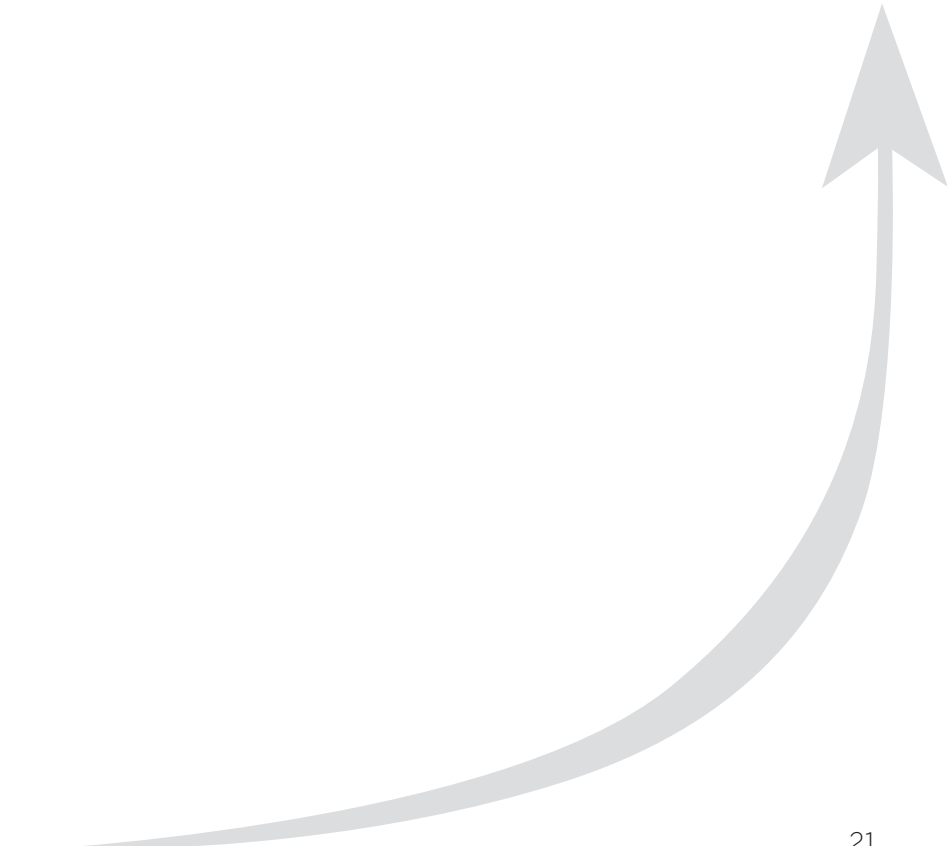
Name: \_\_\_\_\_ Date: \_\_\_\_\_

**SPORT:** \_\_\_\_\_

TEAM	WINS	LOSSES	TIES	WINNING PERCENTAGE

**FORMULA:** WINS DIVIDED BY TOTAL GAMES PLAYED = WINNING PERCENTAGE

SHOW YOUR WORK:



# Average Southern California

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**RECOMMENDATIONS:**

Grades 4 and up.

**OBJECTIVE:**

Students will look in the newspaper for lists of numbers that can be averaged. Students will master the skills of calculating mean, mode, median and range.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, calculators.

**PROCEDURES:**

1. Have students find lists of items in The Times that have some numerical data. Examples could include ages of death listed in the obituaries, cost of cars in classified ads, area temperatures on the weather page, etc.
2. For each list of numbers they find, have students calculate the mean, median, mode and range.
3. Ask students to explain which type of average best represents each group of data and why.
4. Students can make a class poster displaying Southern California averages.

**EXTENSIONS**

Have students determine the standard deviation for each set of data and explain why the standard deviation is large or small in each case.

# Making a Commission

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**RECOMMENDATIONS:**

Grades 5 and up.

**OBJECTIVE:**

Students will gather housing price data from the Sunday Business section of The Times and use the data to calculate the commission from the sale of a house.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, calculators, graph paper, worksheet.

**PROCEDURES:**

1. Have students go through the real estate ads. Choose a house for sale. Estimate the amount of a real estate agent's commission at a rate of 6% from the sale of the house.
2. Model a piece of real estate by putting the information gathered from the ad onto the worksheet.
3. Students choose their own piece of property from the ads.
4. Students will select several homes of similar size and calculate the commission for each.
5. Calculate the average (mean) commission for ten similar homes.



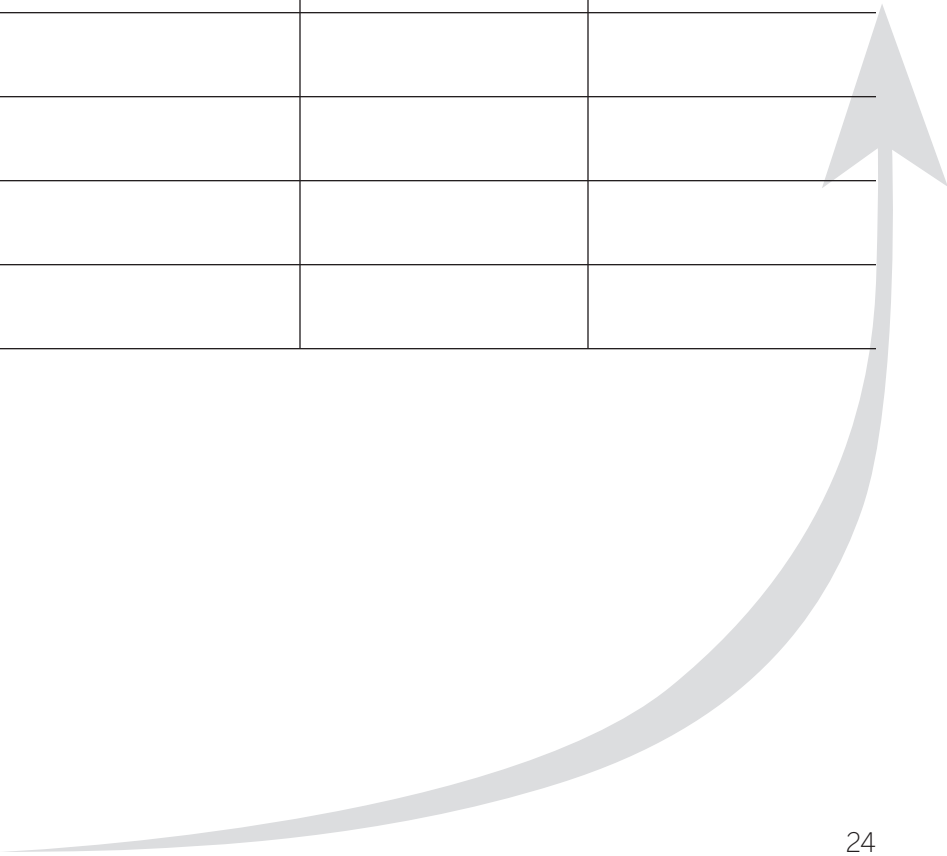
# Making a Commission



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**DATA TABLE**

DESCRIPTION OF REAL ESTATE	PRICE	COMMISSION @ 6%



# *The Median Message*

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**RECOMMENDATIONS:**

Grades 5 and up.

**OBJECTIVE:**

Students will find the cost of ten different apartments, houses, cars or other advertised items and compute the average cost and median price of the items.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, calculators, worksheet.

**PROCEDURES:**

1. Have students discuss what it means to be average, an average student, or an average citizen.
2. Use an example such as average number of children in a family or the average number of cars or televisions sets owned to illustrate statistical averages. Compare similar sets of data using all three types of average: the mean, the median and the mode. Discuss how each statistic is useful.
3. Demonstrate how to calculate a mean. Then use the same data to calculate the median. Lastly, show students how to figure out the mode.
4. Have students do a sample problem while the teacher monitors their work.
5. Have students complete their worksheets by collecting data and then calculating the mean, the median and the mode of that data set.



# The Wheel Deal

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**RECOMMENDATIONS:**

Grades 5 and up.

**OBJECTIVE:**

Students will calculate sales tax, a 10% down payment, and the balance due for given types of new cars.

**MATERIALS:**

Classroom set of The Times or The Times electronic edition, worksheet.

**PROCEDURES:**

1. Have students identify three new cars in the automotive section of the Classified ads that they would like to own.
2. Using the sales price from a car ad, demonstrate the steps to determine sales tax, a 10% down payment, and the balance due.
3. Ask questions about each math step, such as "What data is needed to calculate the balance due?" and "How does the balance due differ from the total purchase price?"
4. Have students complete their worksheets using the ads for the three cars they selected in step 1.

**EXTENSIONS**

- Students discuss and calculate lease vs. purchase of two different cars.
- Students discuss other cost considerations of purchasing a car, such as insurance, maintenance and fuel.
- Using the "Money on Wheels" worksheet (attached), have students calculate the total purchase cost of a car. Assign an interest rate based on current advertised rates for auto financing.

# The Wheel Deal

Name: \_\_\_\_\_

Date: \_\_\_\_\_

CAR MODEL		PRICE	SALES TAX	10% DOWN PAYMENT	BALANCE DUE
<b>SPORT</b>	DOMESTIC				
	IMPORT				
<b>COMPACT</b>	DOMESTIC				
	IMPORT				
<b>LUXURY</b>	DOMESTIC				
	IMPORT				

# Money on Wheels

Name: \_\_\_\_\_ Date: \_\_\_\_\_

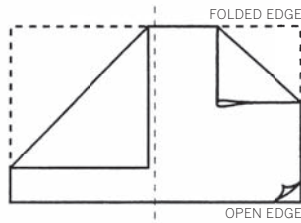
PASTE THE AD FOR THE CAR YOU SELECTED HERE:

1. Price of car ..... \$ \_\_\_\_\_
2. Sales tax ..... \$ \_\_\_\_\_
3. Full cash price of car ..... \$ \_\_\_\_\_
4. Subtract down payment ..... \$ \_\_\_\_\_
5. Amount to be financed ..... \$ \_\_\_\_\_
6. Interest rate ..... \$ \_\_\_\_\_
7. Interest cost per year ..... \$ \_\_\_\_\_
8. 5 years of loan **x 5**
9. Total interest cost ..... \$ \_\_\_\_\_
10. Total financed (add lines 5 and 9) ..... \$ \_\_\_\_\_
11. Monthly payment (divide by 60) ..... \$ \_\_\_\_\_
12. Total overall cost (add lines 4 and 10) ..... \$ \_\_\_\_\_

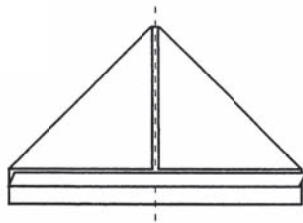
# How to Make a Pressperson's Hat

**MATERIALS:** A classroom set of The Times print edition.

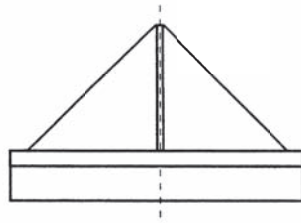
**PROCEDURES:**



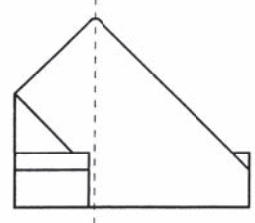
1. Lay a four-page broadsheet section of The Times folded on a table top or floor. Lay the section horizontally with the center fold at the top. Fold the top left corner down to the center line. Do the same with the same with the right top corner.



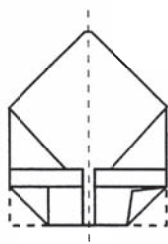
2. Fold up the edge of the top sheet to the base of the triangle and crease.



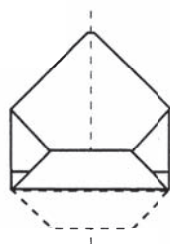
3. Fold the entire flap as far as it will go and crease again.



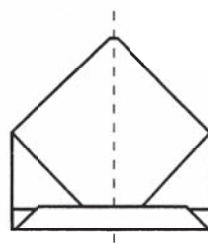
4. Turn the hat over and fold the right edge to the center line for an average head size. For a smaller size, overlap the center line by 1/4 inch. Fold the left side in the same manner toward the right edge



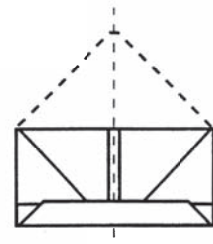
5. Fold the lower right and left corners to the bottom of your hat band.



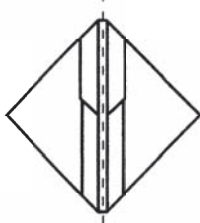
6. Fold the entire lower flap above the hat band.



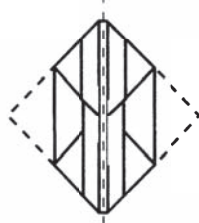
7. Now fold the top of the flap down and tuck into the hat band.



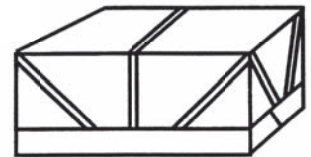
8. Fold the peak down to the bottom of the hat band and tuck it under the band.



9. Position the hat upright with the brim up. Pull the sides open and flatten into diamond shape. Crease all edges.



10. Tuck the corner into the brim.



11. Open the hat and crease the corners square on all four sides.

**EXTENSIONS**

Have students name the shapes as the folds in the hat are made.

Have students find different shapes in the folds of the hat. (i.e. squares, triangles, equilateral triangles, rhombus, etc.)

# What Do We Do With It Now?

## **OBJECTIVE:**

Students will recycle The Times and compare the amount of paper produced to the amount started with.

## **MATERIALS:**

Classroom set of The Times print edition, rulers, bucket, blender, 4 tablespoons of bleach (optional), water, screen or mesh (1 sq. ft.).

## **SKILLS:**

Measurement, calculating area, estimating, recycling.

## **PROCEDURES:**

1. Find the area of one complete sheet (4 broadsheet pages) of The Times and multiply by 10 broadsheet pages of newspaper.
2. Estimate how much paper you can recycle from 10 broadsheets.
3. Measure and calculate the area of your paper.
4. Recycle the newspaper following these steps:
  - Tear up 10 broadsheets of The Times into very small pieces (one inch by one inch).
  - Soak pieces in water. (Optional: add bleach to help remove the ink from the paper.)
  - Rinse the mixture several times with water.
  - Using a ratio of 1/4 cup paper to 3/4 cup water in a blender, pure the combination until it looks like oatmeal.
  - Spread a handful of the pureed mixture to an even thin layer onto a piece of screen about one foot square, making sure the layer has no holes.
  - Cover the screen and pulp with a piece of plastic wrap of equal area.
  - Let dry completely.
  - Completely peel the paper off of the screen. (Save the screen for next year!)
5. Compare the area of your recycled paper with the original paper.
6. Find the ratio of recycled paper to original paper.
7. Was there a difference between the area of the recycled paper and the original paper?
8. Ask students to explain why the amount of recycled paper differed from the amount of original paper.



# Quick Calcs

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## **ADVERTISEMENT MATH**

Create two-step word problems using ads in The Times.

## **BUY TWO, GET ONE FREE**

Using a sale ad in The Times, calculate the unit price of an item with a “buy two, get one free” offer.

## **CHECKBOOK SHOPPING SPREE**

Using an imaginary “balance” in your checkbook, go shopping through The Times to purchase items you might like to buy. Calculate and add the sales tax to determine total purchase price for each item. Record the purchase amount in a checkbook register and deduct the amount from your balance. Don’t overspend.

## **COMICAL CALCULATION**

Using the comics, carefully erase words from the speech balloons and write a word problem by steps — one step per frame.

## **COUPON MAGIC**

Read through the department store ads to find a sale item you would like to purchase. Imagine you have a coupon for 15% off the sale price. Determine the discount price with your coupon discount. Determine the percentage of total savings to the original price for the item.

## **GOING TO THE MOVIES**

Select a movie to see. Determine which showing you will attend by estimating the travel time to the theater, allowing time for parking, buying tickets, buying snacks, and buying seats. Assuming previews take 10 minutes and the theater allows 20 minutes between showings, estimate the playing time of a film using the show times from the Calendar section of The Times.

## **GRAPH THE MOVIES**

Survey the ads or theater schedules to determine the number of current playing films by ratings (G, PG, PG-13, R). Graph movies by ratings.

## **OTHER SPORTS CALCULATIONS**

Determine track and field running times or swimming times in miles per hour by converting distance in meters or kilometers into feet, then converting feet into miles, then convert the times in seconds into hours, then divide the distance in miles by the time in hours.

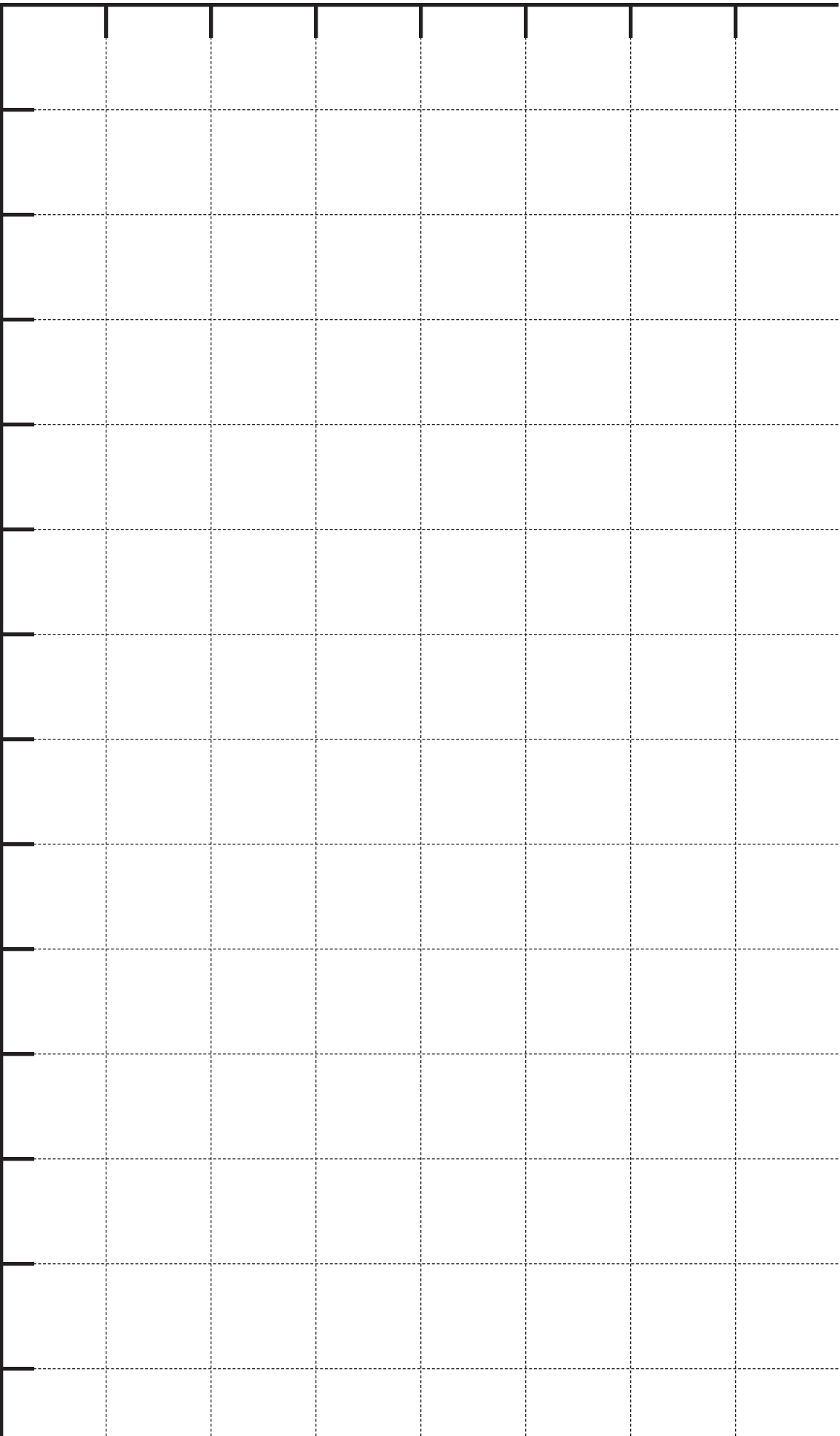
## **TAKE A POLL**

Review the “top 10 charts” in the Calendar section. Survey 30 students and record their responses to a question or a ranking in order for favorite movie, CD, or television show. Survey 30 adults with the same question. Compare and graph the results.

## **TV TIMES**

Create a TV log of the shows you watch on television for an entire week. Using the television listings in the Calendar section, record the times these shows are aired. Determine the length of each show in minutes. Total the time spent watching television for the week into hours and minutes.

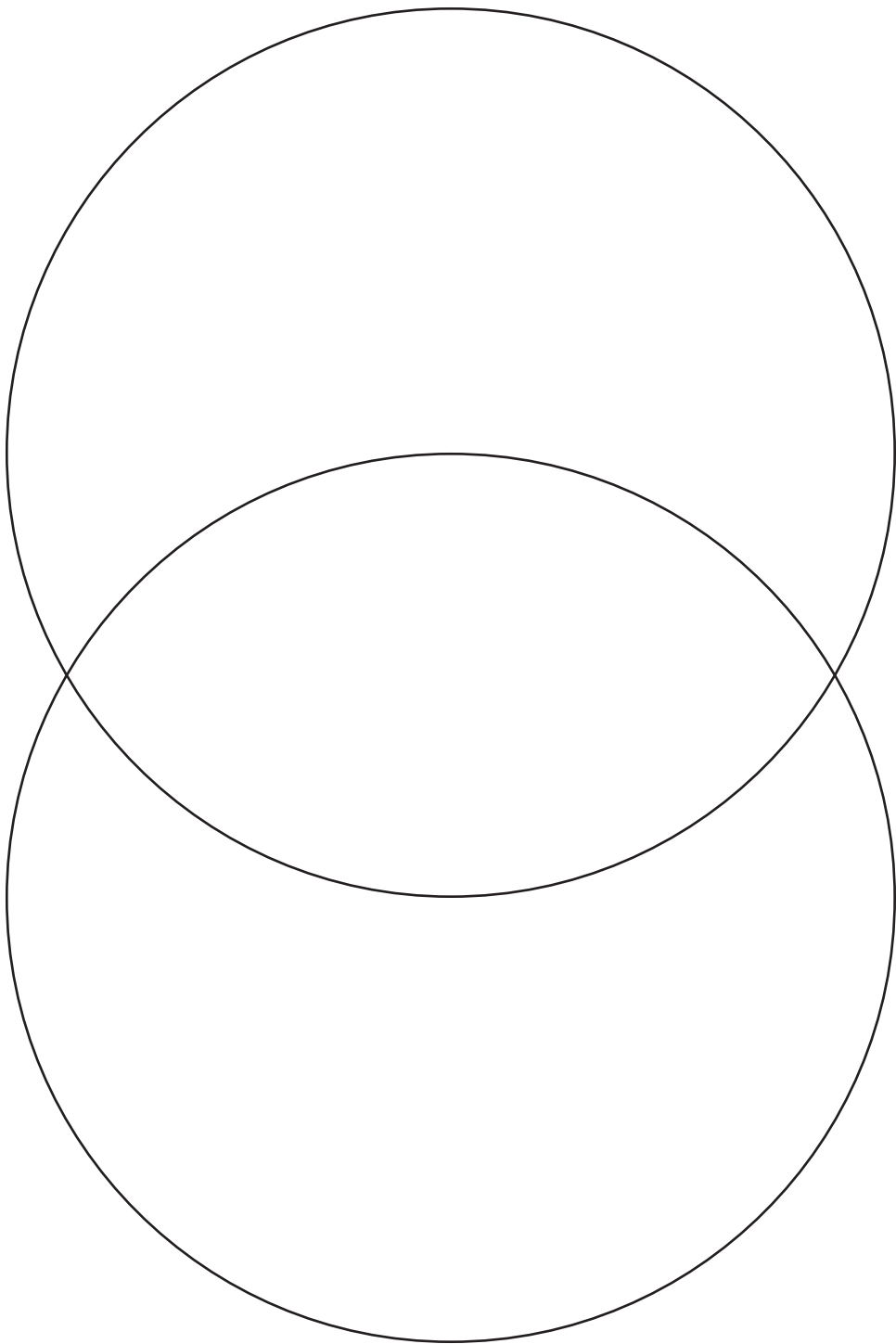
# Graphs



# Venn Diagram Master

Name: \_\_\_\_\_

Date: \_\_\_\_\_

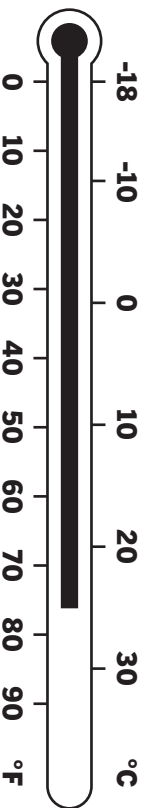


# Table of Weights and Measurements

## CONVERSION TABLE

To Convert	Into	Multiply by	To Convert	Into	Multiply by	To Convert	Into	Multiply by		
<b>Centimeters</b>	Inches	.394	<b>Liters</b>	Cups	4.226	<b>Inches</b>	Centimeters	2.54		
	Feet	.0328		Pints	2.113		Feet	.0833		
	Meters	.01		Gallons	.264		Meters	.0254		
<b>Meters</b>	Millimeters	10	Milliliters	1000	Yards	.0278	<b>Quarts</b>	Pints	2	
	Centimeters	100	Quarts	1.057	<b>Yards</b>	Inches		36	Liters	.946
	Feet	3.281	<b>Grams</b>	Ounces		.035		Feet	3	Gallons
	Inches	39.37		Pounds	.002	Meters	.914	<b>Gallons</b>	Liters	3.785
	Kilometers	.001		Kilograms	.001	Miles	.0005682		Pints	8
Millimeters	1000	<b>Kilograms</b>	Grams	1000	<b>Miles</b>	Feet	5280	Quarts	4	
Yards	1.093		Ounces	35.274		Yards	1760	<b>Ounces</b>	Grams	28.35
<b>Kilometers</b>	Feet	3281	Pounds	2.205	Kilometers	1609	<b>Pounds</b>		Grams	453.59
	Meters	1000	<b>Pounds</b>	Grams	453.59	<b>Ounces</b>		Ounces	16	
	Miles	.621		Kilograms	454		<b>Pounds</b>	Kilograms	.454	
	Yards	1093								

## TEMPERATURE



$$\text{Celsius} = \frac{5}{9} (\text{F}-32)$$

$$\text{Fahrenheit} = \frac{9\text{C}}{5} + 32$$

## KITCHEN MEASUREMENTS

3 tsp.	=	1 tbsp.	2 cups	=	1 pint
4 tbsp.	=	1/4 cup	4 cups	=	1 quart
5-1/3 tbsp.	=	1/3 cup	2 pints	=	1 quart
16 tbsp.	=	1 cup	4 quarts	=	1 gallon

# Performance Indicators

Name: \_\_\_\_\_ Date: \_\_\_\_\_

<b>NOT UNDERSTANDING</b>	<b>DEVELOPING</b>	<b>UNDERSTANDING/APPLYING</b>
<p><b>CONCEPT UNDERSTANDING</b></p> <ul style="list-style-type: none"> <li>Does not routinely model concept manipulate correctly</li> <li>Cannot explain concept</li> <li>Does not attempt problems</li> <li>Does not make connections</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates partial or satisfactory understanding</li> <li>Can demonstrate and explain using a variety of modes (oral, written, objects models, drawings, diagrams)</li> <li>Is starting to make how and why connections</li> <li>Relates concept to prior knowledge and experiences</li> <li>Can create related problems</li> <li>Accomplishes tasks, though minor flaws</li> </ul>	<ul style="list-style-type: none"> <li>Correctly applies rules or algorithm on how to symbols</li> <li>Connects on both how and why</li> <li>Can apply concept in new or problem situations</li> <li>Can see and explain connections</li> <li>Accomplishes tasks and goes beyond</li> </ul>
<p><b>UNDERSTANDING THE PROBLEM OR SITUATION</b></p> <ul style="list-style-type: none"> <li>Does not attempt the problem</li> <li>Misunderstands the problem</li> <li>Routinely requires explanation of the problem</li> </ul>	<ul style="list-style-type: none"> <li>Copies the problem</li> <li>Identifies key words</li> <li>May misinterpret or misunderstand part of the problem</li> <li>May have a sense of answer</li> </ul>	<ul style="list-style-type: none"> <li>Can restate or explain the problem coherently</li> <li>Understands key conditions</li> <li>Eliminates unnecessary information</li> <li>Identifies needed information</li> <li>Has a sense of answer</li> </ul>
<p><b>APPLIES STRATEGIES, CONCEPTS, PROCEDURES LOGICALLY</b></p>		
<ul style="list-style-type: none"> <li>Makes no attempt</li> <li>Relies on others to select and apply strategies</li> <li>Provides work that is not understandable</li> <li>Cannot explain work or strategy adequately</li> <li>Selects inappropriate strategies</li> <li>Is not logical or orderly in implementation</li> </ul>	<ul style="list-style-type: none"> <li>Uses strategy if told</li> <li>Recognizes strategy</li> <li>Can explain strategy</li> <li>Can explain strategy but may need assistance in its implementation</li> <li>Can present work in an acceptable manner</li> </ul>	<ul style="list-style-type: none"> <li>Generates new procedures</li> <li>Extends or modifies strategies</li> <li>Knows or uses many strategies</li> <li>Knows when a strategy is applicable</li> <li>Presents work logically and coherently</li> </ul>
<p><b>VERIFIES RESULTS</b></p>		
<ul style="list-style-type: none"> <li>Does not review calculations, procedures</li> <li>Does not recognize if answer is or isn't reasonable</li> </ul>	<ul style="list-style-type: none"> <li>Reviews calculations, procedures</li> <li>Can ascertain reasonableness if questioned</li> </ul>	<ul style="list-style-type: none"> <li>Checks reasonableness of results</li> <li>Recognizes unreasonable</li> </ul>
<p><b>EXTENDS THE PROBLEM, MAKES CONNECTIONS</b></p>		
<ul style="list-style-type: none"> <li>Does not attempt to make extensions</li> <li>Does not make connections</li> <li>Cannot extend ideas to new applications</li> <li>Does minimum expected</li> </ul>	<ul style="list-style-type: none"> <li>Can recognize similar problems or applications</li> <li>Makes connections</li> <li>Can apply ideas to new applications</li> </ul>	<ul style="list-style-type: none"> <li>Proposes and explores extensions</li> <li>Can create parallel problems by varying conditions of original problem</li> </ul>

# Holistic and Analytic Scoring

Performance indicators can be used to develop holistic and analytic scoring rubrics.

## HOLISTIC SCORING OF STUDENT WORK

Holistic scoring awards one score, which represents an evaluation of the total performance. Rating criteria should reflect specific and important elements of a solution to a problem.

Drafting performance indicators will be useful in developing the rating system. For example:

0 points for no attempt

1 point for inadequate product or solution

2 points for acceptable product or solution

3 points for superior product or solution

The following chart demonstrates general criteria and indicators to consider in determining your rating scale.

## COMPARISON OF SCORING METHODS

HOLISTIC SCORING awards one score, which focuses on the total performance.

ANALYTIC SCORING awards points for each of several major components, phases, or objectives.

<i>Inadequate Product or Solution</i>	<i>Acceptable Product or Solution</i>	<i>Superior Product or Solution</i>
<b><i>Not Understanding the Concept</i></b>	<b><i>Developing the Concept</i></b>	<b><i>Understanding/Applying the Concept</i></b>
<b>UNDERSTANDING WHY AND HOW</b>		
<ul style="list-style-type: none"> <li>○ Demonstrates no or little evidence of understanding</li> <li>○ Does not accomplish tasks</li> <li>○ Makes critical or many mistakes</li> </ul>	<ul style="list-style-type: none"> <li>○ Demonstrates partial or satisfactory understanding</li> <li>○ Understands major aspects, though parts may be missing</li> <li>○ Accomplishes tasks, though minor flaws</li> </ul>	<ul style="list-style-type: none"> <li>○ Clearly understands outcome</li> <li>○ Can demonstrate in-depth, extended understanding</li> <li>○ Accomplishes tasks and goes beyond</li> <li>○ Shows special insights</li> </ul>
<b>COMMUNICATION</b>		
<ul style="list-style-type: none"> <li>○ Has difficulty communicating ideas and explanation</li> <li>○ May answer simple questions</li> <li>○ Does not use or misuses terms</li> </ul>	<ul style="list-style-type: none"> <li>○ Can communicate successfully on some aspects</li> <li>○ Expresses ideas in rudimentary form</li> <li>○ May need some assistance or prompts</li> </ul>	<ul style="list-style-type: none"> <li>○ Communicates clearly and effectively</li> <li>○ Explains thinking process well</li> <li>○ Can communicate ideas in several forms (orally, in writing, drawings, graphs)</li> </ul>
<b>USE OF MATERIALS</b>		
<ul style="list-style-type: none"> <li>○ Needs more exploration with materials</li> <li>○ Cannot use materials without assistance. Watches to see how others are doing it before trying it on own.</li> <li>○ Does not attempt to use materials</li> </ul>	<ul style="list-style-type: none"> <li>○ Generally uses materials effectively</li> <li>○ May require occasional assistance</li> </ul>	<ul style="list-style-type: none"> <li>○ Uses materials effectively</li> </ul>