



Lesson Title: Sunday Morning Paper=Monday Morning Math

Tagline: Recycle newspaper circulars, coupon inserts and other ads using this math lesson

Grade Range: Grades: K-5

Please make changes to lessons and appendices as desired to fit the needs of your classroom.

Supports Subject Area(s) of:

Social Science/environmental
Math

Lesson duration: 1 to 3 days.

Standards: See complete list at end of lesson

Assessment: Check student understanding of math concepts through charts and graphs created by the students. Partner with a teacher of a higher-level math course just a grade or two above your level. Ask those students to check each paper bag chart. After checking, those students work with your students in correcting their work as needed. This is a great opportunity for older students to freshen up basic skills as well as explain and teach concepts; the highest form of application of knowledge.

Objectives:

- Students will use math concepts to work problems presented through newspaper circular ads
- Students will illustrate their understanding through graphs and or charts they create to compare numbers

Materials

- Newspaper circulars, coupons (a great way to recycle expired coupons!) other ads
- Paper grocery bags recycled from students' homes
- Elmer's School Glue
- Markers
- Straight edge
- Smart Board, or computer
- Appendix A - generic math questions to use comparing sales- written on 3-4th grade level but can easily be modified to younger or older grades.
- Appendix B- note home to parents for circulars and paper bags

Directions: Preview Appendices. Send parent note (Appendix B) home a few weeks before you are planning to do the lesson with your class. Gather circulars, ads, coupons and paper bags.

Lesson Steps:

Directions:

1. Find two grocery circulars or two drug store circulars.
2. Find items that are on sale in both circulars that are the same brand. Using two different colored, markers place a small dot by each picture using one color for each store. Cut the pictures you want to use out of each circular being sure to include the price of the item.
3. Create a chart to answer the questions in Appendix A and organize what you find.

Directions for making your chart:

1. Cut the front or back off of a recycled paper bag. The paper bag will become your paper to use to make your chart.
2. Position pictures of sale items in two columns.
3. Use a marker and ruler to draw lines to separate pictures and make columns. Think about how you want to organize your pictures. Items that are most expensive in column one, items that are least expensive in column two. All items from one store in one column and items from other store in another etc... Make a third column as a space to show computation work.
4. Glue pictures of items into place
5. Label columns A,B, and so on...

Introduction:

Gather students together. Using a Smart Board or computer pull up a drug store or grocery store circular.

Discuss: Questions could include:

What is a circular?

Why would a store put something like this out weekly?

What is the impact of this on our environment?

What are some steps you think stores are taking to help the environment (products made from recycled materials, recycling circulars and bags at stores, on-line access to circulars etc..)

Circulars are full of great opportunities to use math! We are going to recycle the circulars and use them for a math activity.

How can a circular help us practice our math skills?

Students spend some time looking through circulars to see what math possibilities they can find there

Activity:

Comparing Ads

Depending on the age of your students pass out the directions, Appendix A, for the activity and let them work independently, in pairs or in small groups or complete the activity as a whole group over a few days.

Students will answer questions from Appendix A using the chart they have created and carefully color coding their work for easy checking.

Use formative assessments such as checking student and group progress, answering and asking questions as students work through the process. Complete a whole group example of what is expected for this activity with two pictures. Check student understanding as needed through the two to three days of working on this project.

Wrap it Up

Conduct any summative assessment

Talk to students about observations and discoveries they found through comparing sale ads and using coupons.

Discuss real life budgeting and how using circulars and coupons and can make a difference in a monthly budget and even over a year's time.

Use a Smart Board to show students Internet coupon sites that help families save more money

<http://www.bargainstobounty.com/>

<http://www.thegrocerygame.com/>

<http://www.couponmom.com/>

Discuss publication of circulars impact on the environment - Work with a grocery or drug store to see if you can set up a program where so many pounds of their recycled circulars equal so much cash for your class.

Extension:

Adapt the questions for grade levels as well as different learning abilities.

This lesson was on comparing two sale ads, try other lessons such as matching sale items and coupons, doubling coupons and calculating and comparing numbers and percentages.

Basic to more advanced math concepts to use with circulars:

Counting objects in a set

Compare numbers

Classify objects

Adding quantities

Subtracting quantities

More than, less than, equal to

Listing in order by value

Place value

Word problems

Representing and interpreting data

Multiplication

Division

Percentages

Showing data in charts and graphs

Consider pairing students up with students one grade level above to work on this project from start to finish.

Consider bringing in parent volunteers or high school students to assist in walking around to answer student questions.

Standards

This lesson adheres to the following Common Core Mathematics Standards:

Grade 2

Operations and Algebraic Thinking 2.OA

Represent and solve problems involving addition and subtraction

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem

Number and Operations in Base Ten 2.NBT

Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

a. 100 can be thought of as a bundle of ten tens — called a “hundred.”

b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

6. Add up to four two-digit numbers using strategies based on place value and properties of operations.

Measurement and Data 2.MD

8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple puttogether, take-apart, and compare problems using information presented in a bar graph.

Grade 3

Number and Operations in Base Ten 3.NBT

2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Operations and Algebraic Thinking 3.OA

3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.¹

4. Determine the unknown whole number in a multiplication or division

equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$.

Number and Operations in Base Ten² 4.NBT

5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

This lesson adheres to the following National Standards National Council of Teachers of Mathematics

Number Operations:

Understand numbers, ways of representing numbers, relationships among numbers, and number systems

Pre-K-2 Expectations: In pre-K through grade 2 all students should-

- count with understanding and recognize "how many" in sets of objects;
- use multiple models to develop initial understandings of place value and the base-ten number system;
- develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers;
- connect number words and numerals to the quantities they represent, using various physical models and representations;

Grades 3-5 Expectations: In grades 3-5 all students should-

- understand the place-value structure of the base-ten number system and be able to represent and compare whole numbers and decimals;

Data Analysis and Probability

Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them

Pre-K-2 Expectations: In pre-K through grade 2 all students should-

- pose questions and gather data about themselves and their surroundings;
- sort and classify objects according to their attributes and organize data about the objects;
- represent data using concrete objects, pictures, and graphs.

Grades 3-5 Expectations: In grades 3-5 all students should-

- design investigations to address a question and consider how data-collection methods affect the nature of the data set;
- collect data using observations, surveys, and experiments;
- represent data using tables and graphs such as line plots, bar graphs, and line graphs;

- recognize the differences in representing categorical and numerical data.

Process Standards

Problem Solving

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Build new mathematical knowledge through problem solving
- Solve problems that arise in mathematics and in other contexts
- Apply and adapt a variety of appropriate strategies to solve problems
- Monitor and reflect on the process of mathematical problem solving

Reasoning and Proof

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Recognize reasoning and proof as fundamental aspects of mathematics
- Make and investigate mathematical conjectures
- Develop and evaluate mathematical arguments and proofs
- Select and use various types of reasoning and methods of proof

Communication

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Organize and consolidate their mathematical thinking through communication
- Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- Analyze and evaluate the mathematical thinking and strategies of others;
- Use the language of mathematics to express mathematical ideas precisely.

Connections

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Recognize and use connections among mathematical ideas
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
- Recognize and apply mathematics in contexts outside of mathematics

Representation

Instructional programs from prekindergarten through grade 12 should enable all students to—

- Create and use representations to organize, record, and communicate mathematical ideas

- Select, apply, and translate among mathematical representations to solve problems
- Use representations to model and interpret physical, social, and mathematical phenomena

Appendix B



Dear Parents,
Date

Please help us by sending in your outdated grocery or drug store circulars, unwanted coupons (we'll take expired ones, too!) and other ads. We also need any brown paper grocery bags (or other large paper bags) that you have brought home from the store. We are going to recycle these items by using them for a math lesson in a couple of weeks. We'll be collecting from now until _____.

Thank you, Name



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Date

Please help us by sending in your outdated grocery or drug store circulars, unwanted coupons (we'll take expired ones, too!) and other ads. We also need any brown paper grocery bags (or other large paper bags) that you have brought home from the store. We are going to recycle these items by using them for a math lesson in a couple of weeks. We'll be collecting from now until _____.

Thank you, Name

Appendix A

Comparing Ads

Directions:

1. Find two grocery circulars or two drug store circulars.
2. Find items that are on sale in both circulars that are the same brand. Using two different colored markers place a small dot by each picture using one color for each store. Cut the pictures along with prices you want to use out of each circular.
3. Create a chart to answer the questions below and organize what you find.

Directions for making your chart:

1. Cut the front or back off of a brown paper or other paper bag. The paper bag will become your paper to use to make your chart.
2. Position pictures of sale items in two columns.
3. Use a maker and ruler to draw lines to separate pictures and make columns. Think about how you want to organize your pictures. Items that are most expensive in column one, items that are least expensive in column two. All items from one store in one column and items from other store in another etc... Make a third column as a space to show computation work.
4. Glue pictures of items into place
5. Label columns A,B and so on

Questions:

Comparing all two like items answer these questions showing your work:

1. Find the difference in cost between the two items at each store. Show your work in the work space column and put a **green** box around each one.
2. Add up most expensive items from each store. What is the average price per item? Put a **blue** box around your work.
3. Add up most inexpensive items from each store. What is the average price per item? Put a **red** box around your work.
4. How much would you save, in dollars, if you bought all of the most inexpensive items? Put a **purple** box around your work.
5. What percentage % would you save by buying the most inexpensive items? Put an **orange** box around your work.
6. Choose an item. Assume you have a coupon for 55 cents off this item. The store that has the item for the least amount, does not double coupons, but the store that is selling the item for more, does double the coupon value. Calculate the better deal. The most expensive store with doubled coupon? Or the least expensive store with face value of coupon? Put a **black** box around your work.
7. Choose an item that costs less than \$5.00 from your chart. If you gave the cashier \$5.00 for this item, how much change would you receive? Put a **brown** box around your work.
8. Choose three items of buy from any column. Add up the cost and calculate the change if you paid with a \$20.00 bill. Put a **pink** box around your work.
9. Choose one item. If you were to purchase a quantity of 12 of these items, how much would it cost? Put a **black** circle ○ around your work.
10. Repeat with a different item and purchase a quantity of 8. Put a **red** circle ○ around your work.