

## At Home

In this unit your child finds an article in a newspaper or magazine that reports on a survey in which only a sample of a population was questioned.

Ask your child...

- \* What other news items can you find that also make use of survey results?
- \* What did the survey try to find out?
- \* What was the sample?

In class your child will investigate the fraction of newspapers that are devoted to ads. For a challenge, you and your child might look at the fractions and types of ads in magazines and compare them to newspapers.

Ask your child...

- \* Which has the larger proportion of ads?
- \* How do the ads themselves compare?
- \* How might frequency of distribution affect the types of ads found in newspapers compared to magazines?

## Web Resources

<http://www.dreamsbeginhere.org/static/aboutdcps/departments/acadprog/mathematics/index.asp>

[http://www.internet4classrooms.com/skills\\_5th\\_original.htm](http://www.internet4classrooms.com/skills_5th_original.htm)

Select: Data Analysis Activities

[http://nlvm.usu.edu/en/nav/category\\_g\\_2\\_t\\_5.html](http://nlvm.usu.edu/en/nav/category_g_2_t_5.html)

National Library of Virtual Manipulatives - Data Analysis & Probability (Grades 3 - 5)

## Mathematics in Investigations

### Investigation 1:

- \* Using line plots to represent data sets
- \* Comparing two data sets
- \* Finding medians and other fractional parts of data sets
- \* Making hypotheses based on comparisons of two data sets
- \* Making statements based on data

### Investigation 2:

- \* Collecting and examining data that involve more than one variable
- \* Making representations of numerical and categorical variables
- \* Using fractions and percentages to understand categorical and numerical data
- \* Exploring the way two variables in a data set might be related

### Investigation 3:

- \* Learning what a sample is and some of the factors that make a sample reasonable
- \* Comparing the data from a sample to the data in a larger population using fractions, decimals, and percents
- \* Learning why a larger sample tends to reflect a population better than a smaller one

### Investigation 4

- \* Figuring what fraction of a newspaper page is covered by ads
- \* Choosing a strategy to find representative sample
- \* Comparing data from a sample with a target fraction
- \* Combining fractions of pages into a single fraction of a newspaper
- \* Analyzing a single data set in more than one way

### Investigation 5

- \* Defining questions and a sample
- \* Testing and refining survey questions
- \* Collecting and collating data
- \* Deciding on appropriate representations for data
- \* Looking for associations and developing theories based on data
- \* Making recommendations based on interpretation of data

## Duval County Public Schools



Duval County Public Schools

## Investigations in Number, Data, and Space



### Data: Kids, Cats, and Ads Grade 5

### Statistics

#### Unit Goals:

- Students collect, graph, and interpret data.
- Students compare two data sets, using "typical" values such as the median
- Students begin to see how samples can be informative without providing all of the information a population would.
- Students design a survey of a sample of their school to explore data about playground injuries.

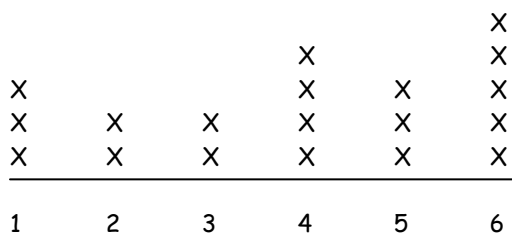
### Proposed Time Frame:

6 weeks total  
(2 weeks prior to FCAT, 4 weeks after)

## Vocabulary

**Data** — information

**Line plot** — used to show the frequency with which a value of the data appears. A line plot is simply a horizontal axis, with a regular scale and each piece of the data is marked as an X, as in this line plot of the number of years a class of fifth graders have been at their school:



**How Many Years Have You Been At This School?**

**Range**— the difference between the highest (maximum) and lowest (minimum) values in the data set. In the data set shown in the line plot above, that range of the data is 5, the difference between 6 and 1.

**Mode** — the value that has more data than any other value in the data set. The mode of the data set shown above is 6 years.

**Outlier** — a value that is much higher or much lower than other values in the data set.

**Median** — the midpoint of the data set. The median in the data set shown above is 4.

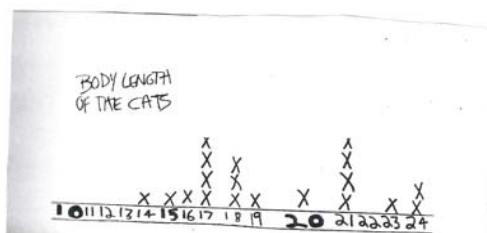
**Mean** — the average of all of the data in a set. In the data example above, the mean is 4.  
 $(3 \times 1) + (2 \times 2) + (2 \times 3) + (4 \times 4) + (3 \times 5) + (5 \times 6) \div 19$  (the total number of digits)

## Representing the Data

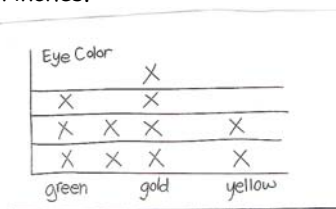
During this investigation, students work with Cat Cards to sort and organize information in order to come up with a description of a typical cat.

The cat cards include information about cat's color, age, weight, body length, tail length, eye color, and pad color.

The graphs shown below are typical of what fifth grade students construct for the activity Representing Cat Data.



Different students or groups of students choose to look at different attributes of cats. The line plot above shows a comparison body lengths of cats measured in inches.



The above graph illustrates an interesting way to deal with categorical data, as it shows two cats with both green and gold eyes.

Following this investigation, students will then begin to look for relationships in cat data. For instance, are female cats longer?

## Math Game

### The Digits Game

#### Materials:

- ◇ Numeral Cards (with Wild Cards Removed)
- ◇ Digits Game Score Sheet

#### Players

- ◇ 2 or 3

#### How to Play:

1. Decide on the target number to use.  
 Example: The target is 1000.

2. Deal the Numeral Cards. Deal out one more card than there are digits in the target.  
 Example: The target has four digits, so you deal out five cards: 3, 8, 0, 1, and 5.

3. Players use the numerals on the cards to make a number as close as possible to the target number.  
 Example: You can use 3, 8, 0, 1, and 5 to make 1035, 853, or other numbers

4. Write the target number and the number you made on your score sheet. Find and record the difference between them.  
 Example:  $1000 - 853 = 147$ . The difference is your score.

5. When everyone has finished, compare answers. Which number is closest to the target? Is it possible to make a number even closer?  
 Example: Player A made 853. Player B made 1305. Who is closer? Can you make a number with these digits that is even closer to 1000?

6. For the next round, mix up all the cards and deal a new set.  
 7. After three rounds, total your scores. Lowest total wins.