

Essential Question: How can my lifestyle affect the quality of my life?

Activity 4 - Breakdown Lab -
Why Mom is right about chewing your food!

Purpose: 1. I am able to describe and explain how the **subsystems** of the **digestive system** work to allow the system to digest food in my body.
 2. I can plan, conduct, and properly write up a **controlled experiment**.



Background: One important function of the digestion system is to break down food into smaller pieces, then to chemically react with food until the food is broken down to glucose and other nutrients. **The other function** is to eliminate wastes.

Mechanical Breakdown: When you chew food mechanical breakdown occurs. The first area of mechanical breakdown is in your mouth when your tooth, with help from your tongue breaks down food. Mechanical breakdown continues with food gets into your stomach. There the stomach churns the food around.

Chemical Breakdown: This type of break down first occurs when your saliva comes in contact with your food. Then chemical breakdown continues in your stomach when hydrochloric acid in the stomach breaks down the food even further. Finally chemical breakdown occurs in your small intestine when the pancreas, liver and gallbladder produce substances to break down the proteins and fats in the food. After this, the nutrients from your food are absorbed into the tiny blood vessels in tiny projections called villi in your small intestine.

Today's lab is going to explore whether it is actually helpful to mechanically break down food, or if chemical break down alone will do this job just as well.

Activity 4 -Mechanical vs Chemical Breakdown Lab

Step 1: State the purpose of the investigation.	
Step 2: Identify the following SS = MV = RV =	Step 3: What is your scientific question ? (“How does/What is... SS + MV affect RV?”)

Certain bacteria in the large intestine make vitamin K, which the body needs for blood clotting.

<p>Step 4: Identify the control & experimental trials, the controlled and uncontrolled variables, and potential types of error</p> <p>CT =</p> <p>ET 1 =</p> <p>ET 2 =</p> <p>ET 3 =</p>	<p>Step 5: State your hypothesis.</p> <p>IF (SS + MV)___</p> <p>THEN (ET + Clear Prediction)</p> <p>COMPARED TO (CT)</p> <p>BECAUSE (SS, MV, RV & WHY)</p> <p>Therefore</p>
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Step 6: Identify Variables

<u>2 Controlled Variables</u>	<u>2 Uncontrolled Variables</u>	<u>Type of Error</u>
Minimum of two, other EC listed	List those that affected data	Caused by the UCVs
1.	1.	1.
2.	2.	2.
3. CH/EC	3. CH/EC	3. CH/EC

RETURN TO THIS SECTION AFTER THE LAB TO MODIFY OR ADD VARIABLES AND ERRORS.

Step 7: List the controlled variables, uncontrolled variables, & types of error in this experiment.

Data Table 1 – Chemical vs. Mechanical Breakdown					
Cup	Antacid Tablet Size	1st Station Time to Dissolve (s)	2nd Station Time to Dissolve (s)	3rd Station Time to Dissolve (s)	Average of three trials (s)
A	1 piece				
B	2 pieces				
C	3 pieces				
D	Crushed tablet				

Timekeeper

Observer 1.

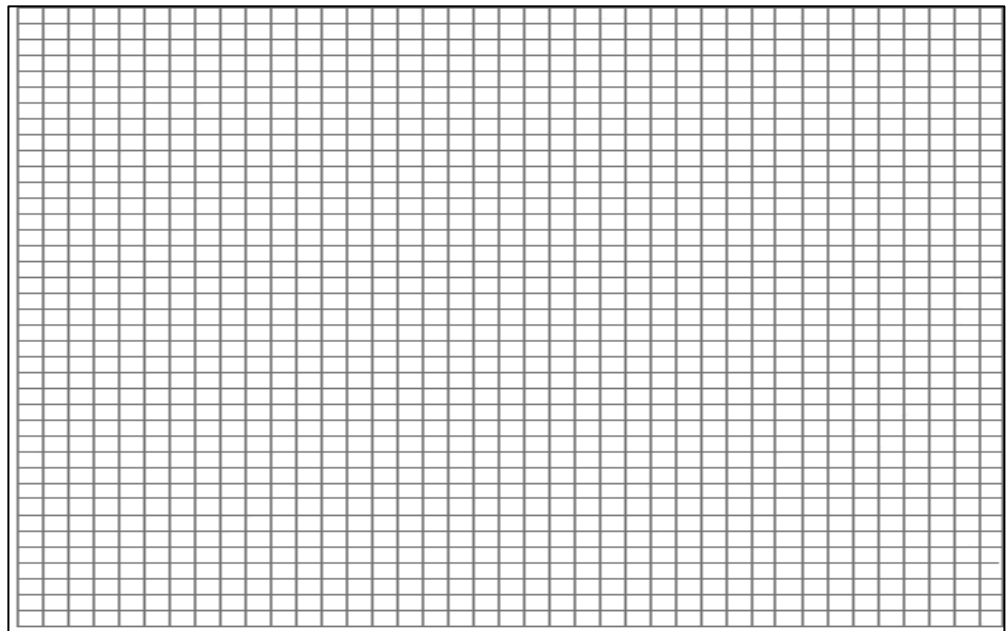
Operator

2.

Step 8: Analyze data.

Graph 1. _____

Y Axis Title



X Axis Title _____

