



Causes of failure in WASSCE
Students' Perspective

**WHAT ARE THE CHALLENGES WITH
TEACHING AND LEARNING OF
MATHEMATICS IN YOUR SCHOOL?**

STUDENTS RESPONSES

What are the challenges with teaching and learning of Mathematics in your school?	Frequency	Percent
Three (3) years duration appears not sufficient for the completion of syllabus.	63	36.2
Few teachers for the subject or delay in assigning teachers to some classes, leading to late start of courses	10	5.7
Teachers telling students to do extra classes or they (teachers) will not come to class.	1	0.6
Teachers do not provide detailed explanations when teaching, which makes it difficult for students to understand the topic or learn on their own.	12	6.9
Some teachers just introduce the topic without further elaborations nor any review, only to introduce another topic the next period/day.	6	3.4
Teachers spending more time unduly on one topic thereby making it difficult to complete the whole syllabus.	4	2.3
Teachers are impatient and this scares/deters students from asking questions in class about their misunderstanding of the subject.	15	8.6
Inappropriate fixing of Mathematics periods at noon (after break) when the mind is a little exhausted.	6	3.4
Practical application /explanation of concepts ignored. Teachers are not able to use daily occurrences to explain concepts well to students' understanding.	6	3.4
Teachers' inability to vary their teaching methods to get students to understand	2	1.1

What are the challenges with teaching and learning of Mathematics in your school? Cont'd	Frequency	Percent
Low students interest due to the misconception that Mathematics is a difficult subject.	6	3.4
Inadequate periods allocated to the subject on the time table.	4	2.3
Students dependent on class teachings only without further studies/practices as they prefer to spend time on social media rather than to learn.	5	2.9
Students not constantly solving questions themselves, leading to inadequate preparation by them towards Mathematics examinations.	6	3.4
Students' inability to possess calculators for use in the teaching and learning of mathematics.	2	1.1
Lack of teaching and learning materials (TLMs): textbooks, board measuring instruments, graph boards,	10	5.7
Inadequate reference books at the library. Few available ones are old whilst others present conflicting information.	2	1.1
Teachers' involvement in National and other activities outside the classroom (extra curricula activities). Official absences of assemblymen, lay preachers, executives of subject associations etc.	1	0.6
Teachers demotivating students with remarks such as "no matter what, the syllabus cannot be completed".	1	0.6
Teachers are not punctual and regular in class. i.e. they do not come to class or they come late to teach and leave early. Those who come rush to cover topics regardless of students' understanding.	8	4.6
Teachers assume some topics have been taught some time ago at a lower class and do not teach it when they meet such topics later. This gives students poor foundation.	2	1.1
Students not given adequate exercises, assignments and project works	2	1.1
Total	174	100

SUGGESTIONS FOR IMPROVING THE LEARNING OF MATHEMATICS?



Suggestions for improving the learning of mathematics	Frequency	Percent
Teachers should encourage students with statements like "you can do it", "you can do better", "keep it up" ...	10	5.7
Correction of the misconception about the subject.	1	0.6
Introduction of extra hours in the morning and after normal classes to ensure completion of syllabus.	71	40.8
Teaching should be practical and child centered, relating to real life situations. Teachers should go into details when a new topic is introduced, citing more examples.	15	8.6
Teachers should be supervised to ensure that they are punctual and regular in class, and deliver well.	15	8.6
Teachers should be patient when teaching and should not overlook any topics. Basic concepts should also be taught and not assumed to have been taught at a lower level.	17	9.8
Teachers should adopt different teaching methods to get students understanding.	17	9.8
Organise quizzes for students on monthly basis or at the end of a topic and award prizes to performing students to serve as a motivation to learning the subject.	9	5.2
Students should do self-evaluation by solving more problems/questions to improve their understanding of the topics.	8	4.6
Students should be encouraged to assist one another by forming groups or clubs to help improve students' learning.	2	1.1
More and regular class exercises and assignment should be given	9	5.2
Total	174	100

What are the challenges with teaching and learning of Science in your school?	Frequency	Percent
Inadequacy of science laboratories, apparatus and consumables or under-stocked science laboratories preventing performance of practical sessions. Only science students go far with practical work.	27	15.5
Poor student's attitude towards learning of science and maths.	5	2.9
Teachers not practically oriented, therefore focusing more on theory.	32	18.4
Inadequate periods for integrated science: agric.; chemistry; biology and physics in a week.	70	40.2
Much workload of teachers as they handle too many classes: 30-35 periods.	2	1.1
Use of teachers with no specialisation in the field to teach the subject. PE, Statistics etc.	3	1.7
Not finding science interesting because teachers lecture instead of teaching and do not take their time to teach to our understanding. Science is made to seem a difficult subject.	15	8.6
Inability of students to understand some topics.	5	2.9
Large class sizes used by teachers as excuse for their irregularity.	15	8.6
Total	174	100

Suggestions for improving the learning of science	Frequency	Percent
Students should solve a lot of questions on practical and theory.	3	1.7
Equal attention should be given to all programmes.	3	1.7
More class exercises and project works need to be given.	16	9.2
Teachers should create congenial atmosphere in class to ensure effective teaching and learning. Teaching should therefore be made more interactive.	16	9.2
There should more practical work in the subject	84	48.3
Teaching and learning materials should be provided for effective understanding of the concepts	25	14.4
Science Laboratory should be put up to facilitate learning	21	12.1
Introduction of Science Clubs	2	1.1
Teachers should be supervised to check punctuality	4	2.3
Total	174	100

COMMENT I

“Since Form One, our Elective Maths teacher was not regular in class and now he has stopped and we are in form three but our foundation in (elective) maths is very poor. What help can we get? We find it difficult in answering terminal examination questions.”

“We also got a core maths (teacher) when we came to form two 3rd term due to some changes that was made and we are far behind time. What help can be given to us urgently.”



Revamping study skills

- **‘For poor performing students, the root of the problem may not be in the material or how they are taught but how they choose to write notes, study and prepare for exams’**
- **Change the ineffective study habits they are accustomed to.**
- **Improving study skills increase positive student behaviours and reduces disciplinary offenses in schools.**

Revamping Study Skills (back to basics)

- ❑ **Not assuming current students know how to study or can do well on their own but to support them to set life and academic goals and improve or revamp their study skills/habits regimen.**
- ❑ **Teach how to take, make, review and summarise notes in maths and science e.g. Cornell notes taking system..**
- ❑ **Enhancing retention : Review notes soon after a lesson is taught instead of bulking them for exams to cram, mind/mapping or doddling.**
- ❑ **Move beyond mere reading or skimming notes to select/organize course materials to study – theory, practical, principles, vocabulary, formulary etc.**

Test taking strategies

- **teaching how to take test – how to answer multiple and objective test items.**
- **Choosing the right questions and practice test questions.**
- **Answer word problems, application/reasoning questions, formulars**
- **Biological drawings**
- **Graphs**
- **Diagrams**
- **Units of measurements**
- **Practical problems**

Revamping Study Skills cont. (training the brain to get the most out of studying)

□ Training the brain

- Our brains do better if we give ourselves tasks. You will learn more if you study an hour per day over 10 days than if you study 10 hours the day before an exam/reading culture.
- **Learn and Focus on reviewing (not cramming) in the last day or two before an exam. It is hard to learn if you are cramming!**
- **Be Active in the learning process/Review/Practice**
 - Write notes, write vocabulary, write own questions, listening to recorded materials. Read exercises loud. Memorizing some facts, Working through problems /exercises with friends.
- **Teach it**
 - After learning about a topic, trying to explain it to your study mates, friends. We learn concepts more deeply when we teach them.

Current students are special students: they face a lot of distraction

- ❑ **Maximising concentration and minimizing distractions from study plan helps information to be locked in the sub conscious and super conscious minds.**
- ❑ **Distracted by over 200 social media, Mobile phones, tablets**
- ❑ **Friends, Television/Video/Music**
- ❑ **Game centres and entertainment centres**
- ❑ **Food joints, Fashion, Unhealthy Competitions**
- ❑ **Sakawa, love for money, galamsey, selling of items, gambling, peer pressure etc.**

Revamping time management habits: maximize concentration

Study time is study time.

- ❑ **Organising study time: Personal time table, To do list, monthly planner, weekly or monthly planner/ journal/alarm clocks/calendar to remind or keep track of assignments and test dates.**
- ❑ **Meeting deadline for assignments**
- ❑ **Managing free time or busy time**
- ❑ **Regular attendance to classes especially after registration for WASSCE, non compromise on absences.**
- ❑ **Avoid staying up too late studying for a test! Sleep is significant.**

Revamping the study environment: home or school

- **Physical location:** Quiet not noisy; dormitories/classrooms/library/prep time - supervision. Required.
- **Studying Outside:** Choosing multiple places for study keep out boredom e.g. Amphitheater, under trees,
- **Time :** Afternoon, evening or early morning sessions. They must sleep enough in the night to get refreshed in the morning (at least 6 -8hours)
- **Physical health:** Must be in good health and not hungry or angry or sleepy
- **Study materials:** Very handy.: calculator, pens, pencils, dictionary, ruler etc.
- **Learning style:** Find out how they Learn: visual learner, audio learner, tactile learner
- **Study groups:** Collaboration, teamwork sharing,
- **Netiquette:** Plagiarism, online language and communication, online learning

Revamping motivation

- **Intrinsic and extrinsic rewards, every student wants to succeed- Push to learn factors:**
- **Scholarships, marking and scoring exercises and giving constructive feedback (WWW) not marking exercises is demotivating**
- **Teasers: Chocolate, money, field trips, prizes, school terminal reports, student of the week etc.**
- **Feedback: Constructive feedback motivate; negative feedback demotivate (poor student, lazy student, you are good for nothing, 0/10, fail, bad student, maths is difficult**
- **Praise and ranking can motivate and demotivate void excellent, good boy etc.)**
- **School infrastructure, beautiful landscape.**
- **Canes/ corporal punishment demotivate ?????**

Revamping Mathematical and scientific literacy

- **Building vocabulary**
- **Origin of most terminologies is Latin or Greek**
- **E.g. alpha, beta, phi, omega, kappa, sigma,**
- **Tele means far**
- **Meter means measure e.g. photometer, micro meter, voltmeter, barometer, thermometer, ammeter,**
- **Photo means light e.g. photometer, photosynthesis,**

Revamping relationship with the students in order to change habits they are accustomed to.

12 Most Important things kids want from their teachers-Maiers

1. Greet me each day:

Wish me good morning, and send me off with a “see you tomorrow.”

2. Smile:

When you look at me, let me see happiness in your eyes.

3. Give me your attention:

Sit and talk with me privately; even if only for a second.

4. Imagine with me:

Help me dream of things I might be able to do; not just the things I need to do now. I want to be a doctor , help me to be!!

Teachers must keep calm.

12 Most Important things kids want from their teachers-Maiers

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5. Give me challenging content and assignments

Show me how to handle it. Teach me what to do.

6. Ask about me:

Inquire about my weekend, the game I played, the places I go. It shows you care about my life.

7. Let me have time:

Time to let things sink in. Time to think. Time to reflect, process, and play.

8. Demand of me:

Hold me accountable to high standards. Don't let me get away with what you know I am capable of doing better.

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12 Most Important things kids want from their teachers (cont.)

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9. Notice Me:

Leave special messages in my desk or locker. Just a quick note that says you notice something right.

10. Let me ask the questions:

Even if my questions are off topic, let me ask them. It will show that I am thinking about new perspectives, curious, and willing to learn more. Let me have the chance to show what I am wondering about, not just what I know.

11. Engage me:

I came to you in love with learning. Keep me excited, keep me wanting more.

12. Trust me :

Believe that I can do it. Allow me the chance. I promise to show you I can.



THANK YOU