

Name _____

Date _____

How Amylase Works

We chew our food to make the pieces smaller and saliva is added to make it softer and easier to swallow. Smaller softer pieces are easier to digest. To digest means to break down food so our body can use it to nourish itself. Our body uses “enzymes” to assist digestion.

Our saliva contains an enzyme called: “Amylase”. Amylase breaks down “starch”. Starch is found in many foods like bread, rice, wheat, potatoes and some fruits. Starch is also used as a main ingredient in household products like the “starch” we use to iron our clothes. When we chew our food, we add saliva with amylase and that gets mixed in as we chew. Amylase digests only starch. When you drink cold or hot drinks or if you drink while you’re chewing your food amylase does not work as well.

An easy way to know if something contains starch is by adding “iodine” solution (Iodine is used to disinfect scrapes, scratches etc). Usually Iodine has a red-brown color. But when it contacts starch, iodine will turn a dark purple. Today we are going to do an experiment to see how the enzyme “Amylase” works.

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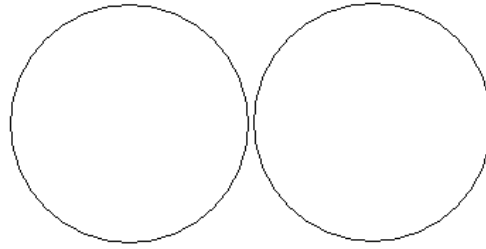
How Amylase Works Questions

1. What happens when we chew our food?	<ul style="list-style-type: none">● It gets soft● Its easier to swallow● All of the above
2. What does digestion mean?	<ul style="list-style-type: none">● To eat● To break down and make easier to swallow● To break down in to parts the body can use
3. What does our body use to assist digestion?	<ul style="list-style-type: none">● Saliva alone● Enzymes alone● Chewing, saliva and enzymes
4. Which enzyme does saliva contain?	<ul style="list-style-type: none">● Starch● Amylase● Saliva
5. What part of food does Amylase digest	<ul style="list-style-type: none">● Sugar● Fat● Starch
6. What color is the iodine solution normally?	<ul style="list-style-type: none">● Brown● Purple● No color
7. What color is iodine when it contacts starch?	<ul style="list-style-type: none">● No color● Brown● Purple

How Amylase Works Questions (Cont'd)

Follow the step-by-step instructions and write the results on your worksheet

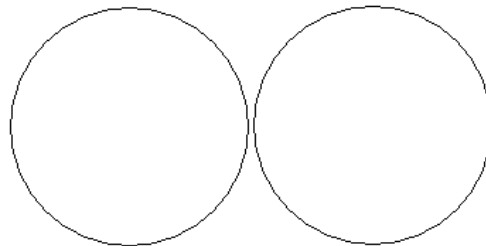
Place two Petri-dishes on a table. Mark them dish 1 and dish 2.
Place a piece of pre folded paper towel in the first Petri- dish.
With a pipette, place one drop of iodine solution on the paper towel in dish 1.
Write down the color of the paper towel in dish 1.



Dish1

Dish2

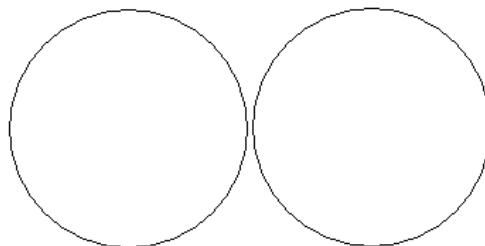
Place a piece of pre folded paper towel in the second Petri- dish.
Spray a quarter size circle of starch on the paper in dish 2.
With a pipette, place one drop of iodine solution on the paper towel in dish 2.
Write down the color of the paper in dish 2.



Dish1

Dish2

Carefully spit on the spot where the iodine has colored the starch.
With a q-tip carefully stir the saliva and then dispose of the q-tip.
Let the dishes sit for 10 minutes.
Write down what the color is in dish 2.
Clean up and wash hands.



Dish1

Dish2

Name _____

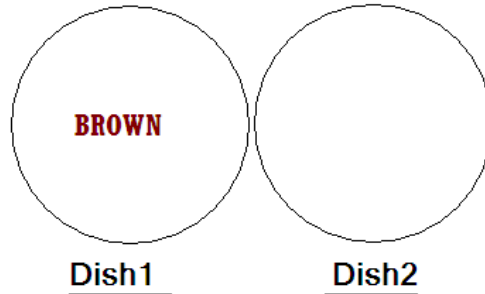
Date _____

How Amylase Works Answers

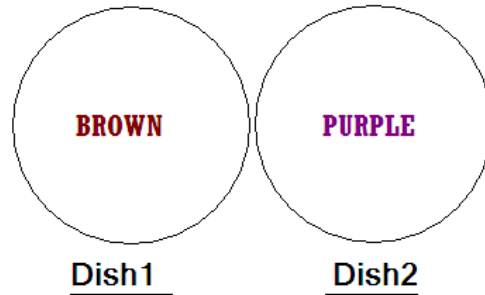
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How Amylase Works Answers (Cont'd)

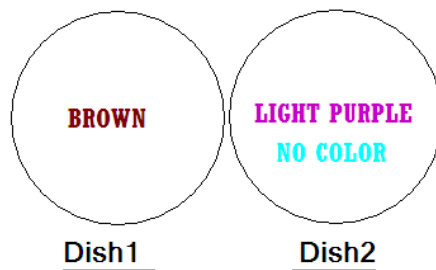
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With a pipette, place one drop of iodine solution on the paper towel in dish 1.
Write down the color of the paper towel in dish 1.



Place a piece of pre folded paper towel in the second Petri- dish.
Spray a quarter size circle of starch on the paper in dish 2.
With a pipette, place one drop of iodine solution on the paper towel in dish 2.
Write down the color of the paper in dish 2.



Carefully spit on the spot where the iodine has colored the starch.
With a q-tip carefully stir the saliva and then dispose of the q-tip.
Let the dishes sit for 10 minutes.
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Clean up and wash hands.



How Amylase Works Objectives

SUMMARY:

A lesson to demonstrate how the enzyme Amylase works.

OBJECTIVES:

Students will learn:

- That starch is found in certain foods and is also a main ingredient in some commercial products such as spray we use to iron clothes.
- That iodine turns into a dark purple when it contacts starch.
- That saliva contains Amylase.
- That Amylase is an Enzyme.
- That amylase breaks down starch.

SUGGESTED GRADES: 5, 6

Materials: Petri dishes, iodine solution, starch spray, paper towels, pipettes, q-tips, saliva from 1 student, trash bag.

Description: Experiment to show how the enzyme amylase, found in saliva, works.

General goals: Encourage students to work in groups.
Students will be able to demonstrate how amylase works.

Anticipatory set:

How many of you have heard your parents say, "Chew your food!"
Why do you think it's so important to chew our food?

Assessment:

70 points: completion of steps

10 points: following instructions correctly

10 points: objectives demonstrated

10 points: group effort, sharing tasks and showing responsibility

Evaluation:

Teacher will ask students to answer the following questions:

- What happens when we chew our food?
- What part of our saliva helps digestion?
- What can we do to detect starch?
- What does amylase do to starch?

Discuss the different results observed by the students
Let students give explanations for different results.