A Newspaper?

Summary

Students will be introduced to the concept of Ratio using an activity with newspapers. They will also reinforce their understanding of fractions as well as fraction to decimal conversions.

Main Core Tie

Mathematics Grade 6

Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS (6.RP) Standard 6.RP.1

Additional Core Ties

Mathematics Grade 6

Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS (6.RP) Standard 6.RP.3

Materials

    Newspapers
    Rulers
- Transparent centimeter grid paper
- Activity Sheet - Newspaper
- Organizing Board Space - Newspaper
    Calculators (optional)
    Colored markers (for use in marking areas measured)

Background for Teachers

When reading a newspaper, one might ask if the majority of the newspaper is really news, or advertising. Using newspapers, a teacher can involve students in a mathematical, as well as language arts, approach to learning.

Decide how best to divide your class and how many newspapers to use. You may find it best to use only one or two identical papers, dividing each paper up among groups. It is important to also assign a variety of pages per group so each group has an opportunity to work with different types of pages.

Student Prior Knowledge

Students should have prior understanding of the terms *numerator* and *denominator* . They should be able to interpret a fraction as division of the numerator by the denominator and compute the decimal form of a fraction.

Students should understand area and its measurement units. They should be able to calculate area of a rectangle using the formula.

Intended Learning Outcomes

5. Make mathematical connections.

Instructional Procedures

Invitation to Learn

"How do newspapers make money?" Discuss several ideas, including subscriptions and advertising. How and why is advertising so important as a source of revenue? Draw parallels to television commercials, which occur frequently.

Task

"How much of a newspaper is really news?"

"Activity Sheet - Newspaper"

Task Implementation

Place students in groups of three to four. Distribute a newspaper (or section) to each group. *Note:* Select a newspaper with a small number of pages (i.e., not the Sunday edition) so this activity is manageable. (You may use a selected number of pages for each group within one larger newspaper.)

Distribute the Activity Sheet to each student. Students will brainstorm, in groups, definition of "news" and also generate a list of the various types of content categories contained in the newspaper. Students will record their definition and categories in the space provided on the Activity sheet.

Have a spokesperson from each group share their definitions so the class may reach a consensus. Discuss the categories and once again, have the class reach a consensus on the categories. A list might look like this:

| News | Advertisements | Photographs | Entertainment |
| Sports | Weather | Empty Space | Classifieds |

It is possible that a class might determine only two categories: news (with attendant photos) and advertisements.

Have students record the definition and categories that the class agreed on in the appropriate space provided on the Activity sheet

Using a transparent centimeter grid paper, students should determine how many square centimeter units it will take to cover an entire page. The class must decide on an approximation for the area of the page and record the number in the space provided on their activity sheet.

Students determine how the various articles should be categorized, then measure the area occupied by each article using the grid transparency. They record their measurements in the table given in Activity Sheet. Space is provided in the table for recording the area of 4 different categories. Two of the categories, News and Empty space, are required but students may choose 2 other categories they want to measure.

Each group will have a pre-assigned number of pages to work with. It is recommended that pages be scattered throughout the newspaper to give a variety to each group. Create jobs for each student in the group (e.g., recorder, measurer, spokesperson, etc.).

Tell students to use their area data and write down some statements comparing the categories with each other or to the whole newspaper. Write complete sentences and use the appropriate units for numerical values.

Anticipating Responses

Possible statements:

*Entertainment category takes up 5sq cm of one whole page.

*Area of empty space is 200 sqcm and area of news is 750 sq cm.

*For every 2 sq cm of entertainment, there is 3 sq cm of real news.

Sample of possible data chart:

Page Number	Categories			
	News	Entertainment	Advertisements	Empty Space
1	.75	.00	.00	.25
2	.55	.00	.35	.10
3	.40	.00	.55	.05
4	.30	.00	.65	.05
5	.20	.00	.73	.07

6	.00	.00	.80	.20
7	.00	.50	.20	.30
8	.00	.50	.47	.03
Totals	2.20	1.00	3.75	1.05

Monitoring and Selecting Student responses

Walk around the class and scan for statements that are accurate and illustrate part to part, part to whole relationships. Most likely students will just write the areas they measured. For example, they might write something like *The area of entertainment was 16sq cm and the area of advertisement was 40sq cm.* without any concept of unit rate. There is no need to comment as they are working but make note of it so that you can address it during class discussion. Notice if any students are simplifying their ratios, figuring out unit rate or using fractions, decimals or percents to represent the comparison.

Sequencing and Making Mathematical Connections

Student responses that will be displayed or shared with the class must be purposefully sequenced so that they lead into the objective. The objective of this lesson is to help students understand the concept of a ratio and introduce ratio notation.

Also think of how you would like to organize your board so that the work presented is easy to follow and makes use of the sequencing to make clear the objective of the lesson. Refer to "Organizing board space - Newspaper" for sample.

Extensions

If computers are available, this is a great activity to do in Excel, having students create their own spreadsheet for data.

Family Connections

Students can, while watching a favorite television program, compare the length of time for commercials to the total time of the program. This can be done for two, say 30- minute (or one 60-minute) programs. Students report their findings to the class.

Assessment Plan

Answer the question: How much of a newspaper is really news? in the form of a written report. Your report must make use of the ratios work done in class. State your findings about which category takes up the most space in a newspaper. Consider the whole newspaper not just one page. State your opinion on whether you think this should be the dominant category. Explain. What recommendations do you have for newspapers?

Bibliography
Research Basis

Rodine, J.A. (1986). Hook 'em using the newspaper as bait. Colorado Springs, CO. ERIC #ED296337.
This document shows how to use a newspaper to teach a variety of concepts, from reading and writing to mathematics.
Nelson, D.W. (1979). Extra! extra! newspaper math. *Instructor*. 88(9), 97-100.
This article illustrates ways in which newspapers can be used to teach critical mathematics and language arts concepts.

Authors

Utah LessonPlans