**Murder and a Meal**

CLASS SET

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**The Case:**

A murder has occurred right here in our peaceful little town of Eastvale, California. As top-notch biology students at Eleanor Roosevelt High School, you have been asked to assist in the investigation of this most unfortunate incident. Central to identifying the individual who committed this crime is establishing where the victim was the day of the crime so that detectives can question the individuals with whom the victim came into contact. An autopsy was performed on the victim and has revealed that the victim ate just prior to the time of death. Upon questioning the victim’s friends and family, detectives working the case have learned that the victim enjoyed eating at the following places.

**Blaze Fast Fire’d Pizza**



The victim would never eat pizza from anywhere else! The victim would typically order a pizza with sausage, pepperoni and bacon.

***What macromolecules would you expect to find in the stomach contents of the victim if the victims final “pie” was eaten here?***

**Buffalo Wild Wings**



The victim would hang out here to watch sporting events while feasting on Blazin’ wings.

***What macromolecules would you expect to find in the stomach contents of the victim if the victims final meal was eaten here?***

**Carinos**



The victim loved to go here for a night of bread, olive oil and fettuccini pasta.

***What macromolecules would you expect to find in the stomach contents of the victim if the victims final meal was eaten here?***

The forensic pathologist has removed the contents of the victim’s stomach for you to analyze in order to determine where the victim had his last meal. (See the lovely looking stomach contents in the front of the room ☺)

**Where do you get your macromolecules from?**

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**Murder and a Meal Lab**

**Lipids**

 -Butter

 -Vegetable or Canola Oil

 -Olive oil

 -Twinkies

 -Ice Cream

 -Potato chips

 -Cheese

Almost everything contains lipids. Even many fruits and vegetables. The goal is to eat the right kinds of lipids in the right amounts.

**Proteins**

 -Meats like

Pork

 Beef

 Chicken

 Tuna (Fish in general)

 -Soy

 -Eggs

### Simple carbohydrates

Simple carbohydrates are also known as sugars.

\*\*Natural sugars are found in fruit and vegetables.

Refined sugars are found in:

* biscuits, cakes and pastries
* chocolate
* honey and jams
* jellies
* brown and white cane sugar
* pizzas
* prepared foods and sauces
* soft drinks
* sweets and snack bars.

Simple carbohydrates (sugar) cause tooth decay.

**Complex carbohydrates (long polymers)**

Complex carbohydrates as natural starches are found in:

* bananas
* barley
* beans
* brown rice
* chickpeas
* lentils
* nuts
* oats
* parsnips
* potatoes
* root vegetables
* sweet corn
* wholegrain cereals
* whole wheat breads
* whole wheat cereals
* whole wheat flour
* whole wheat pasta
* yams.

Complex carbohydrates as refined starches are found in:

* biscuits, pastries and cakes
* pizzas
* sugary processed breakfast cereals
* white bread
* white flour
* white pasta
* white rice.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_\_ Seat:\_\_\_\_\_

**Observation**: Different macromolecules are part of different types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ we eat.

**Question**: Where did our murder victim eat his last meal? Or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Prediction**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Materials**

Dimple tray Iodine solution Dropper Distilled water

Benedicts solution Paper towels 2 Tooth picks Biuret solution

**Pre-Lab Questions:**

1. What type of macromolecules would you expect to find in the stomach contents of the victim if he ate his last meal at Blaze Fast Fire’d Pizza? (see description in lab handout) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. What type of macromolecules would you expect to find in the stomach contents of the victim if he ate his last meal at Buffalo Wild Wings? (see description in lab handout) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. What type of macromolecules would you expect to find in the stomach contents of the victim if he ate his last meal at Carinos? (see description in lab handout)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Data:**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Macromolecule*** | ***Chemical Test*** | ***Positive Test Result looks like*** | ***Negative test result looks like*** |
| Lipids | Paper Towel Test | Translucent/Shiny/Almost see through | Dries and looks like regular paper towel |
| Proteins | Biruets solution | Purple or Pink Color | Blue Color |
| Simple Carbohydrates(Monosaccharides like Glucose) | Benedicts Solution | Red Orange/ Brick Red Color | Blue Color |
| Complex Carbohydrates(Polysaccharides like starch) | Iodine Solution | Dark Purple or Black Color | Yellowish Brown Color |

|  |  |  |  |
| --- | --- | --- | --- |
| Test for Proteins | Test for Carbohydrates (Complex sugars-starch) | Test for Lipids | Test for Carbohydrates(simple sugars) |
| Observations:  | Observations: | Observations:  | Observations:  |
| \_\_\_\_\_Positive Test Result \_\_\_\_\_Negative Test Result | \_\_\_\_\_Positive Test Result \_\_\_\_\_Negative Test Result | \_\_\_\_\_Positive Test Result \_\_\_\_\_Negative Test Result | \_\_\_\_\_Positive Test Result \_\_\_\_\_Negative Test Result |
| Protein present? Yes/ No  | Complex carb present? Yes/ No  | Lipid present? Yes/ No  | Simple Carb present?  Yes/ No  |

**Conclusion: (Write your conclusion on the back) COMPLETE AT HOME!!!**

Report your findings *as if you were writing a professional report* of your findings for the murder **(paragraph form).**

-Open with a statement regarding which restaurant the victim visited for his last meal. (3 points)

-Provide a logical explanation, using the data from the tests on the stomach contents- describe the results from each test and how it helped you identify or eliminate a possible last eating place to explain how you reached your final conclusion (7 points)

Conclusion—review of scientific method and controlled experiments:

1. Why did we use distilled water in our tests? (2 points)

2. Why did we do 3 trials per test? (2 points)