

Assessment

A01/2: demonstrate knowledge, appropriate application and interpretation of inferential statistical tests, probability values, significance levels, observed (calculated) values and critical values from tables.

Observed and critical values: The R UP Rule

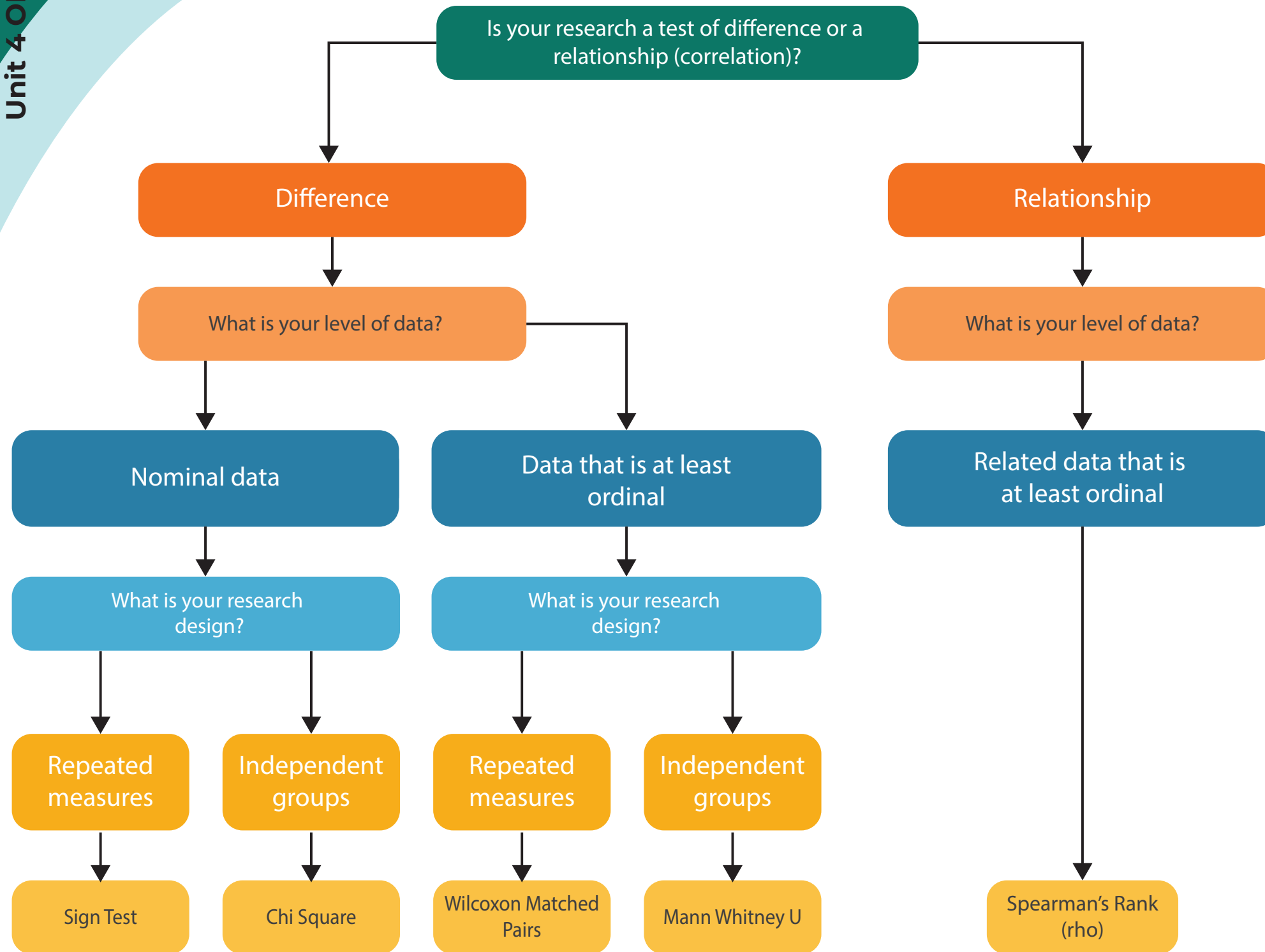
Observed (calculated) values are the numerical value created through inferential statistical analysis of your data. **Critical values** are tabulated numerical values that have been pre-assigned to a particular inferential test. The two are compared to calculate level of significance. The '**R up**' rule helps determine how observed and critical values have to relate to each other. If there is an R in the name of the test (Chi SquaRe and SpeaRman's) then the observed value needs to be equal to or greater than the critical value for results to be statistically significant. If there is not an R (all other tests) the rule is reversed.

R = O \uparrow C (ROC)

No R = C \uparrow O (NO CO)

Choosing a statistical test

Unit 4 ONLY



Inferential statistical tests

Sign test: used when the design is repeated measures/matched pairs, if the level of data is nominal and the hypothesis is predicting a difference.

Chi square: used when the design is independent groups, when the level of data is at least ordinal and when the hypothesis is predicting a difference.

Wilcoxon matched pairs signed ranks test: used when the design is repeated measures/matched pairs, when the level of data is at least ordinal and when the hypothesis is predicting a difference.

Mann Whitney U: used when the design is repeated measures/matched pairs, if the level of data is at least ordinal and if the hypothesis is predicting a difference.

Spearman's rank order correlation coefficient: used when the level of data is at least ordinal and is related, and when the hypothesis is predicting a correlation/relationship.

Probability and levels of significance

Probability refers to the likelihood that results are due to a real difference or correlation. In psychology, we accept a **probability value** of 95%, where results are due to chance in a maximum of 5% of cases. This converts to a **significance level** of 0.05. Significance levels are a numerical that tells you the margin of error that could occur in your results, e.g. 0.05 suggests that there is a 5% probability that results are due to chance, and not the difference/correlation being tested.