Unit 6: Statistics

Final Review Assignment

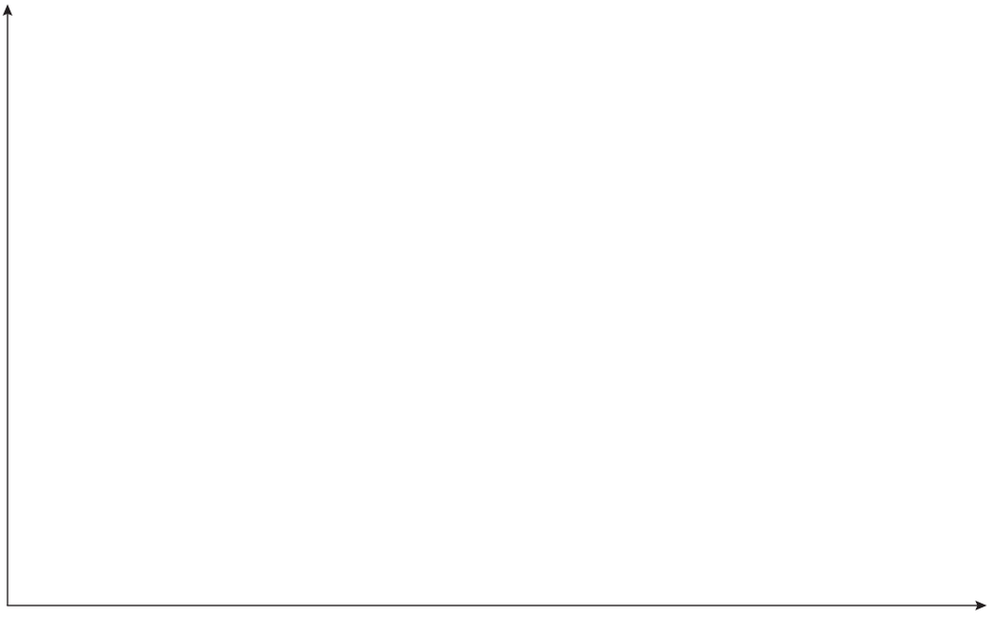
(12) 1. U2 is an Irish band that has been popular for over three decades. The lengths of 80 of their songs were selected at random and are listed in the table below.

Lengths of Randomly Selected U2 Songs (seconds)									
382	222	214	338	310	559	334	225	177	189
278	300	295	254	331	194	225	294	245	292
262	219	384	336	312	281	308	285	227	258
331	418	195	338	255	225	43	331	179	230
215	252	272	228	281	274	229	178	173	319
267	280	66	186	341	204	253	317	303	337
308	240	252	349	347	94	144	187	272	208
279	276	264	270	286	205	350	444	294	260

a. Use 50-second intervals to make a frequency distribution table for the data.

Song Length(s)	Frequency

b. Use your frequency distribution table to draw a histogram for the data.



c. Determine the mean, median, mode, range, and standard deviation for the song lengths.

mean (s)	
median (s)	
mode (s)	
range (s)	
standard deviation (s)	

d. Describe whether the data appears to be relatively normally distributed.

e. Assume the data is normally distributed and that the band's entire collection of songs has a mean and standard deviation equal to those calculated above. What percentage of U2 songs are expected to be

i. over 180 seconds

ii. between 210 seconds and 300 seconds

f. Under what length of time are 90% of all U2 songs expected to be?

(4) 2. Read Cancer Consciousness on the following pages. In one or two paragraphs, summarize the claims of the report. Be sure your summary includes the following:

- The purpose of the report
- Important findings of the report
- How margin of error, confidence intervals, confidence level, and sample size can be interpreted from the report
- An assessment of the credibility of the report

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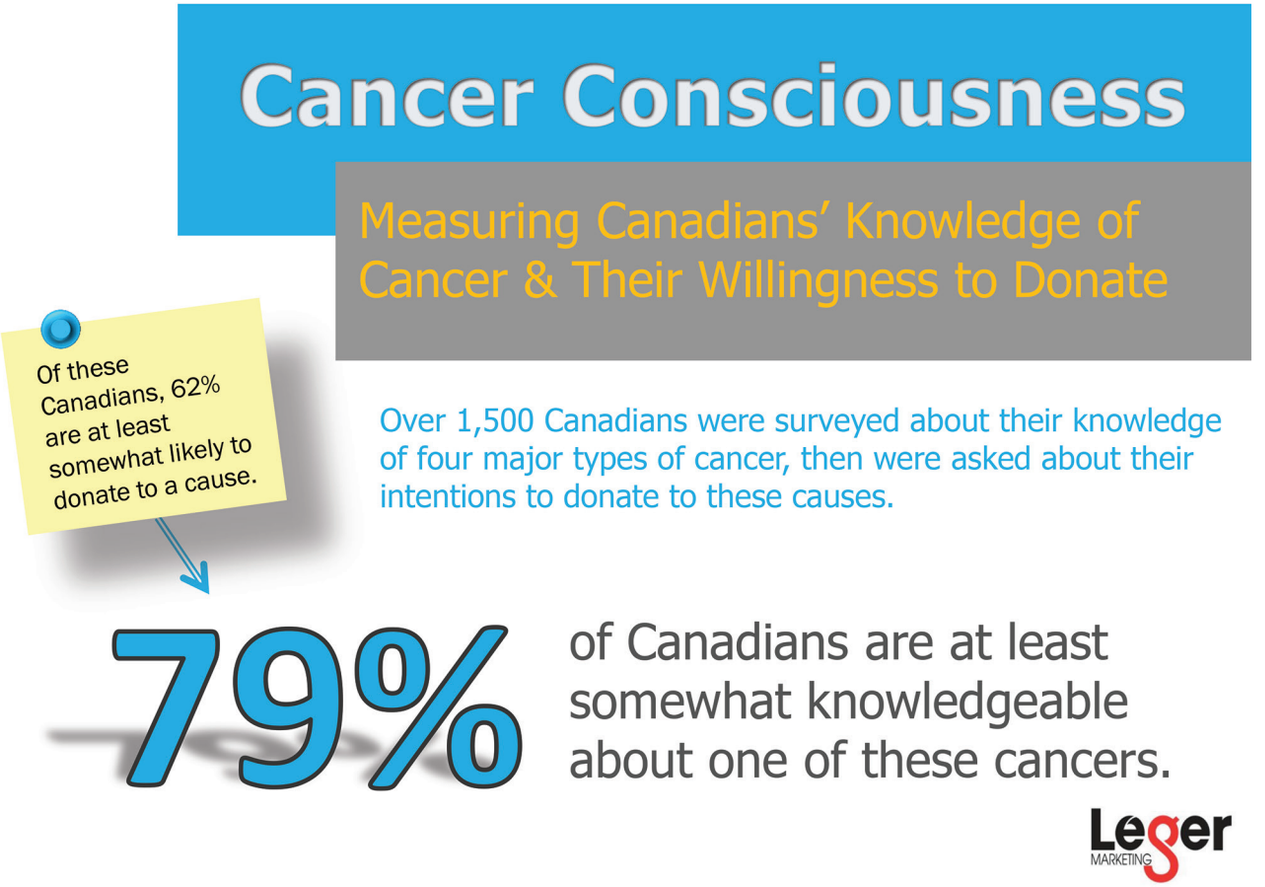
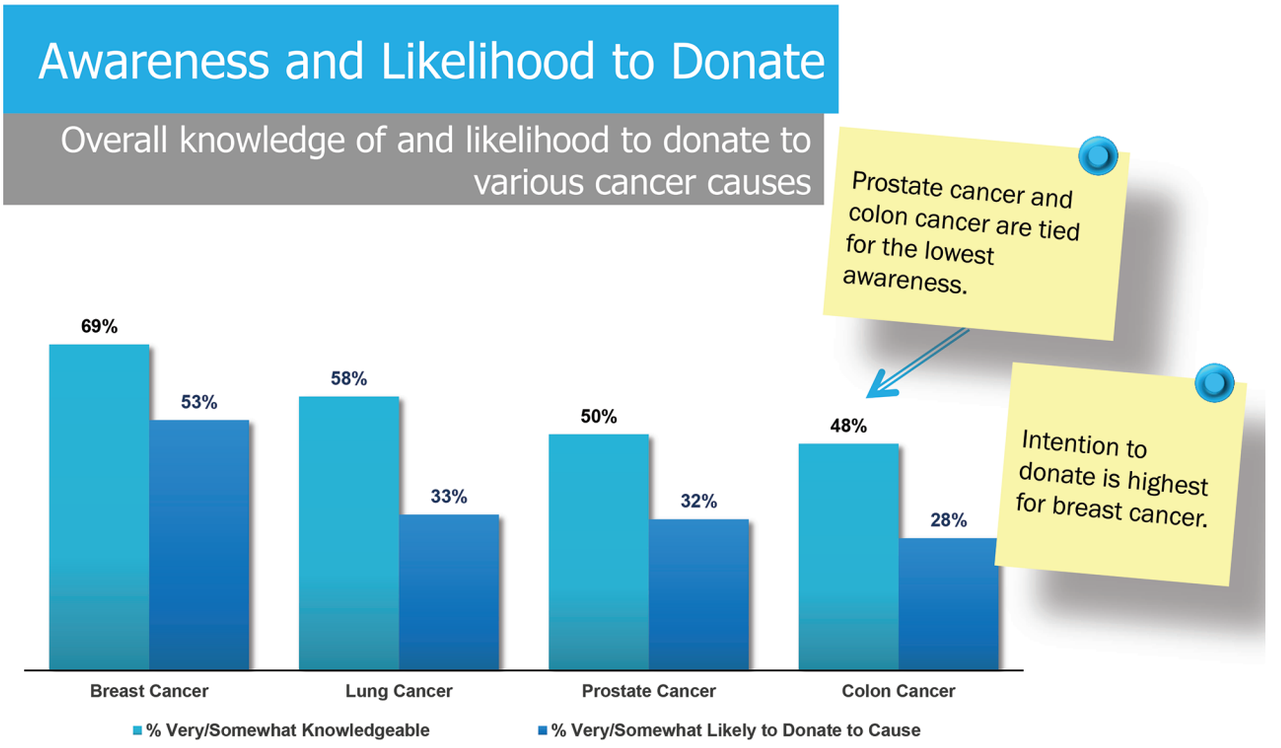
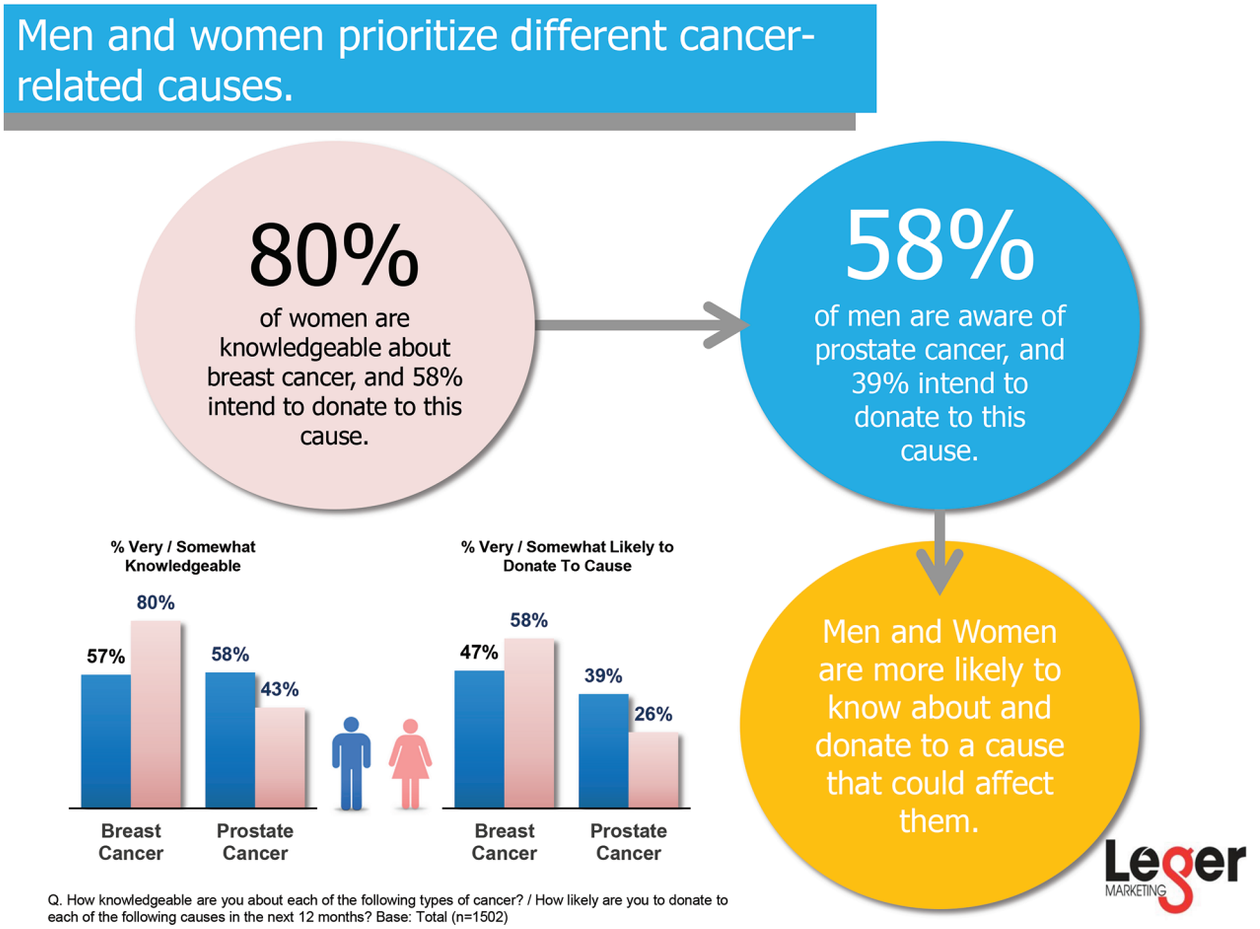
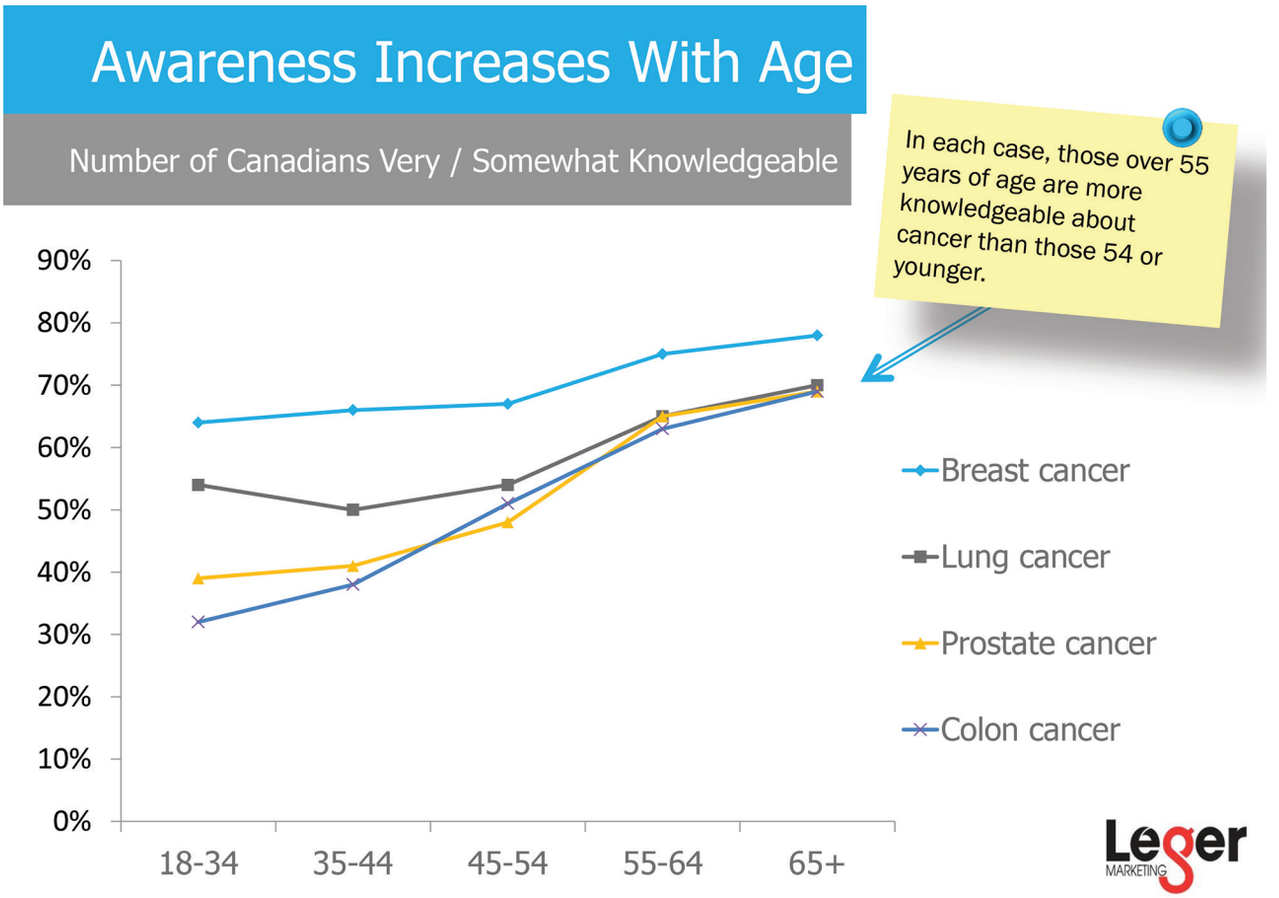

Cancer Consciousness
Measuring Canadians' Knowledge of Cancer & Their Willingness to Donate
Of these Canadians, 62% are at least somewhat likely to donate to a cause.
Over 1,500 Canadians were surveyed about their knowledge of four major types of cancer, then were asked about their intentions to donate to these causes.
79%
of Canadians are at least somewhat knowledgeable about one of these cancers.
Leger
MARKETING

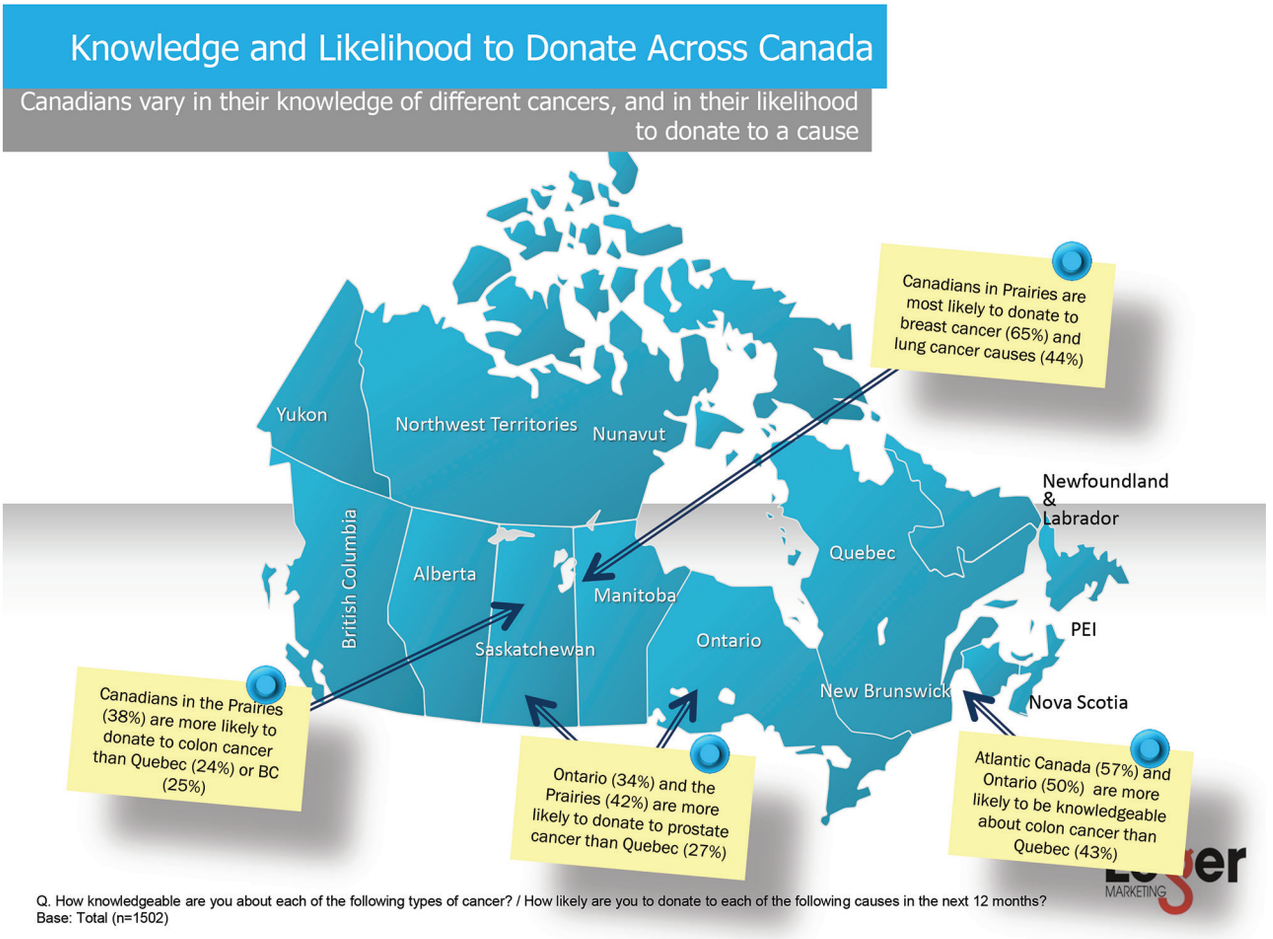


The majority of Canadians are aware of breast cancer and lung cancer, and the majority intend to donate to breast cancer.

Q. How knowledgeable are you about each of the following types of cancer? / How likely are you to donate to each of the following causes in the next 12 months?
Base: Total (n=1502)


Men and women prioritize different cancer-related causes.
80%
of women are knowledgeable about breast cancer, and 58% intend to donate to this cause.
58%
of men are aware of prostate cancer, and 39% intend to donate to this cause.
% Very / Somewhat Knowledgeable
57%
80%
58%
43%
Breast Cancer
Prostate Cancer
% Very / Somewhat Likely to Donate To Cause
47%
58%
39%
26%
Breast Cancer
Prostate Cancer
Men and Women are more likely to know about and donate to a cause that could affect them.
Leger MARKETING
Q. How knowledgeable are you about each of the following types of cancer? / How likely are you to donate to each of the following causes in the next 12 months? Base: Total (n=1502)


Awareness Increases With Age
Number of Canadians Very / Somewhat Knowledgeable
In each case, those over 55 years of age are more knowledgeable about cancer than those 54 or younger.
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
18-34
35-44
45-54
55-64
65+
Breast cancer
Lung cancer
Prostate cancer
Colon cancer
Leger
MARKETING


Knowledge and Likelihood to Donate Across Canada
Canadians vary in their knowledge of different cancers, and in their likelihood to donate to a cause
Yukon
Northwest Territories
Nunavut
British Columbia
Alberta
Saskatchewan
Manitoba
Ontario
Quebec
Newfoundland & Labrador
PEI
Nova Scotia
New Brunswick
Canadians in Prairies are most likely to donate to breast cancer (65%) and lung cancer causes (44%)
Canadians in the Prairies (38%) are more likely to donate to colon cancer than Quebec (24%) or BC (25%)
Ontario (34%) and the Prairies (42%) are more likely to donate to prostate cancer than Quebec (27%)
Atlantic Canada (57%) and Ontario (50%) are more likely to be knowledgeable about colon cancer than Quebec (43%)
MARKETING
Q. How knowledgeable are you about each of the following types of cancer? / How likely are you to donate to each of the following causes in the next 12 months?
Base: Total (n=1502)

Research Methods

INSTRUMENT

The survey was completed online between October 24th and October 31st, 2012 with a sample of 1,502 Canadians. The margin of error for a representative sample of this size is considered accurate to within ± 2.53%, 19 times out of 20.

QUALITY CONTROL

Stringent quality assurance measures allow Leger to achieve the high-quality standards set by the company. As a result, our methods of data collection and storage outperform the norms set by WAPOR (The World Association for Public Opinion Research). These measures are applied at every stage of the project: from data collection to processing, through to analysis. Leger has also obtained "Gold Seal" certification from the Marketing Research and Intelligence Association (MRIA), the leading professional marketing association in Canada. This is obtained following an audit of the company's quality control and business procedures by Deloitte. Leger was certified in 2006 and was re-certified again this year. Leger also meets or exceeds the standards for marketing research created by ESOMAR, the international association of public opinion and market research professionals. Its code of ethical practice is reviewed frequently to ensure that representatives respect respondent privacy, regardless of the techniques or technologies used to conduct the research. We aim to answer our clients' needs with honesty, total confidentiality, and integrity.

(Please note: Percentages reported may not always total 100% due to rounding)

Unit 6: Statistics

Use the *Check Point* to check and reflect before completing the *Big Game!* quiz for *Unit 6: Statistics*.

I understand how to:

Unit 6 Concepts	Place a checkmark in the appropriate column		
	Yes	**No**	**Maybe**
Explain what standard deviation means and how it can be used to compare data sets.			
Calculate the mean and standard deviation of a set of data using technology.			
Use an example to describe the properties of a normal curve.			
Determine if a data set is approximately normal.			
Compare the properties of two normally distributed data sets.			
Determine the *z*-score of a data value and explain its meaning.			
Determine areas under a normal curve.			
Determine a *z*-score from an area under a normal curve.			
Solve problems that use the normal distribution.			
Explain what confidence interval, margin of error, and confidence level mean.			
Describe how the sample size is related to the margin of error, confidence intervals, and confidence level.			
Make predictions about a population from sample data.			
Support a position by analyzing statistical data presented in the media.			

If you have any concerns from the *Check Point*, please refer to *Strengthening and Conditioning* in the *Module* for designated practice questions and their solutions, to help you improve your skills.

Contact your teacher for assistance and clarification as needed.

You have completed the *Lessons* and *Workbooks* for *Unit 6: Statistics*. Please review all work in *Workbook 6B* to ensure it is your best work. Submit *Workbook 6B* for marking at this time and continue your training with the next unit, *Unit 7: Course Project and Review Workbook*.

Complete the *Big Game!* quiz when you have reviewed the feedback provided by your marker for *Workbooks 6A and 6B*.

End Of Workbook 6B