

## SPSS24 HELP SHEET: Kruskal-Wallis test

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### 1. How to enter data to do a Kruskal-Wallis test.

For general advice on data entry see the “How to enter data into SPSS” help sheet.

Kruskal-Wallis tests are used on unrelated data: Data for the dependent variable go in one column and data for the independent variable goes in another. In this example, the dependent variable is *Nitrogen* and the independent variable is *Site*. *Nitrogen* is measured as % nitrogen of dry weight and is scale level of measurement. *Site* refers to the area within the reed bed that the samples of reeds were taken from measured at the nominal level: either 1 (value label = Site 1), 2 (value label = Site 2) or 3 (value label = Site 3).

### Variable View

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Site	Numeric	8	0		{1, Site 1}...	None	8	Right	Nominal	Input
2	Nitrogen	Numeric	8	2	Nitrogen Conte...	None	None	8	Right	Scale	Target

### Data View

(View – Value Labels off)

	Site	Nitrogen	var	var	var
1	1	2.92			
2	1	2.88			
3	1	3.25			
4	1	2.64			
5	1	3.28			
6	2	3.06			
7	2	2.60			
8	2	2.55			
9	2	2.42			
10	2	2.35			

### Data View

(View – Value Labels on)

	Site	Nitrogen	var	var	var
1	Site 1	2.92			
2	Site 1	2.88			
3	Site 1	3.25			
4	Site 1	2.64			
5	Site 1	3.28			
6	Site 2	3.06			
7	Site 2	2.60			
8	Site 2	2.55			
9	Site 2	2.42			
10	Site 2	2.35			

### 2. How to do a Kruskal-Wallis test

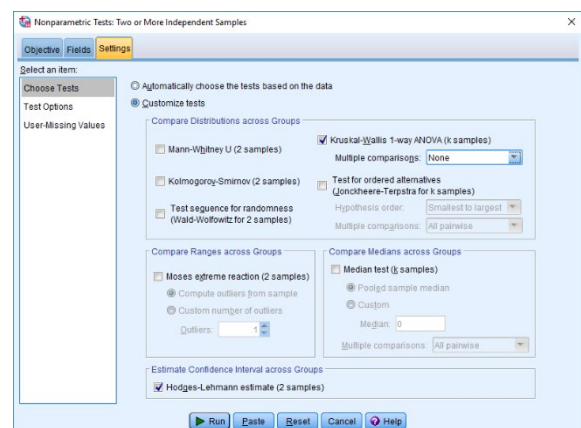
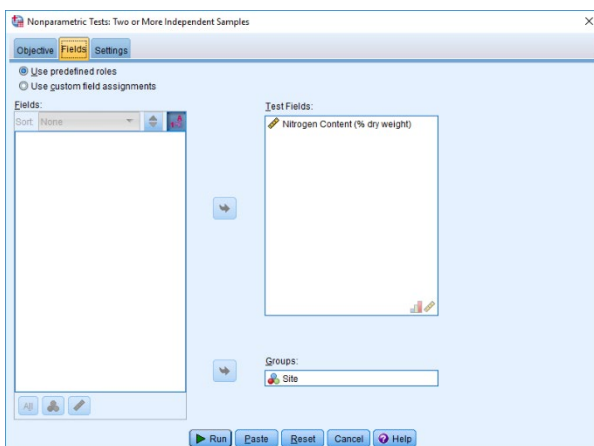
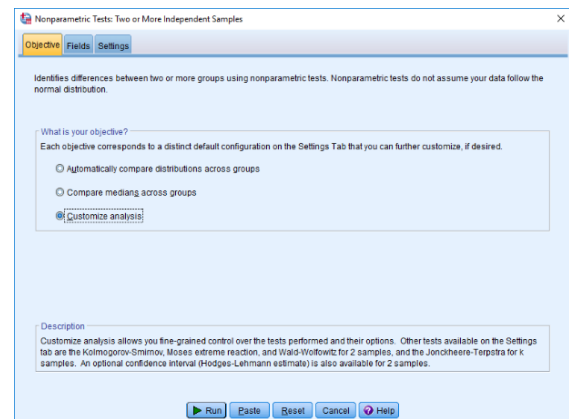
To get SPSS to conduct a Kruskal-Wallis test :

Open your data file.

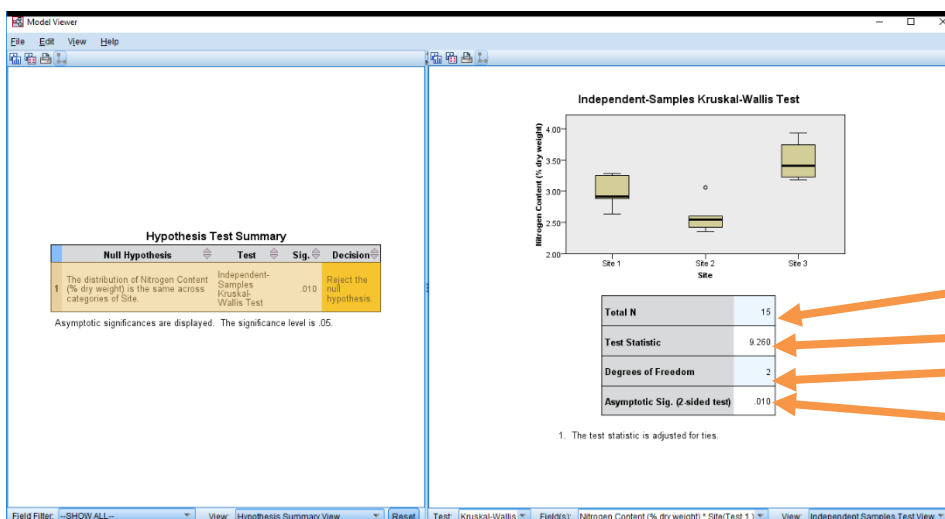
Select: Analyze - Nonparametric Tests – Independent Samples...

This will bring up the **Nonparametric Tests Two or More Independent Samples Tests** window which has three tabs:

1. **Objective.** Select **Customize analysis.**
2. **Fields.** Either use the default **Use predefined roles** or select **Use custom field assignments** and send your dependent variable (in this case *Nitrogen*) to the **Test Field** box and your independent variable (in this case *Site*) to the **Groups** box.
3. **Settings.** Select **Customize tests**, then **Kruskal-Wallis 1-way ANOVA (k samples)** in the **Compare distributions across Groups.** Select **None** from **Multiple Comparisons** drop down menu or leave it as the default, **All pairwise.**



Press **Run** on any and then double click on the **Hypothesis Test Summary** table in the **Output** window to bring up the **Model Viewer** window. This will produce the following in the **Output** window.



Total sample size (N)  
Statistic ( $\chi^2$ )  
Degrees of Freedom  
P

In summary the key information from the test is  $\chi^2_2=9.26$ ,  $n_1=5$ ,  $n_2=5$ ,  $n_3=5$ ,  $P=0.010$

Change View to Categorical Field Information to get sizes of each sample,  $n_1$ ,  $n_2$  and  $n_3$ .