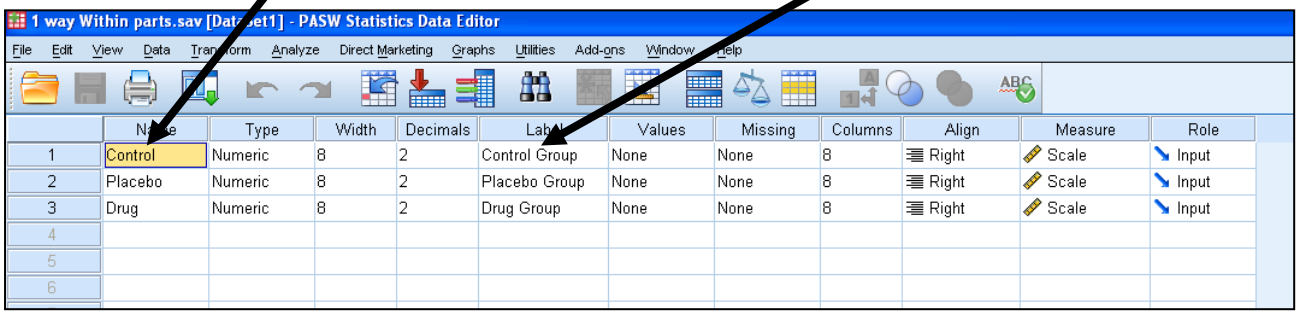
One Way Within Participants ANOVA

A. Arranging your data

Click on the 'Variable View' window

Give your variables names here. Maximum eight characters and no spaces

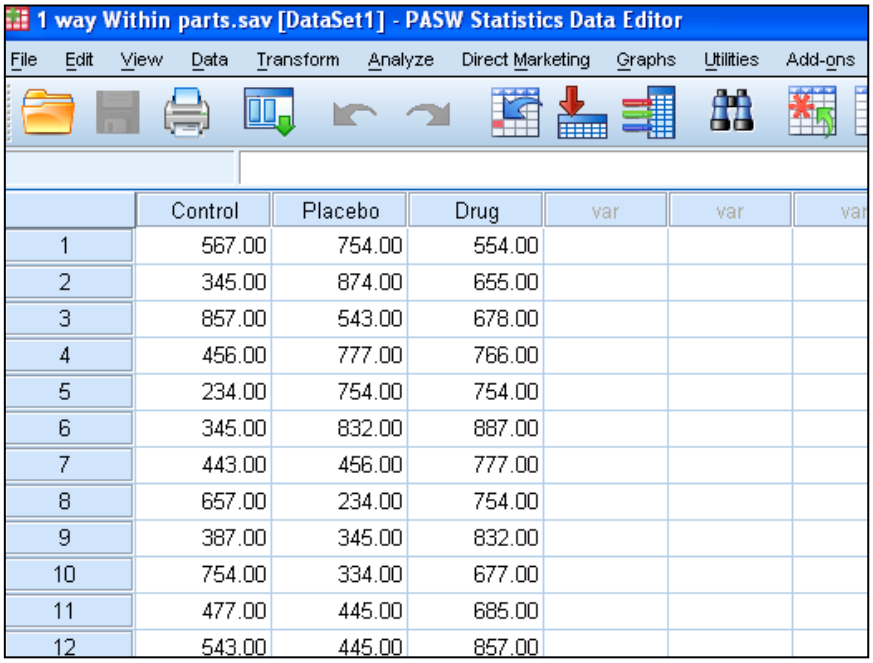
Give your variables proper labels here.



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Control	Numeric	8	2	Control Group	None	None	8	Right	Scale	Input
2	Placebo	Numeric	8	2	Placebo Group	None	None	8	Right	Scale	Input
3	Drug	Numeric	8	2	Drug Group	None	None	8	Right	Scale	Input
4											
5											
6											

Click on the 'Data View' window

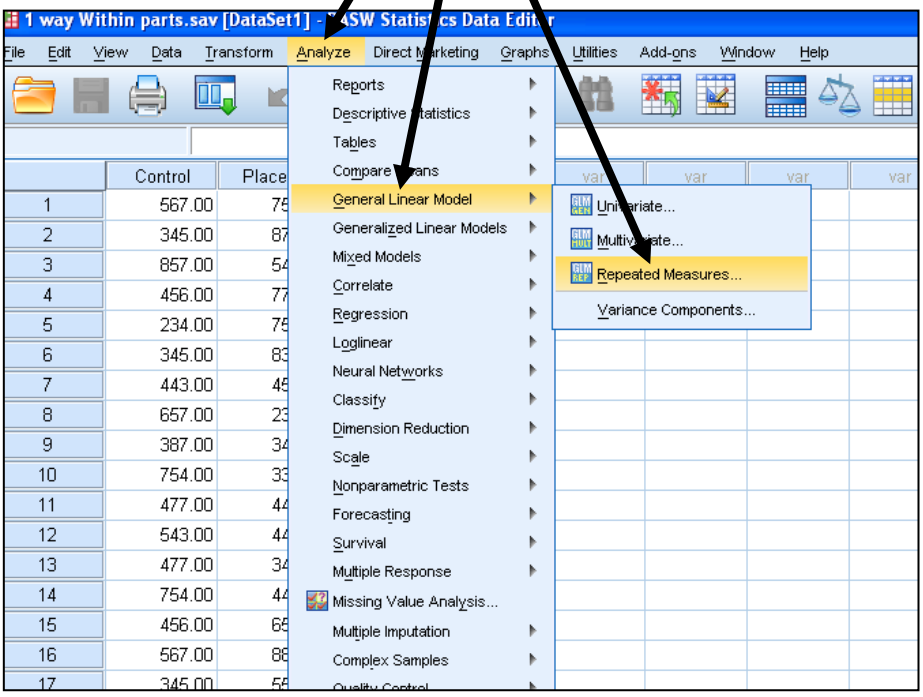
We can see each of the three conditions labelled on the top. Each row represents a different



	Control	Placebo	Drug	var	var	var
1	567.00	754.00	554.00			
2	345.00	874.00	655.00			
3	857.00	543.00	678.00			
4	456.00	777.00	766.00			
5	234.00	754.00	754.00			
6	345.00	832.00	887.00			
7	443.00	456.00	777.00			
8	657.00	234.00	754.00			
9	387.00	345.00	832.00			
10	754.00	334.00	677.00			
11	477.00	445.00	685.00			
12	543.00	445.00	857.00			

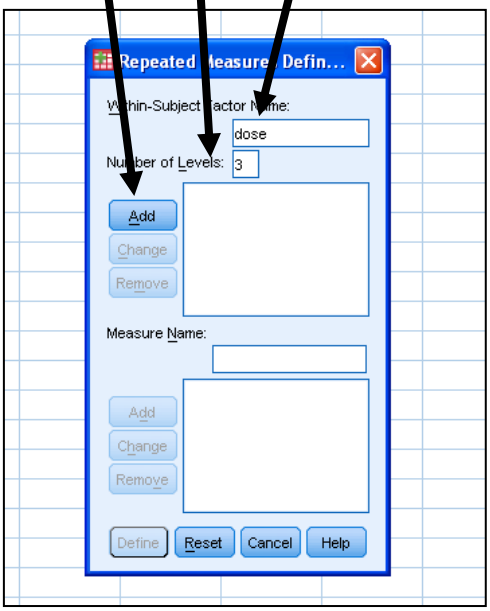
B. Running the ANOVA

Go to **'Analyse'** across the top. **'General Linear Model'** and **'Repeated Measures'**

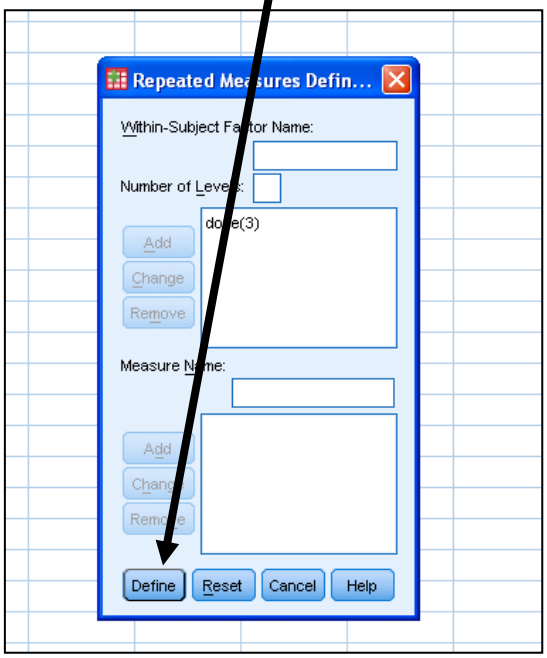


You will then see a box appear which looks like the one below

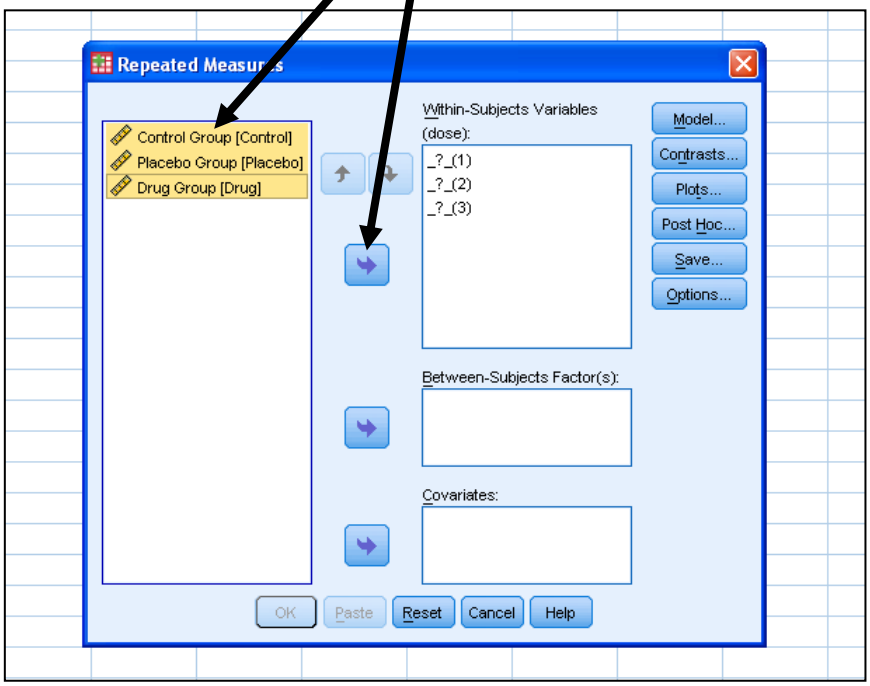
Double click where it says factor 1 and give the variable a name. In this case it is 'Dose' with '3' levels. Then click 'Add'



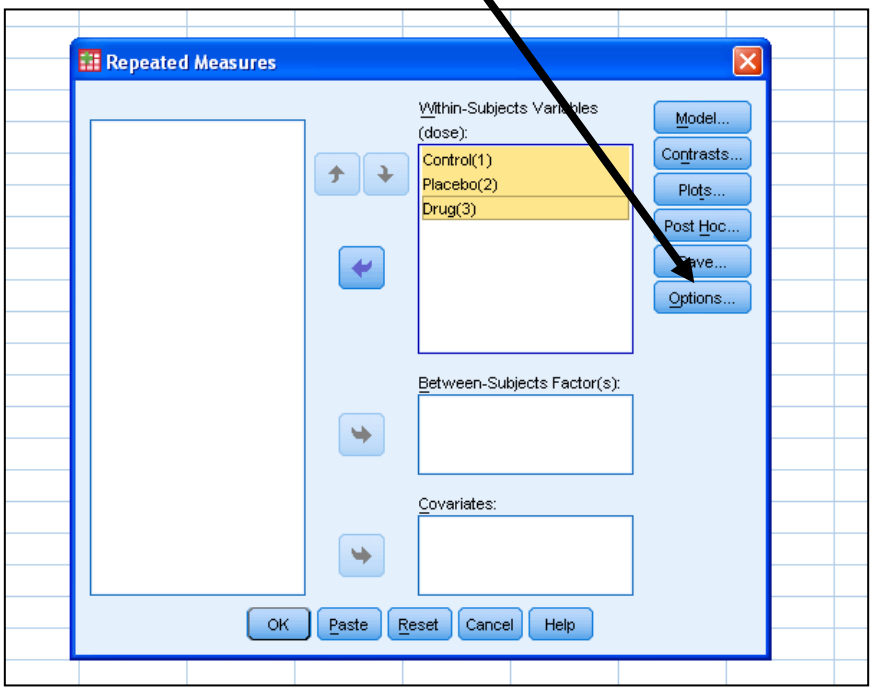
Click 'Define' to get to the next screen



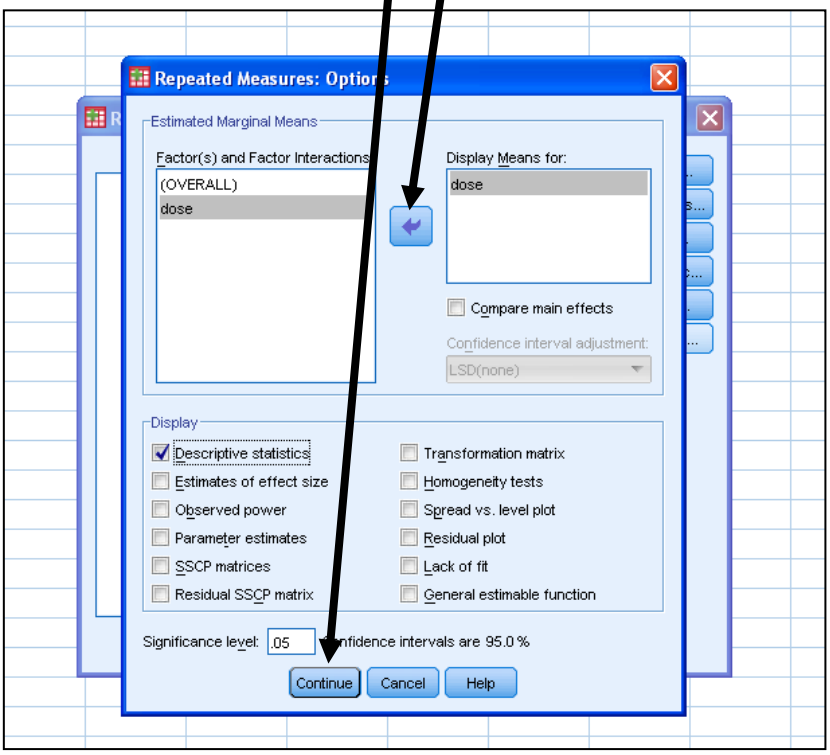
Highlight these, and then click the arrow



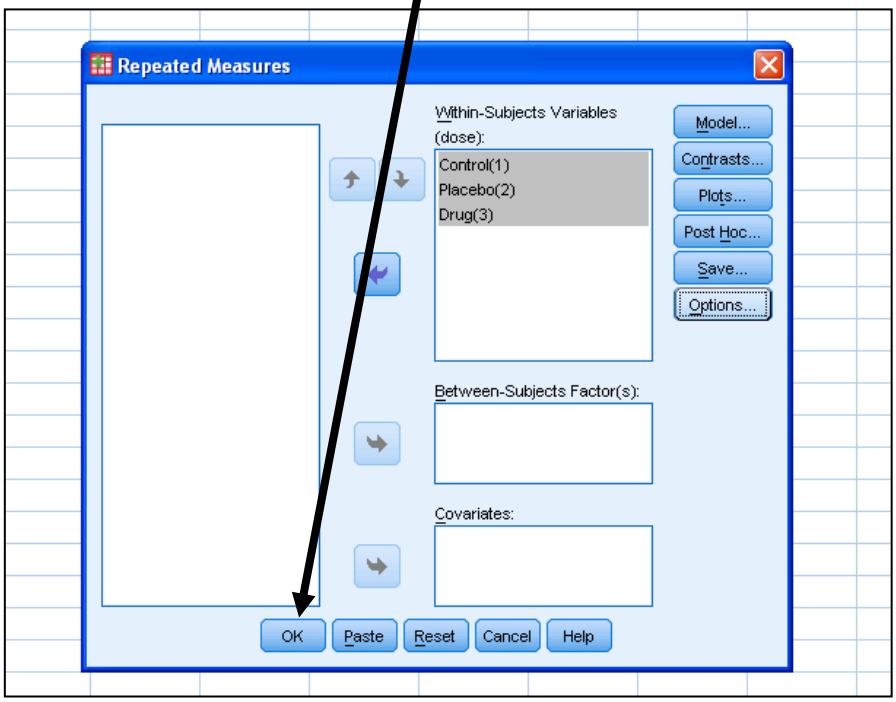
You will then see this screen. Click on 'Options'



Highlight 'Dose' and move across to 'Display Means for' and click 'Continue'



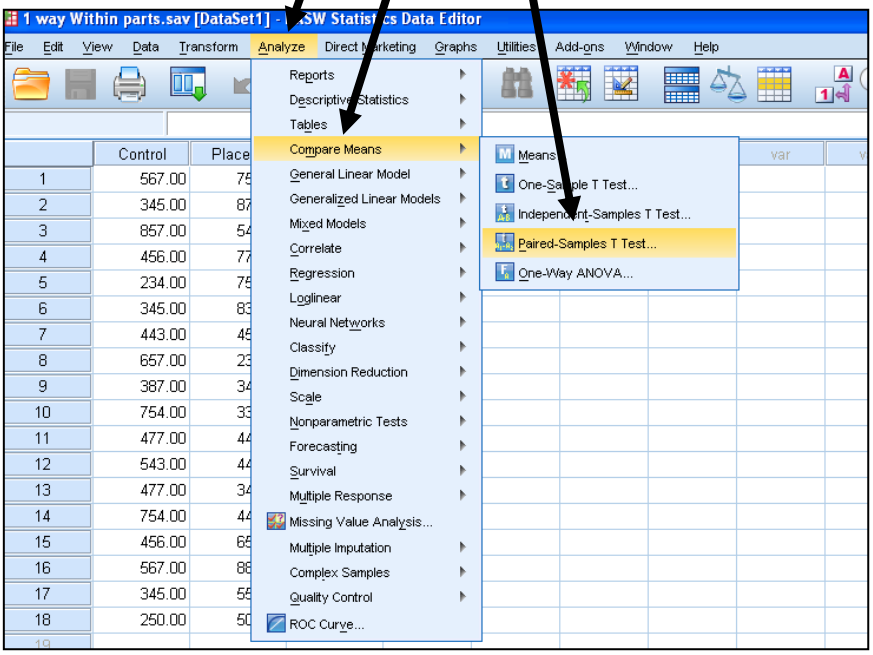
Back to this screen and click 'OK'



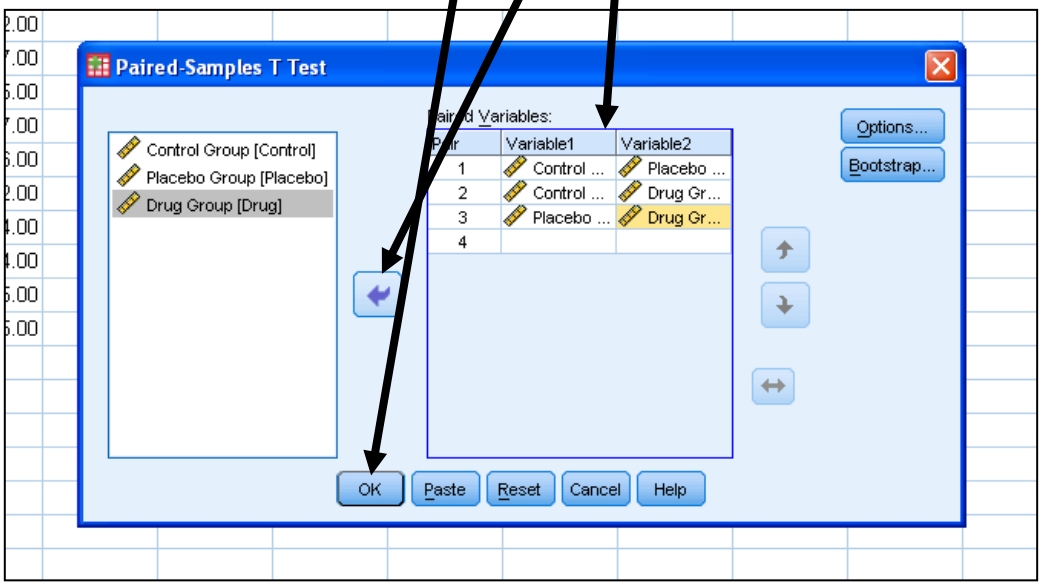
SPSS does not have an automatic function for post hoc tests when running a within participants ANOVA, and so in order to do this you will need to run a series of Paired Samples T Tests. This is shown below.

C. Running the t tests

Go to 'Analyse' across the top. 'Compare Means' and 'Paired-Samples T Test



Set up the combinations of pairs here. Control v Placebo, Control v Drug and Placebo v Drug. Click 'OK'



The Output

On this part of the output, look at the table of means, labelled 'Descriptive Statistics' Here you can inspect the differences in the means

Descriptive Statistics

	Mean	Std. Deviation	N
Control Group	495.2222	174.52880	18
Placebo Group	565.3333	205.15331	18
Drug Group	691.2222	135.21945	18

The next table to consult is the one labelled 'Tests of Within-Subjects Effects'. Look at the F value and the sig level. You can see that in this case we have a significant effect.

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
dose	Sphericity Assumed	355077.481	2	177538.741	5.471	.009
	Greenhouse-Geisser	355077.481	1.576	225349.872	5.471	.015
	Huynh-Feldt	355077.481	1.709	207754.026	5.471	.013
	Lower-bound	355077.481	1.000	355077.481	5.471	.032
Error(dose)	Sphericity Assumed	1103395.852	34	32452.819		
	Greenhouse-Geisser	1103395.852	26.786	41192.354		
	Huynh-Feldt	1103395.852	29.055	37975.958		
	Lower-bound	1103395.852	17.000	64905.638		

Finally the table at the bottom shows the Paired Samples Test, which displays the three comparisons made. Because we have run three t tests, we stand a chance of making a Type 1 error, and therefore we need to apply Bonferroni's correction, which means adjusting our significance level accordingly.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Control Group - Placebo Group	-70.11111	312.98447	73.77115	-225.75463	85.53241	-.950	17	.355
Pair 2	Control Group - Drug Group	-196.00000	206.80881	48.74530	-298.84360	-93.15640	-4.021	17	.001
Pair 3	Placebo Group - Drug Group	-125.88889	232.35264	54.76604	-241.43514	-10.34264	-2.299	17	.034