Required Practical Review

SCIENCE WELLSWAY MULTI ACADEMY TRUST

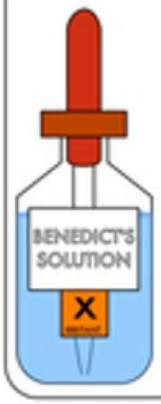
Biology Practical – Food tests

Free science lessons video link: https://www.youtube.com/watch?v=zbZxFxXN6m4
GCSEpod: https://members.gcsepod.com/shared/podcasts/title/11590

Know it

If we want to look at what's in our food, we just have to look at the label. However, some foods don't always have labels. How can we find out what's in our food? In order to check what macromolecules are in our foods, we can use a variety of food tests to inform us.

BIOCHEMICAL (FOOD) TESTS

CHEMICAL	TESTS FOR ...?	HOW TO CARRY OUT THE TEST	RESULT	CHEMICAL	TESTS FOR ...?	HOW TO CARRY OUT THE TEST	RESULT
	Starch	1.) Add the iodine solution directly to the substance to be tested (in solid or liquid form) and look for a colour change.	Turns blue black with starch		Protein	1.) Add Biuret's to the solution/ suspension to be tested and look for a colour change.	Turns purple with protein
	Reducing Sugar	1.) Add Benedict's to the solution/ suspension to be tested. 2.) Heat for 2 mins in a water bath at boiling point and look for a colour change.	Turns brick red with reducing sugars (green/ yellow/ orange if less sugar present)		Lipid (Fats)	Grind food with water in a pestle and mortar. Add 3 drops of Sudan II. Shake gently	A red layer appears

Review it

Complete the tasks below into your book.

Up to grade 4

State reagent (solution) use to test for the biological molecules below

- Test for starch
- Test for reducing sugars (glucose)
- Test for lipids
- Test for proteins

Grade 5-7

Use the 'know it' information to summarise the four different food tests and the results if the test is positive or negative. **Be clear what will you see for a positive and negative result.**

- Test for starch
- Test for reducing sugars (glucose)
- Test for lipids
- Test for proteins

Grade 7+

Compare qualitative and quantitative data. Give the pros and cons for each, and give me an opinion on which one is better and why.

Test it

Complete the tasks below into your book.

Q1 – easier

Complete the summary table

Type of molecule tested	Reagent used	Positive result	Negative result
Protein			Blue solution
	Sudan III	Red layer on top of solution	Dark red solution evenly distributed
Starch			Orange solution

Q2 – harder

Describe how a student could test cow's milk to show whether it contains protein and different types of carbohydrate (6).

Mark it

Q1

Type of molecule tested	Reagent used	Positive result (the molecule is present)	Negative result (the molecule is not present)
Protein	Biuret's	Lilac (purple)	Blue solution
Lipids (fats)	Sudan III	Red layer on top of solution	Dark red solution evenly distributed
Starch	Iodine	Black/ dark blue	Orange solution

Q2

(b) **Level 2:** Scientifically relevant facts, events or processes are identified and given in detail to form an accurate account.

4–6

Level 1: Facts, events or processes are identified and simply stated but their relevance is not clear.

1–3

No relevant content

0

Indicative content

- Biuret reagent (allow $CuSO_4$ and NaOH) tests for protein
- add Biuret reagent to milk
- solution will turn (from blue) to lilac if positive

- iodine solution tests for starch (ignore iodine unqualified)
- add iodine solution to milk
- solution will turn (from orange / brown) to blue / black if positive

- Benedict's reagent tests for sugars
- add Benedict's reagent to milk and boil / heat (allow any temperature above 60 °C)
- solution will turn (from blue) to (brick) red / brown / orange / yellow / green if positive

for **level 2**, reference to all three food tests is required