

Taster or Non-Taster
Human Genetics Exercise

Name _____

Date _____

Hour _____

Overview:

The study of genetics/inherited traits is more than simply tracing back or predicting eye and hair color. Our genetic code is specific from one person to another. We do pass on other, more “unusual” traits, such as the ability to figure out specific tastes in foods.

When geneticists study populations for a specific trait, they sample large numbers of people. This gives the scientists a more accurate description of how the trait occurs. They might analyze their data by percentages to help them understand if the trait is dominant or recessive and how it occurs within the given population.

Background Information:

Control Paper (C) As this is a control, the only taste you perceive is that of the paper itself. This prevents the possible confusion of paper taste with chemical tastes you will later taste.

PTC Taste Paper – If you note a bitter taste, then you are a taster of PTC. If the taste is like that of the Control Paper, then you are a nontaster.

Sodium Benzoate Taste Paper – The most common taste reactions to sodium benzoate are: sweet, salty, or bitter, although some people note other or no responses.

Thiourea Taste Paper – If you note a bitter taste reaction, then you are a taster of thiourea. If the taste is like that of the Control Test Paper, then you are a nontaster.

Materials:

- ♦ Control test paper
- ♦ PTC test paper
- ♦ Sodium Benzoate taste paper
- ♦ Thiourea taste paper
- ♦ Paper cup of water
- ♦ Ruler – you supply
- ♦ Calculator – you supply
- ♦ Pencil – you supply

Procedure - (done step by step with Mr. Schanke):

1. Rip off a 1 cm square of the control paper and taste it. This prevents the possible confusion of paper taste with chemical tastes you will later taste.
2. Rip off a 1 cm square of the PTC taste paper and taste it. Record if you are a taster or nontaster under observations.
3. “Cleanse your palate”
4. Rip off a 1 cm square of the sodium benzoate taste paper and taste it. Record if you are a taster or nontaster under observations.
5. “Cleanse your palate”
6. Rip off a 1 cm square of the thiourea taste paper and taste it. Record if you are a taster or nontaster under observations.
7. “Cleanse your palate”
8. Gather data from your class.
9. Calculate percentages of tasters and nontaster for each test paper.
10. Complete bar graphs for class data. *Refer to GRAPH TIP SHEET.*
11. Gather data from team.
12. Calculate percentages of tasters and nontaster for each test paper.
13. Complete bars on graph for team data. *Refer to GRAPH TIP SHEET.*

Hypothesis – Part 2:

Write a hypothesis about how the ability to taste these chemicals will appear in a large sample population.

Observations:

Personal Results

	Taster	Nontaster
PTC taste paper		
Sodium Benzoate taste paper		
Thiourea taste paper		

Class Results

	Taster	Nontaster
PTC taste paper		
Sodium Benzoate taste paper		
Thiourea taste paper		

Team Results

	Taster	Nontaster
PTC taste paper		
Sodium Benzoate taste paper		
Thiourea taste paper		

Calculations:

Class Calculations - Tasters

Divide the total number of tasters by the number of people in your class, then multiply that answer by 100.

	Total # of tasters		# of students in class	=	Answer	X	100	=	Percent of tasters in class
PTC				=		X	100	=	
Sodium Benzoate				=		X	100	=	
Thiourea				=		X	100	=	

Class Calculations – Non -Tasters

Divide the total number of tasters by the number of people in your class, then multiply that answer by 100.

	Total # of nontasters		# of students in class	=	Answer	X	100	=	Percent of nontasters in class
PTC				=		X	100	=	
Sodium Benzoate				=		X	100	=	
Thiourea				=		X	100	=	

Team Calculations - Tasters

Divide the total number of tasters by the number of people in your class, then multiply that answer by 100.

	Total # of tasters		# of students on team	=	Answer	X	100	=	Percent of tasters in class
PTC				=		X	100	=	
Sodium Benzoate				=		X	100	=	
Thiourea				=		X	100	=	

Team Calculations – Non -Tasters

Divide the total number of tasters by the number of people in your class, then multiply that answer by 100.

	Total # of nontasters		# of students on team	=	Answer	X	100	=	Percent of nontasters in class
PTC				=		X	100	=	
Sodium Benzoate				=		X	100	=	
Thiourea				=		X	100	=	

Graph:

Design a bar graph on the attached piece of graph paper to show your class and team data. Be sure to follow the GRAPH TIP SHEET in your binder and include a key for you graph.

*****Attach graph after this page.*****

Analysis and Conclusion:

Answer the following questions using complete sentences.

1. Do you see any similarities between the two sets of data?

2. Based on what you know about genetics, is the ability to taste these chemicals a dominant or recessive trait? _____

3. Did the sample population data support or reject your hypothesis? _____

4. What can you conclude about the ability to taste these papers? Do you think you would get these same percentages if you did this study with thousands of people all over the country? Why or why not? _____

5. Write one **question** that could lead to further studies on tasting ability. _____

6. Did you enjoy doing this lab? Why or why not? _____
