STATISTICS 3

Percentage of Chart Which Resembles Pac-man
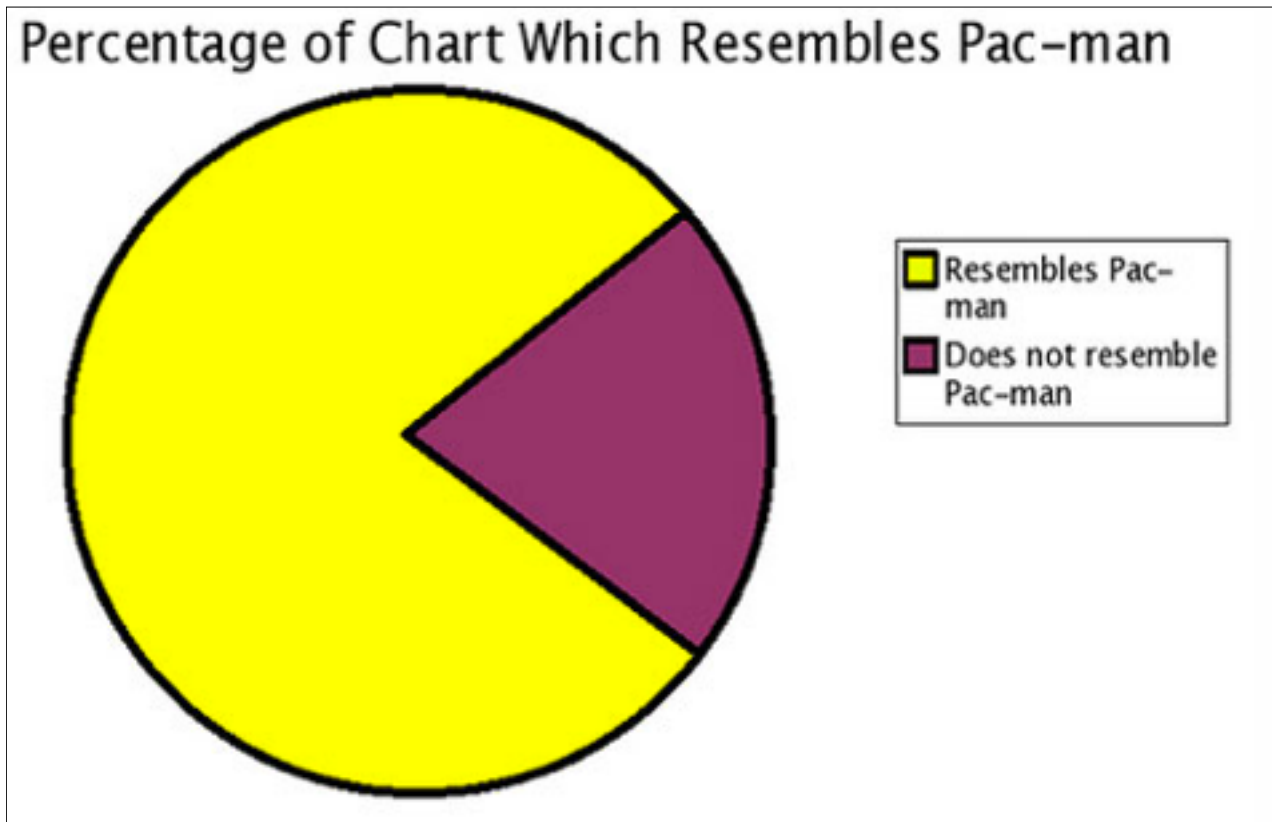

■ Resembles Pac-man
■ Does not resemble Pac-man

How to write a statistical report:

STATISTICAL INFERENCE

(Version 1.0)

INTRODUCTION

Research…

The variables you would like the choose, how the sample data was collected, the population (the group you will be making an inferences about!)

Describe the variables you have chosen…

Tell me more about them - check your sample dataset and do some research! Pretend i'm an idiot and know nothing about your variables.

Write about your interest in the investigation…

Why are you investigating these variables? Other than you, who else will benefit from the results of your report?

Write a comparative investigation question…

MUST have all correct parts - variable names / units & target population.

Hypothesise / predict what the outcome of your investigation will be…

Where possible, use evidence from research to back up your opinion.

HOW WELL YOU WRITE A MEANINGFUL PURPOSE TO YOUR INVESTIGATION WILL DETERMINE YOUR OVERALL GRADE.

FOR EXCELLENCE, NO ERRORS, MISCONCEPTIONS, OR MISUNDERSTANDING OF CONCEPTS MUST BE PRESENT.

ANALYSIS (TECHNICAL NOTES)

"The technical notes should be written in a way that <u>not everybody</u> understands - only statisticians".

Referring to the appropriate displays, <u>state</u> what you **see** in the data.
This will be under 3 main sections: **centre, spread & unusual features.**
All comments will refer to the numbers.
All comments must be in context.

As a guide use:

#1 What do you see…
S = summary statement, what do you see?
N = numerical description, use *numbers* from your computer output.
C = context, ensure your statement refers to corrects groups, units and population.

#2 What does it mean…
What connections can you make to the scenario with this evidence?
What connections can you make to any statistical inference about the target population?

#3 Why should I believe you…
You need to research to back up any findings from #1 and #2 above. PLEASE make sure it's relevant… for example, if your sample data is about apples, don't make statements about pears.

THIS IS THE MOST IMPORTANT PART OF YOUR REPORT.

BE SPECIFIC. REMEMBER, IF YOU CAN'T SEE IT WITH YOUR OWN EYES IN YOUR DATA, DON'T WRITE ABOUT IT. MAKE CONVINCING STATEMENTS, STICK TO THE FACTS IN YOUR DATA AND WHAT THE RESEARCH IS TELLING YOU.

FOR EXCELLENCE, ALL THE FEATURES SHOULD BLEND TOGETHER. FOR EXAMPLE, YOU CANNOT TALK ABOUT THE SHAPE WITHOUT REFERRING TO THE SPREAD.

CONCLUSION (EXECUTIVE SUMMARY)

"The executive summary should be written in a way that <u>most people</u> understand".

Summarise your findings from the Technical Notes section…

Use this table to help you.

Are these findings consistent with your hypothesis?

Are these findings consistent with what your research is telling you?

5 POINT SUMMARY
Minimum
Lower Quartile (LQ)
Median
Upper Quartile (UQ)
Maximum
Interquartile range (UQ - LQ)
Mean
Sample size

Provide an explanation on sampling error…

What is it?

Why should we worry about it?

What are we going to do about it in our investigation?

Use a formal statistical inference method, and explain the result…

Bootstrapped method of re-samplings.

Interpret your bootstrapped confidence interval.

Finale…

Summarise your executive summary section, and your main findings.

Assumptions…

Explain any assumptions you have had to make along the way.

Detail any improvements you have discovered, that will enhance your investigation.

YOUR ENTIRE REPORT SHOULD READ LIKE A STORY, FROM START TO FINISH.
IF YOU MISS IMPORTANT DETAILS, YOUR GRADE MAY BE EFFECTED.

FOR EXCELLENCE, NO ERRORS, MISCONCEPTIONS, OR MISUNDERSTANDING OF CONCEPTS MUST BE PRESENT….ANYWHERE. WELCOME TO LEVEL 3.