Within Subjects (Repeated-Measures) Design: One-Way Analysis of Variance (ANOVA) —3 levels

DATA

	Condition 1	Condition 2	Condition 3	**Mean**
	5	6	7	**6.0**
	4	7	6	**5.7**
	4	5	6	**5.0**
	3	5	7	**5.0**
Mean	**4.00**	**5.75**	**6.50**	
S. D.	**0.82**	**0.95**	**0.58**	**Mean total: 5.4**

Computations

Sums of squares (SS)	Degrees of freedom (df)
Total SS = $\sum (X - \overline{X}_{total})^2$ where X : single score	# of scores - 1
Subject SS = $\sum[c (\overline{X}_{subject} - \overline{X}_{total})^2]$ where c : # of conditions	# of Subjects - 1
Condition SS = $\sum[r (\overline{X}_{condition} - \overline{X}_{total})^2]$ where r : # of subjects	# of Conditions - 1
Interaction SS = Total SS - Subject SS - Conditions SS	(# of Conditions - 1)X (# of Subjects - 1)

Table of variance: Repeated Measures

SS/df like VARIANCE

Source	**SS**	**df**	**MS**	**F**	**p**
Between Subjects (row)	2.25	3	0.75		
Within Subjects					
Conditions (column)	13.17	2	6.58	11.28	0.0093
Conditions X Subjects (interaction)	3.50	6	0.58		
Total	18.92	11			