A/B Testing
Which color do you prefer to eat?

The colors in the test

Red

Orange

Green

Black

Blue

Sample the scoring questionnaire

Red food

How many scores do you prefer to eat the red food?

1	2	3	4	5
○	○	○	○	○

Link to the full questionnaire : Click
Participants are student in the class and outsider.

The result

Anova: Single Factor

SUMMARY

Groups	Count	Sum	Average	Variance
Red food	34	143	4.21	0.65
Orange food	34	158	4.65	0.36
Green food	34	132	3.88	0.89
Blue food	34	50	1.47	0.56
Black food	34	84	2.47	0.92

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	238.09	4.00	59.52	87.85	0.00	2.43
Within Groups	111.79	165.00	0.68			
Total	349.89	169.00				

Define hypothesis

H_0 : The participants like to eat all colors equally.

H_1 : At least one color that the participants like to eat differently from the other.

Conclusion

From the anova test result, P-value < 0.05. Reject H_0 That means, **At least one color that the participants like to eat differently from the other.**

t-Test: Two-Sample Assuming Unequal Variances

	Red food	Orange food
Mean	4.21	4.65
Variance	0.65	0.36
Observations	34.00	34.00
Hypothesized Mean Difference	-	
df	61.00	
t Stat	(2.56)	
P(T<=t) one-tail	0.01	
t Critical one-tail	1.67	
P(T<=t) two-tail	0.01	
t Critical two-tail	2.00	

Define hypothesis

H_0 : The participants like to eat food with red color and food with orange color equally.

H_1 : The participants like to eat food with red color more than food with orange color.

Conclusion

From the t-test result, P-value < 0.05 with t-stat < 0. Reject H_0 and That means, **The participants like to eat food with orange color more than food with red color.**

The result

t-Test: Two-Sample Assuming Unequal Variances

	Orange food	Green food
Mean	4.65	3.88
Variance	0.36	0.89
Observations	34.00	34.00
Hypothesized Mean Difference	-	
df	56.00	
t Stat	3.99	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.67	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.00	

Define hypothesis

H_0 : The participants like to eat food with orange color and food with green color equally.

H_1 : The participants like to eat food with orange color more than food with green color.

Conclusion

From the t-test result, P-value < 0.05 with t-stat > 0. Reject H_0 and That means, **The participants like to eat food with orange color more than food with green color.**

t-Test: Two-Sample Assuming Unequal Variances

	Green food	Black food
Mean	3.88	2.47
Variance	0.89	0.92
Observations	34.00	34.00
Hypothesized Mean Difference	-	
df	66.00	
t Stat	6.10	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.67	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.00	

Define hypothesis

H_0 : The participants like to eat food with green color and food with black color equally.

H_1 : The participants like to eat food with green color more than food with black color.

Conclusion

From the t-test result, P-value < 0.05 with t-stat > 0. Reject H_0 and That means, **The participants like to eat food with green color more than food with black color.**

The result

t-Test: Two-Sample Assuming Unequal Variances

	Black food	Blue food
Mean	2.47	1.47
Variance	0.92	0.56
Observations	34.00	34.00
Hypothesized Mean Difference	-	
df	62.00	
t Stat	4.79	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.67	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.00	

Define hypothesis

H_0 : The participants like to eat food with black color and food with blue color equally.

H_1 : The participants like to eat food with black color more than food with blue color.

Conclusion

From the t-test result, P-value < 0.05 with t-stat > 0. Reject H_0 and That means, **The participants like to eat food with black color more than food with blue color.**

The conclusion from t-test
Participants prefer to eat food with
Orange > Red > Green > Black > Blue.

Score distribution

Box plot - Preferring Score distribution