Two independent samples

	Randomization test on $(\bar{Y}_2 - \bar{Y}_1)$	Two sample t-test	Wilcoxon Rank Sum test	Levene's test	Welch's t-test
Null hypothesis*	There is no difference between treatments.	The difference in population means is zero. OR The treatment effect is zero.			
Assumptions	• Treatments were assigned to subjects at random	•Normal populations •Equal population standard deviations •Independence of observations within and between groups.			
Robust to assumptions?		•Robust to non-Normal populations with large samples. •Robust to inequality of variances if sample sizes are equal.			
Resistant to outliers?	**Not resistant	Not resistant			
Test statistic	** $(\bar{Y}_2 - \bar{Y}_1)$	$((\bar{Y}_2 - \bar{Y}_1) - (\mu_2 - \mu_1)) / SE_{\bar{Y}2 - \bar{Y}1}$			

*These are abbreviated for space. You should always be specific about what the outcome is and what groups are involved.

** Note: that you can do a randomization test with other test-statistics. What would happen to the resistance if we used difference in sample medians as the test statistic?

Two paired samples

	Paired t-test	Sign test	Wilcoxon Signed Rank test
Null hypothesis*	The population mean of the differences is zero.		
Assumptions	•Differences come from a Normal population. •Independence of observations within groups.		
Robust?	•Robust to non-Normal population with large samples.		
Resistant to outliers?	Not resistant		
Test statistic	$(\bar{Y} - \mu) / SE_{\bar{Y}}$		

*These are abbreviated for space. You should always be specific about what the outcome is and what groups are involved.