BIOCHEMICAL SOCIETY

Biochemistry Beyond the Classroom

"Inspiring the Next Generation of Scientist in Underserved Schools."

Student Handbook

Student Name:

School:

Date:

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Welcome to Biochemistry Beyond the Classroom!

Dear Student,

Welcome to this exciting science outreach programme designed to help you explore the amazing world of biochemistry through fun experiments, teamwork, and discovery.

Biochemistry helps us understand how living things work. It explains how food gives us energy, how our bodies fight diseases, how medicines work, and even how DNA makes every person unique.

During this exciting programme, you will:

- *Perform hands-on science experiments*
- *Learn about DNA and enzymes*
- *Discover careers in science*
- *Work with classmates to solve scientific problems*
- *See how science affects everyday life*

We hope this workbook inspires your curiosity and helps you see science in a new and exciting way.

Remember:

"You do not need to be a genius to become a scientist — you only need curiosity and the courage to ask questions."

Enjoy learning!

🏅

PARTICIPANT

This workbook belongs to:

Name: _____

School: _____

Date: _____



WHAT IS BIOCHEMISTRY?

Understanding Biochemistry

Biochemistry is the branch of science that studies the chemical processes inside living organisms.

Everything alive is made up of tiny units called cells. Inside these cells are molecules such as:

- *Proteins, Carbohydrates, Fats and Vitamins*
- *DNA*

Biochemistry helps scientists understand:

- *How the body produces energy*
- *How food is digested*
- *How diseases affect the body*
- *How medicines work*
- *How genes are passed from parents to children*

Biochemistry Around Us

Biochemistry happens everywhere:

- *Digestion of food*
- *Growth of plants*
- *Healing of wounds*
- *Production of medicines*
- *Breathing and exercise*

Without biochemistry, life would not exist.



WHY BIOCHEMISTRY MATTERS IN DAILY LIFE

Biochemistry affects our daily lives in many ways:

1. 🍞 **Food and Digestion**

When we eat food, enzymes break it down into nutrients that the body can use for energy and growth.

Example:

- *Bread contains starch.*

- *Enzymes break starch into sugar.*

2. 💊 Medicine and Health

Biochemistry helps scientists create:

- *Vaccines*
- *Antibiotics*
- *Insulin for diabetes*
- *Cancer treatments etc.*

Doctors and scientists use biochemistry to understand diseases and improve health.

3. 🧬 DNA and Genetics

DNA contains the instructions that make each person unique. DNA affects:

- *Eye colour*
- *Hair type*
- *Height*
- *Some health conditions*

4. 🌱 Environment and Agriculture

Biochemistry helps:

- *Clean pollution*
- *Improve crops*
- *Produce biofuels*
- *Protect ecosystems*



SAFETY RULES IN SCIENCE ACTIVITIES

Science experiments are exciting, but safety is important.

Make sure that you follow the following Safety Rules:

✓ *Listen carefully to instructions*

✓ *Do not taste experiment materials*

✓ *Wash hands after activities*

✓ *Wear gloves if provided*

✓ *Report spills immediately*

✓ *Handle glass carefully*

✓ *Respect others during activities*

EXPERIMENT 1 – DNA EXTRACTION FROM BANANA

Aim

To observe DNA from living cells.

Scientific Background

DNA carries genetic instructions for all living organisms. This experiment allows students to physically observe DNA extracted from banana cells.

Materials

- Banana
- 1 ripe banana
- Extraction buffer (100ml water, 2 tsp dish soap, 1 tsp salt)
- Chilled 91% isopropyl alcohol or ethanol
- Cups / beakers
- Filter paper and funnel
- Wooden skewer or glass rod

Safety Notes

- Do not ingest materials.
- Avoid contact with eyes.

Procedure

1. **Mashing:** Place a peeled banana in the cup or beaker and mash thoroughly until no lumps remain.
2. **Lysis:** Add 20ml of the extraction buffer to the bag. Mix gently to avoid creating excessive foam.
3. **Filtration:** Set the coffee filter in a funnel over a clear glass. Pour the banana mixture through to collect the liquid filtrate.
4. **Precipitation:** Slowly pour an equal volume of ice-cold isopropyl alcohol or ethanol down the side of the glass. Do not mix.

5. **Spooling:** Look for a cloudy white substance (DNA) forming at the interface. Use the wooden skewer to gently twirl and lift the DNA strands or observe the white stringy material.

Observation

Write what you see:

Conclusion

DNA can be extracted from living cells.

Key Concept

DNA carries genetic information.

🧪 EXPERIMENT 2 – ENZYME ACTIVITY

Aim

To demonstrate enzyme activity using yeast.

Scientific Background

Catalase is an enzyme found in yeast that breaks down hydrogen peroxide into water and oxygen gas.

Materials

- Yeast
- Warm water
- Hydrogen peroxide
- Bottle
- Balloon

Safety Notes

- Avoid spilling hydrogen peroxide.
- Wash hands after experiment.

Procedure

1. **Yeast Preparation:** Mix 1 packet of yeast with 50ml of warm water. Let sit for 5 minutes until activated.
2. Pour into a bottle.
3. Add hydrogen peroxide.
4. Place balloon over bottle mouth.
5. Observe what happens.

Observation

Conclusion

Enzymes speed up chemical reactions.

Key Concept

Demonstrate enzyme activity and gas production.

EXPERIMENT 3 – FOOD TEST FOR STARCH

Aim

To test foods for starch.

Materials

- Iodine solution
- Food samples (potato, bread, apple, rice, onion)
- Spot plate or Petri dish
- Dropper

Procedure

1. **Preparation:** Place small, separate pieces of each food sample onto the spot plate.
2. **Application:** Add 2–3 drops of iodine solution directly onto each food sample.
3. **Observation:** Note any immediate colour changes.
    - **Positive result:** A change from brown/yellow to **blue-black** indicates starch.
    - **Negative result:** Remaining brown/yellow indicates no starch.
4. **Analysis:** Compare the intensity of the colour; darker shades often correlate with higher starch concentrations.

Observation

Conclusion

Some foods contain starch.

EXPERIMENT 4 – VITAMIN C TEST

Aim

To compare Vitamin C content in juices.

Materials

- Vitamin C samples (orange juice, lemon juice, soda, Vitamin C tablet solution)
- Iodine

Procedure

1. Add iodine slowly to juice, swirling the tube after each drop.
1. **Endpoint:** Count the number of drops required for the blue solution to turn completely colourless (or light pink).

2. **Calculation:** The fewer drops required to decolorize the solution, the higher the concentration of Vitamin C in the sample.

Observation

Juices needing less iodine contain more Vitamin C.

FUN FACTS ABOUT BIOCHEMISTRY

a. Your body performs thousands of chemical reactions every second.

b. DNA in one person could stretch from Earth to the Sun if uncoiled.

c. Enzymes can speed up reactions millions of times.

d. Bananas contain DNA just like humans.

e. Vitamin C helps wounds heal faster.

f. "You don't need to be a genius – just curious!"



CAREER PATHWAYS IN BIOCHEMISTRY

Biochemistry can lead to many exciting careers.

Careers Include

a. Doctor
b. Pharmacist
c. Research Scientist
d. Laboratory Technologist
e. Food Scientist
f. Teacher/Lecturer
g. Environmental Scientist
h. Biotechnology Expert

Skills Needed

✓*Curiosity* ✓*Observation*
✓*Problem-solving* ✓*Communication* ✓*Teamwork*



REFLECTION PAGE

What Did I Learn Today?

What experiment did you enjoy most?

What new thing did you learn?

Would you like to study science in the future?

Any other comments?

Biochemistry Beyond the Classroom

BIOCHEMICAL SOCIETY

Teacher Guide

This Teacher Guide provides comprehensive support for educators delivering hands-on biochemistry activities in secondary schools.

- Detailed lesson plans and facilitation guides
- Step-by-step instructions for low-cost experiments

- Learning objectives and expected outcomes
- Answer keys and assessment tools
- Differentiation strategies for diverse learners
- Tips for teaching in resource-limited environments
- Extension activities and real-world connections

Supported by the Biochemical Society

INTRODUCTION

Welcome!

Thank you for participating in **Biochemistry Beyond the Classroom**, a science outreach programme supported by biochemical society. This programme is designed to inspire students through practical biochemistry activities and discussions.

This programme aims to:

- Increase interest in science
- Improve scientific understanding
- Encourage participation in STEM careers
- Make science accessible and engaging for underserved students

The activities in this guide are designed for students aged **13–18 years** and can be adapted depending on class size and available resources.

PROJECT OVERVIEW

About the Project

This outreach programme introduces students to the fundamentals of biochemistry through:

- Interactive experiments
- Group discussions
- Scientific problem-solving
- Career exploration

The programme combines practical learning with creativity and teamwork.

LEARNING OBJECTIVES

By the end of the programme, students should be able to:

- Define biochemistry
- Explain the role of enzymes and DNA
- Identify the importance of vitamins and nutrients
- Conduct simple scientific experiments safely
- Work collaboratively in groups
- Explore possible science careers

INCLUSIVE TEACHING STRATEGIES

To ensure all students can participate:

Recommended Practices

a. Use simple language and visual demonstrations
b. Encourage group participation
c. Support shy or hesitant students
d. Allow students to ask questions freely
e. Adapt activities for different learning speeds
f. Use mixed-ability groups

SESSION STRUCTURE & TIMING

Activity	**Duration**
Welcome & Introduction	10 - 15 mins
Icebreaker Activity	10-15 mins
Experiment	20 -30 mins each
Short Break	15 mins
Poster Activity	20 mins
Career Talk	20 mins
Quiz Competition	30 mins
Reflection & Closing	20 mins

SAFETY GUIDELINES

General Laboratory Safety

a. Supervise students at all times
b. Ensure no materials are ingested
c. Use gloves when appropriate
d. Handle liquids carefully
e. Clean spills immediately
f. Wash hands after activities

EXPERIMENT

1. DNA Extraction from Banana

Objective:

To demonstrate that DNA exists in living cells.

Scientific Background

DNA carries genetic instructions for all living organisms. This experiment allows students to physically observe DNA extracted from banana cells.

Materials

- Banana
- 1 ripe banana
- Extraction buffer (100ml water, 2 tsp dish soap, 1 tsp salt)
- Chilled 91% isopropyl alcohol or ethanol
- Cups / beakers
- Filter paper and funnel
- Wooden skewer or glass rod
- Spoon

Preparation

- Chill ethanol before use.
- Prepare workstations for groups.

Procedure

1. **Mashing:** Place a peeled banana in the cup or beaker and mash thoroughly until no lumps remain.
2. **Lysis:** Add 20ml of the extraction buffer to the bag. Mix gently to avoid creating excessive foam.
3. **Filtration:** Set the coffee filter in a funnel over a clear glass. Pour the banana mixture through to collect the liquid filtrate.
4. **Precipitation:** Slowly pour an equal volume of ice-cold isopropyl alcohol or ethanol down the side of the glass. Do not mix.
5. **Spooling:** Look for a cloudy white substance (DNA) forming at the interface. Use the wooden skewer to gently twirl and lift the DNA strands or observe the white stringy material.

Expected Results

Students should observe white strands of DNA appearing between the layers.

Teaching Points

- DNA is present in all living things.
- Dish soap/Detergent breaks open cells.
- Ethanol helps DNA become visible.

Safety Notes

- Do not ingest materials.
- Avoid contact with eyes.

2. Enzyme Activity (Catalase in Yeast)

Objective

To demonstrate enzyme activity and gas production.

Scientific Background

Catalase is an enzyme found in yeast that breaks down hydrogen peroxide into water and oxygen gas.

Materials

- Yeast
- Warm water
- Hydrogen peroxide
- Bottle
- Balloon

Procedure

1. Yeast Preparation**:** Mix 1 packet of yeast with 50ml of warm water. Let sit for 5 minutes until activated.
2. Pour into a bottle.
3. Add hydrogen peroxide.
4. Place balloon over bottle mouth.
5. Observe what happens.

Expected Results

The balloon inflates as oxygen gas is released.

Teaching Points

- Enzymes speed up reactions.
- Gas production is evidence of chemical change.

Safety Notes

- Avoid spilling hydrogen peroxide.
- Wash hands after experiment.

3. Food Test for Starch

Objective

To identify starch in foods.

Materials

- Iodine solution
- Food samples (potato, bread, apple, rice, onion)
- Spot plate or Petri dish
- Dropper

Procedure

1. **Preparation:** Place small, separate pieces of each food sample onto the spot plate.
2. **Application:** Add 2–3 drops of iodine solution directly onto each food sample.
3. **Observation:** Note any immediate colour changes.
    - **Positive result:** A change from brown/yellow to **blue-black** indicates starch.
    - **Negative result:** Remaining brown/yellow indicates no starch.
4. **Analysis:** Compare the intensity of the colour; darker shades often correlate with higher starch concentrations.

Expected Results

Blue-black colour indicates starch presence.

Teaching Points

- Starch is a carbohydrate.
- Chemical indicators help identify nutrients.

4. Vitamin C Test

Objective

To compare Vitamin C levels in juices.

Materials

- Vitamin C samples (orange juice, lemon juice, soda, Vitamin C tablet solution)
- Iodine solution
- Droppers

Procedure

1. Add iodine slowly to juice, swirling the tube after each drop.
2. **Endpoint:** Count the number of drops required for the blue solution to turn completely colourless (or light pink).
3. **Calculation:** The fewer drops required to decolorize the solution, the higher the concentration of Vitamin C in the sample.
4. Compare results.

Expected Results

Juices requiring fewer drops contain more Vitamin C.

Teaching Points

- Vitamin C is an antioxidant.
- Different foods contain different nutrient levels.

ICEBREAKER ACTIVITY

"Where Do We See Biochemistry?"

- Biochemistry is the study of the chemicals and processes that make life possible.
- Cells contain molecules like proteins, fats, carbohydrates, and DNA.
- Enzymes are like biological machines that make chemical reactions faster.
- Everything you eat, drink, or breathe involves biochemistry!

Instructions:

1. Split students into small groups (3–5 per group).
2. Ask: "Can you spot where biochemistry happens in your daily life?"
    - Examples: cooking, digestion, exercise, medicines, cleaning agents.
3. Groups share their ideas with the class.

SMALL-GROUP DISCUSSION

Topic:

"The Role of Biochemistry in Daily Life"

Discussion Areas

- How enzymes help digest food.
- Vitamins and nutrients – why they matter.
- DNA – what makes you unique.
- Medicine and vaccines.
- Environmental applications: pollution breakdown, biofuels.

Activity: Each group chooses one area and explains it in 2 minutes.

Encourage students to connect science with real life.

POSTER-MAKING ACTIVITY

Topic

"How Biochemistry Affects Our Daily Life"

Instructions

- Students work in groups.
- Give each group paper, markers, and poster materials.
- Groups present their posters to the class (2–3 minutes each).

Learning Outcome: Encourage teamwork, creativity, and communication.

Assessment

Evaluate:

a. Creativity
b. Scientific understanding
c. Teamwork
d. Presentation skills

CAREER TALK – BECOMING A BIOCHEMIST

Key Areas

- What biochemists do (labs, research, industry, healthcare).
- University and vocational pathways.
- Skills needed: curiosity, lab skills, observation, problem-solving.
- Fun fact: "You don't need to be a genius – just curious!"
- Encourage questions and discussion.

Important Message

"You do not need to be a genius to become a scientist — curiosity matters most."

SCIENCE CHALLENGE QUIZ

Structure: Multiple-choice or true/false questions.

Instructions: Divide students into teams. Each correct answer = 1 point.

1. DNA stands for? – **Deoxyribonucleic acid**
2. Enzymes speed up chemical reactions? (True/False) – **True**
3. Starch gives a blue-black colour with which solution? – **Iodine**
4. Vitamin C can be found in which fruit? – **Orange / Lemon**
5. Proteins are made of which building blocks? – **Amino acids**
6. What is the main molecule that stores genetic information? – **DNA**
7. Enzymes are used in baking bread? (True/False) – **True**
8. Which process breaks down sugar for energy? – **Respiration**

9. Detergents can break open cells to release DNA? (True/False) – **True**
10. Biochemistry studies only humans? (True/False) – **False**
11. What is biochemistry?
    Answer: The study of chemical processes in living organisms.
12. What do enzymes do?
    Answer: Speed up chemical reactions in the body.
13. Give an example of an enzyme at work.
    Answer: Breaking down starch into sugar during digestion.
14. Why are vitamins important?
    Answer: They help the body function properly, e.g., Vitamin C supports the immune system.
15. Name a food high in Vitamin C.
    Answer: Orange, lemon, or kiwi.
16. What does DNA do?
    Answer: Contains instructions that tell the body how to grow and function.
17. Is everyone's DNA the same?
    Answer: No, each person's DNA is unique except identical twins.
18. How does biochemistry help in medicine?
    Answer: It helps understand diseases and develop medicines and vaccines.
19. What is the purpose of a vaccine?
    Answer: To train the immune system to recognize and fight infections.
20. Name one environmental application of biochemistry.
    Answer: Breaking down pollution or producing biofuels.
21. Where can biochemists work?
    Answer: Labs, healthcare, research centers, industry.
22. Name a skill important for a biochemist.
    Answer: Curiosity, lab skills, observation, problem-solving.
23. Can biochemistry only study humans?
    Answer: No, it studies all living organisms.
24. What happens if enzymes are not present during digestion?
    Answer: Digestion would be much slower and inefficient.
25. Fun fact – How long could all your DNA stretch if uncoiled?
    Answer: From the Earth to the Sun!

EVALUATION & FEEDBACK

Student Feedback

- Pre-event questionnaires

- Post-event questionnaires
- Reflection

Teacher Feedback

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
No DNA visible	Ethanol too warm	Use chilled ethanol
Balloon not inflating	Yeast inactive	Use fresh yeast
No starch colour change	Incorrect sample	Test another food

Q&A & SHARING RESOURCES

- Address questions, provide tips for engagement

The Role of Biochemistry in Daily Life

Introduction:
"Biochemistry is the science of life at the molecular level. Everything we do, eat, or see in nature involves biochemistry, even if we don't notice it. Today, we're going to explore how biochemistry affects our bodies, our health, and the world around us."

1. How Enzymes Help Digest Food

- "Enzymes are like tiny machines in your body that speed up chemical reactions."
- "For example, when you eat bread, the starch in it is broken down by enzymes into sugar, which your body uses for energy."
- "Without enzymes, digestion would take much longer, and we wouldn't get enough energy from food."
- **Example Activity:** "Think about how fast you digest a banana versus a piece of chocolate. Enzymes play a role in this process!"

2. Vitamins and Nutrients – Why They Matter

- "Vitamins and minerals are small molecules that our bodies need to work properly."
- "Vitamin C, for example, helps our skin, bones, and immune system stay healthy."
- "A lack of vitamins can cause problems like scurvy, weak bones, or tiredness."
- **Interactive Question:** "Can anyone name a food rich in Vitamin C?" (Answer: Orange, lemon, kiwi)

3. DNA – What Makes You Unique

- "DNA is like a set of instructions that tells your body how to grow and function."

- “Everyone’s DNA is unique (except identical twins), which is why we all look different.”
- “DNA determines traits like eye color, height, and even some aspects of how your body responds to food or exercise.”
- **Fun Fact:** “If you unrolled all the DNA in your body, it would stretch from the Earth to the Sun!”

4. Medicine and Vaccines

- “Biochemistry helps scientists understand diseases and develop medicines.”
- “Vaccines teach our immune system to recognize and fight viruses or bacteria.”
- “Without biochemistry, we wouldn’t know how insulin works, how antibiotics kill bacteria, or how chemotherapy targets cancer cells.”
- **Discussion Prompt:** “Have you ever wondered how a flu shot protects you?”

5. Environmental Applications

- “Biochemistry isn’t just about humans – it helps the environment too.”
- “Enzymes can break down pollution, clean up oil spills, or help produce biofuels from plants.”
- “By understanding biochemistry, scientists develop sustainable solutions for energy and waste management.”

Career Talk: Becoming a Biochemist

What Biochemists Do

- “Biochemists work in labs, research centers, healthcare, and industry.”
- “They might study cells, develop medicines, improve crops, or create environmentally friendly solutions.”

Education Pathways

- “You can study biochemistry at university, in vocational courses, or in specialized research programs.”
- “Some careers involve lab work, others focus on analysis, teaching, or science communication.”

Skills Needed

- Curiosity: “Ask questions about why things happen.”
- Lab skills: “Be comfortable measuring, mixing, and observing carefully.”
- Observation & problem-solving: “Noticing patterns and thinking critically is key.”

Fun Fact

- “You don’t need to be a genius – just curious!”

Encourage Questions and Discussion

- Invite students to ask: “What would you like to investigate if you were a biochemist?”
- Discuss real-life examples of young scientists making discoveries.

ATTENDANCE REGISTER

"Biochemistry Beyond the Classroom: Inspiring the Next Generation of Scientists in Underserved Schools"

S/n	Name	Age	School	Class/Year	Signed In	Notes
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STUDENT FEEDBACK FORM

Biochemistry Beyond the Classroom: Pre-event questionnaires

Name: _____ **Age:** _____ **School:** _____

1. Have you heard of biochemistry before? ☐ Yes ☐ No
2. Have you ever done a science experiment before? ☐ Yes ☐ No
3. How interested are you in science?
   ☐ Very ☐ Somewhat ☐ Not interested
4. Do you know any careers related to biochemistry? ☐ Yes ☐ No

comments

_____

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STUDENT FEEDBACK FORM

Biochemistry Beyond the Classroom: Post-event questionnaires

Name: _____ **Age:** _____ **School:** _____

1. Did you enjoy the activities? ☐ Yes ☐ No
2. Did you understand today's experiments? ☐ Yes ☐ Somewhat ☐ No
3. Are you more interested in science now? ☐ Yes ☐ No
4. What was your favourite activity?
5. What was your favourite experiment?

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6. What is something new you learn so far? _____

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TEACHER FEEDBACK FORM

1. How relevant was the outreach to your students?
   ☐ Very relevant ☐ Relevant ☐ Not relevant
2. Were the experiments easy to understand and replicate?
   ☐ Yes ☐ No
3. Will you use these experiments in your teaching?
   ☐ Yes ☐ No
4. Would you recommend this program to other classes?

   ☐ Yes ☐ No
5. Any suggestions for improvement? _____

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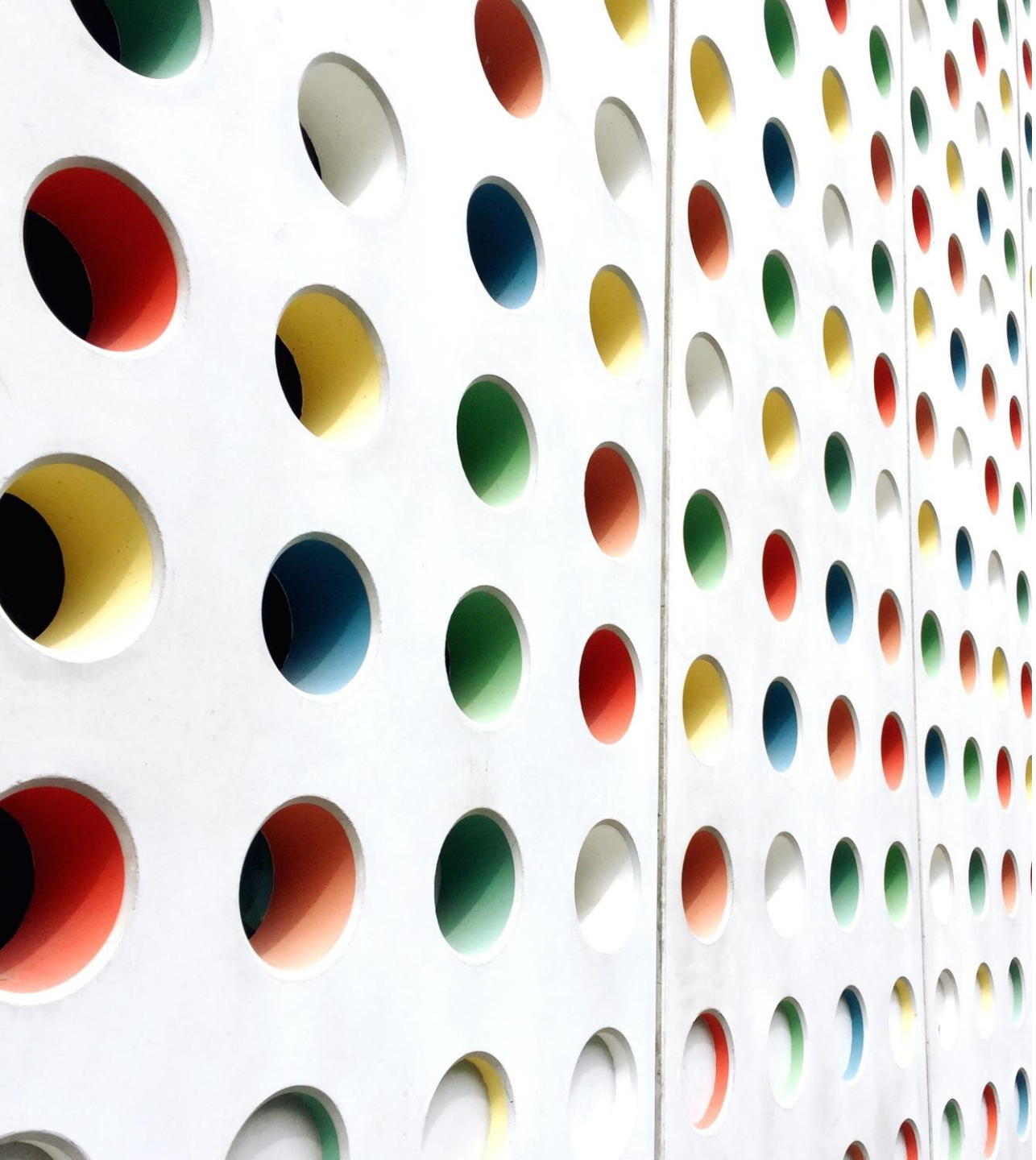
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Biochemistry Beyond the Classroom

INSPIRING THE NEXT GENERATION OF SCIENTISTS IN UNDERSERVED SCHOOLS

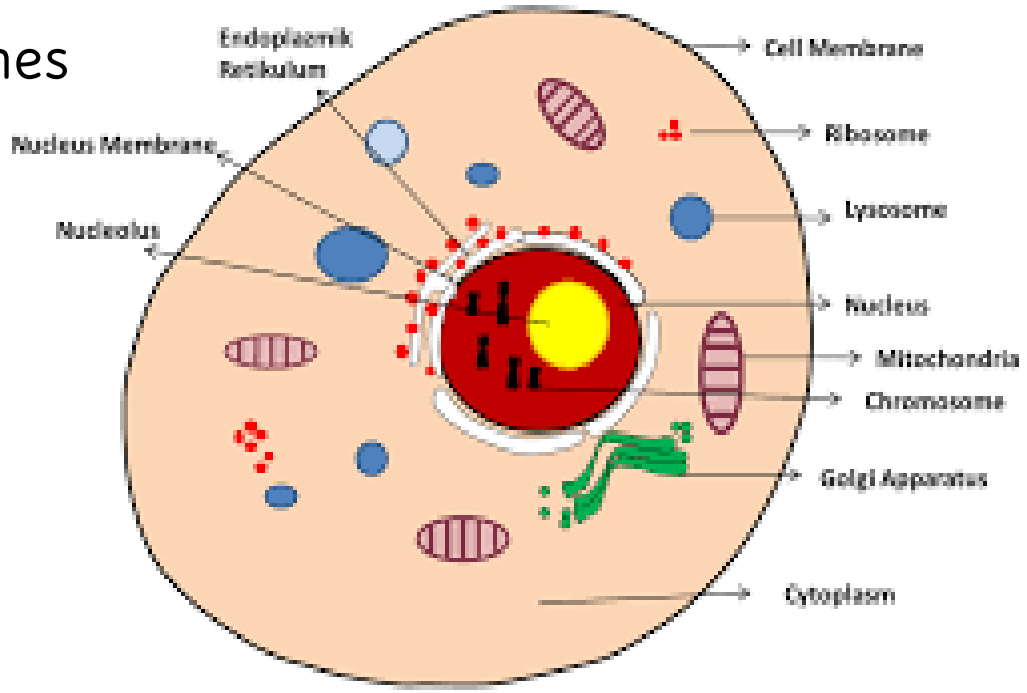
SUPPORTED BY: BIOCHEMICAL SOCIETY

WHAT IS BIOCHEMISTRY?

- Biochemistry is the science that studies chemical processes in living organisms.
- It explains how cells, proteins, DNA, and enzymes work together to keep us alive.
- Biochemistry connects biology and chemistry.

Examples:

✓ Digestion
✓ Growth
✓ Exercise
✓ Medicines
✓ Vaccines



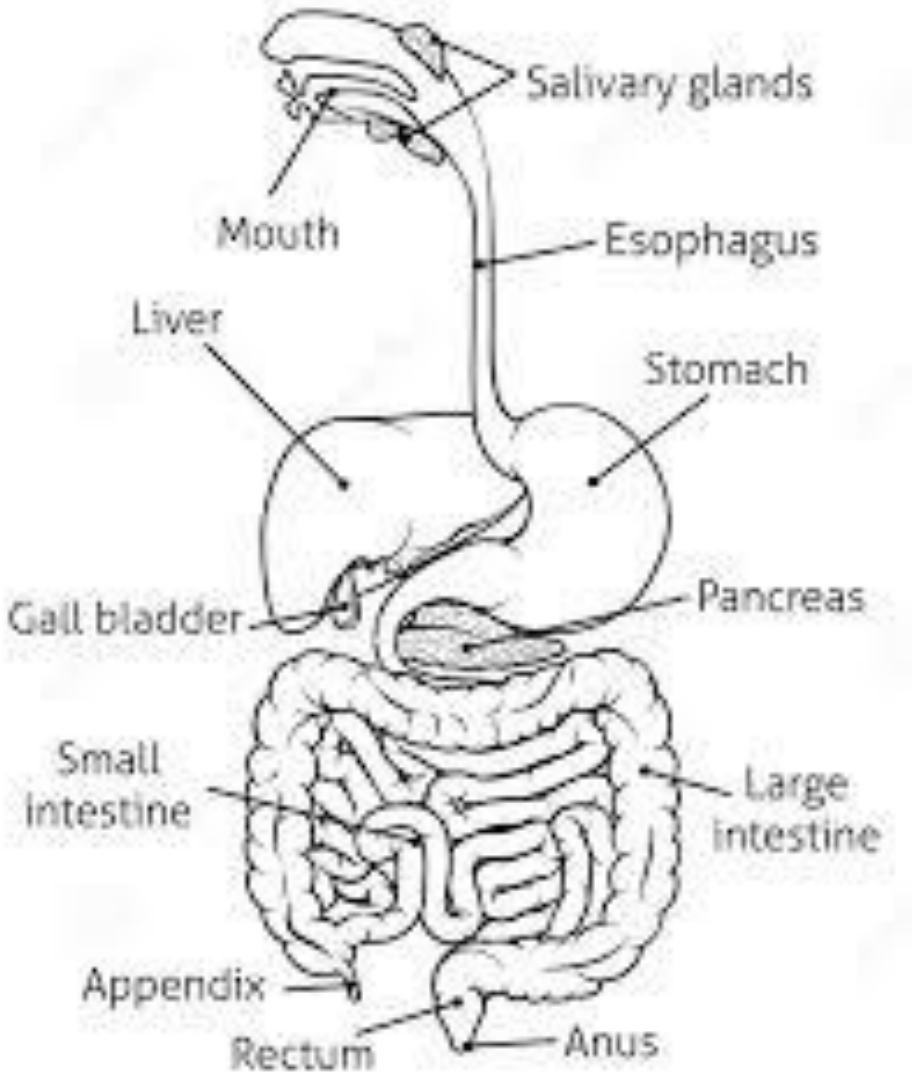
How Enzymes Help Digest Food

Enzymes: The Body's Tiny Helpers

- Enzymes are special proteins that speed up chemical reactions.
- They help break food into nutrients your body can use for energy.
- Without enzymes, digestion would happen very slowly.

Example:

- Bread contains starch.
- Enzymes break starch into sugar.



VITAMINS AND NUTRIENTS

Why Vitamins Matter

- Vitamins and minerals help the body grow and stay healthy.
- Vitamin C supports the immune system and helps wounds heal.
- Calcium strengthens bones and teeth.



Foods Rich in Vitamins:

🍊 Oranges
🥕 Carrots
🥬 Vegetables
🥚 Eggs

DNA: What Makes You Unique



The Science of You

- DNA is the body's instruction manual.
- It contains information that determines many of your traits.
- DNA is found inside almost every cell in your body.

DNA Helps Determine:

✓ Eye colour
✓ Hair type
✓ Height
✓ Some inherited traits

Medicine and Vaccines

Biochemistry in Healthcare

- Scientists use biochemistry to develop medicines and vaccines.
- Vaccines help the immune system recognize and fight infections.
- Biochemistry also helps doctors understand diseases.

Examples:

💉 Vaccines
💊 Antibiotics
🩺 Diabetes treatment
🧬 Cancer research

Biochemistry and the Environment

Science Helping the Planet

Biochemistry helps scientists:

- Clean pollution
- Produce biofuels
- Improve farming
- Protect ecosystems



Example:

- Some bacteria and enzymes can break down oil spills and waste materials.

Becoming a Biochemist

Careers in Biochemistry

Biochemists work in:

Hospitals



Careers in Biochemistry

Biochemists work in:

Research laboratories



Careers in Biochemistry

Biochemists work in:

Universities



Careers in Biochemistry

Biochemists work in:

Food industries



Careers in Biochemistry

Biochemists work in:

Pharmaceutical companies



Careers in Biochemistry

Biochemists work in:

Environmental science



What Do Biochemists Do

Study diseases

Develop medicines

Improve food production

Conduct experiments

Solve scientific problems

SKILLS NEEDED IN SCIENCE

Important Skills:

Curiosity

Observation

Teamwork

Problem-solving

Creativity

HANDS-ON ACTIVITIES TODAY

Today's Experiments

Students will:

- 🧪 Extract DNA from banana
- 🧪 Test foods for starch
- 🧪 Explore enzyme activity
- 🧪 Investigate Vitamin C

Learning Goal:

"To see biochemistry happening in real life."

SCIENCE CHALLENGE QUIZ

Let’s Test Your Knowledge!

Students compete in teams

Quiz based on today’s lesson

Encourage teamwork and participation

REFLECTION AND QUESTIONS

What have you Learnt so far?

Reflection Questions:

What surprised you most?

Which experiment did you enjoy?

BIOCHEMICAL SOCIETY

CERTIFICATE

OF PARTICIPATION

This certificate is proudly presented to

_____

for successfully participating in the science outreach programme

"Biochemistry Beyond the Classroom"

Expanding Access to Science Education in Underserved Schools.

In recognition of active participation, enthusiasm, teamwork, and commitment to scientific learning and discovery.

Date: _____ **Signature:** _____

Project Lead: Oloje Isaac Raymond

Supported by the BioChemical Society Scientific Outreach Grant