

# U4D4\_T Interpret Statistics in Media

Wednesday, April 18, 2018 12:14 PM



U4D4\_T  
Interpret ...

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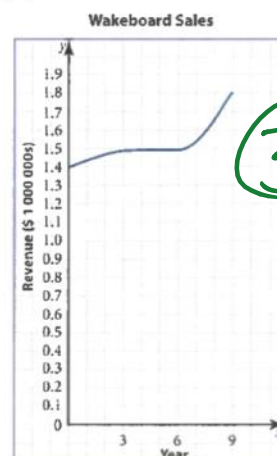
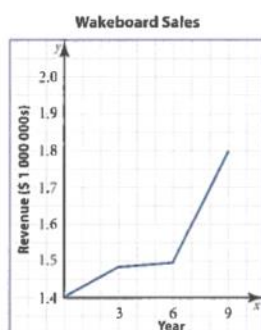
## **U4D4: Interpreting Statistics in the Media**

1. Read Pg 226 and answer Investigate questions #1 – 2 on lined paper.

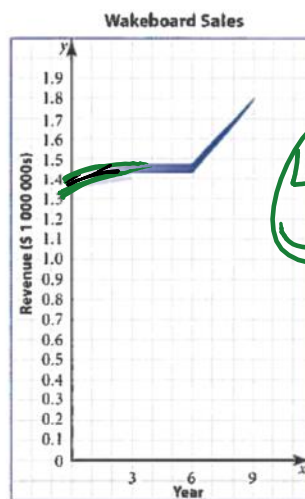
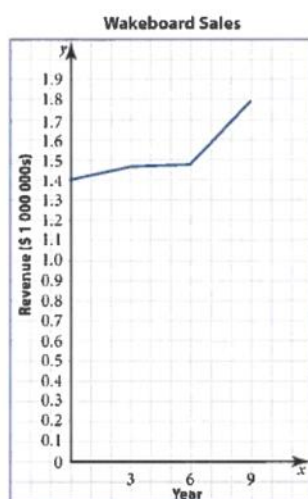
# Investigate

## How do the media use statistics inappropriately to convey a message?

1. The same data are illustrated in the graphs.



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- Which graph best illustrates the data? Explain.
- Describe how the other graphs distort the data.
- Reflect** Create a fifth graph that distorts the data a different way.

2. a) What is the advertiser's message?



b) **Reflect** How could the advertiser be using statistics inappropriately in this statement?

2. Look over Pg. 228 Ex. 1

### Example 1

#### Brand Comparisons

An advertisement made the claim, "In a recent side-by-side blind taste test, more people preferred Cool Cola over Choice Cola." What questions can you ask to challenge or validate this claim?

#### Solution

Appropriate questions include:

- When was the test carried out?
- How many people participated in the taste tests? "More" could mean 105 people preferred Cool Cola and 104 preferred Choice Cola.
- Who performed the tests? Were they carried out by an independent survey group?
- Were there any other similar taste tests? If so, what were the results?

It is very important to ask critical questions about statistical claims in the media,  
for example

... See solution above...

**Example 3**

$$\begin{array}{rcl}
 45\% & 45\% \\
 - 3 & + 3 \\
 \hline
 42\% & 48\%
 \end{array}$$

**Political Polls**

A newspaper report included this statement: "The Prime Minister has the approval of 45% of the population. This is accurate to within three percentage points, 19 times out of 20." Explain the meaning of this statement.

**Solution**

If the poll were conducted 20 times, the results would fall within three percentage points of 45% or between a 42% and a 48% approval rating. This would occur in 19 of the 20 polls or 95% of the time. The greater the sample size, the more accurate the results, meaning the acceptable spread would be less than  $\pm 3\%$ .

↳ 95%

**3. Margin of Error** describes how reliable the data is.

For example, a poll is said to be accurate within 3 percentage points 19 times out of 20. This means that

if the study was conducted many times with different random samples, on average the results will be within 3% of the reported results 95% of the time. ( $\frac{19}{20} \times 100\% = 95\%$ )

Example 1: "In a recent study, 77% of parents support enforcing a dress code in schools. The study is accurate to within 3.4 percentage points, 19 times out of 20"  
What does this mean?

$$\begin{array}{r} 77 \\ - 3.4 \\ \hline 73.6 \end{array} \quad \begin{array}{r} 77 \\ + 3.4 \\ \hline 80.4 \end{array}$$

$$\rightarrow \frac{19}{20} \times 100\% = 95\%$$

If the study was carried out many times, 95% of the time between 73.6% and 80.4% of parents support enforcing a dress code.

Example 2: Which deal gives the greater savings?  
Explain your reasoning.

The price of a flash drive, regularly \$34.99, has been reduced by 10%.

You can take 20% off the regular price or you can use a coupon to take \$5.00 off the reduced price.

① 20% off regular price

$$\begin{array}{l} 10\% \text{ of } \$34.99 \\ = \$3.50 \\ \text{So, } 20\% = 2 \times \$3.50 \\ = \$7.00 \end{array}$$

$$\begin{array}{r} 34.99 \\ - 7.00 \\ \hline 27.99 \end{array}$$

② 10% off of \$34.99

$$\begin{array}{l} - \$5 \\ \rightarrow 10\% \text{ of } 34.99 \\ \text{is } \$3.50 \\ \begin{array}{r} 34.99 \\ - 8.50 \\ \hline \$26.49 \end{array} \end{array}$$

$\therefore$  the second deal gives savings of \$1.50 more.

Recall: **per capita** means “per person”

**Gross Domestic Product (GDP)** is the total value of all goods and services produced in an economy.

**Inflation** is a rise in the general level of prices of goods and services in an economy over a period of time.

## Example 3:

## Example 2

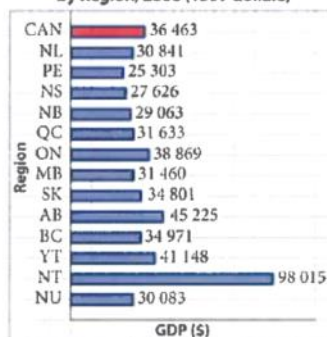
## Literacy Connect

Gross domestic product is the total value of all goods and services produced in an economy.

## Gross Domestic Product

The graph shows Canada's real per capita Gross Domestic Product (GDP) by region in 2006.

Real Per Capita Gross Domestic Product (GDP), by Region, 2006 (1997 dollars)



a) 'real' effects of inflation are subtracted, '1997 dollars' inflation from 1997-2008 is removed so we can look at just the economy.

Source: Human Resources and Social Development Canada

- What is meant by "real," "per capita," and "1997 dollars" in this graph?
- Describe what the graph shows.
- Why is the per capita GDP so much higher in the Northwest Territories than in the other provinces or territories? Use the Internet to research the answer.

**Solution**

- a) The word "real" is an economic term representing the value when the effects of inflation have been subtracted.  
"Per capita" means that the graph shows the gross domestic product per person.  
"1997 dollars" means that the effects of inflation since 1997 have been accounted for. This is done to allow comparisons in the growth of the economy.
- b) The graph shows the average value of goods and services, per person, produced in each Canadian province and territory.
- c) The opening of diamond mines, beginning in 1998, caused the Northwest Territories' economy to grow significantly. Since the population is relatively small compared to the rest of the country, the GDP per capita is significantly higher.

Practice Assignment: Pg 231 # 1 ad, 2, 3, 5, 7, 8, 10  
Check answers Pg 549 – 550