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Dilemmas Faced by Teachers in Implementing the Science Curriculum in Public Basic Schools in Makurdi Metropolis

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Abstract
Dilemmas faced by teachers in implementing the Basic Science curriculum in public basic schools in Makurdi metropolis was studied using a descriptive survey design and guided by three research questions. A simple random sample of 64 teachers teaching Basic Science was drawn from the 38 public basic schools in Makurdi Metropolis during the 2025/2026 academic session. Data were collected using the researchers-designed Teachers' Dilemmas in Science Curriculum Implementation Questionnaire (TDSCIQ), validated by experts and yielding a Cronbach alpha reliability of 0.83. Data were analysed using mean and standard deviation with a 2.50 benchmark for decision-making. Findings revealed that teachers face multiple dilemmas, including large class sizes, inadequate administrative support, low pupils' participation, insufficient instructional time, limited resources for hands-on activities, poor motivation, low qualifications, insufficient content knowledge, language barriers, and difficulty handling pupils' misconceptions. These dilemmas negatively influence curriculum implementation by reducing syllabus coverage, limiting practical activities, weakening classroom management, and diminishing pupils' conceptual understanding and interest. All proposed mitigation strategies were accepted, including reducing class sizes, increasing administrative support, providing adequate time and laboratory equipment, continuous professional development, using constructivist strategies, simplifying instruction with suitable aids, improving teacher welfare, and assigning only science-oriented specialists to teach Basic Science. It was concluded that the identified dilemmas be timely checked; if not, the goals of Basic Science education can hardly be achieved.

Keywords: Basic Science, Basic Science Curriculum, Curriculum Implementation, Teachers' Dilemma**s.**

Introduction

Science education is widely regarded as the foundation of technological advancement, innovation, and national development. At the basic school level, Basic Science plays a crucial role in introducing learners to fundamental scientific concepts, inquiry skills, and problem-solving abilities (Ayua, 2012a). It helps young learners develop curiosity, creativity, critical thinking, and an understanding of their environment. According to Adebayo (2021), early exposure to science strengthens pupils' cognitive development and prepares them for higher levels of scientific learning. Basic Science, as a core preliminary subject at the basic education level, which integrates Physics, Chemistry, Biology, and Earth Sciences' concepts to provide learners with a holistic foundation for scientific literacy, technological advancement, critical thinking, creativity, and problem-solving skills. As contained in the Nigeria's National Policy on Education, Basic Science was introduced into basic schools in Nigeria to address deficiencies in science education by laying a solid foundation for further successful science learning (Federal Republic of Nigeria -FRN, 2013). The subject emphasizes skill acquisition and inquiry-based learning over rote memorization to foster curiosity, creativity, and problem-solving essential for personal self-reliance and national development. However, its successful implementation in public basic schools seems constrained by dilemmas that contradict its very design. Although intended to be practical and learner-centred, teachers face dilemmas rooted in the subject's abstract nature, inadequate instructional materials, and limited laboratory facilities, which make comprehension difficult compared to non-science subjects. These structural deficits, coupled with overcrowded classrooms (class size of pupils above the teacher to pupil ratio of 1:35) and insufficient time allocation, undermine the activity-based, experimental approach the curriculum demands (Oniya

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& Adefila, 2020). Consequently, the approaches used in teaching and learning of the subject is not encouraging pupils' interest (Ayua et al., 2023; Omebe & Omiko, 2015), cultivating pupils' creative abilities (Sagiru, 2015), and closing the gap between policy and practice (Ayua & Agbidye, 2020). Thus, while Basic Science is positioned as the foundation for future scientific pursuits and national growth, the dilemmas confronting teachers in Makurdi like: poor teaching conditions, resource scarcity, and systemic misalignment; directly impede its mandate to equip pupils with applicable scientific skills, and raising persistent questions about whether the subject is inherently difficult or simply made so by the realities of its curriculum implementation.

The Basic Science curriculum in Nigeria, formalized under the Universal Basic Education programme, is conceived as an activity-based, learner-centred framework that integrates key concepts in Physics, Chemistry, Biology, and Earth Sciences to cultivate scientific literacy, inquiry skills, and environmental awareness at the lower and middle basic levels. It represents a deliberate shift from the colonial-era science syllabus (Olu, 1987; Onwuka,1996), which was examination-driven, fragmented, and taught predominantly through the "defective lecture method" with little experimentation (Abah & Agogo, 2011 as cited in Ayua & Danjuma, 2019). In contrast, the ideal Basic Science curriculum is designed to be explorative, entrepreneurial, and responsive to societal challenges such as poverty, disease, and environmental degradation (Ayua & Gamat, 2018), delivered through classroom and laboratory teaching, science fairs, field trips, and practical activities that enable learners to "learn science by doing science" (Ayua & Danjuma, 2019). Yet, in public basic schools in Makurdi Metropolis, teachers encounter dilemmas that directly undermine these curricular intentions. Although policy mandates hands-on experimentation and active learner participation, implementation is constrained by historical and systemic deficits: inadequate instructional materials, poorly equipped laboratories, overcrowded classrooms, and insufficient time allocation; conditions that replicate the lopsided, fact-recall pedagogy earlier reforms sought to eliminate. Thus, while the Basic Science curriculum aspires to foster curiosity, observation, and application of scientific knowledge to real-life situations, the lived reality for teachers in Makurdi is a gap between curriculum design and classroom practice. This dissonance repositions the teacher not merely as a curriculum implementer but as a negotiator of contradictions, where the mandate for child-centred, practical science collides with institutional limitations, ultimately determining whether the curriculum's goals of scientific literacy and national development are realized or remain aspirational.

Curriculum implementation is the critical phase in which the officially prescribed Basic Science curriculum is translated from policy documents into actual classroom practice through the dynamic interaction of teachers, learners, instructional materials, administrators, and the learning environment. As a teacher-centred process, it demands that educators interpret curriculum goals, select appropriate learner-centred methods, manage classroom activities, and assess progress while adapting to contextual realities (Fullan, 2015). Effective curriculum implementation therefore presupposes adequate instructional resources, supportive administration, manageable class sizes, sufficient instructional time, and teachers with robust pedagogical and content knowledge. In public basic schools, however, the transition from written curriculum to lived experience is fraught with dilemmas that disrupt this process. Teachers encounter large class sizes that impede activity-based learning, limited instructional time that restricts practical experimentation, inadequate resources for hands-on activities, insufficient administrative support, and gaps in content knowledge that hinder the correction of pupils' misconceptions (Ayua, 2012a; Ayua, 2012b; Ayua & Danjuma, 2019). Additional constraints such as low pupils' participation, language barriers, motivational deficits, and the pressure of adapting to frequent curriculum changes further compound the difficulty of delivering science as an explorative, and skills-based subject. Consequently, while the Basic Science curriculum is structurally designed to foster scientific literacy and inquiry, its intended objectives are routinely compromised at the implementation stage because teachers must negotiate these dilemmas daily. Thus, the quality of curriculum implementation in public basic schools is not determined solely by the soundness of the document but by the extent to which institutional conditions enable or constrain teachers to enact the activity-based, interactive pedagogy the curriculum requires.

Teachers' dilemmas in curriculum implementation are structural, professional, and contextual conflicts that arise when educators attempt to translate the officially prescribed curriculum into classroom practice amid inadequate support and competing demands (Fullan, 2015). These dilemmas represent "no-win" or "trade-off" situations in which teachers must choose between curriculum prescriptions and school realities, often compromising pedagogical quality. In the context of Basic Science in public basic schools, several interrelated dilemmas are evident. The resource dilemma pits the mandate for practical, activity-based science against the absence of instructional materials and functional laboratories, forcing teachers to either teach abstractly or improvise with the risk of fostering misconceptions. The time dilemma requires balancing broad syllabus coverage and inquiry-

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based exploration against insufficient timetable allocation, compelling a choice between rushed content delivery and incomplete coverage. The class-size dilemma emerges where activity-based learning, which demands supervision and individual feedback, conflicts with managing large class size of pupils above the teacher to pupil ratio of 1:35 as recommended in the National Policy on Education (FRN, 2013), leaving teachers to either teach as a monolithic unit or neglect learners. The competence dilemma occurs when non-specialist teachers, lacking integrated science content and pedagogical knowledge needed to teach Basic Science. These must either risk errors or revert to rote methods in basic Science curriculum implementation. Compounding these are the support dilemma, where minimal administrative supervision and funding force reliance on personal resources; the change dilemma, where frequent curriculum reviews are unaccompanied by re-training; and the learner-related dilemma, where low pupil readiness, motivation, and language barriers clash with the need to maintain standards and pace. In public lower and middle basic schools, these dilemmas are pronounced: overcrowded classrooms, limited infrastructure, and insufficient materials constrain the universal basic education programme's learner-centred, practical approaches (Ayua & Jato, 2012; Eze, 2022), while weak supervision, scarce professional development, and limited teacher motivation further erode implementation fidelity (Usman & Ibrahim, 2019). Insufficient content mastery also diminishes teacher confidence and effectiveness (Abdulrahman, 2020). Collectively, such dilemmas explain the persistent gap between the intended and implemented curriculum, revealing that failures in Basic Science delivery stem not from teacher unwillingness but from systemic contradictions that prevent the realization of scientific literacy, inquiry skills, and problem-solving abilities. It is against this backdrop that this study examined the dilemmas faced by teachers in implementing the Basic Science curriculum in public basic schools (lower and middle) in Makurdi metropolis.

Statement of the Problem

Despite sustained emphasis by the Nigerian government on science and technology education as a catalyst for national development, curriculum implementation at the basic school level continues to be fraught with difficulties. Successive reforms and innovations in the science curriculum have not translated into effective classroom delivery, as teachers in public basic schools contend with persistent constraints that undermine instructional quality. These constraints include overcrowded classrooms, inadequate instructional materials, limited pupil participation, insufficient administrative support, and restricted access to professional development opportunities (Ayua, 2012b; Eze, 2022; Okonkwo & Nworgu, 2020). In Makurdi metropolis, preliminary observations and anecdotal reports indicate that science teachers struggle to reconcile curriculum demands with the realities of resource scarcity. Many lack confidence in conducting practical activities, while time constraints further impede systematic lesson planning and experimentation (Ayua, 2012a; Ayua, 2012b). As a result, the curriculum's intended outcomes remain largely unrealized, and pupils' performance in science-related subjects continues to be unsatisfactory. This study therefore investigates the dilemmas confronting teachers in implementing the science curriculum in public basic schools in Makurdi metropolis, examines how these dilemmas influence curriculum implementation, and explores strategies for mitigating their impact.

Objectives of the Study

The study had the following objectives:

1. To identify the dilemmas faced by teachers in implementing the Basic Science curriculum in public basic schools.
2. To determine the perceived influence of teachers' dilemmas on Basic science curriculum implementation in public basic schools?
3. To find out the ways in which the dilemmas faced by teachers in implementing the science curriculum in public basic schools can be mitigated?

Research Questions

The following research questions were raised for the study:

1. What are the dilemmas faced by teachers in implementing the science curriculum in public basic schools?
2. What is the perceived influence of teachers' dilemmas on science curriculum implementation in public basic schools?
3. In what ways can the dilemmas faced by teachers in implementing the science curriculum in public basic schools be mitigated?

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Materials and Methods

Dilemmas faced by teachers in implementing the science curriculum in public basic schools in Makurdi metropolis was studied using a descriptive survey research design. Out of all the teachers teaching Basic Science in all the 38 public basic schools (lower and middle) in Makurdi Metropolis, Benue State in the 2025/2026 academic session (State Universal Basic Education Board - SUBEB, 2026), a simple random sample of 64 teachers teaching Basic Science in Makurdi metropolis was drawn for the study. Data for the study were collected using Teachers' Dilemmas in Science Curriculum Implementation Questionnaire (TDSCIQ) designed by the researchers. The validity of the TDSCIQ was checked by three experts; two in Basic Science Education and one in Measurement and Evaluation at the Rev. Fr Moses Orshio Adasu University, Makurdi, Benue State, Nigeria (formerly Benue State University). The TDSCIQ had sections A and B. Section 'A' generated respondents' demographic data. Section 'B' had 42 items, which gathered data on the three objectives of the study based on a 4-point scale of: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. The TDSCIQ was trial tested on a sample of 15 basic school teachers other than the actual sample for the study with a Cronbach alpha reliability value of 0.83 and used for data collection. Mean and standard deviation were used to answer the research questions. A benchmark mean of 2.50 was used for decision-making. Thus, any item with a mean score of 2.50 and above was accepted; while items with mean scores below 2.50 were rejected.

Results

The results of the study are presented in accordance with the research questions as follows:

Research Question One: What are the dilemmas faced by teachers in implementing the science curriculum in public basic schools?

Table 1: Mean and Standard Deviation of the Dilemmas Faced by Teachers in Implementing the Science Curriculum in Public Basic Schools.

S/N	Items	Mean	St. D.	Remarks
1	Large class sizes make it difficult for me to teach science effectively	3.06	1.237	Accepted
2	I do not receive adequate administrative support to implement the science curriculum	3.38	.500	Accepted
3	My pupils show low participation in Basic Science lessons.	3.19	.834	Accepted
4	Managing classroom time is challenging in my trying to cover Basic Science contents alongside experiments.	3.38	.719	Accepted
5	I find it difficult in maintaining pupils' interest in Basic Science.	2.88	.500	Accepted
6	Making complex scientific concepts easy to understand is challenging to me.	3.19	.750	Accepted
7	I find it difficult to adapt my teaching methods to meet individual pupils' needs.	2.75	.775	Accepted
8	Limited resources hinder my engaging pupils in ample hands-on activities in Basic Science.	3.13	.806	Accepted
9	Poor motivation weakens my effectiveness in teaching Basic Science.	3.44	.629	Accepted
10	My low qualification lowers how well I implement the Basic Science curriculum.	3.38	.719	Accepted
11	Teaching Basic science is a misfit to me as a non-science-oriented teacher with lack of content knowledge.	3.00	.894	Accepted
12	Language barrier makes Basic Science teaching difficult for me.	3.13	.885	Accepted
13	I find it difficult to adapt to Basic Science curriculum changes.	2.31	.873	**Rejected**
14	Handling pupils' misconceptions about scientific ideas is challenging to me.	3.31	.479	Accepted

The result in Table 1 shows that items 1-12 and 14 had mean scores greater than the criterion mark of 2.50 and were thus accepted as the dilemmas faced by teachers in implementing the science curriculum in public basic schools in Makurdi Metropolis except item 13 with mean score below the acceptance mark of 2.50. This implies that the dilemmas faced by teachers in implementing the science curriculum in public basic schools are enormous.

Research Question Two: What is the perceived influence of teachers' dilemmas on science curriculum implementation in public basic schools?

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Table 2: Mean and Standard Deviation of Perceived Influence of Teachers' Dilemmas on Science Curriculum Implementation in Public Basic Schools.

S/N	Items	Mean	St. D.	Remarks
1	Large class sizes negatively influence my ability to effectively implement the science curriculum.	3.00	.894	Accepted
2	Lack of administrative support increases my effectiveness in implementing science lessons.	2.06	.929	**Rejected**
3	Low pupils' participation affects the successful implementation of the science curriculum negatively.	3.54	.629	Accepted
4	Difficulty managing classroom time for practical and theoretical work weakens curriculum implementation.	3.06	1.063	Accepted
5	Low pupils' interest increases the delivery of science curriculum objectives.	2.13	.957	**Rejected**
6	Difficulty in making complex scientific concepts easy to understand negatively affects curriculum implementation.	2.87	.806	Accepted
7	Inability to adapt teaching methods to individual learning needs influences curriculum success.	2.94	1.237	Accepted
8	Limited resources decrease the effectiveness of science curriculum implementation.	2.88	1.147	Accepted
9	Teachers' low motivation negatively affects the quality of science teaching	3.00	1.155	Accepted
10	Low teacher qualification impedes Basic Science curriculum implementation.	2.50	1.155	Accepted
11	Insufficient content knowledge hinders teachers' ability to deliver science lessons effectively.	3.25	.683	Accepted
12	Language barrier negatively influences pupils' understanding of science concepts.	2.94	.772	Accepted
13	Difficulty in adapting to new curriculum changes affects effective science teaching.	2.94	.680	Accepted
14	Difficulty in handling pupils' misconceptions negatively affects Basic Science curriculum implementation.	2.88	1.204	Accepted

As contained in Table 2, items 1, 3-4, & 6-14 had mean scores of 2.50 or above were accepted as the negative influence of teachers' dilemmas on science curriculum implementation in public basic schools. Only items 2 and 5 with mean scores less than the cut off mark of 2.50 were rejected.

Research Question Three: In what ways can the dilemmas faced by teachers in implementing the science curriculum in public basic schools be mitigated?

Table 3: Mean and Standard Deviation of Ways the Dilemmas Faced by Teachers in Implementing the Science Curriculum in Public Basic Schools can be Mitigated.

S/N	Items	Mean	St. D.	Remarks
1	Reducing class sizes will improve teachers' ability to implement the science curriculum effectively.	3.62	.500	Accepted
2	Increased administrative support will enhance teachers' performance in delivering Basic Science lessons.	3.00	1.265	Accepted
3	Encouraging active pupils' participation will improve Basic Science learning outcomes.	3.31	.479	Accepted
4	Providing adequate time for both theory and practical activities will progress Basic Science curriculum implementation.	3.56	.512	Accepted
5	Using constructivists' teaching strategies can help boost pupils' interest in Basic Science.	3.81	.403	Accepted
6	Simplifying teaching by use of amply suitable instructional aids can make complex concepts easily understandable.	3.38	.500	Accepted
7	Training teachers on differentiated instruction will help meet diverse learner needs.	3.50	.516	Accepted

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8	Providing adequate laboratory equipment will improve hands-on Basic Science learning.	3.81	.403	Accepted
9	Improved teacher-welfare will motivate their commitment to Basic Science curriculum implementation.	3.81	.403	Accepted
10	Continuous professional development by in-service training will improve teachers' competence in Basic Science teaching.	3.50	.516	Accepted
11	Besides strengthening teachers' content knowledge via workshops to boost confidence, only science-oriented teachers should be assigned to teach Basic Science.	3.69	.479	Accepted
12	Teachers' use of familiar language, can help learners overcome language barrier to comprehending Basic Science concepts.	3.37	.500	Accepted
13	Providing orientation on new curriculum changes will help teachers adapt more easily.	3.81	.403	Accepted
14	Offering training on identifying and correcting pupils' misconceptions will improve learning outcomes in Basic Science.	3.50	.516	Accepted

Result in Table 3 shows all the items had mean score above 2.50 and were accepted as ways to which the dilemmas faced by teachers in implementing the science curriculum in basic schools be mitigated.

Discussion

This study examined the dilemmas faced by teachers in implementing the Basic Science curriculum and the influence of these dilemmas on effective curriculum delivery in basic schools. The discussion is presented in the order of the objectives of the study as follows:

In response to the dilemmas faced by teachers in implementing the Basic Science curriculum, the findings revealed that science teachers face several dilemmas in implementing the Basic Science curriculum. These include inadequate instructional materials, large class sizes, limited time allocation for science lessons, and insufficient laboratory facilities. Since Basic Science requires practical activities, experiments, and learner-centred strategies, the absence of adequate resources makes effective curriculum implementation difficult. This finding agrees with the study of Okebukola (2019), who found that inadequate laboratory facilities and instructional materials significantly hinder effective science teaching in Nigerian schools. Similarly, Aina and Akintunde (2018) reported that overcrowded classrooms (class size of pupils above the teacher to pupil ratio of 1:35) and lack of equipment negatively affect teachers' ability to conduct practical science lessons. Furthermore, Owoeye and Yara (2011) observed that insufficient time allocation and large class sizes reduce teachers' efficiency in delivering science content effectively. In the same vein, UNESCO (2021) emphasized that lack of infrastructure and teaching resources remains a major barrier to science education in developing countries. The agreement between the present study and these empirical studies suggests that the dilemmas faced by science teachers are systemic and widespread across basic schools. Thus, the implications of this finding for the teaching and learning of Basic Science at the lower and middle basic classes in basic schools can be deduced as follows:

1. Reduced Practical Exposure: Pupils may develop weak scientific skills due to limited hands-on activities and experiments.
2. Poor Conceptual Understanding: Abstract teaching without instructional materials may lead to rote learning instead of meaningful understanding.
3. Low Pupils' Motivation: Inadequate facilities and overcrowded classrooms may reduce pupils' interest and participation in science lessons.

Regarding the perceived influence of teachers' dilemmas on science curriculum Implementation, the study revealed that the dilemmas faced by teachers significantly influenced the implementation of the Basic Science curriculum. Overcrowded classrooms reduce effective classroom management and limit individual participation. In addition, insufficient time allocation affects syllabus coverage and reduces opportunities for practical activities. This finding corroborates the work of Aina and Akintunde (2018), who found that large class sizes negatively affect the quality of science instruction and pupils' academic achievement. Similarly, Adeyemi (2020) reported that time constraints prevent teachers from completing the science syllabus and conducting experiments effectively. In another empirical study, Eze and Egbo (2019) found that teacher workload and inadequate instructional time significantly reduce effective curriculum implementation in basic schools. These studies collectively support the present finding that teachers' dilemmas directly influence curriculum delivery outcomes. The consistency of these findings indicates that unless these dilemmas are addressed, effective implementation of

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the Basic Science curriculum may remain difficult. Based on the foregoing, the implications for Teaching and Learning of Basic Science at lower and middle basic school level may include:

1. Incomplete Syllabus Coverage: Pupils may not be exposed to all curriculum content, affecting their academic progression.
2. Decline in Learning Outcomes: Poor classroom management in overcrowded classes may reduce pupils' academic performance.
3. Limited Skill Development: Lack of sufficient time for experiments may hinder the development of scientific inquiry and problem-solving skills.

Concerning the ways of mitigating the dilemmas faced by teachers in implementing the science curriculum in basic schools, it was found that improving the availability of instructional materials, reducing class sizes, and providing administrative support could help mitigate the dilemmas faced by science teachers. Respondents emphasized the importance of regular training and professional development to enhance teachers' competence in curriculum implementation. This finding aligns with the study of Ogunleye (2018), who found that provision of adequate teaching resources significantly improves science teaching effectiveness. Similarly, Usman and Ibrahim (2019) reported that teacher professional development enhances teachers' pedagogical skills and confidence in curriculum implementation. Furthermore, UNESCO (2021) emphasized that continuous teacher training, adequate funding, and institutional support are essential for successful curriculum implementation. In addition, Okeke (2019) observed that administrative support improves teacher morale and instructional quality in basic schools. The agreement between this study and previous empirical studies suggests that addressing these dilemmas requires systemic support from government and school authorities. Sequel to this finding, the following Implications for Teaching and Learning of Basic Science in basic schools are evident:

1. Improved Teaching Effectiveness: Availability of materials and training will enhance teachers' ability to deliver practical and engaging science lessons.
2. Enhanced Pupils' Performance/Achievement: Better classroom conditions and support systems may lead to improved academic performance in Basic Science.
3. Sustainable Curriculum Implementation: Continuous professional development ensures that teachers remain competent in delivering the curriculum as designed.

Conclusion

Based on the findings of this study, it is irrefutable that inadequate instructional materials, insufficient laboratory facilities, overcrowded classrooms (class size of pupils above the teacher to pupil ratio of 1:35), and limited time allocation significantly hinder the effective implementation of the Basic Science curriculum by restricting practical activities, experimentation, and learner participation. These dilemmas negatively affect syllabus coverage, conceptual understanding, skill development, and pupils' interest and performance in science. Effective curriculum delivery therefore depends on addressing these structural and professional challenges through improved resource provision, reduced class sizes, enhanced facilities, and continuous teacher professional development, supported by strong institutional and administrative backing. Without such interventions, the goals of Basic Science education at the basic school level cannot be fully realized.

Recommendations

Based on the findings of this study, the following recommendations are made to improve the effective implementation of the science curriculum in basic schools:

1. Equip to experiment: Government and education authorities must fund adequate materials and class/laboratory so teachers can run the hands-on, activity-based lessons Basic Science demands; because science is caught, not just taught.
2. Back the teachers: School leaders should actively support science teachers with strong supervision, motivation, and conducive environments. Supported teachers solve curriculum dilemmas faster.
3. Shrink class to boost impact: Cut class sizes for real control and participation. If cuts aren't possible now, deploy teaching assistants or split classes; no pupil should get lost in the crowd.
4. Train, retool, and transform: Run regular workshops and seminars to keep science teachers sharp on innovative, learner-centred methods. Updated teachers equal engaged learners.
5. Give science the time it deserves: Review timetables to guarantee enough hours for syllabus coverage and practical activities. Rushed science is failed science.
6. Put specialists in the class: Assign only science-educated teachers to teach Basic Science through lesson rotation. One non-specialist teaching every subject, including science, shortchanges pupils.

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