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For more activities refer to the Schools Corner section of the Statistics New Zealand website:
www.stats.govt.nz/schools-corner
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Curriculum links

*Mathematics and Statistics:
(New Zealand Curriculum 2007)*

Level 3: Statistics

Statistical investigation

Conduct investigations using the statistical enquiry cycle:

- gathering, sorting, and displaying multivariate category and whole-number data and simple time-series data to answer questions
- identifying patterns and trends in context, within and between datasets
- communicating findings, using datasets
- communicating findings, using data displays.

Level 3: Number and Algebra

Number strategies

Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, and percentages.

One-fifth of all households have more than one type of computer.

73 percent of households have access to a cell phone.

Household Economic Survey 2007

65 percent of households have a desktop computer and 27 percent have a laptop.

The percentage of households with a VCR dropped from 83 percent in 2003/04 to 76 percent in 2006/07.

Statistics New Zealand has a vast range of information about how New Zealand households spend their money. The Household Economic Survey (HES) collects this information from around 3,000 private New Zealand households. The information ranges from household spending on apples to spending on new cars.

The HES information can be used to estimate the average level of weekly or annual household spending by type of product and to identify changes in the average level of household spending on a product.

Teachers page

Household Economic Survey (HES)

The HES collects information about household income and expenditure, including information about food, clothing, housing, transportation, household operation and recreation expenditure. The HES also collects demographic information on households and individuals.

Run annually until 1998, it is now conducted three-yearly, with the latest being held in 2007.

The three main objectives for conducting the HES are:

- to contribute to the reweighting of the measure of price change of goods and services acquired by New Zealand households (consumers price index)
- to supply expenditure statistics for use in estimating New Zealand's economic activity (gross domestic product)
- to provide an indication of the overall living standards of New Zealanders.

Answers

Activity 1: Some results from the HES

Household expenditure

	Money spent	Possible weekly money	
Category	%	\$	\$
Total net expenditure	100	\$500.00	\$750.00
Food and drink	19	95.00	142.50
Clothing and footwear	3	15.00	22.50
Housing and household utilities	23	115.00	172.50
Household contents and services	5	25.00	37.50
Health	2	10.00	15.00
Transport	14	70.00	105.00
Communication	3	15.00	22.50
Recreation and culture	10	50.00	75.00
Education	1	5.00	7.50
Miscellaneous goods and services	10	50.00	75.00
Other expenditure	10	50.00	75.00

Activity 2: How would you spend money?

This is a reducing activity. It begins with each student suggesting their own categories, then reduces by the number of groups of four in your class, and finally there has to be a whole class consensus on the five expenditure categories. You may need to guide the initial discussion around the idea that when they are determining their own categories they need to consider that everyone's data needs to be able to fit into a category. To do this students must be able to describe what each category covers. It is important to note that money can also be saved.

Activity 3: Data collection and exploration – spending our money

This is a data collection and exploration activity. Each student determines how they wish to spend their \$20. They will need to determine how to record the expenditures of all the students in the class. They are asked to graph and discuss two situations, which gives them the opportunity to see the individual results and the class's results. This leads students from question, to data collection, to exploration, to conclusion.

Activity 1: Some results from the HES

Below are some results derived from the Household Economic Survey (HES). It shows what percentage of their income an average family spends on different things. Use the percentages to work out how much was spent for the two possible weekly incomes given. Draw a graph of any one column with the categories and discuss its features.

Household expenditure

Category	Money spent %	Possible weekly money	
		\$	\$
Total net expenditure	100		
Food and drink	19		
Clothing and footwear	3		
Housing and household utilities	23		
Household contents and services	5		
Health	2		
Transport	14		
Communication	3		
Recreation and culture	10		
Education	1		
Miscellaneous goods and services	10		
Other expenditure	10		

Activity 2: How would you spend money?

Let's design a new survey. First you need to decide on some categories for money expenditure. In the box below put five categories you think people in your class would like to spend their pocket money on. Everyone's data needs to fit into a category.

Your categories

Category 1	
Category 2	
Category 3	
Category 4	
Category 5	

Now move into groups of four and put your ideas together. Remember that everyone's data needs to fit into a category and that everyone in the group needs to agree on the categories that you select.

Group's categories

Category 1	
Category 2	
Category 3	
Category 4	
Category 5	

Finally, each group will report on their categories. As a class you have to come up with a whole class set of categories.

Class categories

Category 1	
Category 2	
Category 3	
Category 4	
Category 5	

Activity 3: Data collection and exploration – spending our money

Imagine that each person in the class has \$20 to spend. Each person can decide exactly how much money they would like to spend in each of the categories that the class has decided on. Assemble the data from the whole class into a dataset.

Get into small groups, choose a category, graph and discuss the variation in the amounts spent in this category. Work out the average spending in each category for the group. From this, what is the percentage of total spending in each category? Graph the percentages and discuss what you see.