

$\$352 - \$67 = \$285$   
 $555 - 49 = 506$

**Newspapers  
+ Math  
= Fun**

$1,000 + 200$   
 $5 - 2 = 3$   
 $3/4 - 1/2 = 1/4 + 440 = 1,640$   
 $2 + 2 = 4$   
 $\$200 \times 20\%$

**New York Newspaper  
Publishers Association  
February 2002**

# **Newspapers + Math = Fun**

**A TEACHER'S GUIDE FOR NEWSPAPER IN EDUCATION**

## **INTRODUCTION**

The Newspapers + Math = Fun curriculum guide was developed around the eight math standards established by the Standards for School Mathematics prepared by the National Council of Teachers of Mathematics. Activities for each standard are divided into two grade groups: K through 4 and 5 through 8. There is a reproducible activity sheet at each grade level for each standard.

The activities in this guide were developed by newspaper representatives on the PNPA-NIE Committee, and members of the Pennsylvania Department of Education, Millersville University, and the Capital Area Math/Science Alliance.

The standards correlations to the New York Math Standards were completed by Use The News for the NYNPA NIE Program. Funding for correlations was made possible by a grant from the New York Newspapers Foundation.

# New York State Math Standards

*National Standard 1:* All students use numbers, number systems and equivalent forms (including numbers, words, objects and graphics) to represent theoretical and practical situations.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 .....	1 .....	3
Activity 2 .....	1 .....	3
Activity 3 .....	1 .....	3
Activity 4 .....	2 .....	3
Activity 5 .....	2 .....	3
Activity 6 .....	2 (3) .....	3
Activity 7 .....	2 .....	3
<b>Grades 5-8</b>		
Activity 1 .....	4 .....	3
Activity 2 .....	4 .....	3
Activity 3 .....	4 .....	3
Activity 4 .....	4 (5) .....	3
Activity 5 .....	4 .....	3

*National Standard 2:* All students compute, measure and estimate to solve theoretical and practical problems, using appropriate tools, including modern technology such as calculators and computers.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 .....	6 .....	3, 5
Activity 2 .....	6 .....	3
Activity 3 .....	6 (7) .....	3
Activity 4 .....	6 .....	3
Activity 5 .....	6 .....	3
<b>Grades 5-8</b>		
Activity 1 .....	8 .....	3
Activity 2 .....	8 .....	3
Activity 3 .....	8 (9) .....	3, 5
Activity 4 .....	8 .....	3, 7

# New York State Math Standards

*National Standard 3:* All students apply the concepts of patterns and relations to solve theoretical and practical problems.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 . . . . .	10 . . . . .	3
Activity 2 . . . . .	10 . . . . .	3
Activity 3 . . . . .	10 (11) . . . . .	3
Activity 4 . . . . .	10 . . . . .	3
<b>Grades 5-8</b>		
Activity 1 . . . . .	12 . . . . .	3
Activity 2 . . . . .	12 . . . . .	3
Activity 3 . . . . .	12 . . . . .	3
Activity 4 . . . . .	12 . . . . .	3
Activity 5 . . . . .	12 (13) . . . . .	3

*National Standard 4:* All students formulate and solve problems and communicate the mathematical processes used and the reasons for using them.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 . . . . .	14 . . . . .	3
Activity 2 . . . . .	14 (15) . . . . .	3
Activity 3 . . . . .	14 . . . . .	3
Activity 4 . . . . .	14 . . . . .	3
<b>Grades 5-8</b>		
Activity 1 . . . . .	16 . . . . .	3
Activity 2 . . . . .	16 . . . . .	3
Activity 3 . . . . .	16 . . . . .	3
Activity 4 . . . . .	16 . . . . .	3
Activity 5 . . . . .	16 . . . . .	3
Activity 6 . . . . .	17 (18) . . . . .	3
Activity 7 . . . . .	17 . . . . .	3

*National Standard 5:* All students understand and apply basic concepts of algebra, geometry, probability and statistics to solve theoretical and practical problems

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 . . . . .	19 (20) . . . . .	3
Activity 2 . . . . .	19 . . . . .	3
Activity 3 . . . . .	19 . . . . .	3
Activity 4 . . . . .	19 . . . . .	3
<b>Grades 5-8</b>		
Activity 1 . . . . .	21 . . . . .	3
Activity 2 . . . . .	21 . . . . .	3
Activity 3 . . . . .	21 (22) . . . . .	3
Activity 4 . . . . .	21 . . . . .	3

# New York State Math Standards

*National Standard 6:* All students evaluate, infer and draw appropriate conclusions from charts, tables and graphs, showing the relationships between data and real world situations.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 .....	23 .....	3
Activity 2 .....	23 (24) .....	3
Activity 3 .....	23 .....	3
Activity 4 .....	23 .....	3
<b>Grades 5-8</b>		
Activity 1 .....	25 (26) .....	1,3
Activity 2 .....	25 .....	1,3
Activity 3 .....	25 .....	3
Activity 4 .....	25 .....	3

*National Standard 7:* All students make decisions and predictions based upon the collection, organization, analysis and interpretation of statistical data and the application of probability.

<b>Grades K-4</b>	<b>Page</b>	<b>NYS Standard</b>
Activity 1 .....	27 .....	3
Activity 2 .....	27 .....	3
Activity 3 .....	27 .....	3
Activity 4 .....	27 .....	3
Activity 5 .....	28 .....	3
<b>Grades 5-8</b>		
Activity 1 .....	29 .....	3
Activity 2 .....	29 .....	1, 3
Activity 3 .....	30 (31) .....	1, 3

# Mathematics Standard 1

ALL STUDENTS USE NUMBERS, NUMBER SYSTEMS AND EQUIVALENT FORMS (INCLUDING NUMBERS, WORDS, OBJECTS AND GRAPHICS) TO REPRESENT THEORETICAL AND PRACTICAL SITUATIONS.

## Grades K-4 Activities

1. Look at a grocery store ad in your newspaper. Circle five numerals.  
Teacher reinforcement:
  - \* Write a numeral on the board (such as “1”) and have students who found a “1” stand. Continue with other numerals.
  - \* Put students in groups of two. Have students put the numbers they found in order from smallest to greatest.
  - \* Allow students to come to the board and write an odd numeral in blue chalk and an even numeral in yellow chalk.
2. Find at least ten headlines or subheads in your newspaper that contain different numbers in any form (1st, 50, 2 to 1). Identify the ways the numbers are used (1st = which game; 50 = number of years; 2 to 1 = baseball score).  
Teacher Reinforcement:
  - \* As a class, find numbers in all sections of the newspaper (sports, TV, comics). Arrange numbers into categories according to usage (time, money, scores, ratios, percentage). Write examples for each category.
  - \* Read headlines aloud to students before they have their own newspapers. Ask them to predict what types of numerical information might be found in the article(s).
    - List student predictions on the board.
    - Read the article(s) aloud.
    - Have students identify the numerical data as you read.
    - Compare their predictions with the actual data.
  - \* Find and list number words such as *single*, *trio*, *quartet*, *first*, *second*. In a library find the language of origin for these number words (Greek, Latin)
3. Look through the newspaper and cut out pictures:
  - Arrange pictures according to size.
  - Arrange pictures according to number of people in each picture.
  - Estimate number of times smallest picture will fit inside largest picture.

4. Write your age on a piece of paper. Look in the newspaper for a numeral that is:
  - A numeral one greater than your age.
  - A numeral one less than your age.
  - A numeral ten greater than your age.
  - A numeral three less than your age.

5. Cut out ten numbers from a newspaper. Draw a number line and paste them in the correct order along the line.

Extension

Group odd and even numbers separately in descending order.

6. Cut numbers from the newspaper and paste in the correct places on the clock face on the activity page “What about time?” on page 3. Cut five references to time from the newspaper ads or TV listings and paste them in the appropriate time slot on the clock.

7. Cut and paste numerals found in a newspaper. Circle the number in the ones place with a red crayon, the number in the tens place with a green crayon, and the number in the hundreds place with blue crayon.

Extension

Find the prices of: a car, a house, a food item, a toy, a piece of clothing, a piece of furniture, a shoe and a gardening item. Place the price of these items on a chart like the one below, putting each digit in the correct column.

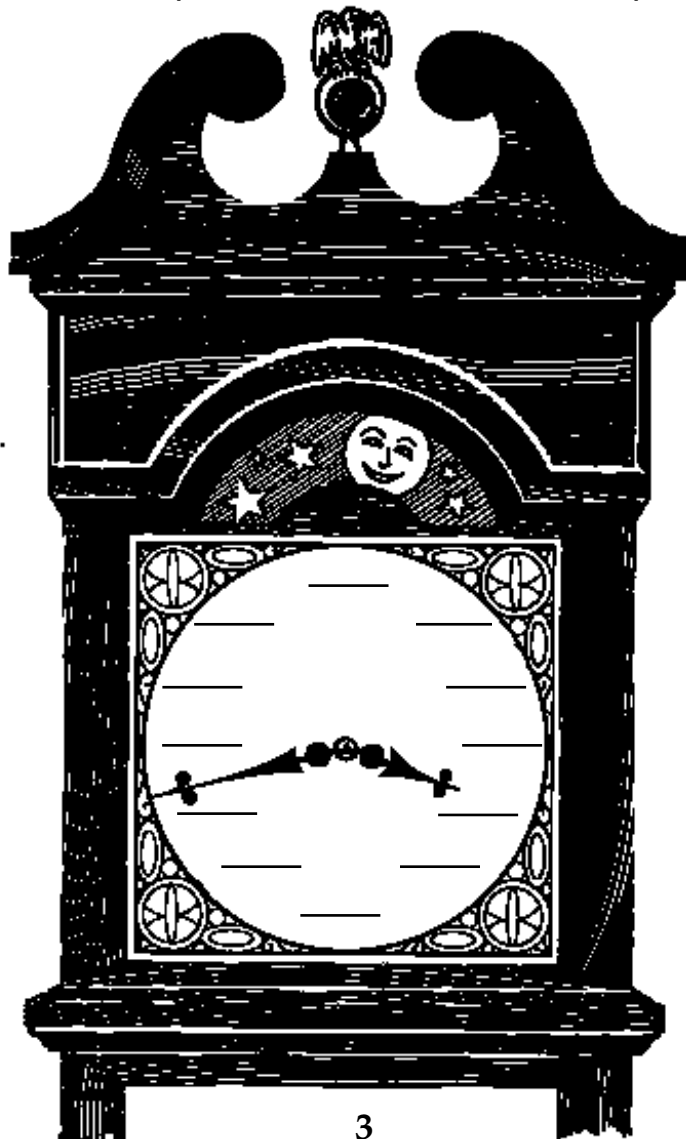
Number	Hundred/ thousands	Ten thousands	Thousands	Hundreds	Tens	Ones

Teacher Reinforcement:

- \* Have students write their own examples of numerals with numbers in ones and tens positions. Students with more experience with numbers can write examples of numerals with ones through hundred thousands. Have students read and write in expanded notation.

## What about time?

1. Look through your newspapers for numbers. Cut numbers from the newspaper that would go on the face of a clock. Paste the numbers in the correct spots on the clock below.
2. Find places in the newspaper where a time is shown. Cut out 5 examples of time and paste them on the correct spots on the clock.



## Grades 5-8 Activities

1. Find a recipe in your newspaper that looks appealing to you.
  - Adapt the recipe to serve half the amount of people.
  - Adapt the recipe to serve twice as many people.
  - Adapt the recipe to serve the number of people in your class.
2. Look at display advertisements in the newspaper for examples of percentages and fractions. Locate ten of each, cut them out and paste them on a piece of paper. Convert fractions to percentages and percentages to fractions using a calculator. Write your answers next to the numbers you've pasted on the page. What steps did you follow to convert the percents and fractions? Write down your steps and exchange them with a classmate. Did you both convert the percents and fractions the exact same way? If not, teach your partner the approach you used.
3. Locate price listings of regular price and sale price items. Make a table listing the regular and sale price of each item. Using a calculator compute the percent of savings if you purchase the sale-priced item. What is the largest saving you could make on one item?
4. Use the weather map in the newspaper and the activity page "Temperature Roundup" on page 5 to compare the weather in different places. Locate five cities. Indicate high temperature and low temperature for a day. Arrange cities from highest percentage of difference to lowest percentage of change. Discuss possible reasons for the range of temperatures, such as climate, location, etc.
  - Calculate the average high temperature and the average low temperature. Which city has high temperature closest to the average high? Which city has low temperature closest to the average low?
  - What are the mean low and mean high temperatures? which city is closest to the mean low and which is closest to the mean high?
5. Identify multiple uses of numbers encountered in the real world. How does a newspaper use numbers to communicate about a newspaper? (page, date) How does a newspaper use numbers to communicate about the real world?

# Temperature Roundup

1. Look at the weather map in your newspaper. Locate five different cities on the map.
2. Write the high and low temperatures for each city on the chart below. Find the difference in each city's temperature by subtracting the low temperature from the high temperature.

City	High	Low	Difference

3. Calculate the average high temperature and the average low temperature.

Avg. high \_\_\_\_\_

Avg. low \_\_\_\_\_

4. Which city has the high temperature closest to the average high?  
\_\_\_\_\_
5. Which city has the low temperature closest to the average low?  
\_\_\_\_\_
6. Which city has the median high temperature?  
\_\_\_\_\_
7. Which city has the median low temperature?  
\_\_\_\_\_

## Mathematics Standard 2

ALL STUDENTS COMPUTE, MEASURE AND ESTIMATE TO SOLVE THEORETICAL AND PRACTICAL PROBLEMS, USING APPROPRIATE TOOLS, INCLUDING MODERN TECHNOLOGY SUCH AS CALCULATORS AND COMPUTERS.

### Grades K-4 Activities

1. Make a list of ten items you would like to purchase at the store and estimate the amount of money you will spend. Then find the prices of the items in the newspaper. Using a calculator, add up your bill. How close was your estimate?

Extension

Look through the newspaper and see if you can find coupons for any of the items. How much money could you save if you were to clip coupons (use a calculator)?

2. Cut six photos (or ads) from a newspaper. Arrange them in order from largest to smallest. Measure the area of the smallest and largest. What is the difference?

Extension

Skim the front page. Choose what you feel is the most important story. Measure the space covered by that story, include any graphics or photos. Compare your choice with that of another person. Discuss why you chose the article you did. Which article was longer? Write an explanation why you think the editor gave that much space to that particular story.

Extension

Did either article jump to another page? Measure the space used on the inside page.

3. Use the activity page “Greater or smaller” on page 7 to compare numbers. Cut out pairs of numbers and paste each on the correct side of the “greater than” sign ( $>$ ) to make a correct comparison.
4. In groups, use different sections of your newspaper. Estimate how many photographs will be in that section. Count the photographs page by page. How many are there? What is the difference between your guess and the actual number? Compare sections. Check for consistency by comparing the same sections for several days.
5. Locate a square in the newspaper.
  - Measure the length and width of the square using inches.
  - Convert your measurements to the metric system.
  - Determine the perimeter of the square.
  - Determine the area of the square.

Name \_\_\_\_\_

# Greater or smaller?

1. Cut out ten numbers from the newspapers. Put the numbers in a pile face down.
2. Draw two numbers. Decide which number is greater.
3. Write the greater number on the left side of the “greater than” sign. Write the smaller number on the right side of the “greater than” sign.
4. Check your answers with a friend.

\_\_\_\_\_  $>$  \_\_\_\_\_

\_\_\_\_\_  $>$  \_\_\_\_\_

\_\_\_\_\_  $>$  \_\_\_\_\_

\_\_\_\_\_  $>$  \_\_\_\_\_

\_\_\_\_\_  $>$  \_\_\_\_\_

## Grades 5-8 Activities

1. Look at the front page of your newspaper. Estimate which gets more space, words or graphics. (Graphics include photos, art and flag, which is the newspaper name).
  - Measure the areas of the graphics on the front page. Also measure the area of whole page. Compare graphics and whole page areas. Was your estimate accurate?
  - Based on your finding, predict the ratio of graphics to text for the next three days. Follow-up with measurements. (Note to teacher: Use measurement appropriate to grade, i.e. to closest inch or half inch.)

2. Find the times of sunrise and sunset. Calculate daytime and nighttime to the minutes.

### Extension

Graph the length of daytime and nighttime over an extended period of time (i.e. three weeks). Discuss the results. How do you think it will differ six months from now?

3. Look through the classified ads in your newspaper. You will notice that cars of the same model and year have different prices. They have different prices because one may have added features — such as air conditioning, power windows or a sun roof — that make it more expensive. Use the activity page “Comparing cars” on page 9 to compare prices. Record three different prices for the same car. With a calculator, compute the average price of the car.
4. How much would it cost you to get information to 95,000 people using the post office or the newspaper? Measure the size of a postcard. Assume it costs 21 cents to mail the postcard. Look through a newspaper for an ad about the same size as a postcard. Assume that a newspaper ad of this size costs \$350. Would it be less expensive to buy the ad space or send the postcard to reach 95,000 people? Calculate the difference between the two costs. Why would some consider the newspaper ad a bargain?

# Comparing cars

1. Locate used car ads in the classified ad section of your newspaper.  
Select a model and year of one car.
2. Locate three ads for the same model and year of car.
3. Write the prices for each car in the chart below.
4. Find the average price of each car.

Car (model and year)	Price #1	Price #2	Price #3	Average = $\frac{P1+P2+P3}{3}$

5. Look at the features listed for each of the cars of the same model and year.  
Why are there differences in the prices? Explain your reasons below.

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## Mathematics Standard 3

ALL STUDENTS APPLY THE CONCEPTS OF PATTERNS AND RELATIONS TO SOLVE THEORETICAL AND PRACTICAL PROBLEMS.

### Grades K-4 Activities

1. Locate and skim the classified section. What patterns do you see? (Note to teacher: Categories are listed numerically and ads are listed alphabetically within the categories.) Which classified category is the largest? Did you base your answer on the numbers of ads in the category or the amount of physical space the category occupied?
2. Look at the front page of a section of the newspaper. Draw a square around each story on the page. What do all of the stories have in common? (Note to teacher: Elements in common may include headlines, bylines, datelines, paragraphs.)
3. Turn to the weather page. Highlight five cities in the U.S. or in the world and their temperatures for one day. Use the activity page “Hot stuff!” on page 11 to examine the weather in these cities. List the name of each city and its high temperature. Put a number one after the temperature of the city with the highest temperature. Put a number 2 after the temperature of the city with next highest temperature. Continue with all cities.

Rewrite cities and temperatures in order from highest to lowest. Locate the high temperature for the day in your hometown. How many cities from your list have warmer temperatures than your hometown? How many have colder temperatures?

4. Locate the TV grid in your newspaper. Look at the chart that lists the channels and times for viewing. What patterns can you find?
  - Each child takes a channel and colors 1/2-hour slots red, 1-hour slots green, 1 1/2-hour slots blue and 2-hour slots purple. Record color patterns of a channel using the first letter of the colors ( R-R-R-G-G-B). Share findings with the class. Did the entire class find any of the same patterns?

EXAMPLE-VISUAL

Name \_\_\_\_\_

# Hot stuff!

1. Find five cities on the weather page of your newspaper.  
Highlight the cities and their high temperatures for the day.
2. Give each city a rank number based on its high temperature.  
The city with the highest temperature gets a “1”, the city with the next highest temperature gets a “2” and so on.

Name of city	High temperature	Rank

3. What is the high temperature of your hometown? \_\_\_\_\_

4. How many cities are warmer than your hometown? \_\_\_\_\_

5. How many cities are colder than your hometown? \_\_\_\_\_

## Grades 5-8 Activities

1. Select a newspaper page that has both ads and news stories.
  - Estimate the portion of the page that the ads occupy.
  - Measure the ads in square units or column inches. (A column inch is equal to an area one newspaper column wide and one inch deep.)
  - Compare your estimation with the actual stories.
  - Write a ratio comparing ad space to news space.
2. Obtain several different issues of the same newspaper. Identify patterns in the layout of the newspapers. (Note to teacher: Examples may include placement of page numbers, section headings and location of the weather.)
3. Look at the classified section of the newspaper. What patterns are present in the way the ads are listed? Are the ads listed in any special order? Is there a difference between sections? Write your own ad and figure out where it should be placed according to the patterns you recognized.
4. Go to crossword puzzle:
  - How many single block units are blackened out?
  - How many single block units are there?
  - What % is black?
  - What is the ratio of black to white or black to total?
  - How many reflections or translations do you see?  
( editor's note—definition needed)
5. Look through the advertisements and classified section of the newspaper and circle patterns in prices of items. In the chart on activity page "Price patterns" on page 13, find the pattern in the sequence and determine the missing prices. Place patterns you found in the newspaper in the empty sequences.

# Price patterns

1. Look through the advertisements and classified section and circle patterns in the prices of items
2. In the chart below, find the pattern in the sequence and identify the missing prices.
3. Locate numbers to complete the sequences in the newspaper. Fill in the empty sequences with the numbers you located in the newspaper.
4. Exchange your patterns with a friend.

\$0.99	\$1.09	\$_____	\$1.29	\$_____	\$1.49
\$5,995	\$_____	\$8,995	\$11,995	\$15,995	\$_____
\$119	\$219	\$619	\$1,519	\$_____	\$_____
\$_____	\$0.69	\$0.79	\$0.74	\$0.84	\$_____
\$2,400	\$1,200	\$4,800	\$2,400	\$_____	\$_____
\$_____	\$_____	\$_____	\$_____	\$_____	\$_____

## Mathematics Standard 4

ALL STUDENTS FORMULATE AND SOLVE PROBLEMS AND COMMUNICATE THE MATHEMATICAL PROCESSES USED AND THE REASONS FOR USING THEM.

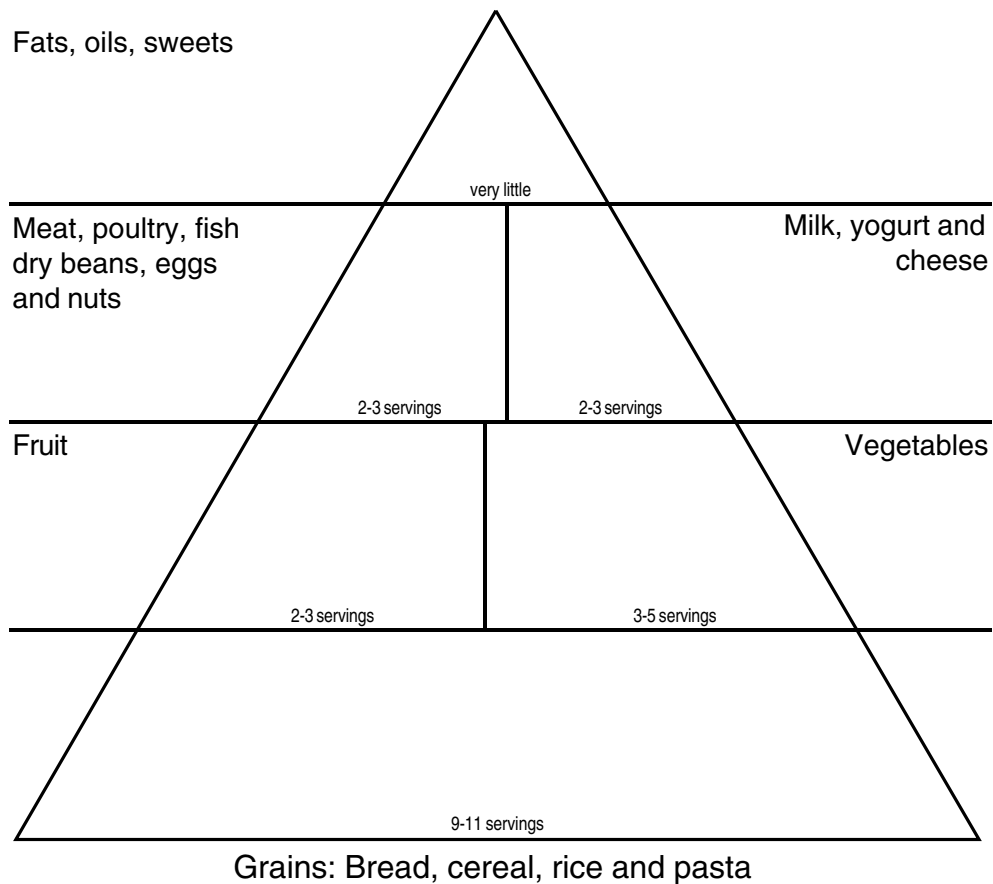
### Grades K-4 Activities

1. You are having friends over to your house for the day. Plan activities for them to do throughout the day. Look through the newspaper and cut out different activities that they would enjoy. Make a chart that divides the day into time slots. Paste an activity into each time slot. Examples of activities: movies, plays, television programs, concerts, restaurants or sports.
2. Divide your class into teams. Use the food advertisements to help plan a nutritious, tasty meal to serve your team. Determine the cost of your meal from the prices in the ads.
  - Compare the teams choices for nutritional value and best money value.
  - Plan meals for one day within guidelines of food pyramid.
  - Which team spent the least amount of money? Discuss if this amount of money represents choices of good nutritional value?
  - Cut out the items you would use to make your nutritious meal and paste them in their proper space on the food pyramid pictured on the activity page “Good choices” on page 15. Is your meal complete? Does it have at least one item from each portion of the pyramid?
3. Imagine that you are going to take an imaginary day trip to a destination of your choice. You have \$100 to spend. Write the costs for your trip including; transportation, meals, and entertainment. Make an agenda for the day including all of your activities and expenses. Include an explanation of why you made your choices. Will you have any change from the \$100 you are given?
4. Clip something from the food ads in the newspaper that you would like to buy and costs less than \$1. Paste the item on a piece of paper. You saved pennies, nickels and dimes to buy the item. Draw pictures of coins ( 1¢, 5¢, 10¢ ) you would use to buy this item. What other combinations of coins could be used?

Name \_\_\_\_\_

# Good choices

1. Look at the grocery store ads in your newspaper.
2. Plan one meal using items you find in the grocery ads.
3. Cut out the items you would use in your meal and paste them in the correct part of the food pyramid below.



## Grades 5-8 Activities

1. Assume a full page ad in the newspaper costs \$ 5,500. Using this information:
  - What is the cost for a half page ad?
  - What is the cost for a quarter page ad?
  - What is the cost for a two page ad?
  - What would an ad cost per inch for each ad?
  - Imagine you were trying to sell a product. What size ad would you choose? Why?
2. Choose five sports teams. Find the number of wins, loses and ties for each team in the newspaper. If a player received \$1,000 for a win, \$300 for a lose and \$550 for a tie what would a player on each team have earned so far this season? Calculate the maximum amount of money a player from each team could have made if the team would have won every game. How much would a player make if the team lost every game? Make your own pay scale for the players and and exchange it with a friend.
3. Create an auto campaign. Look up the prices of different cars in the newspaper. Find the weight of each car. What is the car's price per pound? What is the car's price per kilogram? Compare five cars. Which would be the best buy? Make a chart to support your answer.
4. From the classified section, choose a car that you would like to buy. You may choose to pay for the car for:
  - three years at 8%.
  - four years at 10%.
  - five years at 12%.
  - Which loan would you choose?
  - What would be the final cost for the car with each loan? If you chose 8% for three years for a car costing \$12,000, each year would pay back about \$4,000. The first year would be 8% of \$1,200, the second 8% of \$8,000 and the third year 8% of \$4,000.
5. Choose a new car from the classified section. Look in the "Used Auto" section of the paper and find the same car in an earlier model. The price of a car automatically depreciates when it is driven off of the car lot because it is no longer a new car. Calculate the depreciation of five cars. Make a chart including the price of a new car, price of an older car and the depreciation of the car. Compare the amount of depreciation of the cars? Using this data, what kind of car would you buy? Why?

6. Your parents have decided to redecorate your bedroom and you are to help choose the carpeting and furniture. You have \$1,000 to spend:
  - Choose an ad for carpeting that provides the price per square yard and determine how much carpeting you will need if your bedroom is 12' X 12'. Calculate the cost. Actually measure your room and calculate how much this same carpeting would cost.
  - You may use the rest of the \$1,000 to buy furniture and accessories. List the items you would purchase and the cost of each on the activity sheet "Interior decoration" on page 18. Find the total cost of carpet and furniture. Did you stay within your budget? If not, will you eliminate items, get a job to earn the rest, or negotiate a solution with your parents?
7. Turn to the stock listings in your newspaper. Your grandmother said that you could choose 50 shares of stock that begin with the same letter as your first name:
  - Select your stock
  - Record the price.
  - Calculate 2% charge of a broker.
  - Calculate the value of your gift.
  - Watch your stock for two weeks. Has the value of your stock increased, decreased or remained the same?

# Interior decorating

1. Your parents have decided you may redecorate your room. You have \$1,000 to spend.
2. Look in the newspaper for an ad for carpeting. How much will new carpeting cost if your room is 12' x 12"? Write the cost below.
3. Find other pieces of furniture or accessories you would like. List them in the boxes below.
4. Calculate the total cost of your newly decorated room. Remember, your total cost may not be higher than \$1,000.

Item: Carpeting  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 \_\_\_\_\_  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 Cost: \_\_\_\_\_

Item: \_\_\_\_\_  
 Cost: \_\_\_\_\_

**Your total cost:** \_\_\_\_\_

**How much do you have left from the \$1,000?** \_\_\_\_\_

# Mathematics Standard 5

ALL STUDENTS UNDERSTAND AND APPLY BASIC CONCEPTS OF ALGEBRA, GEOMETRY, PROBABILITY AND STATISTICS TO SOLVE THEORETICAL AND PRACTICAL PROBLEMS.

## Grades K-4 Activities

1. You can find many different shapes in the newspaper. Look through the entire newspaper and cut out shapes that match the shapes on the activity sheet. “Similar shapes” on page 20.
2. Find different shapes in the newspaper (squares, rectangles, circles and triangles). Cut out the shapes and use them to create an object such as a train, a house or an animal. Label the geometric parts of your creation. Outline the creation to show a tangram so it can be used for a puzzle.
3. Open the front section of a newspaper and place it on a flat surface (desk, floor, table).
  - Spread your fingers on one hand wide and close your eyes.
  - Place your hand on the page (no peeking).
  - Open your eyes and see where your finger tips are on the page.
    - How many finger tips touch graphics (pictures, maps and drawings)?
    - How many touch text (words)?
    - Which number is greater?
  - Turn to an inside page of the same newspaper section and do the same activity.
  - Compare findings from both pages.

### Teacher tips

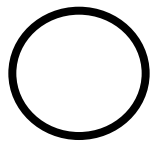
Have students or teams compare findings:

- \* Were they touching the top of pages only?
  - \* Was one page a full page ad?
  - \* What prediction can they make about tomorrow’s newspaper?
  - \* What prediction can they make about other sections of the same newspaper?
4. Cut out articles on a page. Give them to another team and have them put them back together like a puzzle. (Give teams the same size page, not necessarily the same page.)

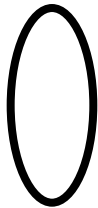
# Similar shapes

Two figures are *similar* if they have the same shape but not necessarily the same size.

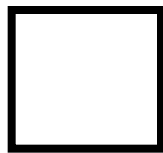
1. Look through the newspaper and cut out shapes that are *similar* to the ones that appear on this page.
2. Paste *similar* shapes beside the shapes that appear on this sheet.



CIRCLE



OVAL



SQUARE



RECTANGLE

## Grades 5-8 Activities

1. Calculate the area of a page. Estimate the areas of the articles and the photographs using your knowledge of the area of the entire page. Calculate the area of the articles. How close were your predictions? Determine your percent of error.
2. Using a protractor, find the following things in the newspaper:
  - parallel lines; two lines that do not intersect
  - perpendicular lines; two lines that intersect at a 90 degree angle
  - a right angle; angle equal to 90 degrees
  - an obtuse angle; angle greater than 90 degrees
  - an acute angle; angle less than 90 degrees
3. Count the obituaries in today's newspaper. From that number predict how many are in each different age groupings: 0-20 years, 21-40, 41-60, 61-80, and 80 and above. Turn to the obituary page and count the actual number in each group. Compare the prediction and actual number. Repeat this process for two more days. Compare the three days. Record your findings on the activity sheet "I predict..." on page 22.
4. Turn to pages in the sports section that list scores, schedules and standings.
  - Select a team whose standings are in the newspaper (football, baseball, basketball).
  - Use a last place team and its winning percentage. If they play 20 more games at the same percentage of wins, how many will they win? (If the percentage is not given, divide the wins by losses to get percentage of wins.)

# I predict...

1. Count the number of obituaries in the newspaper.
2. Predict how many people are in each age group and record your prediction in the chart below.
3. Turn to the obituary page and count the actual number in each age group and record the numbers in the chart below.
4. Compare your prediction and the actual number.
5. Repeat this process for two more days, recording the information in the chart.
6. On a separate piece of paper, compare the three days.

	Day1 predict	Day 1 actual	Compare	Day 2 predict	Day 2 actual	Compare
0-20						
21-40						
41-60						
61-80						
81 plus						

	Day 3 Predict	Day 3 actual	Compare
0-20			
21-40			
41-60			
61-80			
81 plus			

## Mathematics Standard 6

ALL STUDENTS EVALUATE, INFER AND DRAW APPROPRIATE CONCLUSIONS FROM CHARTS, TABLES, AND GRAPHS, SHOWING THE RELATIONSHIPS BETWEEN DATA AND REAL-WORLD SITUATIONS.

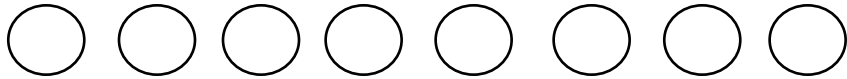
### Grades K-4 Activities

1. Find the pet section of the classified ads. Pick five types of pets and count the number of each animal that appears in the newspaper. Display the information as a line, bar or pie graph. Look at the graph you created. Which animal is the most popular?
2. Choose three comic strips. Count the number of animals, number of men, number of women and the number of children in those strips. Using the “Comic counts” activity page on page 25, color in the appropriate number of shapes to complete your graph.
3. Find the listing of yesterday’s hourly temperature in the weather section. Make a graph showing the changes in temperature from hour to hour. At what time was it warmest/coldest? How can you figure this out using your graph?
4. Look through the store advertisements. Choose five different meats, plants or fruits and compare their prices. Make a graph using this information. Looking at the graph can you tell which costs the most/least? How can you tell?

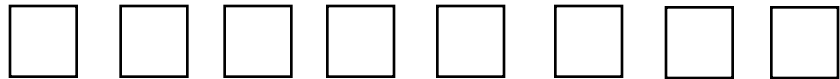
# Comic counts

1. Choose three comic strips.
2. Count the number of of animals, men, women and children in the comics you have chosen. (Count each character once.)
3. Color in the appropriate number of shapes for the number of men, women, animals and children you counted. Color the number of men in green, the women in red, the animals in blue and the children in orange.

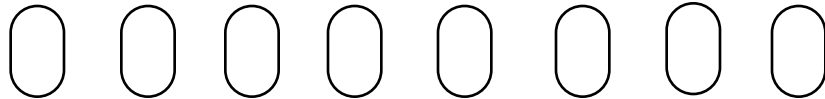
MEN



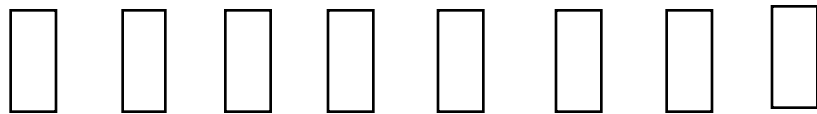
WOMEN



CHILDREN



ANIMALS



Number counted

## Grades 5-8 Activities

1. Look through the newspaper and count all of the graphs, charts and tables. Choose two of the graphs and compare them using the four step analyzing process. You can record your comparison on the activity sheet, “ Four step analyzing” on page 27.
2. Find a sports table that displays the number of wins, loses and ties of a team. Translate the team standings into a graph. Look at the graph you created to predict which team you think will be in the playoffs? Why?
3. Find the television program time table. Choose a time slot and list all of the shows that are on during that time. Predict which television show will be the most popular with the students in your class. Survey your classmates and find out which television show they would choose to watch during the time slot you have chosen. Make a graph to display your class survey. By looking at the graph you created, was your prediction correct?
4. Make a list of the items needed to make your favorite meal. Find the prices of the items in advertisements. Make a graph showing the prices of each item you are going to use in making your meal. Make a second graph showing the cost of the items if they were 25% off. Are the graphs similar? Why or why not?

# Four step analyzing

1. Look through the newspaper and count all of the graphs, charts and tables.
2. Choose two graphs, charts or tables and cut them out.
3. Compare the graphs using the four step analyzing process.\*

	Chart #1	Chart #2	Similarities	Differences
<b>Step 1</b> Describe the information in the chart				
<b>Step 2</b> Write a question using the information from the chart.				
<b>Step 3</b> Write an inference that can be made from the information (Why, How, What)				
<b>Step 4</b> List any Mis-interpretations of the chart				

# Mathematics Standard 7

ALL STUDENTS MAKE DECISIONS AND PREDICTIONS BASED UPON THE COLLECTION, ORGANIZATION, ANALYSIS AND INTERPRETATION OF STATISTICAL DATA AND THE APPLICATION OF PROBABILITY.

## Grades K-4 Activities

1. Turn to the classified and find the rates. Write a classified ad to sell your teacher. Estimate how many lines the ad will be, and its cost.
  - How many such ads would fit on a newspaper page?
  - Count how many actually are on the page?
  - Are there more or fewer than you predicted?
2. Create a counting booklet of pictures or ads for the numbers one through ten.
3. Look through the comics. Count the number of:

* boys	* musical instruments	* animals
* girls	* people sitting down	* hats
* men	* things related to school	* mustaches
* women	* cartoon characters speaking	* hair bows

Make a classroom chart by cutting out examples of the items on the list above. Use magnetic numbers or cut out numbers to fill in the chart.

- Which item shows up most often? the least?
  - Predict how many hats will be in tomorrow's comics.
  - Choose one thing in the comics that could really happen.
  - Choose one thing in the comics that probably couldn't happen.
4. Look at the weather page in the newspaper. Study the symbols used to represent weather.
    - Develop a "weather attire" symbol that can be changed daily to alert students and teacher as to how they should dress for the next day's weather. (The symbol must take into consideration all the possibilities.)
    - Find the prominent location in your school to place this symbol.
    - Study the weather page each day and predict the weather for the upcoming day, based on the information from the newspaper. Adjust your weather attire symbol daily to help prepare your school's population for tomorrow's weather.
    - Be sure to check your prediction for accuracy.
    - Use newspaper weather maps from several successive days to predict the next day's weather.
    - Use newspaper weather maps from five successive days, scramble the maps and try to place them in order.

Name \_\_\_\_\_

# Scavenger hunt

1. Choose a section of the newspaper.
2. Look for the following items in the section you have chosen.

Circle the color photographs in red crayon. Count the number of photographs

Number \_\_\_\_\_

Put a green square around the black and white photographs. Count the number of photographs.

Number \_\_\_\_\_

Find an article about someone your age. Write the title of the article here.

Title \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Find a word with more than ten letters and circle it in blue. Write it below.

Word \_\_\_\_\_

## Grades 5-8 Activities

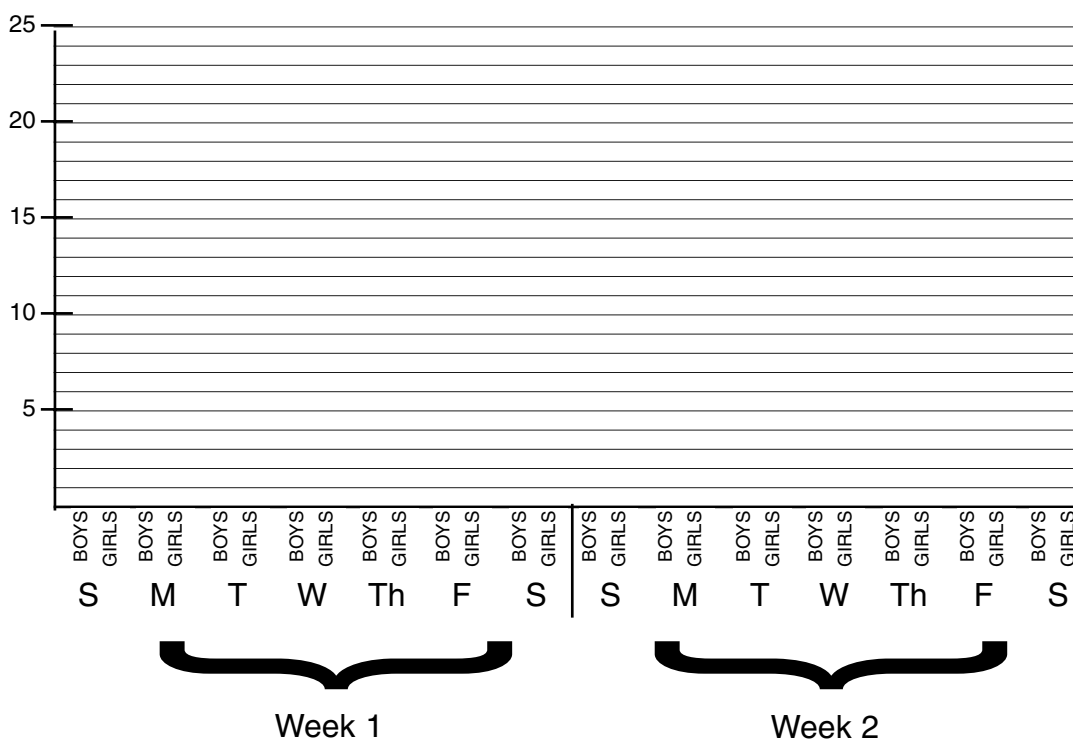
1. With a partner, look through the newspaper for all the charts you can see. Clip several of these charts and create a bulletin board.
  - As a class, study each chart.
    - How are these charts similar, different? Why does that kind of information change?
    - Why is the information presented in a chart and not as a story?
  - Look at the newspaper on several other days. Do the same charts always appear? What new charts do you find?
  - Think about something you and your class or you and your family do that could be organized by a chart (homework, TV viewing, books/magazines/newspapers read, entertainment/sporting events)
  - Create a chart modeled after one of those on your bulletin board. Do you need to revise it as some are revised in the newspaper?
2. With a partner, look at the sports section of your daily newspaper. Scan headlines/stories/charts/pictures and make a list down a sheet of paper of the various kinds of sports described.
  - Select one sport from the newspaper to investigate more completely. Write on a separate sheet of paper the numbers presented in the newspaper for that sport. Talk to one another about what these numbers mean. Categorize and list these kinds of numbers.
  - Share with one another what you know about these sports, specifically, how numbers are used in each sport (i.e. jersey number, team scores). Talk to one another about what these numbers mean. Categorize and list these kinds of numbers across a sheet of paper, for example: score, time, speed, height, weight, averages, league standings.
  - With your partner select three sports from the newspaper to investigate more completely. Fill in your chart (type of sport down the page, and type of factual information across the page).
  - Share charts with entire class:
    - How is this factual information different from sport to sport?
    - Why would the significance of facts change from sport to sport?
    - Which sports have more factual information or statistics? Why?
    - Which sports seem to be using more space in the newspaper and why?
  - What factual information exists for these sports that you don't see in print? For example, number of team members. Why are these facts not generally used?

3. Collect data (information) about births from your newspaper. Compile the data on the chart on activity page “‘Birth’ days” on page 31.
- Read birth announcements for two weeks.
  - Record the number of boys and the number of girls born on each day of the week.
  - Organize data by making a graph representing the information gathered.
  - Analyze data
    - On which day of the week were the most boys born?
    - On which day of the week were the most girls born?
    - Which week of the month show the most births?
  - Interpret data
    - How many days of birth would be necessary to fill your classroom?
    - How many days of birth would be necessary to fill your school?
    - If births continue at the rate indicated from your collection of information, what will be the total number of babies born in the next five years?
  - Predictions
    - Predict the number of boys born on your next birthday.
    - Predict the number of girls born on your next birthday.
    - Predict how many children will be born by the end of this school year.

Variation: Use obituaries or the fire log to organize analyze and interpret data and to make predictions.

# “Birth” days

1. Read the birth announcements in the newspaper every day for two weeks.
2. Write down the number of births for boys and girls.
3. Make a graph showing the number of births using the form below.



4. On which day of the week were the most boys born? \_\_\_\_\_
5. On which day of the week were the most girls born? \_\_\_\_\_
6. Which week shows the most births? \_\_\_\_\_
7. How many days of births would be necessary to fill your classroom? \_\_\_\_\_
8. How many days of births would be necessary to fill your school? \_\_\_\_\_