

# LONGITUDINAL STUDY ON THE IMPACT OF CURRICULUM REFORMS (2012 - 2013)



NATIONAL  
INSTITUTE OF  
EDUCATION



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## Preface

The National Institute of Education (NIE) is in the process of reforming the curriculum with the aim of providing and facilitating holistic education for the students whereby equal emphasis is on moral values and attitudes, knowledge and skills.

The NIE undertook a longitudinal study with the assistance of UNICEF to examine the current curricular practices, teaching and learning process and the impact on student learning outcomes identified in the new National Curriculum. This research is intended to serve as a basis for the comparison throughout the implementation process of the new curriculum. This baseline study is the first phase of the project.

The baseline study has provided the information which enable to evaluate the curriculum implementation process over time. The findings of the research suggest that urgent interventions are vital to address the mismatches and misconceptions. The NIE is committed to work with the schools to address these issues highlighted in the report.

On behalf of the staff of NIE, I take the pride to express my sincere gratitude to Educational Initiatives (India) for providing their technical expertise in conducting the study. I extend my heartiest appreciation to the dedicated team of NIE, the local research team for their contribution to complete the study.

*Adam Shareef Umar*  
Minister of State for Education  
National Institute of Education

## Acknowledgement

The baseline study would not have been possible without the contribution and assistance of many people. National Institute of Education:

- ❖ is grateful for the assistance provided by UNICEF, Maldives in conducting this baseline study. UNICEF's continued support and contribution throughout the project is highly appreciated.
- ❖ thanks the Education Initiatives (India) for providing their technical expertise in this study and for their interest and commitment provided in this project.
- ❖ expresses gratitude to Dr. Naashia Mohamed (Former Head of Department of Curriculum) for her insight to come up with a project of this nature.
- ❖ thanks to Ms. Ameena Mohamed Didi (Former Educational Specialist/UNICEF) for her commitment, interest and continued effort to overcome all barriers and make it happen
- ❖ thanks to Dr. Ali Fawaz Shareef (Project Director) for his technical assistance and commitment for the project
- ❖ thanks all the personnel from the Ministry of Education who have contributed to the study
- ❖ acknowledges to the Heads of the Departments of NIE, Curriculum Developers, Teacher Educators and TRC coordinators for their continued support and assistance
- ❖ is thankful for all the School Principals, Teachers, Students and Parents for the support shown for this study.

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## I EXECUTIVE SUMMARY

### I.1 BACKGROUND

The National Institute of Education (NIE) of the Ministry of Education is currently in the process of implementing a major curriculum reform in the Maldives. Some of the changes were implemented in 2012. A nation-wide rollout is planned soon. In order to monitor the impact of curricular reforms, NIE along with UNICEF has partnered with Educational Initiatives Pvt. Ltd (EI) to carry out the **‘Longitudinal Study on the Impact of Curriculum Reform (LSICR)’**, a large-scale assessment study for the school children of Maldives.

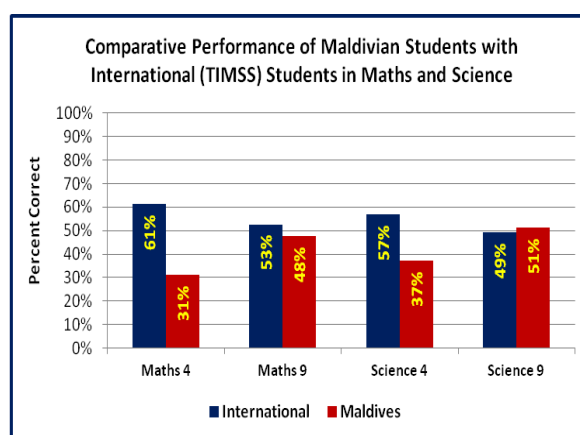
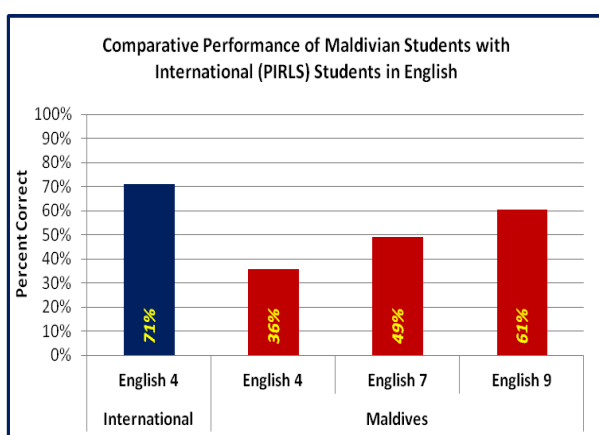
The first phase of the study is to establish a **baseline performance of student outcomes**, before the curricular reforms are implemented on a large scale (based on the National Curriculum Framework). Over the coming years, this baseline will provide a reference level to which the improvement in student outcomes, throughout the implementation process of the new curriculum, will be compared.

Work on the baseline assessment started in September 2012, and the assessments were administered between 21<sup>st</sup> and 24<sup>th</sup> March, 2013. Around 17000 students across Grades 4, 7 and 9 from about 220 schools participated. The students were given different test papers for English, Maths, EVS/Science and Social Studies. Students from Grade 9 took different papers for Physics, Chemistry, Biology, History and Geography according to the subjects they had selected.

In addition to the academic subjects above, students were also assessed on values and attitudes, based on the key competencies identified in the National Curriculum Framework.

### I.2 MAIN FINDINGS

**I. The level of learning of Maldivian students is lower than the average international levels as represented by reputed international studies. The performance in English is notably low, with Maldivian students in Grade 9 performing lower than the international average of Grade 4 students. In Maths and Science, the gap is higher at Grade 4 while students are catching up at Grade 8. This is more due to the strength of their performance on questions that do not involve deeper conceptual understanding.**



Questions from TIMSS (Maths & Science) and PIRLS (English) were used to make these comparisons. TIMSS Grade 4 questions were used in Maldives Grade 4 papers, while TIMSS Grade 8 questions were used in Maldives Grade 9 papers. PIRLS Grade 4 questions were used in Maldives Grade 4, 7 and 9 papers. All the comparisons are based on not less than 6 common questions in each grade and subject. It is to be noted that the Grade 9 performance of Maldives is being compared to international Grade 8 performance.

GRADE 9   CHEMISTRY	GRADE 9   BIOLOGY
<p><b>What is formed when a neutral atom gains an electron?</b></p> <p>A. an ion ✓            B. a mixture            C. a molecule            D. a metal</p>	<p><b>A son can inherit traits</b></p> <p>_____.</p> <p>A. only from his father            B. only from his mother            C. from both his father and his mother ✓            D. from either his father or his mother, but not from both</p>
<p>60% of Maldivian students answered this question correctly compared to 39% internationally. This is a straightforward question testing whether students know that when a neutral atom gains an electron, an ion is formed.</p>	<p>55% of Maldivian students answered this question correctly compared to 72% internationally. This question tests a deeper conceptual understanding and assesses whether students understand that in the case of sexual reproduction, a living organism inherits traits from both its parents regardless of the gender of the organism.</p>

A69-3<sup>1</sup>: Formation of ions

A79-15: Inheritance of characteristic traits

In the subject of English, the common questions tested the skill of reading comprehension, which seems to be the weakest skill across all grade levels in Maldives. Here, students were presented with a short story and questions were asked based on the story. Answering the question required students to only read the first 2 paragraphs that make it clear that Labon was disturbed about the mice only once there were too many of them. Internationally, 79% of Grade 4 students answered correctly, while only 66% of Maldives Grade 9 students answered B, correctly. 22% of students in Grade 9 chose A- 'He had always hated mice', indicating that they answered based on a common view towards mice, and did not actually read and comprehend the text.

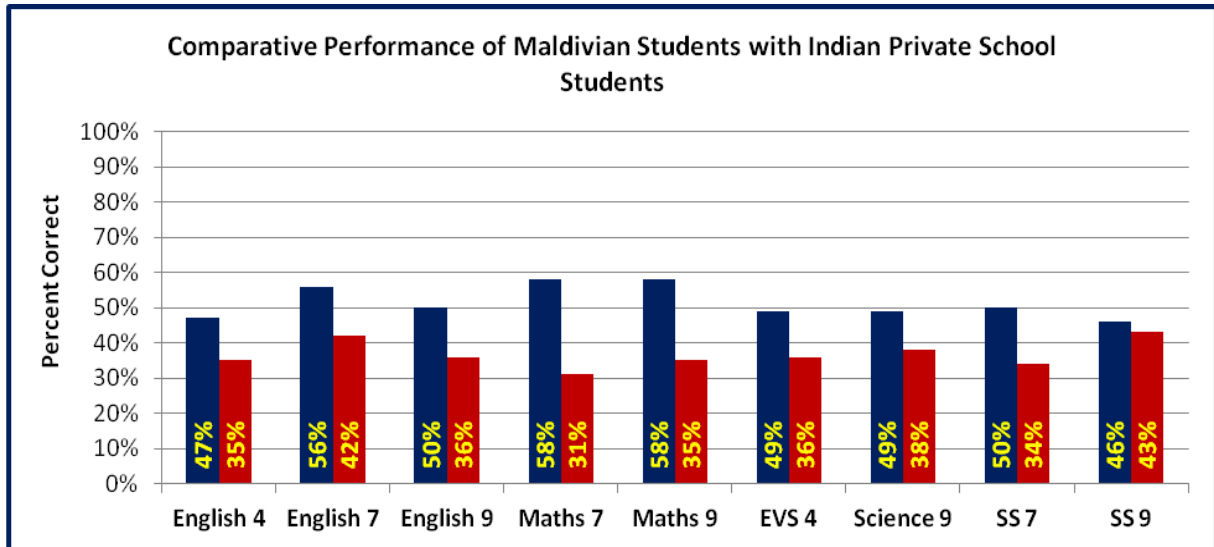
GRADES 4, 7, 9   ENGLISH
<p><b>Excerpt from the passage:</b>  <b>The Upside-Down Mice</b>            by Roald Dahl</p> <p>Once upon a time there lived an old man of 87 whose name was Labon. All his life he had been a quiet and peaceful person. He was very poor and very happy. When Labon discovered that he had mice in his house, it did not bother him much at first. But the mice multiplied. They began to bother him. They kept on multiplying and finally there came a time when even he could stand it no longer.</p>
<p><b>Why did Labon want to get rid of the mice?</b></p> <p>A. He had always hated mice.</p>

<sup>1</sup> This indicates the paper code and question number. For example, A69 indicates the paper code and 3 is the question number.

- B. There were too many of them. ✓
- C. They laughed too loudly.
- D. They ate all his cheese.

A14-28; A17-27; A19-20: Passage-based question

2. The learning levels of Maldivian students are lower than those in private schools in India. This observation is based on a comparison of performance by using questions from ASSET, a large-scale diagnostic test in India.



All the comparisons are based on not less than 9 common questions in each grade and subject. The gap is higher in Maths compared to other subjects, while performance is closer to Indian private school students in Social Studies in Grade 9.

3. Maldivian students perform fairly well in basic competencies that require vocabulary, application of procedures, and recalling of facts.

In English, students display knowledge of words, and the ability to deduce word meanings from context. In Maths, they are able to use procedures and standard ways of solving problems. In Science, they are able to recall scientific facts, and perform basic reasoning. The examples below highlight this.

**GRADE 9 | MATHS**

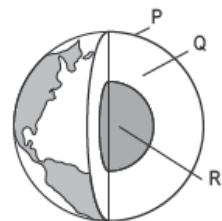
A sheet of paper is 0.012 cm thick. Of the following, which would be the height of a stack of 400 sheets of this paper?

- A. 0.048 cm
- B. 0.48 cm
- C. 4.8 cm ✓
- D. 48 cm

**GRADE 7 | SCIENCE**

The picture shows the three main layers of the Earth.

Where is it the hottest?



- A. Layer P
- B. Layer Q
- C. Layer R ✓
- D. All three layers have the same temperature.

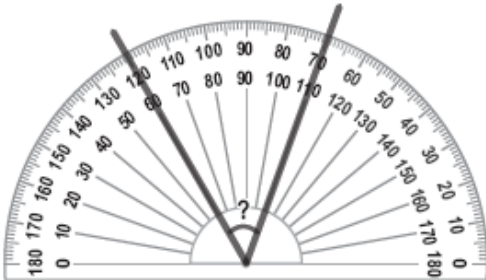
71% of students answered this correctly showing that they are able to use the unitary method properly and multiply decimals correctly, displaying a firm grasp of these basic mathematical skills.

74% of students answered this correctly. This question is based on recalling facts they have been exposed to.

A29-20: Using the unitary method and multiplying decimals

A37-12: Hottest layer of Earth

4. **Students' performance in higher order skills, such as reading comprehension in English, and conceptual questions in Maths and Science, that cannot be answered procedurally or by recalling facts or formulas, generally show low performance.**

<p><b>GRADE 7   MATHS</b></p> <p>What is the measure of the angle shown below?</p>  <p>A. 50° ✓ B. 60° C. 70° D. 110°</p>	<p><b>Correct Answer: A</b></p> <table border="1"> <tr> <td>Option A</td> <td>34%</td> </tr> <tr> <td>Option B</td> <td>22%</td> </tr> <tr> <td>Option C</td> <td>29.1%</td> </tr> <tr> <td>Option D</td> <td>12.6%</td> </tr> </table>	Option A	34%	Option B	22%	Option C	29.1%	Option D	12.6%
Option A	34%								
Option B	22%								
Option C	29.1%								
Option D	12.6%								
<p>In this question, 29% of students wrongly select C; and 22% wrongly select B. This indicates that students just looked at the markings on the protractor where the two arms of the angle are placed, trying to rely on familiar procedures, instead of thinking through what the angle formed between the 2 lines is.</p>									

A27-15: Measuring angle using a protractor

5. **Though learning of concepts improves across grade levels, several misconceptions persist even in higher grades, and many students in higher grades do not understand basic concepts like fractions, angle measures, that air has weight etc.**

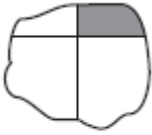
Which of these figures is  $\frac{1}{4}$  shaded?



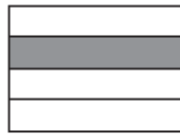
A.



B.



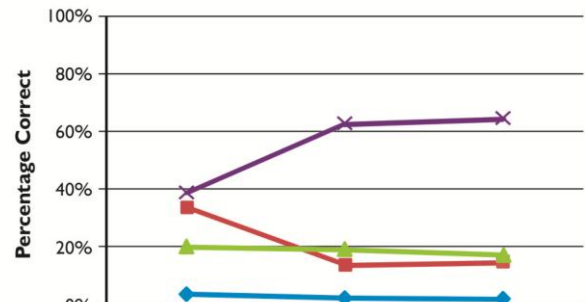
C.



D.

✓

### Maths - Grades 4, 7 and 9



	Grade 4	Grade 7	Grade 9
Option A	4%	3%	2%
Option B	34%	14%	15%
Option C	20%	19%	17%
Option D	39%	63%	65%

A24-12, A27-14, A29-5: Shaded fraction

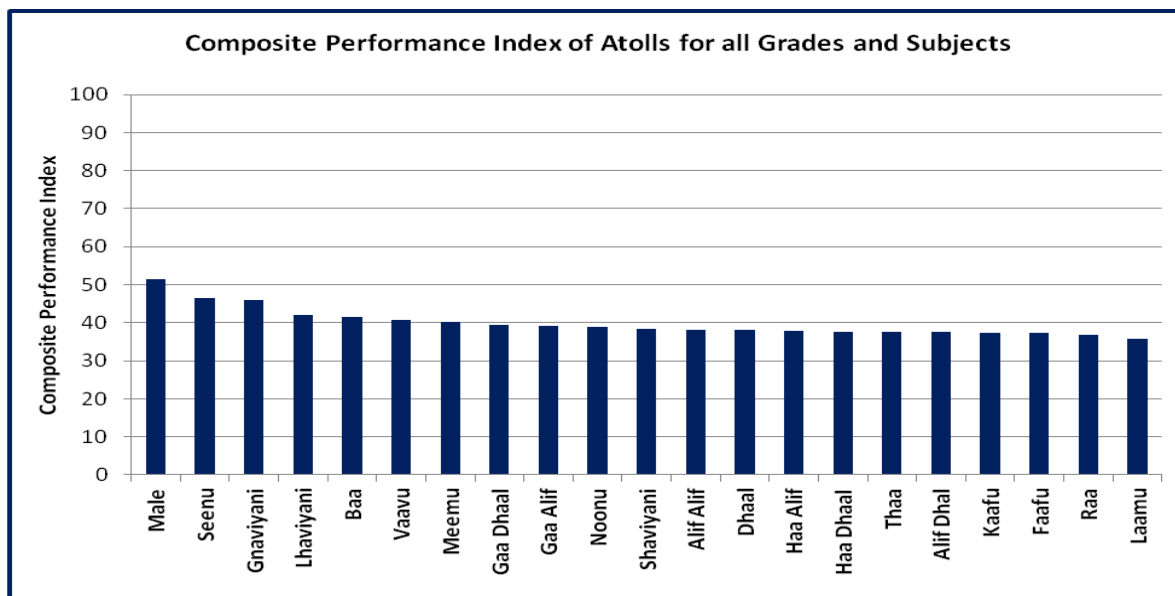
This question tests if students can identify the shape that is  $\frac{1}{4}$  shaded. We see that even in grade 9, 15% of students consider B to be correct - probably taking 'shaded to un-shaded parts' to be the fraction, and 17% of students consider C to be correct - even though the parts are unequal.

**6. The spread of student scores (Standard Deviations) in English and Maths is lower as students move to higher grades. Coupled with lower scores in higher grades, this indicates that the low performance is homogeneous - especially in Maths, and also in Social Studies in Grade 7.**

The scores of students in different grades and subjects is shared in the table below.

Subject	Grade	No. of students	Average	SD
English	4	4816	47.98%	21.1
English	7	5923	54.86%	20.4
English	9	5668	48.30%	18.5
Maths	4	4831	39.59%	16.4
Maths	7	5819	37.27%	15.3
Maths	9	5586	37.37%	12.6
EVS	4	4720	40.95%	16.6
Science	7	5715	41.63%	16.9
Physics	9	2064	40.73%	14.7
Chemistry	9	2524	48.09%	19.5
Biology	9	2763	44.85%	16.6
SS	7	5603	34.32%	12.5
History	9	41	50.90%	15.8
Geography	9	74	45.52%	18.2

**7. Male, Seenu, and Gnaviyani atolls are relatively the best performing atolls.**



This is a generalized observation based on averaging the scores across grades and subjects (called 'composite performance index'). Trends in specific grades and subjects may vary.

**On most issues, the attitudes of students were increasingly positive as they moved to higher grades. However, there are areas that require attention e.g. the ability to cope with disagreements and anger, attitudes to gender equality, and the prevalent habits of smoking and possible drug usage.**

In order to study student attitude and values, questions were administered to students of Grades 4, 7 and 9. The paper for Grades 7 and 9 included 45 questions, 20 of which were repeated from Grade 4. These questions checked for student's attitudes towards – i) seeking help, coping strategies, attaining educational and career goals ii) care and respect for self and others, the consequences of bullying, dealing with peer pressure, tolerance iii) healthy eating, preventing diseases, preventing substance abuse, violence iv) environmental problems, personal use, social responsibility and v) media literacy, ethical use of information, and internet safety. Students were told clearly that these questions had no correct answers and were asked to respond based on whatever they felt regarding the issue.

On the whole, it was found that, as students move to higher grades, their attitudes towards these issues were increasingly positive, except in a few cases. Even where a relatively small percentage (say 10-20%) might hold an uninformed or a biased view, this could be problematic, and affect the society and community.

Some insights from the student responses reveal -

- More than 25% of students in Grades 7 and 9 say they do not know how to deal with anger.
- Only 65% of students in Grade 9 say that men and women should have equal work opportunities. About 15% to 17% of students say that men should be given preference over women for certain jobs, and about 10% of students also say that women should not work away from home. There is also a notable gender segregation of household responsibilities as very few students say that men should share in household tasks.
- 39% of Grade 7 students believe their friends might have tried smoking cigarettes or using drugs and this percentage increases to 49% in Grade 9.
- 40%-45% students feel that the Earth has plenty of natural resources to support us for millions of years. This indicates that many students may not be taking a wider view of the effect of human activity on the availability of natural resources.

- 41% of students in Grade 7 believe whatever is reported in newspapers to be true. This decreases to 27% in Grade 9.

### 1.3 RECOMMENDATIONS

**1. Campaign to educate teachers, parents and students to recognize the importance of learning with understanding:** Starting with a widespread dissemination of the findings of this report among teachers and others, we think there is a need and an opportunity to initiate a debate on issues such as rote learning and learning with understanding, so that teachers and gradually parents understand these issues and recognise the importance of learning with understanding. This can be achieved through seminars, events within schools and towns, television shows, and internet, including the use of social networking sites.

**2. Targeted program and campaign to develop the habit of reading:** Developing an interest for reading and getting people to develop the reading habit can help significantly in improving both learning outcomes as well as in creating a ‘thinking society’ at large. Book exhibitions, reading clubs (in schools and communities), competitions such as debates and elocutions, events where students discuss their ‘favourite book’, and library visits can all help in promoting the habit of reading and thinking about what has been read. A nation-wide campaign that promotes and rewards reading can also be very effective. Such a campaign could have goals like 100,000 students will read 400,000 books in 1 year.

**3. Tracking outcomes and using inputs for curriculum and training:** Student outcomes should be tracked annually through nation-wide scientific assessments for 6 years, and once in 2 years after that, to track the progress of initiatives. Annual seminars should be held by key bodies regarding the results of these assessments, and these should be used to make the plans for teacher training and any changes to curriculum.

**4. A computerized database and system that contains information regarding the learning of every child in Maldives, and helps administrators, curriculum experts and teacher trainers to take informed decisions:** Such a system would allow all data related to a student – performance in assessments, sports, strengths and weaknesses, etc. - to be tracked at one place. The unique identification would allow student-wise progress monitoring over time even if student moves to a different school or town. It would allow tracking of learning at an individual level – this will be a data mine of information for detecting patterns in learning and learning difficulties. It would allow easy access to information at the needed levels. Summarized information would be available along with the option of drilling down to the last level of detail.

**5. Research using student interviews that are video recorded, which would give insights to teachers and curriculum makers on common student difficulties and help improve teaching practice:** It is important to recognise that understanding what students already know and think about a concept before it is taught or while it is being taught, is an important aspect of teaching. While large scale assessments provide detailed performance data and the patterns underlying student responses, they may not fully explain why students choose a particular option or answer in a particular way. In order to uncover that, one approach is to simply ask students questions in a ‘student interview’, without guiding the student to the answer. These interviews are typically conducted in the class itself by trained interviewers. It is common in research studies to conduct individual interviews and use the transcripts – one advantage of the whole class interaction is that it allows for discussions among students. These interviews are video recorded and then disseminated to schools where they are used mainly for teacher feedback and training.

## 2 DESIGN OF THE STUDY

### 2.1 NEED FOR THE STUDY

Maldives has very recently, in 2011, moved from the group of Least Developed Countries to the group of Developing Countries. Research also reports that the economic wellbeing of nations in the 21<sup>st</sup> century is going to depend on the cognitive skills of the population and not on mere school attainment (Hanushek and Woessmann, 2007). Given this scenario, the quality of education provided to the Maldivian children in terms of knowledge and skills assumes tremendous significance as a strategy for the progress of the nation.

Excellence in education implies that students be taught a curriculum that balances core knowledge, such as math, science and reading, with what educators call “portable skills,” such as critical thinking, making connections between ideas and knowing how to continue learning. The pace of innovation in the last 2 decades and the opening of new knowledge frontiers in several areas have shown that in order to compete in the fast changing world, education should shift from its traditional emphasis on acquiring knowledge to one of acquiring processes. In other words, it is important that children ‘learn to learn’ and develop skills that will enable them to apply understanding of concepts in unfamiliar situations and contexts.

The National Institute of Education (NIE) of the Ministry of Education is currently in the process of implementing a major curriculum reform in the Maldives. UNICEF has provided support to the NIE to develop a National Curriculum Framework and NIE has piloted some changes in 2012. In order to be able to monitor the impact of curriculum reforms, NIE along with UNICEF has partnered with Educational Initiatives Pvt. Ltd (EI)<sup>2</sup> to carry out the ‘**Longitudinal Study on the Impact of Curriculum Reform (LSICR)**’, a large-scale assessment study for the school children of Maldives.

The first phase of the study is a baseline to assess current curricular practices, teaching and learning processes and the impact of these on student outcomes. Over the coming years, this baseline will provide a reference level to which the improvement, throughout the implementation process of the new curriculum, will be compared.

The goals of this study are as follows:

- To track student learning for improvement
- To measure student performance on learning with understanding (*critical thinking, problem solving, higher order thinking*)
- To benchmark the performance of Maldivian students with that of international students
- To assess achievement of age-appropriate competencies
- To analyse students’ values and attitudes
- To provide pointers for further research

In short, LSICR is a **sophisticated and comprehensive** study that aims to provide detailed question-wise data to monitor learning across grades, and provide detailed diagnostic feedback.

At this point, it is important to recognise that well designed, benchmarking achievement studies by themselves may not bring about the necessary systemic shift in improving education, but such assessments will provide powerful ‘data-driven’ insights into the existing learning gaps of students, which will enable stakeholders to initiate action for improvement.

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<sup>2</sup> Educational Initiatives (EI) is an educational research and assessment organization headquartered at Ahmedabad, India. EI’s vision is a world where children everywhere are learning with understanding. EI’s mission is to build offerings based on assessment research that will accurately measure learning, help understand the learning process and improve learning. EI carries out large scale assessment surveys to provide direction, guidance and diagnostic feedback to stakeholders – students, schools and policy makers.

## 2.2 SALIENT FEATURES OF THE STUDY

**Grades and Subjects covered:** All students from Grades 4, 7 and 9 were assessed for learning in English, Maths, Science, Social Studies, and Values and Attitudes.

**Scientifically designed testing cycle:** LSICR 2012-13 followed a detailed scientific process of test development supported by curriculum checking, pilot tests with pairs of test papers for each grade and subject in 7 schools on 4 different islands, qualitative analysis of pilot tests, gathering feedback on the final papers, further fine tuning of the final papers, standardised test administration, data entry and diagnostic data analysis prior to releasing the final reports.

**Anchor items from Indian benchmarking studies and international tests:** Students of Grades 4, 7 and 9 were assessed in English, Maths, Science and Social Studies with separate test papers for each subject. In each subject, questions from benchmarking studies carried out by Educational Initiatives for Private schools in India (ASSET) as well as questions from international studies like Trends in Maths and Science Study (TIMSS) and Progress in Reading Literacy Study (PIRLS) were included. This was done to enable the comparison of Maldivian students with their peers in India and internationally.

**Items to track learning across grades:** In each subject, a few questions were kept common across grades. This was done to track how students learn certain important concepts and whether there are any hidden patterns in the performance of these questions.

**Standardised test administration:** The tests were conducted in all the schools of Maldives by invigilators trained by the UNICEF and the National Institute of Education. Tests were conducted over a period of 4 days. After the tests, the used OMRs were collected and dispatched to Male, to the NIE. The low stake nature of the tests was stressed in all forms of communication.

**Values and Attitudes:** A separate test paper that was designed on various social aspects and issues was given to the students. The questions in this paper had no correct or incorrect answers. This was meant to gather information on students' perception and attitude towards these aspects and issues.

**Analyses:** Different types of analyses were carried out on the collected data to extract patterns in performances and to understand differences in learning levels across different groups. Different statistical methods were used to confirm patterns of learning. Distracter analysis enabled the identification of misconceptions and common errors.

**Diagnostic feedback:** The study aims to provide detailed diagnostic feedback, which can be used by the different stakeholders of this study like teachers, curriculum developers, educationists, policy makers etc.

## 2.3 HOW THE STUDY WAS CARRIED OUT

Around 17000 students across Grades 4, 7 and 9 from around 220 schools were administered the LSICR tests. Tests were conducted from 21st March to 24th March, 2013. The students were given different test papers for English, Maths, Science and Social Studies. Students from Grade 9 took different papers for Physics, Chemistry, Biology, History and Geography according to the subjects they had selected. The table below gives the number of students tested in each class and subject.<sup>3</sup>

Grade	English	Maths	EVS/Science	SS	Physics	Chemistry	Biology	History	Geography
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<sup>3</sup> There may be a slight discrepancy in the no. of students tested and no. of students scored because of error in the scanned data.

4	4970	4952	4926						
7	6047	5943	5930	5824					
9	5704	5649			2036	2557	2782	46	81

### 2.3.1 Schools tested

LSICR being a census study, all the schools in the 21 atolls of Maldives were tested. All the students took the subject tests of Grades 4 and 7 along with the English and Maths tests of Grade 9. Depending on the subject selected by the student, Physics, Chemistry, Biology, History and Geography tests were taken by specific students.

### 2.3.2 Administration of the test

#### Printing and dispatching test papers and OMRs

A printer selected through a bidding process printed the question papers locally in the Maldives. Printing of OMRs was done in India and they were couriered to the Maldives.

Due to the study being a census, papers had to be distributed to all the atolls. Due to the geographical distribution of islands and lack of a proper internal transport system between islands, the dispatching of papers was contracted to 4 different companies. NIE ensured that all the schools received the test papers on time.

#### Training of Coordinators and Invigilators

From every atoll, two people were selected from the Teacher Resource Centre (TRC), for the role of coordinating the test conduction. Since the TRC coordinators work closely with schools, they had the advantage of identifying and relating with the situation in their respective atolls.

UNICEF along with the NIE conducted a two-day training workshop for the coordinators. Professional staff of the NIE and the local research team also participated in the workshop. Professional staff from the NIE and the members of the local research team who participated in the training was assigned different atolls in order to assist the coordinators.

The workshop focused on areas such as -

- Introduction/ Purpose of the study
- Question formulation and Reasons
- Roles and responsibilities of the coordinators/invigilators
- Test conduction and logistics
- Plan on how to assist and support the schools

The coordinators in turn organized tele-conferencing sessions with the focal points on each island to discuss the procedures of test conduction. NIE ensured that coordinators communicated the purpose and test conduction logistics with the focal points. Updates from the meetings were recorded by the NIE. Schools that were difficult for coordinators to communicate and coordinate were directed to the NIE.

The school focal points organized meetings with the schoolteachers and parents to dissipate the necessary

information regarding the survey.

### **Test conduction**

The test conduction days were finalized upon consultation with the region heads/superintendents of the Ministry of Education. Initially 3 days were allocated for the test conduction, however, upon request from many schools the test conduction was spread out over a 4-day duration. The tests were conducted from 21<sup>st</sup> March to 24<sup>th</sup> March.

Timetables were sent to all schools, and schools were instructed to conduct the test within the school time. Schools were given the flexibility of selecting a suitable time for conducting the test within the set of dates. Schoolteachers from the selected grades were invigilating the tests and the focal point was the overall in-charge of the test conduction.

Some schools expressed difficulties in organizing the test on the set dates as it coincided with many of their other activities such as sport events that were organized for the week.

### **Collection of papers and OMRs**

All the question papers were retrieved at the end of the test and these were kept at the schools. OMRs were also collected and packed by the focal points. The dispatching companies collected the sheets and sent them to the NIE.

During all the transactions and communications, the low stake nature of the tests was discussed along with the fact that students were not required to prepare for these tests. It was conveyed that the students will not be penalized in any form, yet the tests have to be taken seriously by all schools.

#### **2.3.3 Data scanning and cleaning**

A team from India visited Male with scanning machines to scan the OMR sheets. The data was scanned from 1<sup>st</sup> April to 4<sup>th</sup> April 2013. The data thus entered was further cleaned to check whether all the fields required for analysis, such as the class, the paper-code and subject, were entered correctly. The cleaned data was then scored by EI's in-house software programs and the results were made available for analysis.

#### **2.3.4 Analyses**

The analysis looked for answers to questions such as -

- *How well are students learning in these schools?*
- *Are students learning concepts at the same class level as they are taught or later?*
- *Are students better at questions testing conceptual understanding or procedural/fact-based questions?*
- *Is the performance of any atoll better (or worse) than the others?*
- *Where do students of these schools stand compared to their international counterparts?*
- *Is there a difference between the performance of boys and girls?*
- *What are students' perceptions on the different social issues and concerns of the country?*

The primary analysis involved looking at the overall performance for the whole of Maldives with the mean and standard deviations for each paper.

As a preliminary step for item analysis, item difficulties were calculated for each question. This was followed by an in-depth distracter analysis on the options chosen by students for each question to identify patterns of

student learning, student misconceptions and common errors as described in section 3.4. Common questions used across the Grades 4, 7 and 9 were analysed to check for progression in learning and are described in section 3.3.

Analysis on the different types of questions, testing different skills, helped to check whether students were performing better on certain types of questions than others. This is described in section 3.5.

Performance on questions that were used as anchor items from Indian Benchmarking studies and International tests were analysed to build perspectives on the performance of Maldivian students compared to their counterparts of the same age outside Maldives. This is described in section 3.2. Differences in the performance of different atolls and differences in the performance of boys and girls were analysed. These are described in sections 3.6 and 3.7 respectively.

Since there were no correct or incorrect answers for the questions in the Values and Attitudes papers, an in-depth distracter analysis on options chosen by students in each question was done to identify patterns of student perceptions on various social aspects. A detailed competency analysis can be found in chapter 4.

## 2.4 QUESTION PAPER DESIGN

The question papers were designed to test the competencies of students in English, Maths, Science and Social Studies according to their respective grade levels. To arrive at the list of content areas that could be tested, a detailed analysis was conducted for the textbooks of the Grades 3, 6 and 8. This analysis of the textbooks included all subjects. Test papers were based on the previous academic year's syllabus. For example, the Grade 4 papers were based on the Grade 3 curriculum. This was done to ensure that students had been through the entire curriculum till the previous year.

All questions in the papers were multiple-choice questions. The table below shows the duration and the number of questions in each test paper.

Subject	Grade	Duration (minutes)	Questions
English	4	75	45
English	7	75	50
English	9	75	50
Maths	4	60	40
Maths	7	75	45
Maths	9	75	45
EVS	4	60	40
Science	7	75	45
Physics	9	40	20
Chemistry	9	40	20
Biology	9	40	20
Social Studies	7	75	40
History	9	45	25
Geography	9	45	25

It is often a challenge to calibrate tests accurately while designing them - both the overall difficulty of the test as well as the difficulty levels of individual questions that need to range from easy to difficult were considered for the test papers. Qualitative analysis of the pilot test data, conducted during the field visit made in September 2012, was used to understand the type and format of questions that Maldivian students were able to answer. The final test papers were designed in such a way that an overall paper difficulty level<sup>4</sup> of 45%-55% was achieved.

Apart from the subject test papers, each student was also given a paper that tested competencies related to Values and Attitudes. We used multiple-choice questions with 'no correct answer' to explore the attitudes of students regarding different issues. The table below shows the duration and the number of questions in each test paper.

Subject	Grade	Duration (minutes)	Questions
Values and Attitudes	4	40	24
Values and Attitudes	7	75	49
Values and Attitudes	9	75	49

Different members of the society – educators, parents, school management committee members etc. were consulted to understand the issues being faced with student learning and school systems as well as the values and attitudes they may want their children to develop. This feedback was considered while developing papers for Values and Attitudes.

### 2.4.1 Competencies tested

The LISCR tests sought to assess students' understanding and ability to apply what they had learnt. The questions were *not* based simply on the ability to recall information or use formulae or procedures.

Each question was assigned a specific competency. Standard international frameworks of tests such as the TIMSS, PIRLS and EI's large scale benchmarking studies for private and government schools were referred to while finalising the competencies for each paper. *Appendix A* has the list of competencies tested in each paper.

The specific competencies tested in English, Maths and Science are outlined below:

**English:** English is the medium of instruction for the Maldivian students. Language is important as a means of communication, learning, advanced expression and appreciation - it also defines one's identity and is a vehicle of culture. The test papers assess competencies that focus on vocabulary, correct usage and the various aspects of reading comprehension. The competencies are the same across grades, but aspects like the level of vocabulary and the complexity of the reading passages increase with grade.

**Mathematics:** Maths should help develop the child's resources to think and reason logically, to pursue assumptions to their logical conclusion and to handle abstraction. The key areas in primary and middle school Maths - numbers and operations, fractions, decimals, ratios, percentages, measurement and estimation, data interpretation, algebra, geometry, mensuration and problem solving were covered.

<sup>4</sup> As per convention, a 'difficulty level' of 60% means that 60% of students answer correctly. In other words, a question with a difficulty level of 90% is a very easy question.

**Science:** In Science, mastery of content (topics like density or chemical reactions or photosynthesis), as well as competencies (like observation and classification) are important to develop a scientific temperament. For example, the competency of classification is used with different content in Biology, Physics and Chemistry. Hence, the items in Science were balanced with respect to both content and competencies. 4 basic competencies tested were recalling known facts, understanding/applying concepts, analyzing/reasoning, and designing/generating hypotheses. The content covered the environmental sciences, physics, chemistry, biology, the earth sciences and the cosmic sciences.

### 2.4.2 Types of questions used in the study

As mentioned earlier, all the papers, except the Values and Attitudes papers, had multiple-choice questions where students were required to identify the correct answer from the 4 options given. These questions tested whether the students had understood and internalised the concepts taught to them at school. They do *not* simply test 'general intelligence' (or IQ). The students, who have properly understood what has been taught to them at school, would actually find this test quite easy.

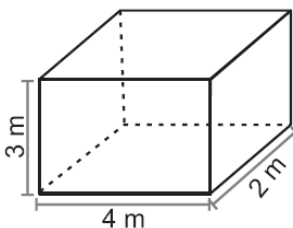
The types of questions used in the tests are illustrated below:

#### A. Questions that test straightforward ideas

**GRADE 7 | MATHS** This question checks whether students can calculate the volume of a cuboid, given its length, breadth and height. It tests a very procedural knowledge that the students may be familiar with. The correct answer is B. Students who choose A or C may probably know the formula to calculate the volume of a cube and hence would be applying the same formula for cuboid using any one of the length or height measurements.

What is the volume of the cuboid below?

- A. 9 cubic metres
- B. 24 cubic metres ✓
- C. 36 cubic metres
- D. 52 cubic metres



A27-34: Volume of a cuboid

**GRADE 4 | ENGLISH** This question tests a student's knowledge regarding the names of commonly used objects. The correct answer is A. All distracters are objects that are used to carry things, similar to the suitcase.

Which of these pictures shows a suitcase?



A  
✓



B



C



D

A14-5: Knowledge of the word – suitcase

**GRADE 9 | BIOLOGY** This question tests whether students understand the difference between a virus and a bacterium. The correct answer is D.

How is a virus DIFFERENT from a bacterium?

- A. can be used as a vaccine
- B. can cause diseases in plants
- C. cannot be seen by the naked eye
- D. cannot reproduce outside a living cell ✓

A79-2: Difference between a virus and a bacterium

**B. Questions that test deeper understanding of concepts**

**GRADE 7 | MATHS** This question checks the understanding of perimeter. Students are expected to understand that since all the shapes are made from the same straw, the length of the straw won't change. This implies that all the shapes would have the same perimeter. The correct answer is D. Students may have different notions about perimeter; the distracters are designed to capture these notions.

A single straw is bent to form various shapes, one after the other, as shown below.



Which of them will have the maximum perimeter?

- A. A triangle, because each of its sides is bigger than a single side of a square or a hexagon.
- B. A square, because of all the shapes, a square always has the maximum perimeter.
- C. A hexagon, because it has more sides than the other two shapes.
- D. All the shapes will have the same perimeter. ✓

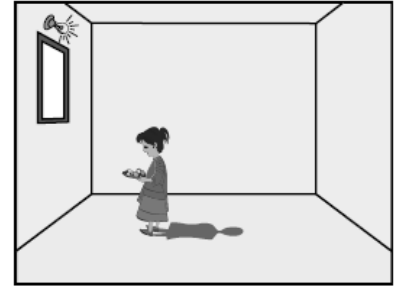
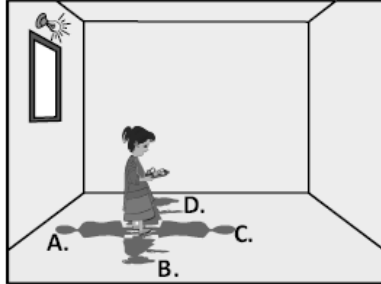
A27- 4: Perimeter of shapes made from the same straw

**GRADE 4 | EVS** This question tests if students understand that a shadow is always formed in the direction opposite to that of the light source, irrespective of the orientation in which the object is placed. The correct answer is C. Option A is designed to test if students have a wrong notion that shadows always

fall behind us.

Leena stands in her room with one light switched on. There is no other light in the room. Her shadow is as shown here.

She then turns around and faces the opposite side. Of the four shadows shown, which is the correct one?



A34-11: Shadow of an object

### C. Questions that test application of concepts

**GRADE 9 | MATHS** This question tests if students can apply their understanding of volume to the different shapes in the given context. They need to visualise how the oranges will be packed in the box, given the dimensions of an orange and the box. The correct answer is B.

Oranges are packed in boxes. The average diameter of the oranges is 6 cm, and the boxes are 60 cm long, 36 cm wide and 24 cm deep. Which of these is the BEST approximation of the number of oranges that can be packed in a box?

- A. 30
- B. 240 ✓
- C. 360
- D. 1920

A29-3: Volume of a sphere and a cuboid

**GRADE 7 | SCIENCE** This question tests if students can apply their understanding of the reflection of light and vision in the given context. If they understand that for any object to be visible, enough light should reflect off its surface and enter the eye, they should be able to answer this question. Distracters here are designed to capture other wrong notions students may have in respect to the properties of objects or light. The correct answer is A.

A person in a dark room looking through a window can clearly see a person outside in the daylight. But a person outside cannot see the person inside. Why does this happen?

- A. There is not enough light being reflected off the person in the room. ✓
- B. Light from the outside is not able to pass through windows at all.
- C. Sunlight is not as intense as all other sources of light.
- D. Light rays cannot pass through the same window twice.

A37-21: Reflection of light and vision

### D. Questions that test for reasoning ability

**GRADE 7 | SS** Students learn that "In an equatorial country like Maldives, it is difficult to see the Pole Star because it lies too low on the horizon." This question tests whether they are able to extend this knowledge to a different context and reason out that since Australia lies below the equator, the Pole Star cannot be seen there. The correct answer is C.

The Pole Star or Polaris has been used since ancient times to determine direction because it stays in the same position. Polaris is located directly above the North Pole, lining up with the Earth's axis.

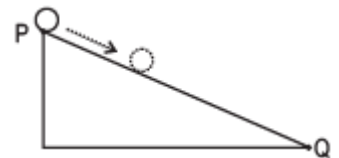
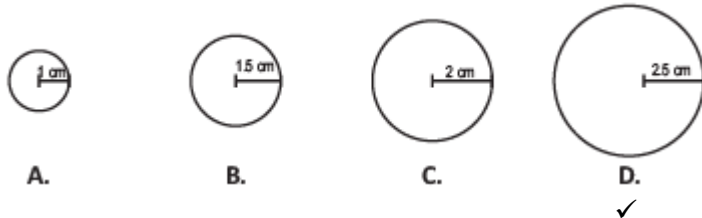
The Pole Star has been used by lost sailors to find their way back home! One of these is a place from where you would not be able to see the Pole Star. Which is it?

- A. Gulf of Alaska
- B. Kashmir, India
- C. Sydney, Australia ✓
- D. Ulan Bator, Mongolia

A47-12: Visibility of Polaris at different locations on the Earth

**GRADE 7 | MATHS** This question tests if students are able to reason out that a bigger ring will cover more distance in one revolution and so it will take the least number of revolutions to cover a given distance. The correct answer is D.

Which of these rings when rolled down from P will reach Q in the least number of revolutions on the slope?



A27-12: Diameter of a circle and revolution

### E. Questions that test comprehension skills

**GRADE 4 | ENGLISH** Most questions in the English papers test comprehension and are based on 'unseen' passages. This question from Grade 4, tests a child's ability to gain an overall understanding of the passage and determine its theme.

Read the story "The Two Frogs" and answer questions 16 to 18.

One day two frogs fell into a pot of milk. They tried to hop out. As there was nothing solid under their feet, they couldn't hop out and escape.

After some time, one of the frogs said, "I am very tired. I can't swim any longer."

He stopped swimming and drowned.

The other frog said, "I will go on swimming. I hope something will happen and save me."

So he went on swimming. His movements churned the milk and turned it into butter.

After some time the frog climbed up on to some butter and hopped out of the pot.



**What is the moral of the story?**

- A. Frogs do not like butter.
- B. Frogs cannot swim in milk.
- C. If frogs stop swimming, they will die.
- D. If you keep trying, you will find a way. ✓

A14-18: Moral of the story

### 2.4.3 Anchor questions

For the purposes of comparison, test items from benchmarking studies carried out by Educational Initiatives for Government schools in India and Private schools (ASSET) as well as questions from international studies such as Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) were included in the test papers. These items were checked for appropriateness to the Maldivian context and grade level to be used before being embedded in the final papers.

The table here gives the number of items used in different subjects and grades –

Anchor Items Chosen From	English 4	English 7	English 9	Maths 4	Maths 7	Maths 9	EVS 4	Science 7	Science 9	SS 7	SS 9
International Tests (TIMSS & PIRLS)	7	7	7	7	1	8	7	1	6	1	0
Benchmarking Tests for Indian Private Elite Schools	16	21	24	5	9	12	11	2	10	19	18

### 2.4.4 Questions repeated across grades

To study how certain concepts are learnt across grades, a few items were repeated in all the grades. The table here gives the number of items repeated across grades –

Common items across	English	Maths	Science	SS
Grades 4 and 7	3	1	5	
Grades 7 and 9	3			2
Grades 4, 7 and 9	7	4		1

## 2.5 VALUES AND ATTITUDES PAPER DESIGN

### 2.5.1 Why test values and attitudes

The National Curriculum Framework of Maldives (2012) emphasizes a broad and balanced curriculum that provides rich experiences in learning with equal emphasis on developing knowledge, skills, values and attitudes in order to cater to the holistic development of the child.

The National Curriculum identifies four main categories of values:

- *Values relating to self:* The values identified in this category relate to understanding and respecting oneself, and to empower oneself to pursue excellence.
- *Values relating to family and others:* The values identified in this category relate to understanding and respecting others; to being sensitive to individual differences as well as the rights and responsibilities of others.
- *Values relating to local and global community:* The values identified in this category relate to encouraging civic responsibility and contribution; to accept diversity within a democratic society and to champion social justice.
- *Values relating to the environment:* The values identified in this category relate to understanding and preserving the Maldivian culture and heritage; and to promote ideas of conservation and sustainable development.

Schools are expected to incorporate these values into the policies, practices and ethos of the learning environment.

The knowledge, skills, values and attitudes promoted by the National Curriculum are further detailed in the section on key competencies.

Separate papers were designed to study the holistic development of students for all the 3 grades. This provided information on students' perception and their attitude towards these values.

### 2.5.2 Competencies tested

The *National Curriculum Framework* specifies eight key competencies “which are essential for individuals to live, learn and contribute as active members of our nation and the world”.

The eight key competencies that the *National Curriculum Framework* promotes are:

1. Practising Islam
2. Understanding and Managing Self
3. Thinking Critically and Creatively
4. Relating to People
5. Making Meaning
6. Living a Healthy Life
7. Learning Sustainable Practices

## 8. Using Technology and Media

Questions for the competency 'Practising Islam' were submitted by the National Institute of Education (NIE), Maldives. A separate analysis would be done by NIE on those questions.

The key competencies of Thinking Critically and Creatively, and Making Meaning have been tested in the papers testing cognitive learning outcomes for English, Maths, Science and Social Studies.

The values and attitudes listed under these key competencies were identified based on the *National Curriculum Framework* and the document *Turning the Key Competencies into Reality: A Practical Guide for Teachers*:

Key Competency	Description of Values and Attitudes Tested
Practising Islam	<i>Akhlaag, Ibaadhaath, Ageedha/Thauheedh</i>
Understanding and managing self	Seeking help, coping strategies, attaining educational and career goals
Relating to people	Care and respect for self and others, consequences of bullying, dealing with peer pressure, tolerance
Living a healthy life	Healthy eating, preventing diseases, preventing substance abuse, violence
Learning for sustainable development	Environmental problems, personal use, social responsibility
Using technology and the media	Media literacy, ethical use of information, internet safety

### 2.5.3 Types of questions

The papers use two question types to assess students' values and attitudes:

- 1. Questions with No Correct or Wrong Answer:** There is no correct answer to this type of question and the answers are used to assess students' attitudes.

**GRADES 4, 7, 9 | V and A** This question is constructed in a way that option A identifies students' willingness to talk to adults about bullying, option B checks whether students hold the perception that who gets bullied deserve it, option C checks whether students hold the perception that a bully is too strong to be stopped, and option D checks whether students hold the perception that only physical abuse is dangerous.

**A 12-year-old student is being repeatedly teased (made fun of) by another, more powerful, student. As a result, the student who is being teased is feeling angry and sad.**

**What do you think about this?**

- We should talk to an adult and seek help.
- Someone who gets teased usually deserves it.
- We can't do anything about it because the other student is too strong.
- No one is getting physically hurt, so there is no need to worry about the student who is being teased.

*A104-9, A107-12, A109-12: Students perception about bullying*

- 2. Likert Questions:** Opinion scale or Likert questions are based on a rating scale designed to measure attitudes or reactions. Students indicate the answer that represents their attitude or reaction.

**GRADES 4, 7, 9 | V and A** This is a Likert question that checks whether students think their actions can help solve environmental problems.

**My actions can help solve some environmental problems.**

**A. Strongly disagree B. Disagree C. Agree D. Strongly agree**

*A104-15, A107-22, A109-22: Students perception about his actions and its impact*

### 3 FINDINGS ON STUDENT LEARNING OUTCOMES

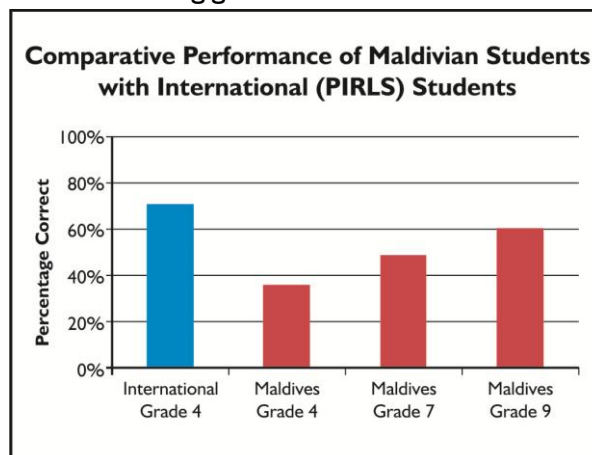
#### 3.1 MAIN FINDINGS

All students studying in Grades 4, 7 and 9 from about 220 schools of all the 21 atolls participated in this study. The study aimed at understanding how well the students are learning, how they are performing compared to students elsewhere and what further measures can be undertaken for improvement. This section summarises the main findings related to student learning outcomes, some of which are detailed in later sections.

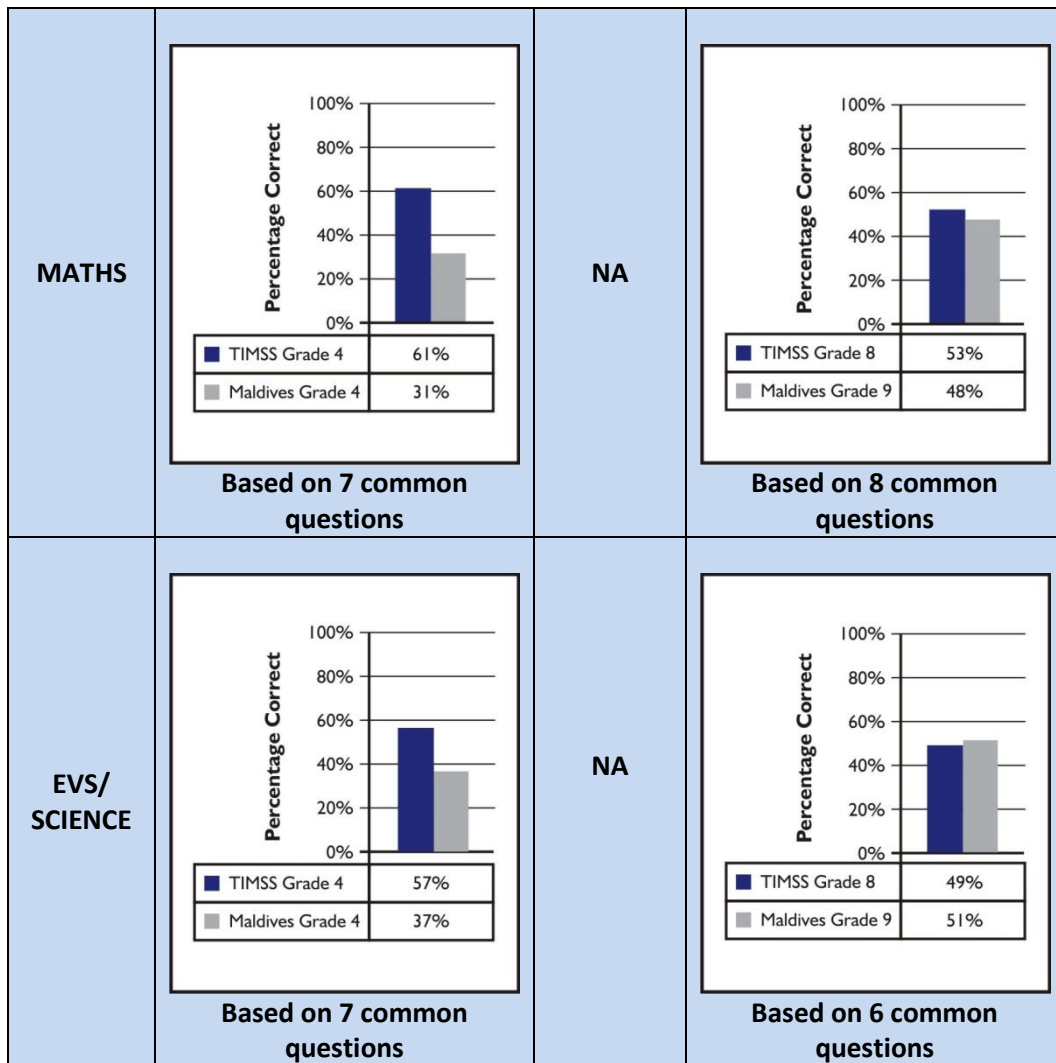
**1. A comparison of performance on common questions from international tests, such as the Trends in International Maths and Science Study (TIMSS) and the Progress in International Reading and Literacy Skills (PIRLS), indicates that Maldives is significantly below the international average. Comparing the performance of Maldivian students in the subject of English, with that of the students from government schools in India and Bhutan, we see that Maldives, India and Bhutan perform similarly. Though learning levels are mostly higher than those in government schools in India, in comparison to Indian private elite schools, Maldivian students perform significantly poorer in all grades and subjects.**

Questions from TIMSS (Maths & Science) and PIRLS (English) were used to make these comparisons. TIMSS Grade 4 questions were used in Maldives Grade 4 papers, while TIMSS Grade 8 questions were used in Maldives Grade 9 papers. PIRLS Grade 4 questions were used in Maldives Grade 4, 7 and 9 papers.

The results show that Maldivian students are performing below TIMSS and PIRLS levels, and also below Indian private school levels. However, the gap between the performance of Maldivian students and International students reduces with increasing grade level.



	<b>GRADE 4</b>	<b>GRADE 7</b>	<b>GRADE 9</b>
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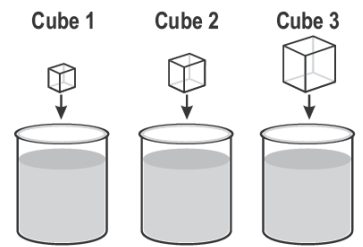


Only in Grade 9 Science, the performance of Maldivian students is at par with that of their international counterparts. But it is to be noted that Maldives Grade 9 performance is being compared to international Grade 8 performance.

Here is a question from TIMSS that was repeated in Grade 4.

**GRADE 4 | SCIENCE** This question tests if students have observed that an ice cube, irrespective of its size, will always float in water. Students who may not have observed carefully may think that a bigger ice cube will sink and a smaller ice cube will float in water. They may be saying this by relating the floating/sinking property to the size of the object. The correct answer is B. Internationally; around 39% students were able to answer this question correctly. 30% of Indian private elite school students and 25% Maldivian students were able to answer this correctly.

Shazee has three ice cubes of different sizes. She places each ice cube into an identical beaker containing the same volume of water, as shown in the diagram.

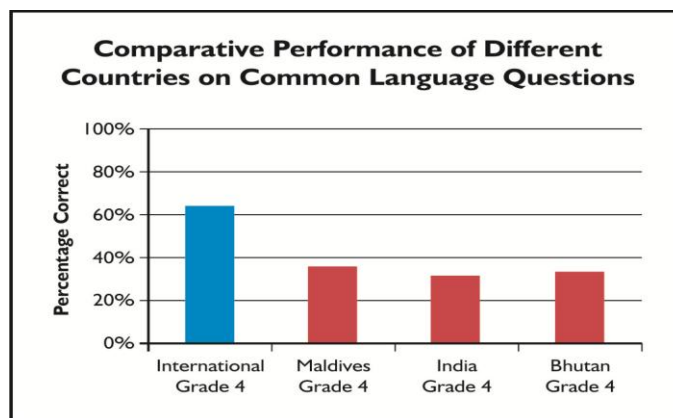


What happens to the ice cubes when they are placed in the water?

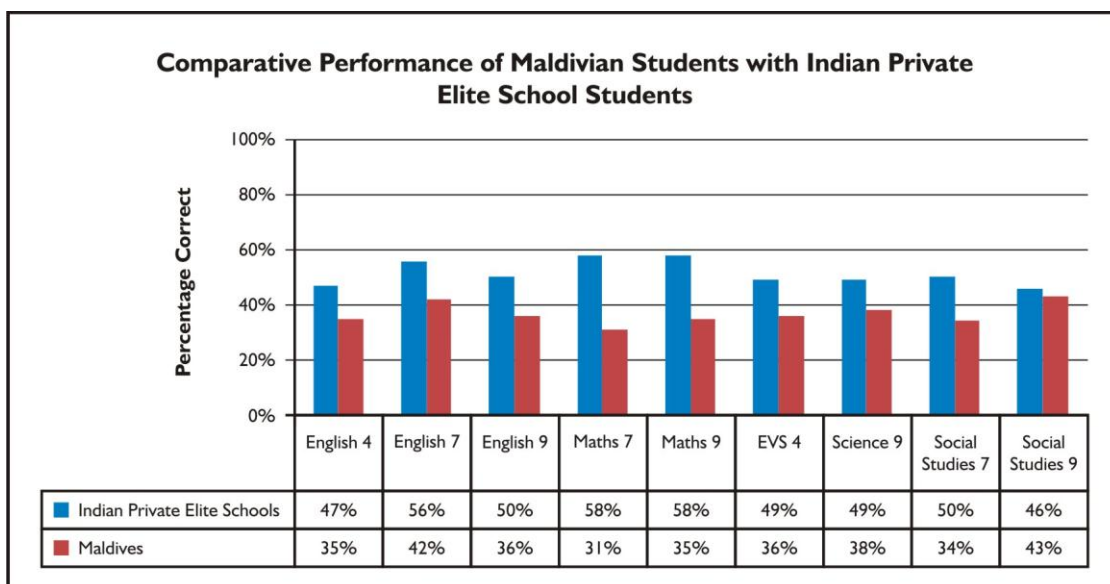
- A. Cubes 1, 2, and 3 will sink.
- B. Cubes 1, 2, and 3 will float. ✓
- C. Cube 1 will float, and cubes 2 and 3 will sink.
- D. Cubes 1 and 2 will float, and cube 3 will sink.

A34-33: Different sized ice cubes placed in water

Comparison on 3 common questions in the English Grade 4 paper across Maldives, government schools in India and Bhutan, indicate that performance of the 3 countries is similar. It is to be noted that the questions would have been administered in the regional language in India.



Private Elite Schools in India perform significantly better than Maldivian students, especially in Maths. This is observed based on a comparison of performance on questions from ASSET, a large-scale diagnostic test in India.



2. Maldivian students are performing fairly well in basic competencies that require vocabulary,

## application of procedures and recalling of facts.

As the data indicate, students are definitely learning certain basic concepts well. Though there are gaps in the learning, performance is quite high on some questions that require recalling of facts and a few requiring understanding. Yet, performance in some other basic questions turns out to be low. The best way to understand this is to look at examples of what students answer well, and what they do not.

What are children learning well?

### English

Students have scored high in questions that test recall of names of objects, animals, places etc. Performance is also high in questions testing contextual word meanings. This indicates that students are able to arrive at a word using deducing techniques.

**GRADES 7, 9 | ENGLISH** This question requires students to understand the meaning of each word in the given list and the multiple situations/contexts in which each can be used and then choose the option that is related to each word. Students have gone beyond the superficial meaning of the words and have found the underlying connection between them to be 'water'. Water is used for washing and bathing. It can also be drunk and boiled. Student response shows a good understanding of multiple words and their references.

<p>wash - bath - drink – boil</p> <p>Which of these words is related to the set of words above?</p> <p>A. food B. water ✓ C. juice D. soap</p>	<p><b>Correct answer: B</b></p> <p><b>% correct:</b> <b>Class 7 - 78%</b> <b>Class 9 – 87%</b></p>
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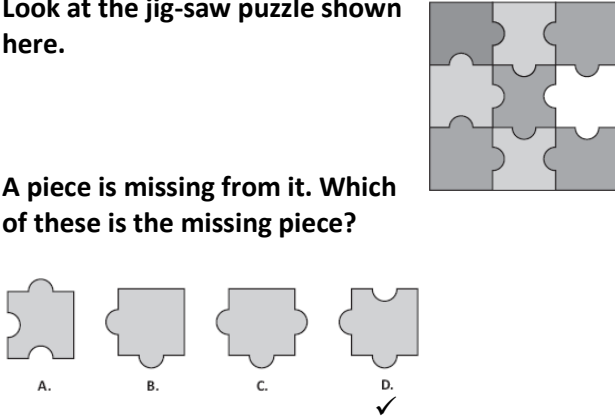
A17-8, A19-6: Selecting the word that best fits in the given list

### Maths

Students have performed well in questions that test procedures and standard ways of solving problems as well as some questions requiring slightly higher order skills and use of concepts in a real life context.

**GRADES 4, 9 | MATHS** The Grade 4 question is a visual problem that checks if students can identify the missing part in a jigsaw puzzle. Though students start to solve jigsaw puzzles at a young age, many students are not able to solve a question like this simply because – i. unlike real life, they don't have the option to figure out the answer by trial and error and ii. they may not have encountered it earlier in the given form, with other equally plausible distracters. However, around 84% students were able to answer it correctly. It shows that students probably analysed each option carefully and selected the missing piece that fits the pattern.

The Grade 9 question checks if students can apply the unitary method in a real life scenario and multiply decimals correctly. Around 71% students were able to answer it correctly. Many students would make a mistake in multiplying decimals in such a case. But it seems that students in Maldives are able to do this comfortably.

<p>Look at the jig-saw puzzle shown here.</p> <p>A piece is missing from it. Which of these is the missing piece?</p>  <p>A. <input type="checkbox"/></p> <p>B. <input type="checkbox"/></p> <p>C. <input type="checkbox"/></p> <p>D. <input checked="" type="checkbox"/></p>	<p>A sheet of paper is 0.012 cm thick. Of the following, which would be the height of a stack of 400 sheets of this paper?</p> <p>A. 0.048 cm</p> <p>B. 0.48 cm</p> <p>C. 4.8 cm ✓</p> <p>D. 48 cm</p>
<p>Correct answer: D</p> <p>% correct: 84%</p>	<p>Correct answer: C</p> <p>% correct: 71%</p>

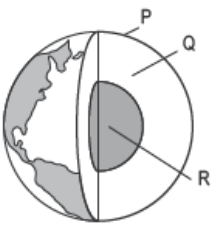
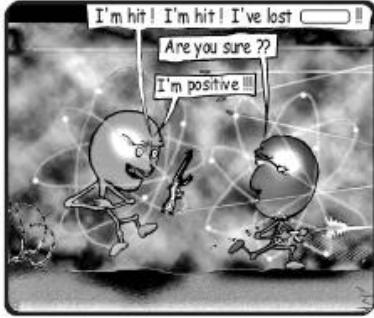
A24-11: Selecting the missing piece in the jigsaw puzzle

A29-20: Using the unitary method and multiplying decimals

## Science

In Science, students seem to be doing well on questions testing direct recall. Though the performance on many of the conceptual and higher order thinking questions may not be very high, students seem to be performing well on some of the questions requiring basic reasoning and analysis. Some examples are given here and more can be found in some of the later sections.

**GRADE 7 | SCIENCE** Given here are two questions. One is a very straightforward question that tests whether students can recall the hottest layer of the Earth.  $\frac{3}{4}$  of the students are able to answer this question correctly. The other question involves some reasoning and analysis of the given situation – based on the given conversation between two atoms, students have to figure out the particle that they are talking about. Almost 64% students answered this question correctly showing that students are spending time on the question and analyzing the given case. This could be because the question is asked in a very non-standard way, uses an interesting comic strip and still checks a very basic fact. So students seem to be building on the facts they learn in the textbooks and classrooms, and are able to use them in an unfamiliar context.

<p>The picture shows the three main layers of the Earth.</p> <p>Where is it the hottest?</p> <p>A. Layer P B. Layer Q C. Layer R ✓ D. All three layers have the same temperature.</p> 	<p>Study the conversation between two atoms. Which of the following could be the missing words?</p> <p>A. a proton B. an electron ✓ C. a neutron D. an atom</p> 
<p>Correct answer: C % correct: 74%</p>	<p>Correct answer: B % correct: 63%</p>

A37-12: Hottest layer of Earth

A69-17: Inferring based on the given clues

**3. Though students are learning certain competencies well, some of the gaps demonstrated in the learning - both in basic concepts and intermediate concepts is a cause for concern and an area where improvement should be targeted.**

It is often observed (in many countries, especially where there is a cultural emphasis on rote) that **learning sometimes is reduced to a mechanical process**. In language, this means that students are able to extract explicitly stated information, but not interpret it. In Maths, this means that a procedure can be followed without being completely understood. In Science, knowing a definition may be interpreted as understanding a concept.

**GRADE 4 | ENGLISH** This question calls for a deeper appreciation of a poetic text in order to understand the feelings of a character, who, in this poem, is the speaker of the poem. Students who chose option C have correctly identified the last stanza as the one that gives clues to the answer. They have understood the word 'perhaps' means 'maybe' and so indicate the speaker's wish. The second line says 'we shall see them sailing high' and the last line says 'They would look pretty in the sky'. These two lines convey the speaker's wish to see the pretty sight of balloons flying high. Only 32% students were able to answer this question correctly. Almost the same number of students selected the wrong option A which is in fact not indicated anywhere in the poem. They may be interpreting the speaker to be the small boy of their own age, who is shown buying balloons in the picture, and hence chose the option where the wish of the speaker was buying the balloons from the balloon man.

**The Balloon Man**  
- by Rose Fyleman



He always comes on market days,  
And holds balloons - a lovely bunch  
And in the market square he stays,  
And never seems to think of lunch.  
They're red and purple, blue and green  
And when it is a sunny day  
Tho' carts and people get between  
You see them shining far away.  
And some are big and some are small,  
All tied together with a string,  
And if there is a wind at all  
They tug and tug like anything.  
Some day perhaps he'll let them go  
And we shall see them sailing high,  
And stand and watch them from below-  
They **would** look pretty in the sky!

Source : "The Balloon Man" Rose Fyleman

A Junior Anthology of Poetry H. Corson Simpson & E. H. Wilson Macmillan 1985 pg 86

**What is the speaker's wish in the poem?**

- A. To buy the balloons from the balloon man.
- B. To hold the balloon strings against the strong wind.
- C. To watch the pretty balloons flying high in the sky. ✓
- D. To play with the many-coloured balloons.

**Correct Answer: C**

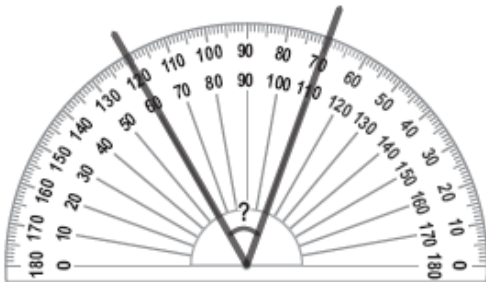
Option A	32.4%
Option B	13.2%
Option C	31.9%
Option D	13%

A14-39: Extraction of information from the poem

Mathematical learning requires acquisition of both conceptual understanding and procedural fluency but often **the procedures get much greater focus**. Here is an example that demonstrates this.

**GRADE 7 | MATHS** This question tests if students can measure an angle using a protractor. Only 34% students were able to answer this question correctly. Students choosing option B (22%) and option C (29%) have probably only looked at the markings on the protractor where the two arms of the angle are placed and have chosen these options. It is highly likely that the same question when asked in a way that students are familiar with, where the orientation of the angle is such that one of the arms of the angle is horizontally placed at the bottom of the protractor, the question may show a high performance. This indicates that students have not really understood how to use a protractor to measure an angle.

What is the measure of the angle shown below?



- A. 50° ✓
- B. 60°
- C. 70°
- D. 110°

Correct Answer: A

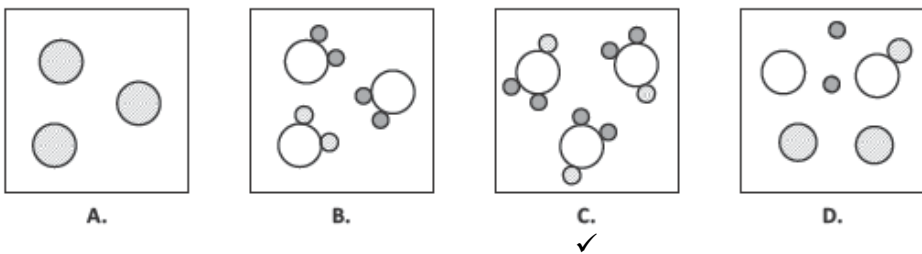
Option A	34%
Option B	22%
Option C	29.1%
Option D	12.6%

A27-15: Measuring angle using a protractor

Similarly in science, it is important that students **not just know the definition of a term, but also understand what it actually means**. A number of concepts are taught in Science in the following way—examples are taken, the concept is defined and explained and questions are asked on that. This takes away the focus from learning with understanding and shifts it to scoring marks in a test. Students may end up struggling to answer a very fundamental question, which is based only on the definition of the term. Here is an example that demonstrates this.

**GRADE 9 | CHEMISTRY** Students know the basic classification of substances and what each of the following terms, element, compound and mixture means. But when asked to identify a compound, using simple representation of atoms, they fail to answer it. Only around 34% students were able to answer this question correctly. A majority of the students, 51%, selected either option A or option B. They may have learnt the definition of a compound as ‘a chemical substance with two or more different atoms’. They may even be able to reproduce this definition word for word, if asked. But when asked in a non-direct fashion, like the one in this question, they struggle.

Substances are classified as elements, compounds and mixtures. Shown below are four substances. Each circle represents an atom. Which of them is a single COMPOUND?



Correct Answer: C

Option A	30.5%
Option B	25.8%
Option C	34.2%
Option D	8.7%

A69-14: Measuring angle using a protractor

We have seen in the last few pages that students are learning certain concepts but are clearly falling short in the case of the others. Many more cases are discussed in the following sections.

**4. Students are learning concepts and understanding, though this seems to be happening 2-3 grade levels later than it should. Some students, who may not have understood a basic concept**

at a lower grade level, may sometimes not learn it even when they move to a higher grade.

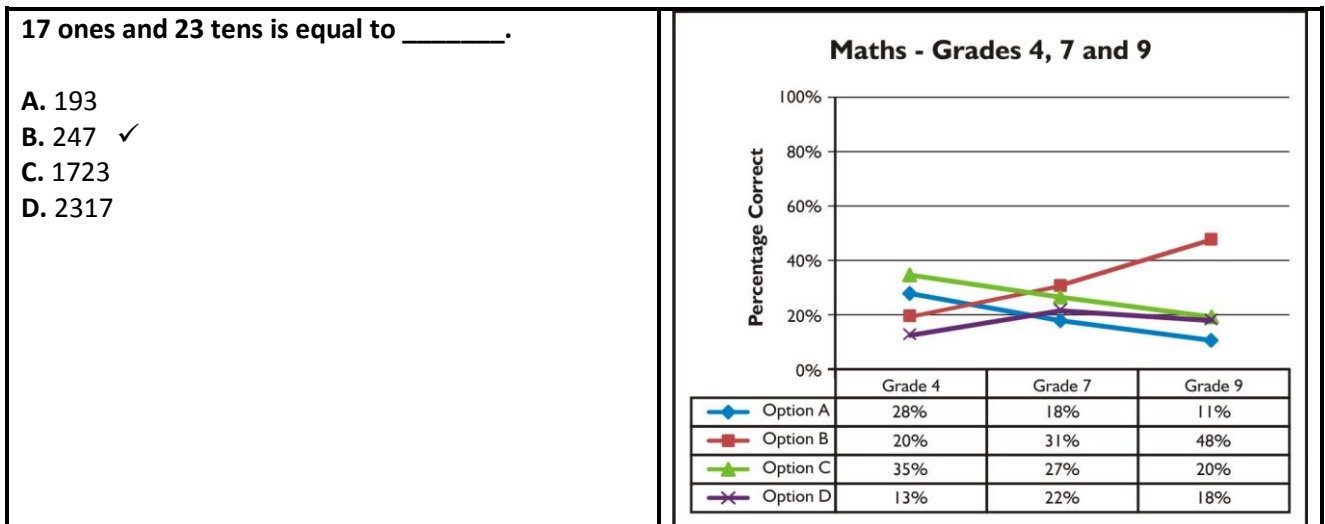
Are students attaining grade-level competencies? That is, is the average Grade 6 child able to understand and do what is expected at his age and class level?

In this study, some questions were specifically repeated across the grades to detect the differences in the answers obtained. There are also different questions relating to the same competency that provide insights on this.

What the data seems to show is that there are some cases where **a concept which students are expected to understand by Grade 4 is not understood even by Grade 9 by 50% of the students.**

Here is a question that demonstrates this.

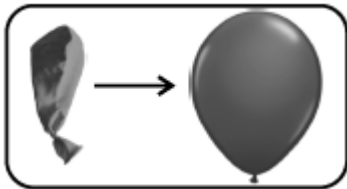
**GRADES 4, 7, 9 | MATHS** This question tests the basic understanding of place value. Since the question is asked in a non-standard way, students who understand this concept would be able to answer this. The correct answer is B. As the data shows, more than 50% of Grade 9 students are not able to answer this correctly.



A24-1, A27-36, A29-1: Place value

**GRADES 4, 7 | SCIENCE** The fundamental concept that air has weight is expected to be observed and understood by students of Grade 4. However, this concept does not seem to be clear to students even in Grade 7. More than 50% of the students failed to answer this correctly. It is expected that lower grade students develop wrong notions such as ‘air doesn’t have any weight’ and ‘air makes things lighter’, based on what they see around themselves. But the teaching process should be able to handle these incorrect ideas and make sure that students don’t have these incorrect notions as they grow older. However, data seems to show that they persist even as students move to higher grades. This is a matter of concern and needs to be addressed.

Shown here is a balloon.

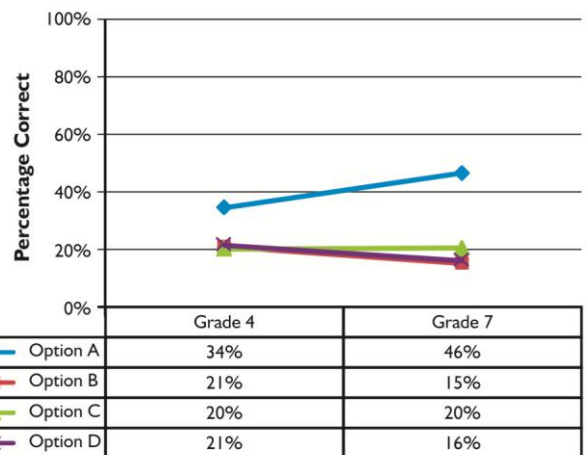


What will happen to its weight if it is blown?

- A. It will increase because air has weight. ✓
- B. It will remain unchanged as air has no weight.
- C. It will decrease because air makes things lighter.
- D. Cannot say without knowing the balloon's weight before blowing.

A34-6, A37-15: Air has weight

Science - Grades 4 and 7



There are cases where **students are not performing well at the expected grade level, but their learning performance is observed to be improving as they progress on to higher grades.** Here is a question that demonstrates this.

**GRADES 4, 7 | ENGLISH** This question tests if students are able to use the correct conjunction. More than half of Grade 4 as well as Grade 7 students are able to answer this question correctly.

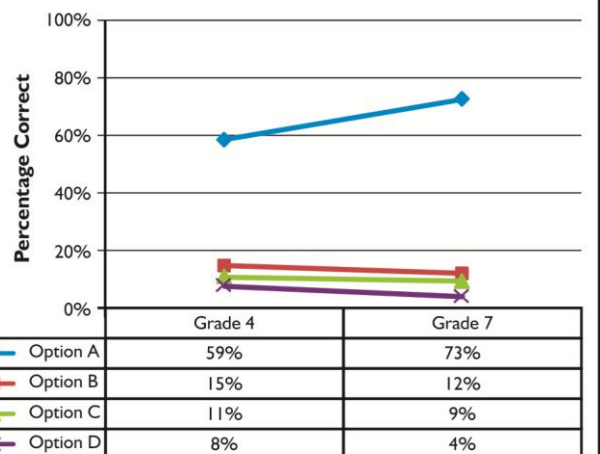
I go to the library every week. I like to read books.

Which of these combines the above two sentences meaningfully?

- A. I go to the library every week because I like to read books. ✓
- B. I go to the library every week and I like to read books.
- C. I go to the library every week so I like to read books.
- D. I go to the library every week but I like to read books.

A14-44, A17-42: Use of conjunction

English - Grades 4 and 7



**5. In language, comprehension of unseen passages is a weakness across grades. Students seem to be most comfortable with the comprehension of stories, followed by comprehension of authentic text and last of all, comprehension of poems.**

It is often found that student-learning levels drop in Maths, Science and other due to weakness in language. Language is also a process for the development and expression of thoughts and ideas, and thus the development of critical thinking skills.

Data from questions that test the comprehension of unseen text indicate that **students have performed well on questions that test basic interpretation and recalling of facts from the passage, but they are not able to infer and make judgments on the tone and other writing strategies used in the text. Comprehension of poems seems to be an underdeveloped skill.**

Here are some questions that demonstrate this.

**GRADE 7 | ENGLISH** This question testing reading comprehension requires students to identify a fact mentioned in the text. Though availability, colour, taste and milk have been mentioned in the passage, students have identified them as only details and not the main reason why tea drinking is very popular in China.


<p><b>TEA HABITS</b>                  There are many kinds of tea. There is black tea. There is green tea. There is white tea. There is red tea. There is yellow tea.                  People across the world drink tea, but differently.                  People drink a lot of tea in China. Some drink it because it is good for health and others drink it because of its taste.                  People in Japan and Korea drink a lot of green tea.                  In Vietnam, some people drink coffee before they drink tea.                  English people add milk to their tea.                  In the U.S people drink “sweet tea” which is black tea with sugar.</p>	
<p><b>People in China drink tea for its taste and also because _____.</b></p> <p>A. it is grown in plenty                  B. it is colourful                  C. it is made of milk                  D. it is good for the body ✓</p>	<p><b>Correct answer: D</b></p> <p><b>% correct: 75%</b></p>

A17-44: Identifying a fact from the passage

**GRADE 9 | ENGLISH** This question asks students to identify the option that reflects the problem faced by the poet as an everyday reality by analysing the lines given in the options. This requires students to sift through the words to arrive at the connection between the question idea 'problems going to sleep every night' and 'answer to my problem for tonight'. Students who chose option C have correctly deduced that the difficulties in falling asleep is faced by the poet everyday and the answer to the problem talked about in option C is only for tonight. Only 26% students were able to answer this correctly.

Students who chose option A have probably read 'nighty night' as meaning every night.

Students who chose option B or D have not either understood the question or comprehended the lines.

<p><b>Sleep Tricks</b></p> <p>Stanza 1 I zoomed around all day and now I'm ready for my bed. My body tells me "nighty night," but what about my head?</p> <p>Stanza 2 My brain won't let me go to sleep, it's screaming, "Stay Awake!" My mind is racing down a hill, and, guess what? There's no brake.</p> <p>Stanza 3 I'm trying every trick I know to end this wild ride. I've looked around for sheep to count, but they all run and hide.</p>	 <p>Stanza 4 I think I've found the answer to my problem for tonight. I'll get to dreamland faster if I just turn off my light.</p> <p>Stanza 5 It's working! Now I'm yawning and the fog is getting deep. Now if I take my headphones off, I might just fall asleep!</p>
<p><b>Which of these extracts from the poem suggests that the speaker has problems going to sleep every night?</b></p> <p>A. My body tells me "nighty night," but what about my head?</p> <p>B. My mind is racing down a hill, and, guess what? There's no brake.</p> <p>C. I think I've found the answer to my problem for tonight. ✓</p> <p>D. Now if I take my headphones off, I might just fall asleep!</p>	<p><b>Correct answer: C</b></p> <p><b>% correct: 26%</b></p>

A19-16: Analysis of poem

**6. The spread of student scores (Standard Deviations) in English and Maths, is lower as one moves to higher grades. Coupled with lower scores in higher grades, this indicates that the low performance is homogeneous- especially in Maths, and also in Social Studies in Grade 7.**

The scores of students in different grades and subjects is shared in the table below.

Subject	Class	No. of students	Average	SD
English	4	4816	47.98%	21.1
English	7	5923	54.86%	20.4
English	9	5668	48.30%	18.5
Maths	4	4831	39.59%	16.4
Maths	7	5819	37.27%	15.3
Maths	9	5586	37.37%	12.6
EVS	4	4720	40.95%	16.6
Science	7	5715	41.63%	16.9
Physics	9	2064	40.73%	14.7
Chemistry	9	2524	48.09%	19.5
Biology	9	2763	44.85%	16.6
SS	7	5603	34.32%	12.5
History	9	41	50.90%	15.8
Geography	9	74	45.52%	18.2

## 3.2 INTERNATIONAL PERFORMANCE COMPARISONS

**Why do we try to benchmark learning?** The purpose of benchmarking is not to compare or to establish superiority or inferiority. It is to try and look at the performance of *comparables* (for example students of the same class) and identify potential areas of improvement. For example, if a particular region of the country is found to be outperforming others in Mathematics, good policies and practices used by that region may be studied and some of them may be implementable elsewhere. It is therefore critical to understand that benchmarking is for the purpose of research with a final goal of improvement.

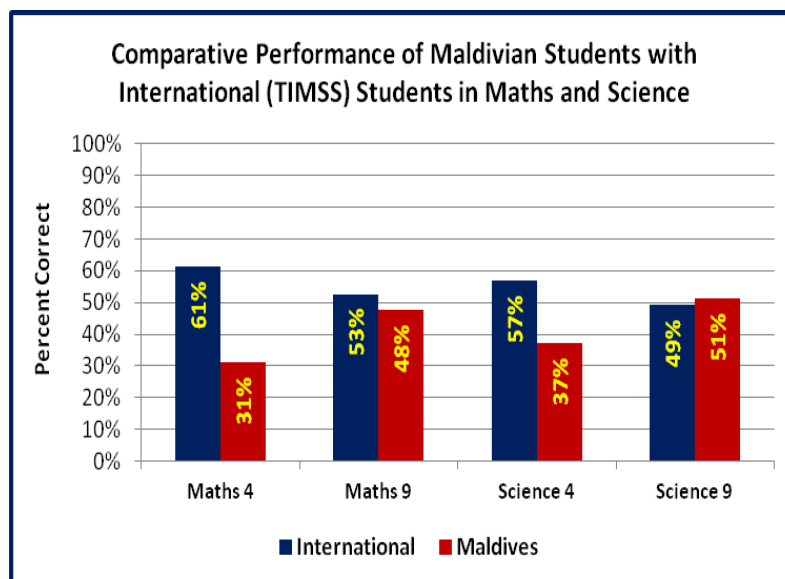
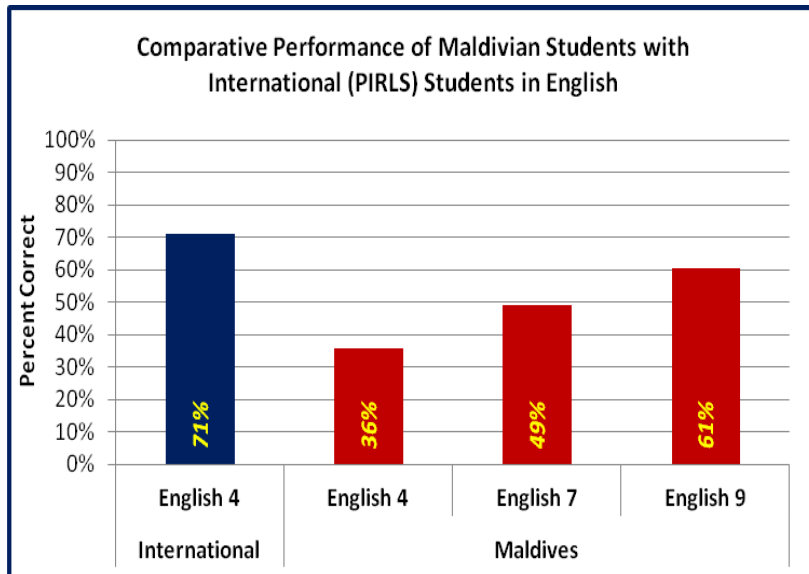
Among the questions used in the LSICR, a few carefully selected items were repeated from international tests - questions on which the performance of students in different parts of the world was already known. The table below shows the number of such questions in different papers. While it is useful to identify comparative performance in even 1 question, averages are compared in this section only in those papers where there were at least 6 questions available for benchmarking. (These are shown in bold below). Questions were taken from tests that have been administered to 20,000 students each in government schools of India, private schools of India and international students. The international tests from which the questions were taken are the TIMSS and PIRLS (please refer Chapter 1 for details.)

Anchor Items Chosen From	English 4	English 7	English 9	Maths 4	Maths 7	Maths 9	EVS 4	Science 7	Science 9	SS 7	SS 9
International Tests (TIMSS & PIRLS)	7	7	7	7	1	8	7	1	6	1	0
Benchmarking Tests for Indian Private Elite Schools	<b>16</b>	<b>21</b>	<b>24</b>	5	9	12	11	2	10	19	18

### 3.2.1 Comparison with International Benchmarks

The common questions for Maths and Science, used to benchmark the performance with international students, were taken from the TIMSS (Trends in International Mathematics and Science Study). For English, they were taken from Progress in Reading Literacy Study (PIRLS), an international research project of high repute. These tests are conducted every 4 years, and some of the questions have been publicly released along with their performance data. About 11,000 students from over 40 countries have taken these tests. These questions were mostly used with no modification, except that 1. Names were changed to Maldivian names and 2. From some questions that had 5 options, the least probable option was removed to make them fit the format of the questions of this study. Depending on the age appropriateness, TIMSS maths and science items from Grade 4 were used in Grades 4 and 7, and items from Grade 8 were used in Grade 9. Some TIMSS items of Grade 4 were repeated across grades. Some items based on a Grade 4 passage from PIRLS were repeated in Grades 4, 7 and 9.

Here is the comparative performance of Maldivian students with their international peers.

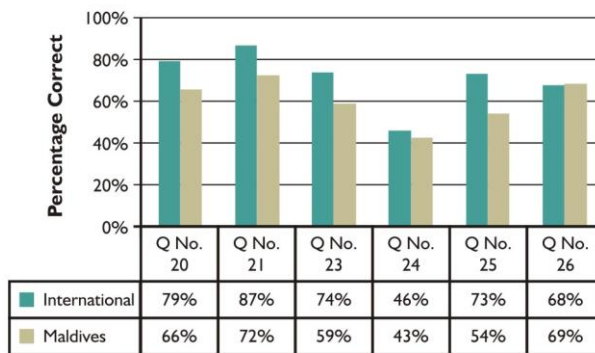


As seen in the graphs, in the papers that were benchmarked with sufficient questions, as the grade increases, the difference between the performance of Maldivian students and International students is decreasing. In fact in Grade 9 Science, Maldivian students are outperforming their international counterparts.

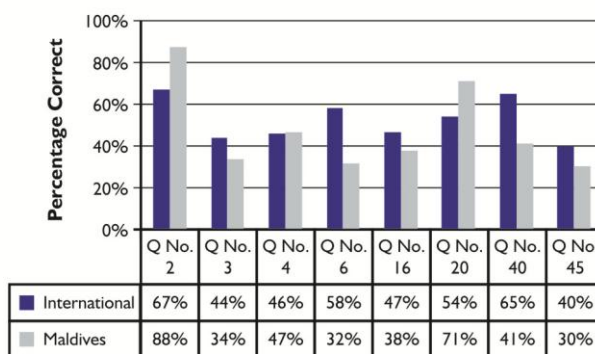
For English, although the difference in performance seems to be decreasing with an increase in grade level, it is still a concern as the questions used to benchmark performance were of Grade level 4.

Question-wise comparison reveals that Maldivian students are outperforming international students in science questions the most.

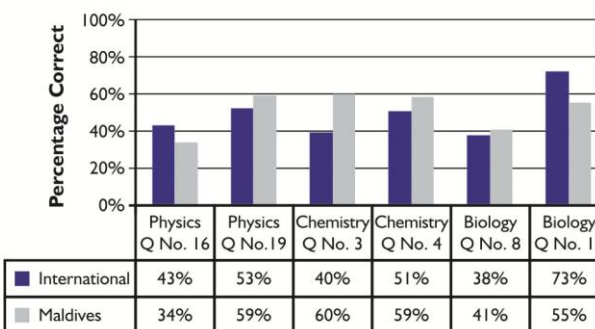
**Grade 9 English - Question-wise  
Comparative Performance of Maldivian Students with  
International (PIRLS) Students**



**Grade 9 Maths - Question-wise  
Comparative Performance of Maldivian Students with  
International (TIMSS) Students**



**Grade 9 Science - Question-wise  
Comparative Performance of Maldivian Students with  
International (TIMSS) Students**



Given below are two questions used in the Biology test. While they are performing slightly better than the international students in one, they seem to be lagging behind in the other one.

**GRADE 9 | BIOLOGY** This question checks if students understand that when a living organism dies, the chemical elements that makes its body are recycled back to the environment. Though only less than half of the Maldivian students seem to understand this concept, compared to their international counterparts, a slightly higher percentage of Maldivian students are getting it correct.

<p>Animals and plants are made up of a number of different chemical elements.</p> <p>What happens to all of these elements when animals and plants die?</p> <p>A. They die with the animal or plant.          B. They evaporate into the atmosphere.          C. They are recycled back into the environment. ✓          D. They change into different elements.</p>	<p>Performance of class 9 students - Biology</p> <table border="1"> <thead> <tr> <th>Students</th> <th>% Correct</th> </tr> </thead> <tbody> <tr> <td>International (TIMSS)</td> <td>37.7%</td> </tr> <tr> <td>Maldivian</td> <td>40.8%</td> </tr> </tbody> </table>	Students	% Correct	International (TIMSS)	37.7%	Maldivian	40.8%
Students	% Correct						
International (TIMSS)	37.7%						
Maldivian	40.8%						

A79-8: Recycling of elements from a dead organism

**GRADE 9 | BIOLOGY** This question checks if students understand that in case of sexual reproduction, a living organism inherits traits from both its parents; the gender of the organism doesn't matter. However, students may have wrong notions such as a boy can inherit traits only from the father and a girl can inherit traits only from the mother.

<p>A son can inherit traits _____.</p> <p>A. only from his father          B. only from his mother          C. from both his father and his mother ✓          D. from either his father or his mother, but not from both</p>	<p>Performance of class 9 students - Biology</p> <table border="1"> <thead> <tr> <th>Students</th> <th>% Correct</th> </tr> </thead> <tbody> <tr> <td>International (TIMSS)</td> <td>72.5%</td> </tr> <tr> <td>Maldivian</td> <td>55.4%</td> </tr> </tbody> </table>	Students	% Correct	International (TIMSS)	72.5%	Maldivian	55.4%
Students	% Correct						
International (TIMSS)	72.5%						
Maldivian	55.4%						

A79-15: Inheritance of characters

For some questions used in the PIRLS test, detailed information about the relative performance of different countries is also released. We looked at a few PIRLS items, which were repeated in Grades 4, 7 and 9 in the English papers used in Maldives. Shown below is one such question. It also shows where Maldives stands when compared to other countries for this particular question.

**GRADE 4, 7, 9 | ENGLISH** This is a passage-based question that tests the skill of comprehension. The correct answer is A. The average performance of Maldivian Grade 9 students is just above the international performance at Grade 4 level. This item was also used in benchmarking tests of Grades 4 and 6 in Bhutan, and in Grade 4 in Indian government schools. Maldives and Bhutan rank slightly higher than Indian government schools on this question.

<p><b>Which words BEST describe this story?</b></p> <p>A. serious and sad          B. scary and exciting          C. funny and clever ✓          D. thrilling and mysterious</p>	<p><b>Performance of Maldivian students – English</b></p> <table border="1"> <thead> <tr> <th></th> <th>Grade</th> <th>Performance</th> </tr> </thead> <tbody> <tr> <td><b>International</b></td> <td>4</td> <td>67.8%</td> </tr> <tr> <td rowspan="3"><b>Maldives</b></td> <td>4</td> <td>42.5%</td> </tr> <tr> <td>7</td> <td>58.2%</td> </tr> <tr> <td>9</td> <td>68.8%</td> </tr> <tr> <td><b>India</b></td> <td>4</td> <td>34.1%</td> </tr> <tr> <td rowspan="2"><b>Bhutan</b></td> <td>4</td> <td>47.3%</td> </tr> <tr> <td>6</td> <td>62.3%</td> </tr> </tbody> </table>		Grade	Performance	<b>International</b>	4	67.8%	<b>Maldives</b>	4	42.5%	7	58.2%	9	68.8%	<b>India</b>	4	34.1%	<b>Bhutan</b>	4	47.3%	6	62.3%
	Grade	Performance																				
<b>International</b>	4	67.8%																				
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<b>Bhutan</b>	4	47.3%																				
	6	62.3%																				

A14-34, A17-33, A19-26: Passage-based question

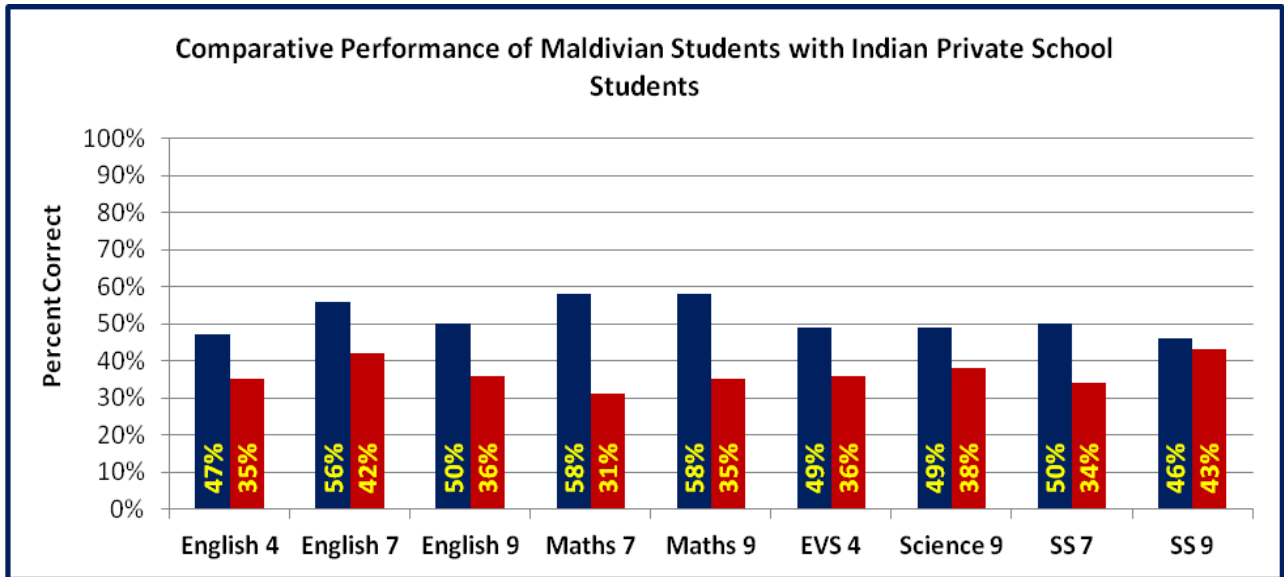
Country Average Significantly Higher than International Average		No Statistically Significant Difference Between Country Average and International Average		Country Average Significantly Lower than International Average	
Greece	90	Latvia	71	France	63
Cyprus	87	Scotland	71	Israel	61
Netherlands	87	Hong Kong, SAR	70	Macedonia, Rep. of	58
Hungary	83	<b>International Avg.</b>	<b>68</b>	Slovenia	57
Swede	82	Romania	64	Moldova, Rep. of	54
Norway	81			Colombia	52
United States	81		<b>Bhutan (47)</b>	Turkey	47
Lithuania	80			Morocco	46
Singapore	80		<b>Maldives (43)</b>	Argentina	45
Czech Republic	80			Belize	38
Germany	79			Iran, Islamic Rep. of	35
New Zealand	77		<b>India - Govt. Schools (34)</b>	Kuwait	31
Slovak Republic	77				
England	77				
Iceland	76				
Italy	76				
Canada	74				
Bulgaria	72				
Russian Federation	72				

### 3.2.2 Comparison with Indian Private Elite School Benchmarks

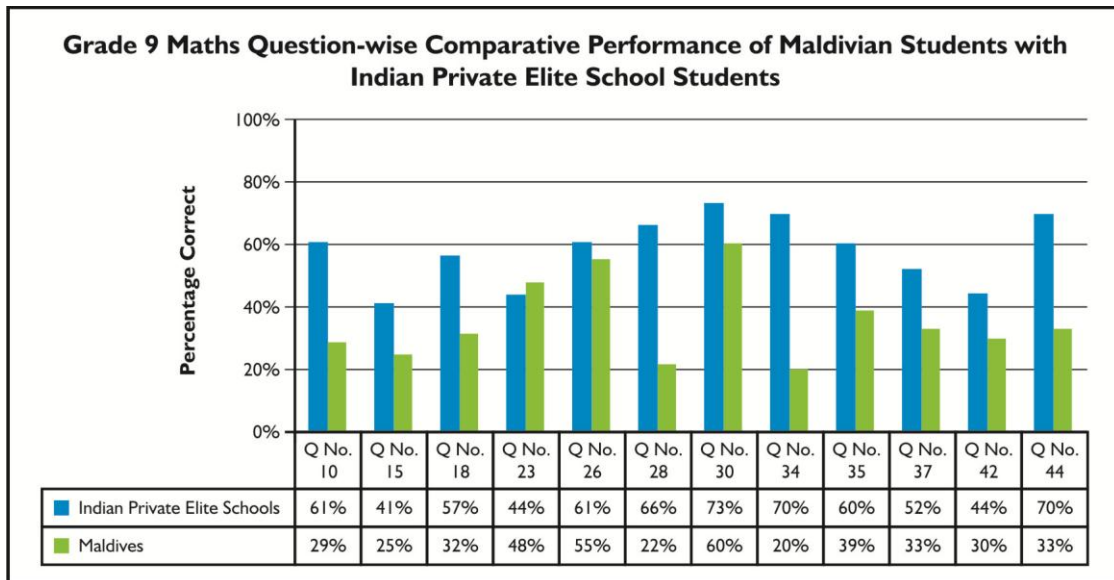
It is interesting to compare the performance of Maldivian students with their counterparts in Indian private schools. These schools also use English as a medium of instruction. Some questions used to benchmark the performance with Indian private school students were taken from ASSET (Assessment of Scholastic Skills through Educational Testing) – a well-known Indian benchmarking test, developed by EI. These tests are conducted twice every year, and over 300,000 students take the tests. These questions were mostly used with no modification, except that Indian names were changed to Maldivian names. For the following comparison, averages are compared only in those papers where there were at least 6 questions available for

benchmarking at the same grade level.

The graph here shows the comparative performance in the papers that had a sufficient number of common questions. We find that, Indian private school students are outperforming their Maldivian counterparts in all the papers. The maximum difference is noted in the subject of Maths.



Let us look at one of the papers – Maths Grade 9. Here is the performance of Indian private school students and Maldivian students on the common items.

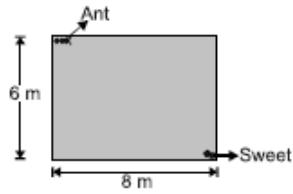


As we can see, out of the 12 questions, only in question 23 are the Maldivian students outperforming Indian private elite school students. Also, the difference is very minor. The maximum difference, 44%, is observed on question 28. Let us look at these two questions.

**GRADE 9 | MATHS** This question tests if students realize that the minimum distance the ant needs to travel is along the diagonal of the rectangle, which can be calculated using the Pythagoras' Theorem. The most common mistake Maldivian students seem to be making is a simple addition of the length and the

breadth.

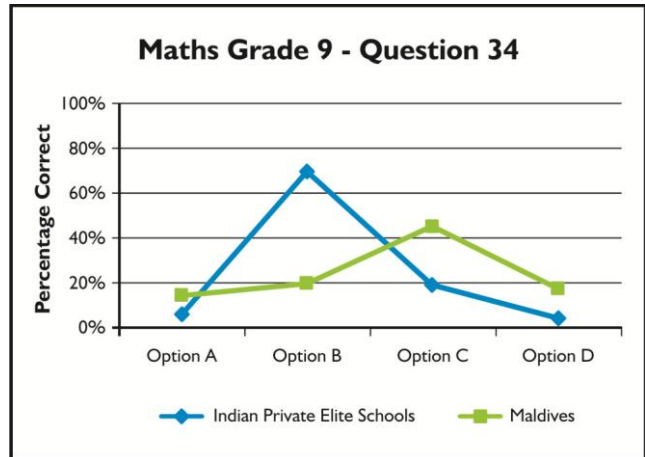
An ant at one corner of an 8 m x 6 m rectangular floor spots a piece of sweet at the opposite corner.



What is the minimum distance the ant has to travel to reach the sweet?

- A. 7 m
- B. 10 m ✓
- C. 14 m
- D. 28 m

Maths - Grade 9 - Maximum difference in performance

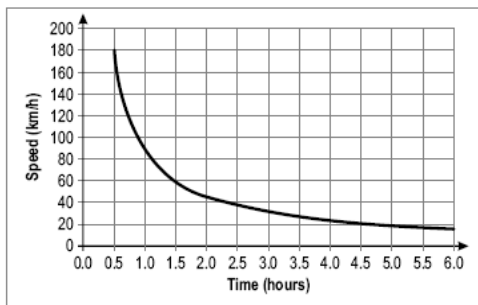


A29-34: Minimum distance calculation

**GRADE 9 | MATHS**

This question tests if students can interpret the given graph correctly. Almost half the students have answered this question correctly and the overall performance seems to be as good as the Indian private elite school performance.

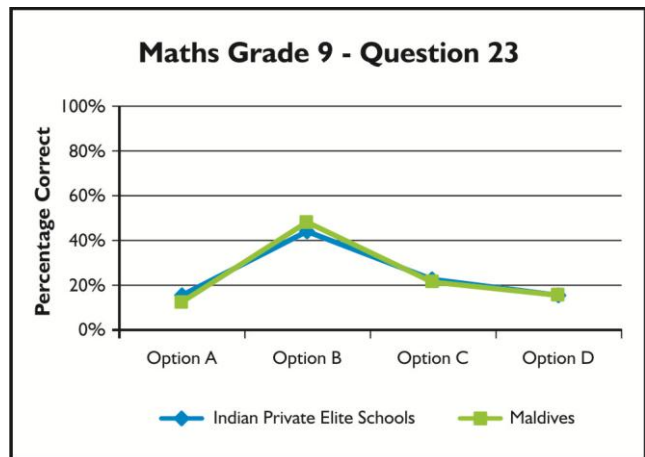
For a given distance, the speed varies inversely as time - that is less the time taken to cover the distance, more the speed should be. The speeds at which a certain distance - the distance between Rasdhoo and Kaashidhoo - can be covered in different times are plotted below. Study the graph and answer the following question.



Ali starts from Rasdhoo and reaches Kaashidhoo in 4 hours 30 minutes, travelling at a constant speed. At what speed did Ali travel?

- A. 15.5 km/h
- B. 20 km/h ✓
- C. 24.5 km/h
- D. 90 km/h

Maths - Grade 9 – Performance better than Indian private elite school students

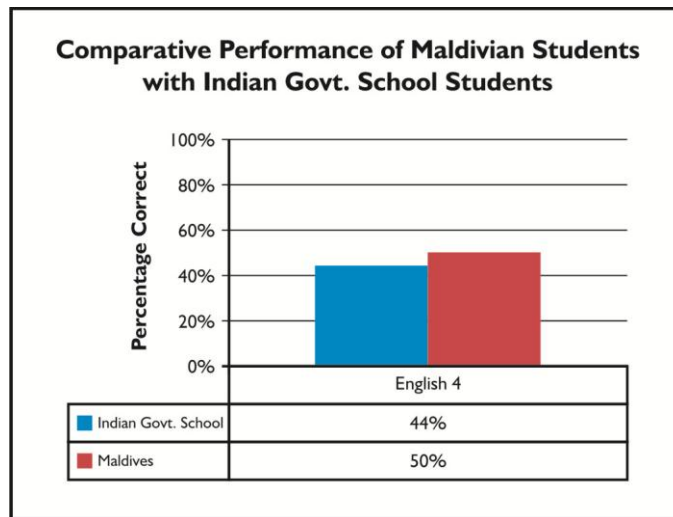


A29-23: Speed-time graph

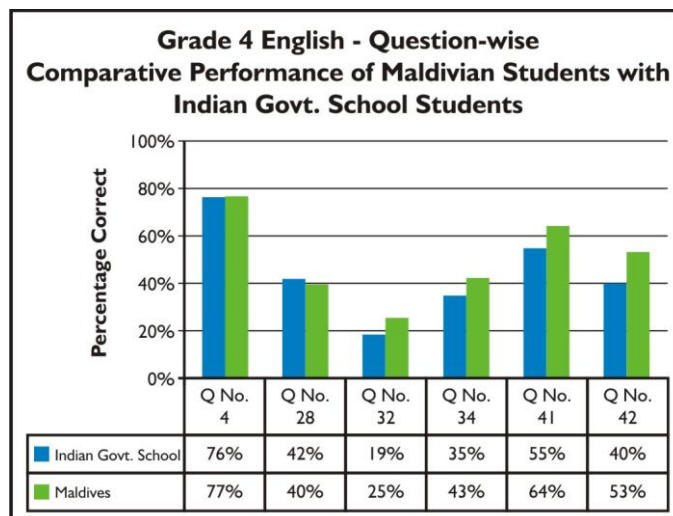
### 3.2.3 Comparison with Indian Government School Benchmarks

Some questions were also used from the Grade 4 language test of a large scale assessment project conducted in the Indian government schools – Student Learning Study (SLS). These schools use the vernacular language, used in their state, as a medium of instruction. The tests were administered in the vernacular language. It was conducted on over 25,000 students. These questions were mostly used with no modification, except that Indian names were changed to Maldivian names.

We find that, Maldivian students are outperforming their Indian government school counterparts. This is interesting because though English may not be the first language of Maldivian students, they are performing better in the English paper as compared to their Indian counterparts who attempted the same paper in their vernacular language and still performed lower.



Here is the performance of Indian government school students and Maldivian students on the common items.



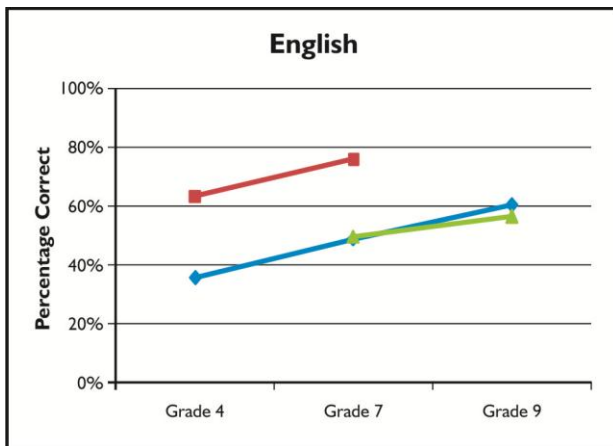
As we can see, out of the 6 questions, Maldivian students are performing lower than that of Indian government school students only in question 28. Even in this question, the difference is very less.

### 3.3 LEARNING ACROSS GRADES

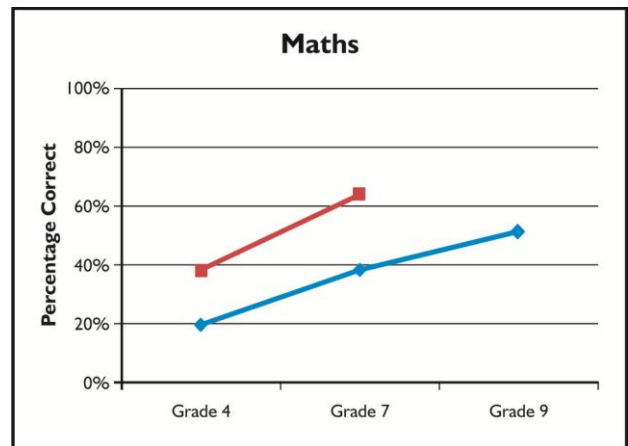
As students move to higher grades, how do they learn certain concepts? Do they always perform better on concepts learnt in lower grades? If yes, what is the extent to which the performance improves? Are there specific concepts that students struggle with even when they move to higher grades? Are there any wrong notions that students may have developed at a lower age that remains with them even as they grow older?

To be able to design a good curriculum, it is very important to answer some of these fundamental questions. It gives insights on how students learn, and also helps to understand how learning happens in certain concepts, the kind of instructions that should be given in order to avoid some basic wrong notions at a very young age etc. To understand some of these fundamental questions, carefully selected questions were repeated across the grades in different subjects. The concept was selected in such a way that it was appropriate for the lowest grade in which it was repeated.

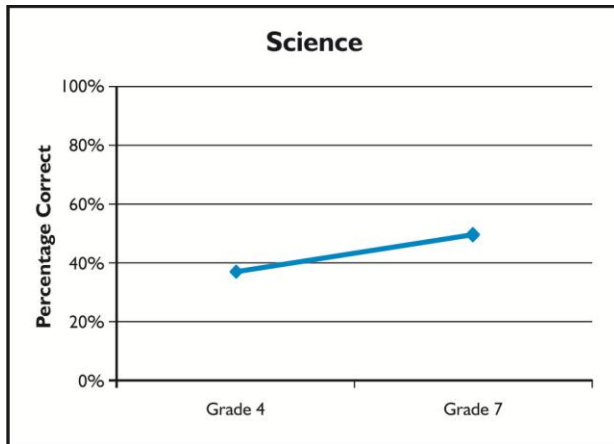
Given here is the average performance on the questions repeated, subject-wise.



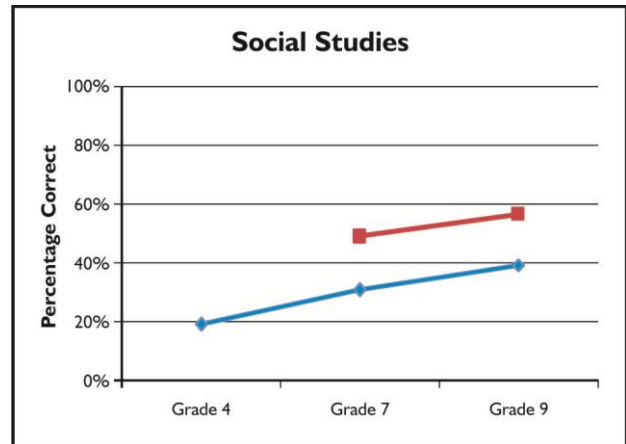
Repeated across	No. of questions	Grade 4	Grade 7	Grade 9
Grades 4-7-9	6	36%	49%	60%
Grades 4-7	2	64%	76%	
Grades 7-9	3		50%	56%



Repeated across	No. of questions	Grade 4	Grade 7	Grade 9
Grades 4-7-9	4	20%	38%	51%
Grades 4-7	1	38%	64%	
Grades 7-9				



Repeated across	No. of questions	Grade 4	Grade 7
Grades 4-7	5	37%	50%



Repeated across	No. of questions	Grade 4	Grade 7	Grade 9
Grades 4-7-9	1	19%	31%	39%
Grades 7-9	2		49%	57%

Data seem to indicate that student performance is increasing with the increase in the grade level. However, the amount of improvement doesn't seem to be linear from Grade 4 to 7 and from Grade 7 to 9.

In almost all subjects and grades, the difference in performance between Grades 4 and 7 seems to be higher as compared to that between Grades 7 and 9. These patterns need to be analysed further, year after year, to be able to come to any definite conclusion and take specific actions.

Let us look at a few questions to understand some underlying patterns.

**Case 1: Sharp increase in performance from Grade 7 onwards – probably indicates that students are beginning to learn some concepts only post grade 7:** In some questions, the difference between the performance in Grades 7 and 9 is higher than that of Grades 4 and 7. It possibly suggests that more students understand these concepts from Grade 7 onwards. Here is an example.

**GRADES 4, 7, 9 | ENGLISH** This is a passage-based question that requires a deeper understanding of a literary text. Students need to go beyond comprehending the plot and the characters and analyse the strategies used in the text to achieve a particular result. The correct answer is C.

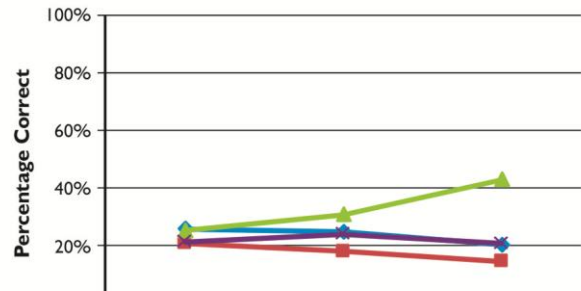
**Excerpt from the passage:**

'.....  
 "Good gracious me!" cried one. "Look up there! There's the floor!"  
 "Heavens above!" shouted another. "We must be standing on the ceiling!"  
 "I'm beginning to feel a little giddy," said another. "All the blood's going to my head," said another.  
 "This is terrible!" said a very senior mouse with long whiskers. "This is really terrible! We must do something about it at once!" "I shall faint if I have to stand on my head any longer!" shouted a young mouse.  
 ...'

How does the story show you what the mice thought was happening?

- A. by telling you what Labon thought of the mice
- B. by describing where the mice lived
- C. by telling you what the mice said to one another ✓
- D. by describing what the mice were like

English - Grades 4, 7 and 9



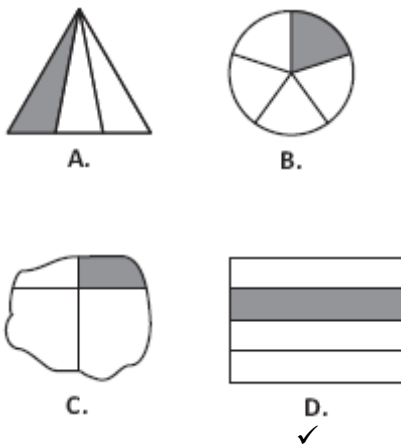
	Grade 4	Grade 7	Grade 9
Option A	26%	25%	21%
Option B	21%	18%	15%
Option C	25%	31%	43%
Option D	22%	24%	21%

A14-32, A17-31, A19-24: Passage-based question

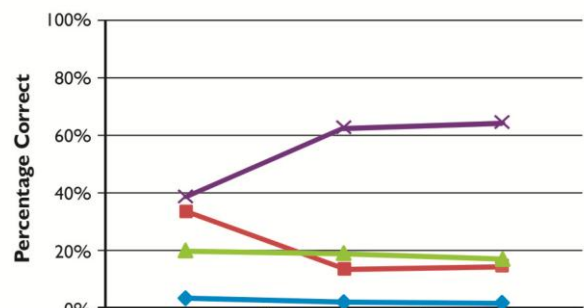
**Case II: Performance remaining almost the same between 2 grades – probably indicates that only some students learn the concept with the increase in grade level and students who don’t learn it at a lower grade level, may not learn even as they move to higher grades:** In some questions, the difference between the performances of two grades is very less which possibly suggests that students learn very little beyond a certain grade level. Here is an example. There is a sharp increase in performance from Grade 4 to Grade 7. But there is hardly any difference in performance between Grades 7 and 9. This suggests that students who may not have understood fractions till Grade 7 probably don’t understand it even when they reach Grade 9. Repeating this item year after year is likely to provide some more insights.

**GRADES 4, 7, 9 | MATHS** This question tests if students can identify the shape that is  $\frac{1}{4}$  shaded. Students need to understand that ‘ $\frac{1}{4}$  shaded’ means 1 out of 4 equal parts shaded. If they are not clear that in a fraction the parts are equally divided, they may select option C where 1 out of 4 parts are shaded, but the parts are not equal. Students selecting option B may be thinking that  $\frac{1}{4}$  mean one shaded and 4 non-shaded parts. The correct answer is D.

Which of these figures is  $\frac{1}{4}$  shaded?



Maths - Grades 4, 7 and 9



	Grade 4	Grade 7	Grade 9
Option A	4%	3%	2%
Option B	34%	14%	15%
Option C	20%	19%	17%
Option D	39%	63%	65%

A24-12, A27-14, A29-5: Shaded fraction

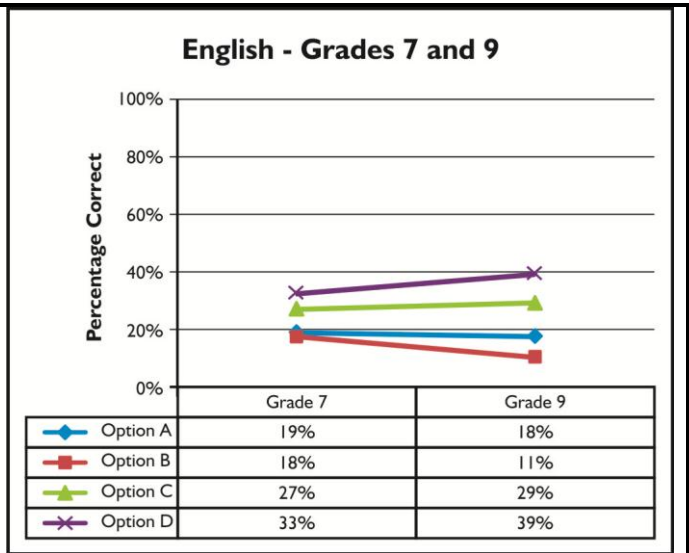
**GRADES 4, 7 | ENGLISH**

This question tests the correct usage of the past perfect tense in a given sentence. The correct answer is D. Students who chose option D have correctly understood that the action mentioned should have been completed before the given time reference. In the given sentence, there are two past actions (arrived, solved) - one occurring after the other. The word 'already' indicates that the action 'solved' happened before the action 'arrived'. It is also important to know the auxiliary verb 'been' should be used in the passive form of the verb. Option C is the most chosen option at Grade 7 as well as 9. Students who chose option C have probably overlooked the fact that the arrival of the senior officials is an action that had happened in the past, leading them to choose the present perfect form of the verb.

Choose the correct option that best completes the sentence below.

By the time the senior official arrived, the problem \_\_\_\_\_.

- A. had already solved
- B. had solved
- C. has been solved
- D. had already been solved ✓



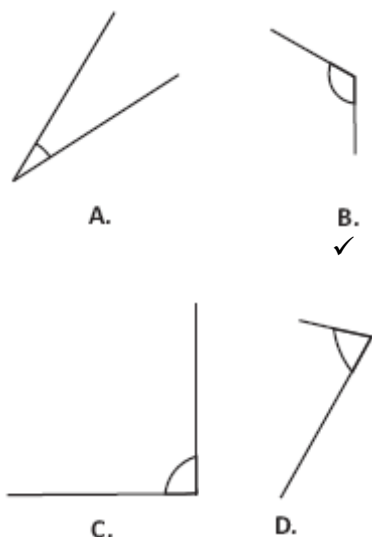
A17-49, A19-50: Usage of past perfect tense

**Case III: Percent of students selecting a particular wrong option drops but the common error remains the same – probably indicates that some students don’t carry the wrong notion they may have developed at a lower grade level:** In some questions, though the percentage of students selecting a particular wrong option decreases with increase in grade level, the proportion of students selecting that option at higher grade level remains high. This possibly suggests that some wrong notions that students develop at an early age don’t change with age.

**GRADES 4, 7, 9 | MATHS**

This question checks if students understand the measure of an angle as ‘amount of turn’ or ‘spread of its arms’. Here students are expected to visually identify an angle with the greatest measure. In Grade 4, only 9% students have answered this question correctly. Majority of the students have chosen option C (64.3%). These students seem to have a notion that the measure of an angle corresponds to the length of its arms. As the students move to higher grades, the percentage of students choosing the correct option increases from 9% in Grade 4 to 30% in Grade 7 and 48% in Grade 9, and those choosing the common wrong option C decreases. This indicates that students are learning as they move to higher grades. However, the common error still remains the same as a relatively large percentage of students are choosing option C.

Which angle has the greatest degree measure?



A24-20, A27-40, A29-7: Angle measurement

Maths - Grades 4, 7 and 9



### 3.4 SUBJECT-WISE COMMON ERRORS

One of the advantages of using multiple-choice questions is that they provide data on the specific kinds of errors students make. These errors are indicated by the options selected by the students. Apart from the correct answer, each of the 3 options tests a certain way of thinking. Sometimes a majority of the students select a specific wrong option and that indicates a common wrong notion, misunderstanding or a common error that those students may be making. This is one of the most valuable data that the questions provide. A detailed analysis of these common errors can give us some indication of areas in teaching that may need some support or improvement.

Detailed information on student responses to every question is also available in electronic format, which will allow for detailed analysis. This section analyses common errors that seem to reflect a pattern. However, it must be appreciated that *these are not the only patterns*. In fact, many other examples included in the other parts of this report also discuss common areas of student strength and weakness. All the questions and examples taken in this section should be taken as indicative.

## ENGLISH

One of the patterns observed in the performance on English papers, across grades, is that comprehension of unseen text seems to be the weakest skill. This needs to be analysed further and question-wise, option-wise data should be used along with student interactions to understand the root causes.

Here are a few common errors made by students in skills other than comprehension.

**GRADES 7 | ENGLISH** This question tests students' knowledge of vocabulary when given a context. Students are required to decode the meaning of the sentences to arrive at the context and use the context to identify the word with the appropriate and relevant meaning.

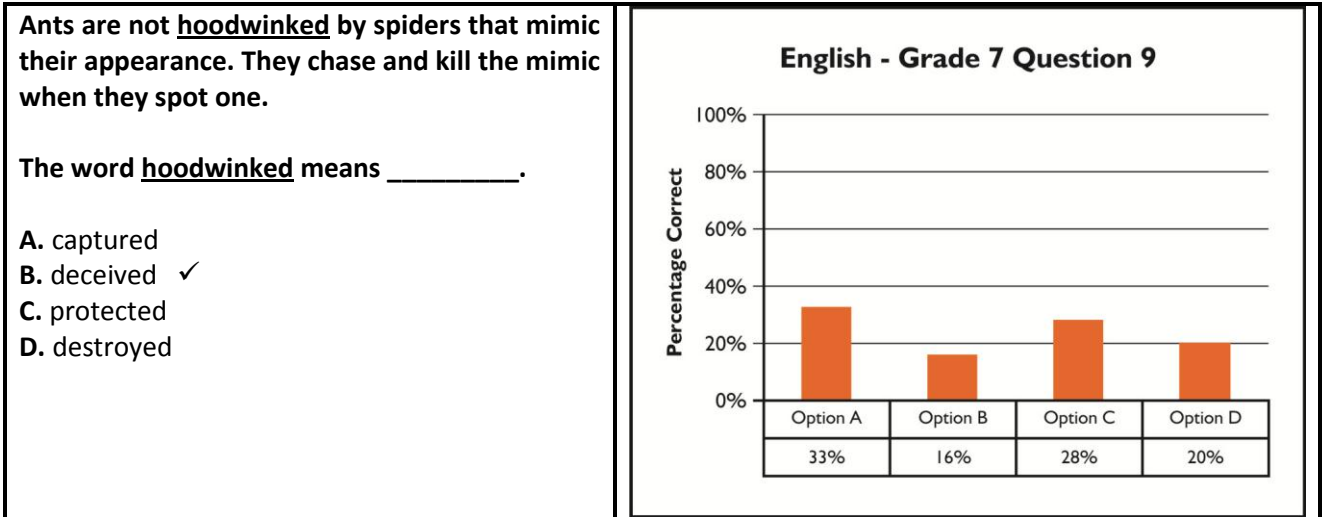
Only 16% students selected the correct option B. 33% students selected option A and 28% selected option

C.

Students selecting option B are probably familiar with the meaning of the word 'deceived' as 'tricked'. They have understood that in the context the word 'mimic' is related to trickery. They have also assembled the partial meanings of 'ants are not' and 'spiders mimicking their appearance' to arrive at the meaning of the word 'hoodwinked'.

Students selecting option A or D probably understood the meaning of the tested word but not the correct word in the options.

Students selecting option C use a relative word but in an inverse manner.



A17-9: Meaning of a word

**GRADES 9 | ENGLISH** This question tests whether students are able to use the correct preposition in prepositional phrases. Answering this question requires a correct understanding of the context too.

Only 19% students selected the correct answer. 31% students selected option B and 27% students selected option C.

Students selecting option D have probably understood that the preposition 'following' when used in the blank makes for a correct meaning of the sentence, as prolonged treatment is usually followed by recovery. The preposition shows the correct relationship between the first and last part of the sentence.

Students selecting option B understand that the preposition 'during' implies a period of time as exemplified in 'prolonged treatment' but failed to relate it to the first part of the sentence.

Students selecting option C probably understand that the preposition 'since' can also function as a conjunction. However, they have misunderstood the second part of the sentence as the cause and the first part as the effect and have chosen to use 'since' as a conjunction.

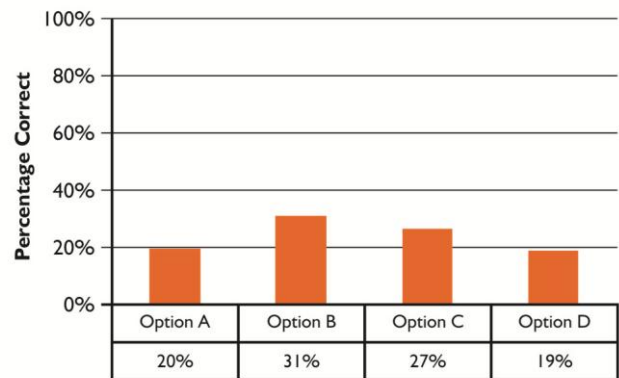
Students who chose option A may have reversed the time reference.

The wildlife expert who was bitten by a snake has started recovering \_\_\_\_\_ a prolonged treatment and high doses of antivenom.

Choose the correct option to complete the above sentence.

- A. before
- B. during
- C. since
- D. following ✓

English - Grade 9 Question 49



A19-49: Use of preposition

## MATHS

Common errors in Maths can mainly be classified into 2 categories –

- i. Fundamental error in understanding a concept
- ii. Errors made due to a common procedural error

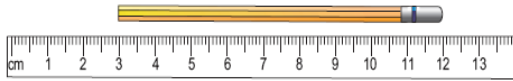
Here are two examples that indicate these errors.

### Fundamental error in understanding a concept

**GRADES 4, 7, 9 | MATHS** This question tests the fundamental understanding of length – it asks whether students can measure the length of a pencil or not. The correct answer is B. Only around 11% students at the Grade 4 level selected the correct answer and even at the Grade 9 level, less than 50% students are able to answer this.

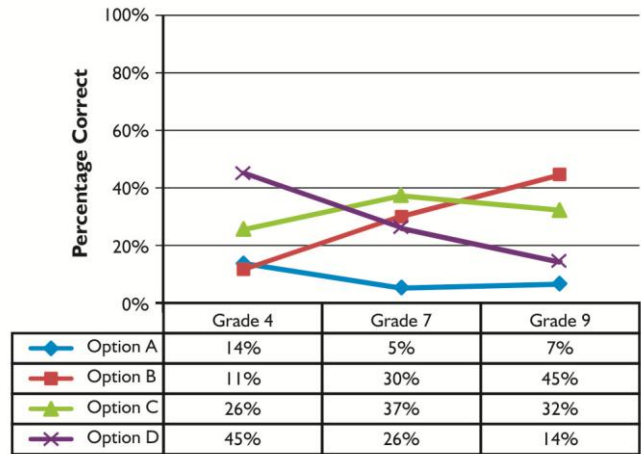
Most of the Grade 4 students are probably just looking at the end mark of the pencil and selecting D, 12 cm, as the answer. The number of students selecting this option significantly decreases in Grade 7 and further decreases in Grade 9. 26% of Grade 4 students think that the answer is C 10 cm. And the number of students selecting this option increases to 37% in Grade 7 and 32% in Grade 9. Students selecting this wrong option have not understood the concept of length – that when we say the length is 1 cm, it means the distance between the end points is 1 cm. Students selecting option C are probably counting the number of marks from the starting point – 3, 4, 5....12 and arriving at 10 as the answer. They are probably just extending the knowledge of counting to length.

What is the length of the pencil shown below?



- A. 3 cm
- B. 9 cm ✓
- C. 10 cm
- D. 12 cm

Maths - Grades 4, 7 and 9



A24-13, A27-5, A29-36: Pencil length measurement

**Errors made due to a common procedural error**

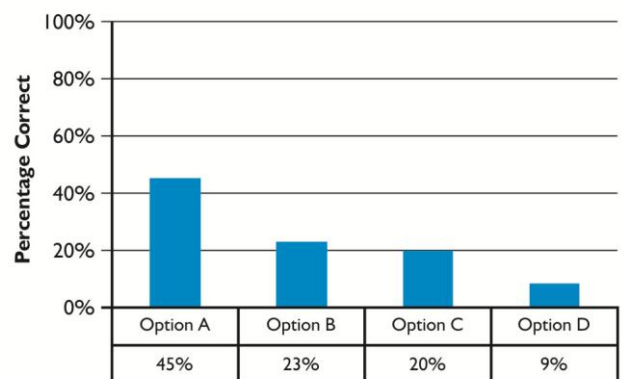
**GRADES 9 | MATHS** This question checks the basic concept of simple interest. Given the amount of interest earned, rate of interest and tenure, students are expected to calculate the principal amount. Only 20% students have answered this question correctly. Students selecting option A (45.4%) have simply calculated the simple interest using Rf. 270 as the principal. Students choosing option B (23.4%) calculated the simple interest using Rf. 270 and added the principal amount of Rf. 270 to the result.

In this question, though there is a common mistake which almost half the students are making, it is not because they have not understood the concept of simple interest correctly. It is because they are missing that the question is asking for the principal amount and not the interest amount or the total amount with interest. It could be because they are not exposed to different kinds of problems and are used to solving only a specific type of problem.

What sum will yield Rf. 270 as interest in 5 years at 6% simple interest per annum?

- A. Rf. 81
- B. Rf. 351
- C. Rf. 900 ✓
- D. Rf. 1170

Maths - Grade 9 Question 25



A29-25: Simple interest

**SCIENCE**

Students develop scientific concepts by multiple ways – by observing things in the surroundings, by talking to teachers, parents and peers, by reading books, especially textbooks and by forming mental models based on

the above. All these could serve as sources of wrong notions among students.

Here are some examples that highlight such common errors.

### Lay ideas dominate scientific ideas

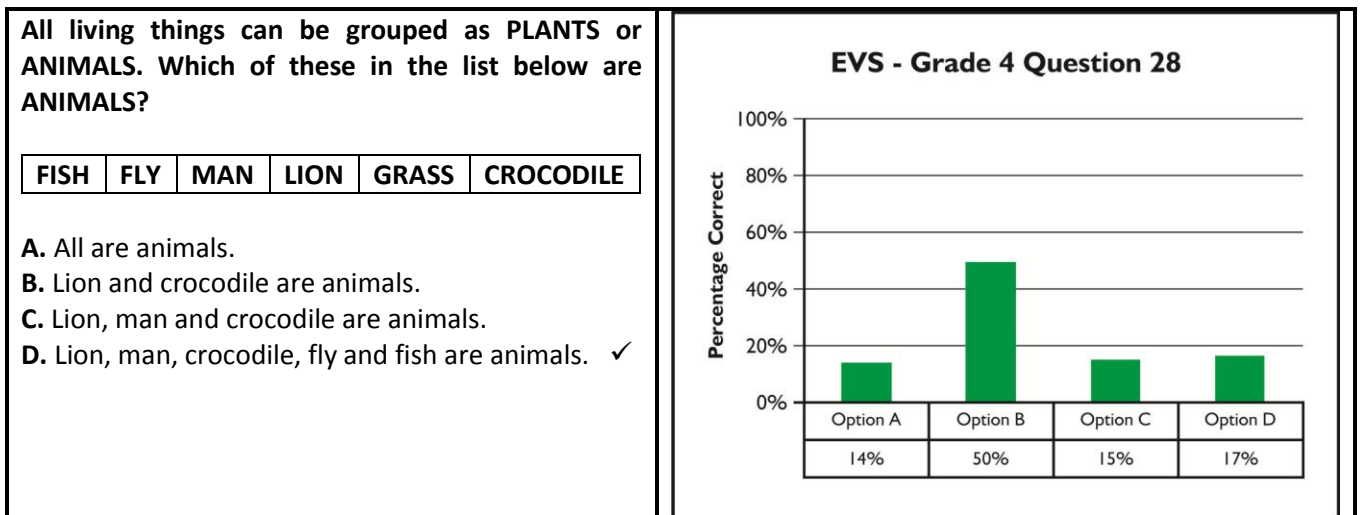
**GRADE 4 | EVS** When the classification of living organisms is introduced to children in Grade 3, they learn that all living organisms fall either in the animal kingdom or in the plant kingdom. This question tests whether children can appreciate that the term “animal” is used to represent a broader category of organisms from a scientific perspective, than what common sense suggests.

Only 17% of the students have selected the correct answer D. 50% students think that the answer is B.

In discussions with students we found that children go by common observation to identify a creature as an animal. They tend to classify organisms based on their external characteristics that are easily perceivable. The most common response in discussions with students was that an animal is a creature that has four legs and lives on land. However, “animals” is a far broader category according to scientific classification.

Students are probably displaying a “layman” approach by giving more importance to externally observable characteristics of animals, and ignoring the deeper scientific aspects they have learnt. This may be happening as scientific distinctions like body structure, body temperature, and mode of reproduction are difficult to observe directly. This may even be happening because of the loose way in which the word ‘animal’ is used in day-to-day life by a lot of adults.

It is also possible that students at this level find it difficult to categorize one entity into two categories i.e. they may find it hard to understand that an insect can be an “insect” as well as an “animal”.

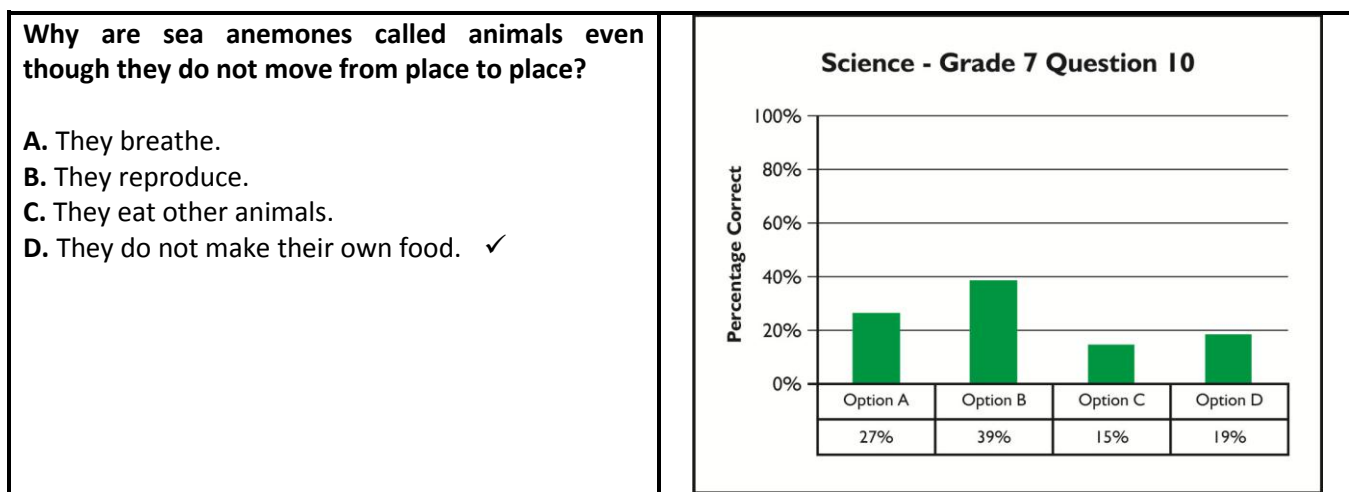


A34-28: Classification of living organisms

Here is another example that demonstrates how lay ideas dominate scientific ideas.

**GRADES 7 | SCIENCE** Students learn about classification of living organisms into different groups, especially plants and animals, right from primary grades. They are expected to understand that there could be similarities and differences between living organisms and the similarities are used to group them under one category, whereas the differences are used to separate them into different categories. This question tests if students understand that a basic difference between a plant and an animal is that plants can make their own food whereas animals cannot. Only 19% of the students have selected the correct answer D. 39% students think that the answer is B and 27% students think that it is A.

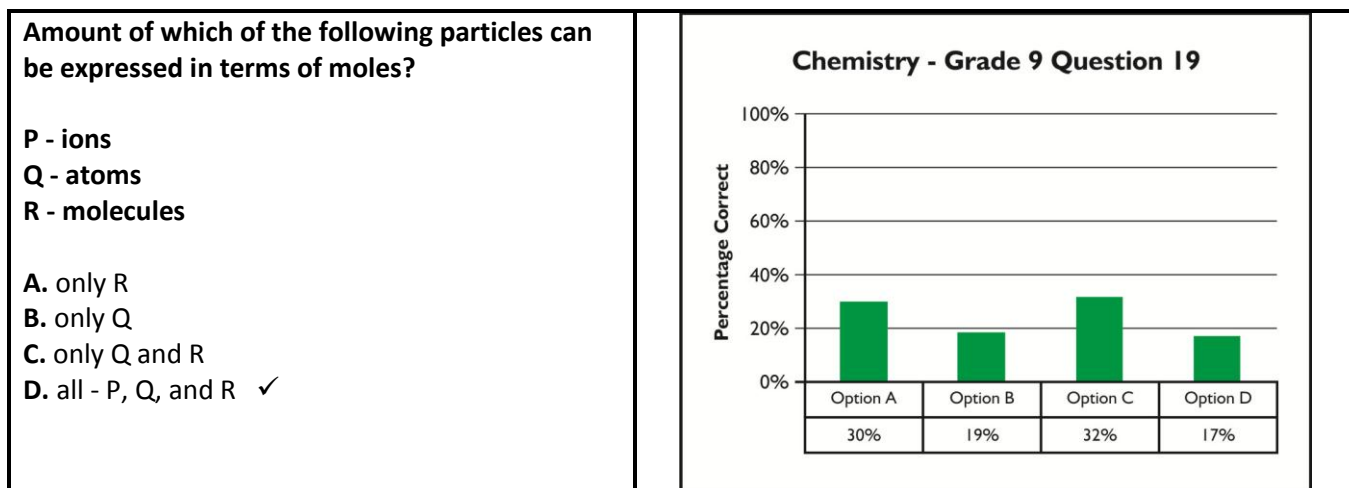
Students selecting option B may not have understood what 'reproduction' means and may be using it in a very layman sense. Hence they think that only animals reproduce and they don't consider other groups like plants to be reproducing. A similar case could be with students selecting option A, who may be interpreting 'breathing' in a very literal sense and think that only animals breathe.



A37-10: Classification of living organisms

**Textbook context rules ideas**

**GRADE 9 | CHEMISTRY** This question tests if students understand what the unit 'mole' is used for. It is likely that students learn the concept of mole in the context of atoms or molecules and so are not able to extend it to ions, which are nothing but atoms that may have lost/accepted some electrons. Only 17% students have selected the correct answer. Almost an equal number of students think that the unit mole is used to express the quantity of only molecules or only atoms and molecules.



## SOCIAL STUDIES

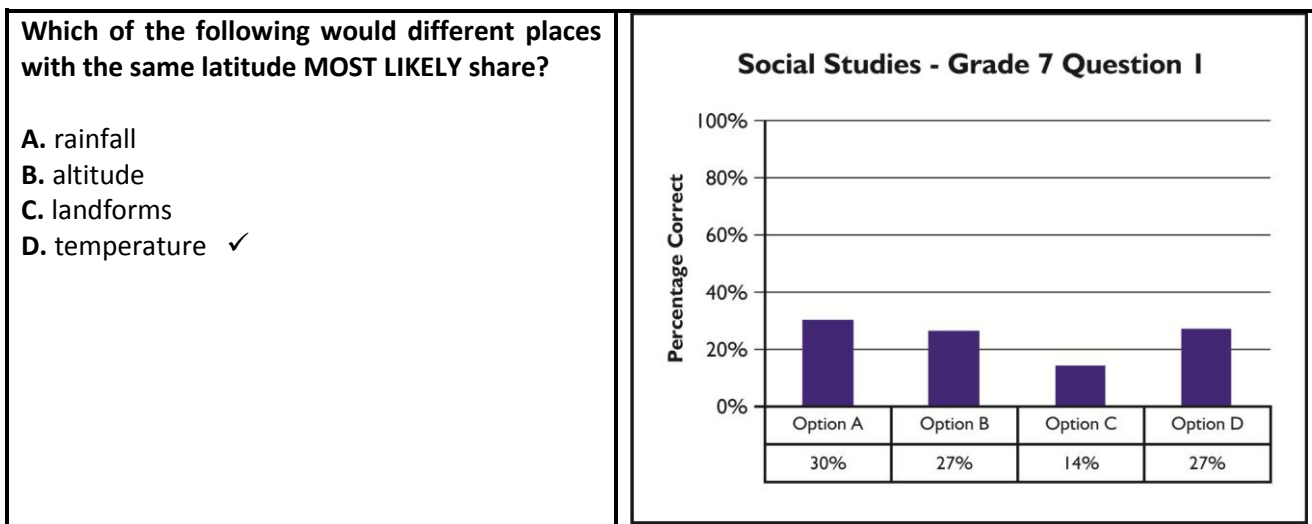
Overall performance in Social Studies in Grade 7 is very low. There are only 2 questions in the paper for which more than 50% of the students have answered correctly. More than half the questions in the paper show a performance of less than 30%. Data also indicates that students seem to be guessing the answer on many questions. This hypothesis should be explored further by interacting with students.

Since the number of students that appeared for Grade 9 History and Geography papers was very low (< 100), we will not be discussing any questions from those papers.

Here are a few common errors made by Grade 7 students.

**GRADE 7 | SS** This question tests students' understanding of the relation between temperature and latitude. Because the surface of the Earth receives different amounts of heat, places at the same latitude are most likely to share the same temperature.

However, only 27% of the students have chosen this as the correct answer. About 30% of students think that places at the same latitude receive the same amount of rainfall. 27% students think that they have the same altitude. This indicates that students do not have a clear idea about how temperature is influenced by latitude.



A47-1: Latitude and temperature

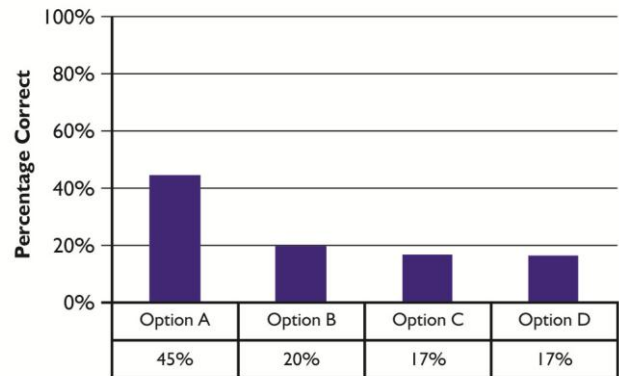
**GRADE 7 | SS** This question tests students' chronological understanding.

Only 20% of the students have been able to correctly sequence the date ranges. An overwhelming 45% of the students have chosen A as the correct answer indicating that students do not clearly understand the convention of time indicated by BC, and how AD and BC dates are sequenced.

Which of the following shows the correct order of time periods from the EARLIEST to the LATEST?

- A. 1000-2000 BC, 2500-3500 BC, 4000-5000 AD, 5500-6500 AD
- B. 2500-3500 BC, 1000-2000 BC, 4000-5000 AD, 5500-6500 AD ✓
- C. 4000-5000 AD, 5500-6500 AD, 2500-3500 BC, 1000-2000 BC
- D. 5500-6500 AD, 4000-5000 AD, 1000-2000 BC, 2500-3500 BC

### Social Studies - Grade 7 Question 24



A47-24: Chronological sequence

### 3.5 LEARNING WITH UNDERSTANDING

#### What is Learning with Understanding and why is it important?

The Nobel Prize winning physicist and great teacher Richard Feynman taught for about a year in a high school in Brazil. Describing his experience he wrote this: “I once attended a lecture which went like this: ‘Two bodies... are considered equivalent... if equal torques... will produce... equal acceleration. Two bodies are considered equivalent if equal torques will produce equal acceleration.’ The students were all sitting there taking dictation, and when the professor repeated it, they checked it to make sure they wrote it down all right. After the lecture I talked to a student: ‘You take all these notes - what do you do with them?’ ‘Oh, we study them,’ he says. ‘We’ll have an exam.’ ‘What will the exam be like?’ ‘Very easy. I can tell you now one of the questions: *When are two bodies equivalent?* And the answer is, *Two bodies are considered equivalent if equal torques will produce equal acceleration.*’ So, you see, they could pass the examinations, and ‘learn’ all this stuff, and not know anything at all, except what they had memorized. After a lot of investigation, I finally figured out that the students had memorized everything, but they didn’t know what anything meant. When they heard ‘when light passes through a medium’, they didn’t know that it meant a material such as water. Everything was entirely memorized, yet nothing had been translated into meaningful words. So if I asked, ‘When are two bodies equivalent?’ I’m going into the computer with the right keywords. But if I say, ‘Look at the water,’ nothing happens - they don’t have anything under ‘Look at the water!’”

The ‘learning’ described in the above paragraph - unfortunately common in our schools - is NOT learning with understanding. It can be called rote learning, mechanical learning, learning by memorization or procedural learning. Many teachers and parents believe that rote learning is real learning. While rote learning is useful (for example in learning tables, formulas, definitions and anything that is memory-based), it has serious disadvantages - it stifles a child’s natural curiosity and may make the child a passive observer who does not question or speak her mind. This has multiple implications - whether in terms of the number of patents a country earns, or the number of entrepreneurs who can ‘challenge the givens’, or even ordinary people who can think and question age-old customs or the way ‘things are always done’.

The advantages and benefits of learning with understanding on the other hand are many. Learning becomes an engaging and interesting process. The faculties of critical thinking are better developed and students are geared to face new or unfamiliar situations. Learning becomes ‘fun’ (though in a way very different from how games are fun).

Probably most importantly, rote learning worked in a world where the pace of change was not very high, where a degree served one for almost a lifetime. But in a rapidly changing world like today’s rote learning has to be replaced by learning how to learn, by being able to think on one’s feet, by critical thinking skills and application skills. We use the term ‘learning with understanding’ to capture all these aspects - it is essentially when what is taught is processed, possibly questioned a bit, and then internalized. The aspects learned can be used by the learner in multiple ways and in multiple situations. If a student has learnt a particular topic with understanding, he can probably explain it in his own words and even answer questions about it from a curious listener.

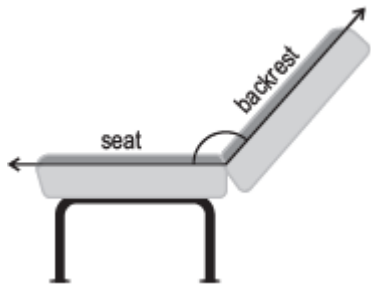
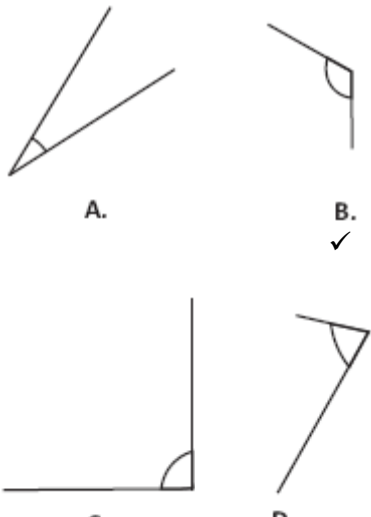
### What does the analysis of results show?

To analyse how students are performing on different types of questions – straightforward questions requiring the recalling of facts/procedural fluency (rote questions) versus questions requiring a deeper understanding of the concept and application of concepts, a qualitative analysis of questions was carried out. Patterns of student responses and qualitative analysis indicate that **students are performing well on both, straightforward as well as conceptual questions. However, there are some concepts which are not very clear and students are making common errors.**

We also checked how students are performing on questions that are testing similar ideas but using different question types. Results show that **students are performing much higher on direct, recall-based questions than questions requiring understanding/reasoning.**

Here are some examples that demonstrate this.

**GRADE 7 | MATHS** Here are two questions from the grade 7 Maths paper that test the concept of ‘angles’. One of them checks if students can identify the name of the angle shown in the image – it is a very straightforward question that checks the knowledge of terms. The other one checks if students can identify the angle of the greatest degree measure – it is a conceptual question that checks whether students can identify the correct angle based on their understanding of what the measure of an angle means. In both the questions, students have to identify the obtuse angle – in one the term ‘obtuse angle’ and in the other one, the angle that is an obtuse angle. As data indicate, more than half of the students are able to select the correct term for the angle shown, but only 30% of the students can visually identify the angle with greatest degree measure. Distracter analysis shows that a lot of students seem to have incorrect notions about ‘degree measure’ of an angle and think that the angle with longer arms has a higher degree measure.

<p>Shown here is a chair.</p>  <p>What type of angle does the backrest of the chair form with the seat?</p> <p>A. a right angle            B. an acute angle            C. a straight angle            D. an obtuse angle ✓</p>	<p>Which angle has the greatest degree measure?</p>  <p>A. B. ✓            C. D.</p>
<p>Correct answer: D</p> <p>% correct: 55%</p>	<p>Correct answer: B</p> <p>% correct: 30%</p>

A27-6: Identifying the type of angle shown

A27-40: Angle measurement

**GRADE 7 | SCIENCE** Here are two questions from the Grade 7 Science paper that test the concept of 'cells'. One of them checks if students can identify the type of cell given the organelles present/absent in it – it is a straightforward question that checks the knowledge of cells and cell organelles. The other one checks if students know which all things are made of cells – it is a conceptual question that checks whether students understand that even if a thing is dead, it was once living and hence made up of cells. As the data indicate, in both the questions less than half of the students are able to answer the questions correctly. But performance in the question requiring deeper understanding of the concept is even less, half of that in the straightforward question.

<p>The table here describes some of the organelles visible in a particular cell under a microscope.</p> <table border="1" data-bbox="212 730 555 909"> <thead> <tr> <th>Cell Organelle</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Cell Wall</td> <td>Present</td> </tr> <tr> <td>Vacuole</td> <td>Large</td> </tr> <tr> <td>Centriole</td> <td>Not visible</td> </tr> <tr> <td>Nucleus</td> <td>Present</td> </tr> </tbody> </table> <p>Identify the type of organism to which this cell belongs.</p> <p>A. It is the cell of a virus.          B. It is the cell of a plant. ✓          C. It is the cell of an animal.          D. It is the cell of a bacterium.</p>	Cell Organelle	Description	Cell Wall	Present	Vacuole	Large	Centriole	Not visible	Nucleus	Present	<p>Which of the following are made of cells?</p> <p>P. living things   Q. dead things   R. non-living things</p> <p>A. only P          B. only P and Q ✓          C. only P and R          D. all - P, Q and R</p>
Cell Organelle	Description										
Cell Wall	Present										
Vacuole	Large										
Centriole	Not visible										
Nucleus	Present										
<p>Correct answer: B</p> <p>% correct: 40%</p>	<p>Correct answer: B</p> <p>% correct: 20%</p>										

A37-37: Identifying the organism based on the organelles it has    A37-6: Things made of cells

A similar pattern is observed in questions based on unseen passages. **Students have performed well in those questions that test a basic understanding of the text - like recalling the actions, names, etc. However, performance is low on questions that test a deeper understanding or comprehension of the text such as identifying the sequence and other writing strategies used in the text, and making judgments regarding the tone.**

**GRADE 9 | ENGLISH** Here are two questions from the Grade 9 English paper that test the concept of reading comprehension. These questions were taken from the international study – PIRLS and were repeated across Grades 4, 7 and 9. One of them is a straightforward question that tests if students can identify the place where the mousetrap was stuck. The other one tests a deeper understanding of the literary text - students need to go beyond comprehending the plot and the characters and analyse the strategies used by the text to achieve a particular result. As the data indicate, students are performing much higher on the straightforward question than the conceptual question.

<p><b>Excerpt from the passage:</b></p> <p>‘.... When he got home, he put the glue on the underneath of the mousetraps and stuck them to the ceiling. Then he baited them carefully with pieces of cheese and set them to go off. ...’</p>	<p><b>Excerpt from the passage:</b></p> <p>‘.... “Good gracious me!” cried one. “Look up there! There’s the floor!” “Heavens above!” shouted another. “We must be standing on the ceiling!” “I’m beginning to feel a little giddy,” said another. “All the blood’s going to my head,” said another. “This is terrible!” said a very senior mouse with long whiskers. “This is really terrible! We must do something about it at once!” “I shall faint if I have to stand on my head any longer!” shouted a young mouse. ...’</p>
<p><b>Where did Labon put the mousetraps?</b></p> <p>A. in a basket B. near the mouse holes C. under the chairs D. on the ceiling ✓</p>	<p><b>How does the story show you what the mice thought was happening?</b></p> <p>A. by telling you what Labon thought of the mice B. by describing where the mice lived C. by telling you what the mice said to one another ✓ D. by describing what the mice were like</p>
<p><b>Correct answer: D</b></p> <p><b>% correct: 72%</b></p>	<p><b>Correct answer: C</b></p> <p><b>% correct: 43%</b></p>

A19-21: Passage-based question

A19-24: Passage-based question

### 3.6 PERFORMANCE OF DIFFERENT ATOLLS

Data generated based on the tests were analysed to get a comparative picture of the learning levels of students across all 21 atolls of Maldives. The analysis is a rich source of information about which atolls are doing better in terms of overall student achievement than others.

#### Overall Performance

It must be noted that the performance of the atolls varies across grades and subjects. The table below gives the number of students in each atoll and the respective averages with the standard deviation and standard error for the English papers. For similar tables of other subjects, refer to Appendix B.

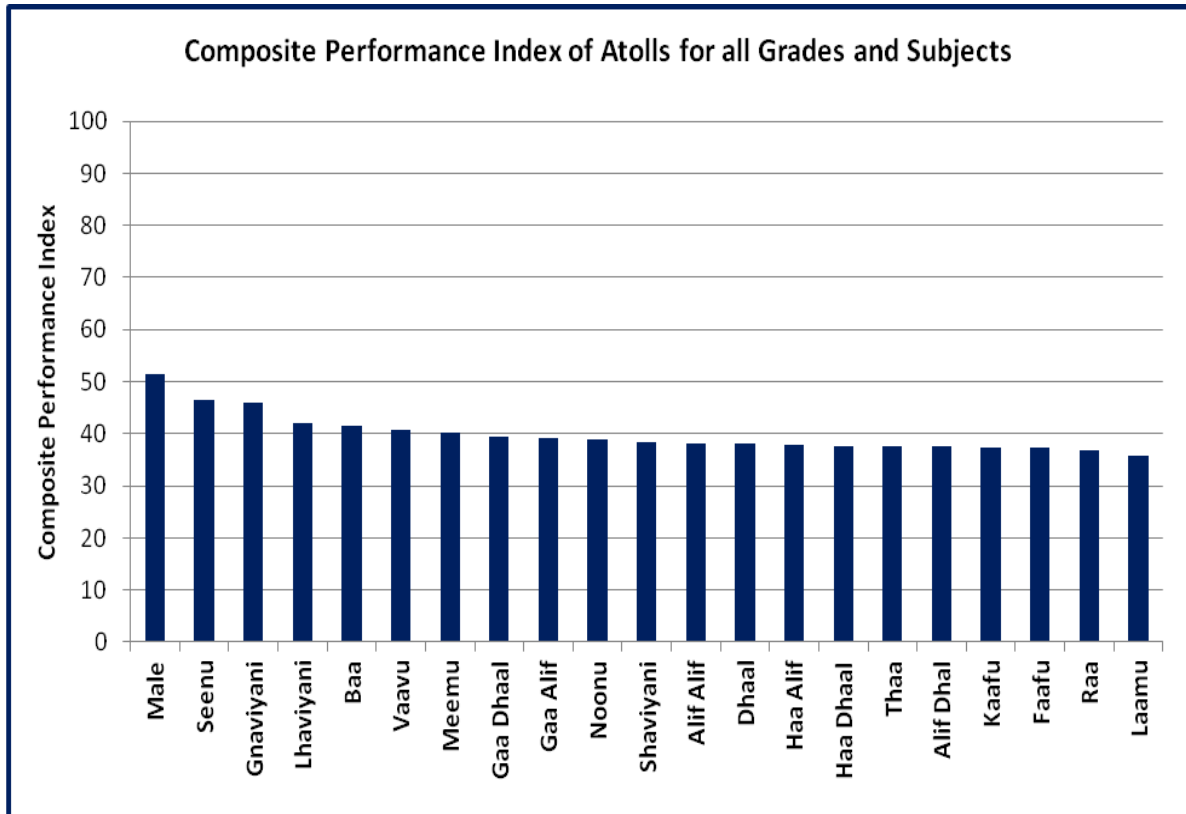
#### English Results

Atoll name	Grade 4			Grade 7			Grade 9		
	N	AVG	SD	N	AVG	SD	N	AVG	SD
Alif Alif	100	40.6	16	113	47.4	14.9	109	44.2	15.3
Alif Dhal	89	38.8	15.6	127	49.2	17.5	148	41.7	16.6
Baa	178	44.9	16.4	199	52.6	14.8	238	45.6	16.2
Dhaal	82	43.9	15.7	135	42.3	17.3	96	44.5	15.9
Faafu	94	38	15.9	137	44.9	17.7	124	40.6	15
Gaa Alif	171	40.1	17.1	209	51.1	17.7	213	45.4	16.3
Gaa Dhaal	224	44.1	17.4	222	52.2	18.9	263	41.7	16.7
Gnaviyani	153	50.9	21.6	193	63.1	20.5	174	52.6	17.9
Haa Alif	234	40.6	15.2	361	46.1	16.1	289	42	14.4
Haa Dhaal	332	40	18.1	397	45.3	17.9	333	42.9	16.5
Kaafu	163	39	15.9	212	46.5	18.3	164	45	16.8
Laamu	228	35.6	15	327	43.3	16.4	226	41.2	16.5
Lhaviyani	138	49	18.1	183	54.9	19.2	137	47	16
Male	1377	61.4	22.1	1488	69.3	18.7	1638	58.8	18.4
Meemu	60	46.5	15.6	79	50.9	18.2	84	42.8	16.4
Noonu	184	41.1	15.6	233	49.2	17.9	227	42.3	15.5
Raa	313	38	15	388	48.4	17	340	38.9	14.7
Seenu	318	52.5	23.8	368	59.6	21.5	379	52.7	18.9
Shaviyani	210	41.3	16	326	48.8	15.5	304	40.4	14.5
Thaa	153	41.5	16	206	48	18.4	163	40.7	15.7
Vaavu	15	52.9	16.1	20	51.5	19.5	19	41.9	14.6
<b>NATIONAL</b>	<b>4800</b>	<b>47.8</b>	<b>21.1</b>	<b>5901</b>	<b>54.6</b>	<b>20.4</b>	<b>5656</b>	<b>48.1</b>	<b>18.5</b>

*N - number of students; AVG – Average score; SD – Standard deviation*

Based on the table above, we can say that the number of Grade 4 students that participated in the study from, say, the Alif Alif atoll, was 100 and their average performance was 40.6%, with a standard deviation of 16. Similar interpretations for other atolls could be made from the information provided in the table.

## Composite Performance Index of Atolls for all Grades and Subjects



Based on the relative performance of the atolls in different subjects, an attempt has been made to consolidate the 21 atolls' performance on different subjects and across grades. **Due to the fairly high variation across subjects and grades, this should not be considered as a ranking of any kind.** However, the graph does show that the schools of Male, Seenu and Gnaviyani performed better than other atolls. Almost all other atolls showed a similar performance. Raas and Laamu atolls performed lower than all other atolls. The purpose of the graph is only to draw certain broad conclusions and should be referred to only as a composite performance index.

### 3.7 GENDER-WISE PERFORMANCE












Over 7875 girls and 8504 boys participated in the test. An analysis was done to find out if there was a noticeable difference between the average performance of the boys and girls in the study. The table below indicates the mean difference in the performance according to gender.







Subject	Class	Number of Boys	Number of Girls	Boys (% Score)	Girls (% Score)	Significance	Cohen's <i>d</i>	Effect Size
English	4	2490	2310	46.1	49.7	0.000*	-0.171	Small
English	7	3171	2730	51.5	58.2	0.000*	-0.335	Small

English	9	2821	2835	45.9	50.3	0.000*	-0.240	Small
Maths	4	2512	2305	39.0	40.3	0.006*	-0.079	
Maths	7	3105	2699	36.6	38.7	0.000*	-0.138	
Maths	9	2736	2832	37.6	38.5	0.007*	-0.072	
EVS	4	2424	2270	40.3	41.6	0.007*	-0.078	
Science	7	3037	2669	40.5	42.8	0.000*	-0.137	
Physics	9	888	1171	42.5	39.3	0.000*	0.216	Small
Chemistry	9	1136	1381	48.8	47.4	0.073	-	
Biology	9	1243	1513	42.8	42.6	0.753	-	
SS	7	2969	2617	34.2	34.4	0.550	-	
Geography	9	19	54	50.9	44.4	0.163	-	
History	9	16	25	54.3	47.8	0.198	-	

\* The mean difference is significant at the .05 level; Cohen's d - Large: >0.8, Medium: >0.5, Small >0.2

Statistical analysis indicates that girls performed significantly better than boys in English, Maths, EVS Grade 4 and Science Grade 7 across all grades but the magnitude of the difference is meaningful only for English (all grades). Boys performed significantly better than girls in Physics (Grade 9) and the magnitude of the difference is also meaningful. However, as the number of students tested is very large and may itself influence the statistical significance, Cohen's d was checked for the meaningfulness of the differences observed. **It can be seen that the magnitude of the differences is small in English (all grades) and Physics (Grade 9).** The pictorial representation below explains this.

	GRADE 4	GRADE 7	GRADE 9
ENGLISH			
MATHS			
SCIENCE			
PHYSICS			
CHEMISTRY			
BIOLOGY			

	GRADE 4	GRADE 7	GRADE 9
<b>SOCIAL STUDIES</b>		 	
<b>HISTORY</b>			 
<b>GEOGRAPHY</b>			 

*EVS – Grade 4 has been labelled as Science – Grade 4*  
*Cells shaded blue indicates that the magnitude of difference is meaningful.*  
*Blank cell indicates that the subject was not tested in that grade*

## Examples of questions where girls have performed much better than the boys

Here are some passage-based questions where girls are performing much better than the boys. Girls seem to be performing better on certain passage based questions.

### GRADE 7 | ENGLISH

#### TEA HABITS

There are many kinds of tea. There is black tea. There is green tea. There is white tea. There is red tea. There is yellow tea.

People across the world drink tea, but differently.

People drink a lot of tea in China. Some drink it because it is good for health and others drink it because of its taste.

People in Japan and Korea drink a lot of green tea.

In Vietnam, some people drink coffee before they drink tea.

English people add milk to their tea.

In the U.S people drink "sweet tea" which is black tea with sugar.

**People in China drink tea for its taste and also because \_\_\_\_\_.**

- A. it is grown in plenty
- B. it is colourful
- C. it is made of milk
- D. it is good for the body ✓

Qn. 44	Girls	Boys	Difference
Option A	5%	9%	-4%
Option B	6%	11%	-5%
Option C	6%	9%	-3%
Option D	82%	69%	13%

**In which of these countries do people drink tea after drinking coffee?**

- A. Vietnam ✓
- B. China
- C. Korea
- D. U.S.A

Qn. 45	Girls	Boys	Difference
Option A	77%	61%	16%
Option B	9%	15%	-6%
Option C	6%	9%	-4%
Option D	6%	11%	-5%

**How do people in the U.S.A drink tea?**

- A. They drink green tea.
- B. They drink cold tea.
- C. They drink tea with milk.
- D. They drink black tea with sugar. ✓

Qn. 46	Girls	Boys	Difference
Option A	5%	8%	-3%
Option B	3%	10%	-7%
Option C	7%	13%	-7%
Option D	83%	66%	17%

**People in England serve tea with \_\_\_\_\_.**

- A. milk ✓
- B. water
- C. sugar
- D. biscuits

Qn. 47	Girls	Boys	Difference
Option A	80%	67%	13%
Option B	5%	8%	-4%
Option C	7%	11%	-4%
Option D	6%	10%	-5%

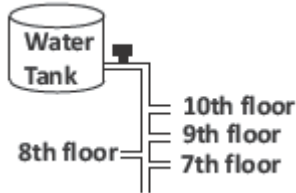
A17-44-47: Tea Habits Passage

**Examples of questions where boys have performed much better than the girls**

Here are some passage-based questions where boys are performing much better than the girls.

**GRADE 9 | PHYSICS**

An apartment with ten floors has a water supply design as shown in the figure.

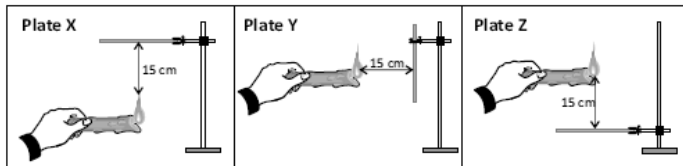


If three people on the 1st, 5th and 10th floors open their taps at the same time, where will the pressure be the maximum?

- A. the tenth floor
- B. the fifth floor
- C. the first floor ✓
- D. All the floors will have the same water pressure.

Qn. 10	Girls	Boys	Difference
Option A	45%	39%	-7%
Option B	10%	9%	-1%
Option C	20%	30%	10%
Option D	23%	21%	-2%

Shehnaz had three candles and three metal plates. Initially, all the metal plates were at the same temperature. She held the candles horizontally and placed the metal plates at a distance of 15 cm from the flame, in different directions (as shown below).



If she measures the temperature of the three plates after 5 minutes, what will she most probably observe?

- A. Plate X has the maximum temperature. ✓
- B. Plates X and Y are at equal temperature, which is higher than that of plate Z.
- C. Plates X and Z are at equal temperature, which is higher than that of plate Y.
- D. All the three plates are at the same temperature.

Qn. 14	Girls	Boys	Difference
Option A	54%	67%	13%
Option B	12%	11%	0%
Option C	13%	10%	-3%
Option D	21%	11%	-10%

A59-10, 15: Physics questions

## 4 FINDINGS: VALUES AND ATTITUDES

In order to study student attitude and values, questions were administered to students of Grades 4, 7 and 9. The paper for Grades 7 and 9 include 45 questions, 20 of which are repeated in Grade 4. These questions checked for student attitude towards – i) seeking help, coping strategies, attaining educational and career goals ii) care and respect for self and others, the consequences of bullying, dealing with peer pressure, tolerance iii) healthy eating, preventing diseases, preventing substance abuse, violence iv) environmental problems, personal use, social responsibility and v) media literacy, ethical use of information, and internet safety and vi) practicing Islam.

On the whole, it was found that, except in a few cases, as students move to higher grades, their attitudes towards these issues were increasingly positive. There are limitations to the interpretations of these items since it is possible that students may to some extent have reported doing things that appear to be desirable and correct. However, it is still a useful measure since the patterns of responses do reveal larger agreements and disagreements.

### 4.1 UNDERSTANDING AND MANAGING SELF

#### *Student attitudes towards seeking help, coping strategies, attaining educational and career goals*

By and large, students have a positive attitude towards learning. Most students agree or strongly agree that they:

- wish they had more help and support from adults
- understand what is being taught in class
- think getting a certain amount of work done each day is important
- know the goals for the class
- know what they're trying to achieve in class
- know the purpose of attending classes
- try to learn from mistakes
- feel comfortable working with a group
- know how to deal with anger

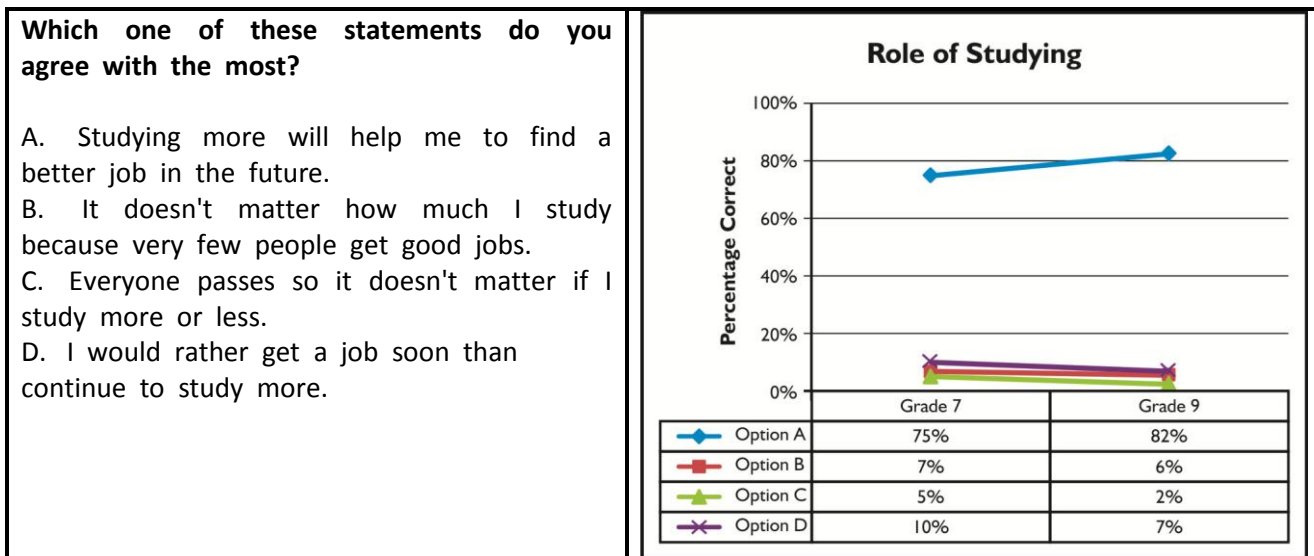
The percentage of students wishing they had more support from adults increases as they move to higher grades – from 70% in Grade 4 to 76% in Grade 7 to 80% in Grade 9. Older students seem to find it more difficult to focus – about 33% of students in Grade 9 strongly disagree or disagree that they pay attention in all classes. More than 25% of students in Grades 7 and 9 say they do not know how to deal with anger indicating that there is not much improvement in coping strategies, as students get older.

Here are some questions that were asked under this competency and their performance.

#### 4.1.1 Role of studying

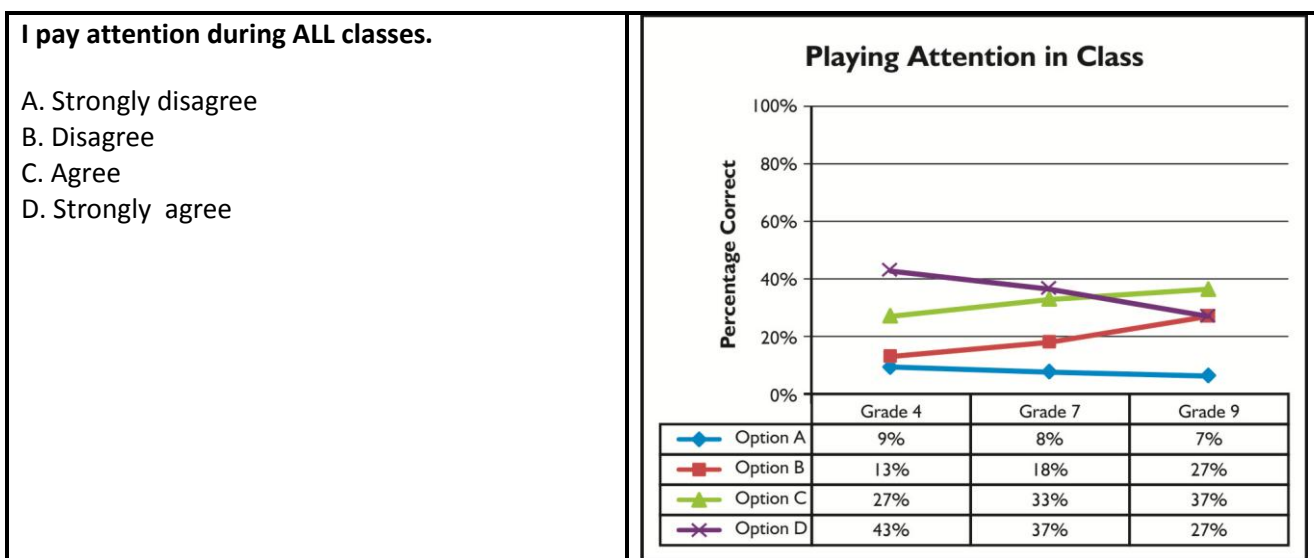
**GRADES 7, 9 | V and A** 75% students in Grade 7 say that studying more will help them get better jobs in the future. This percentage increases to 82% in Grade 9. Younger students (Grade 7 – 10%) are more likely to favour getting a job instead of studying more. This percentage drops among older students (grades 9

– 7%). Overall, few students have a negative attitude towards studying.



A107-15, A109-15: Role of studying

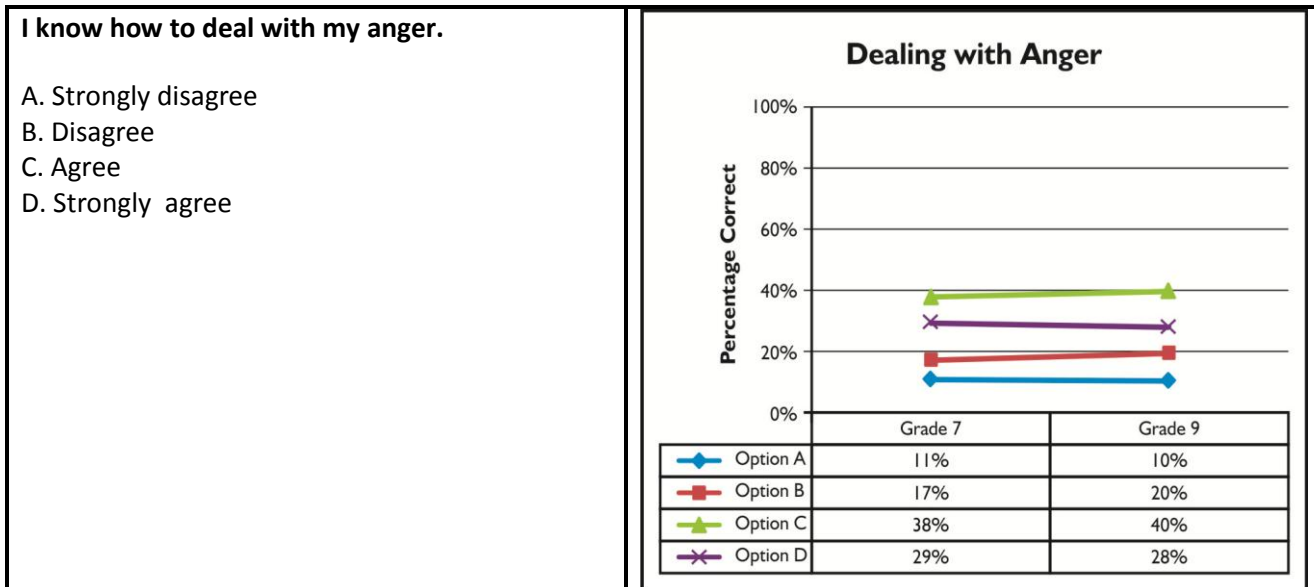
**GRADES 7, 9 | V and A** The percentage of students who strongly agree that they pay attention in all classes shows a marked decrease as students get older – 43% in Grade 4 to 37% in Grade 7 to 27% in Grade 9. Older students seem to find it more difficult to focus – about 33% of students in Grade 9 strongly disagree or disagree that they pay attention in all classes.



A107-39, A109-39: Paying attention in class

#### 4.1.2 Dealing with anger

**GRADES 7, 9 | V and A** More than 25% of students in Grades 7 and 9 do not know how to deal with anger. About 67% of students in Grade 7 agree or strongly agree that they know how to deal with anger. The percentage of students who agree or strongly agree in Grade 9 – about 68% – indicates that there is not much improvement in coping strategies, as students get older.



A107-47, A109-47: Dealing with anger

## 4.2 RELATING TO PEOPLE

### ***Student attitudes towards care and respect for self and others, the consequences of bullying, dealing with peer pressure, tolerance***

As students move to higher grades, they are increasingly likely to be more concerned about inconveniences caused to other people, and are more accepting of differently abled people. They are also more likely to say that parking rules should always be followed, that it's not ok to abuse anyone and that all people should be equally respected, that bullying should be reported to an adult, and that if a student does something wrong, parents should try and explain why it is wrong. Though a majority of students say that men and women should have equal work opportunities, there is some resistance towards the economic participation of women.

Younger students are more likely to say that it's ok to bend rules if people are late or it's a busy road, that it is ok to mistreat someone from another country because they are different or because they are here to work, and that teachers are to be blamed for not paying attention if a student does something wrong.

More than 50% of the students say that they would not feel comfortable if people disagreed with them.

A majority of the students agree or strongly agree that they:

- would feel bad if they had stolen something
- would feel bad if they had been involved in bullying someone else
- try to be kind to people even if people are unkind to them
- would try to talk to someone who looks lonely
- think about how their actions affect others
- would speak out about something they believed in even at a negative personal consequence
- feel protective towards those who are weaker
- would try not to be aggressive in an argument
- feel a sense of responsibility towards others
- watch for opportunities to help other people


- would be willing to join a group to help others

Here are some questions that were asked under this competency, and their performance.

#### 4.2.1 Sensitivity towards others

**GRADES 4, 7, 9 | V and A** While few students reported openly negative views (C – She will not do well in studies), many students expressed views that suggest they see disabled people as less capable than non-disabled people. A majority of students (more than 45% of students across grades) say that differently abled people are “burdensome” (B – She will always need help). A large number of students also believe that differently abled people are not happy, though this percentage decreases as students move to higher grades – from 37% in Grade 4 to 28% in Grade 9. Acceptance of differently abled people as being no different or capable (though low) increases as students move to higher grades – from only 5% in Grade 4 to 13% in Grade 7 to 22% in Grade 9.

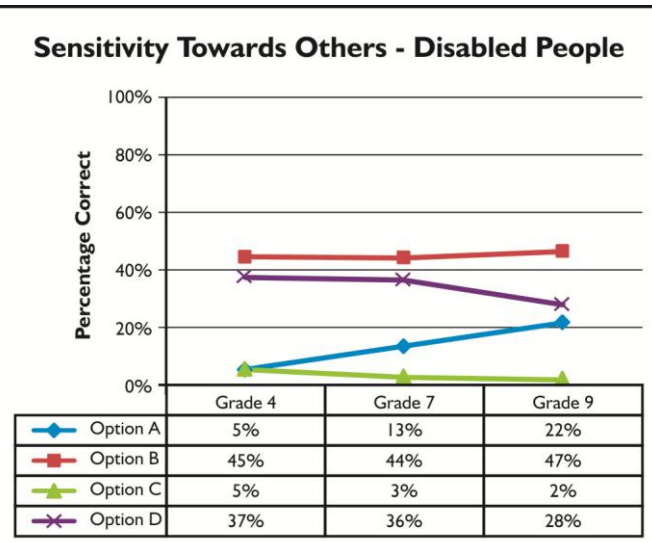
**Fathima is a new student to the school. She goes everywhere in a wheelchair because she can't walk. The other students want to know about her.**



**What will the other students think about Fathima?**

A. She is just like me.  
 B. She will always need help.  
 C. She will not do well in studies.  
 D. She will be sad all the time because she can't walk.

**Sensitivity Towards Others - Disabled People**



	Grade 4	Grade 7	Grade 9
Option A	5%	13%	22%
Option B	45%	44%	47%
Option C	5%	3%	2%
Option D	37%	36%	28%

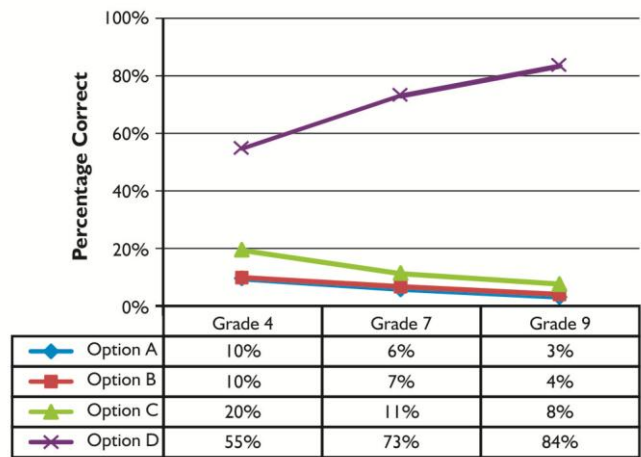
A104-7, A107-9, A109-9: Views towards disabled people

**GRADES 4, 7, 9 | V and A** Younger students are more likely to express hostile attitudes towards foreigners or “outsiders”. About 20% of younger students (Grade 4) tend to believe it is ok to mistreat someone from another country because they are different or because they are here to work. However, this percentage decreases as students move to higher grades. Younger students (Grade 4 – 20%) also seem to be more fearful of “retaliation” (C – It is not ok to abuse the worker because they might hurt us when they get a chance). A majority of students believe it’s not ok to abuse someone from another country because all people should be respected equally. This percentage greatly increases as students move to higher grades – from 56% in Grade 4 to 73% in Grade 7 to 84% in Grade 9.

You see a group of your friends hurting/abusing a worker from another country who lives in your country. What would you think about this?

- A. It is ok to abuse the worker as they are different from us.
- B. It is ok to abuse the worker as they are here to work for us.
- C. It is not ok to abuse the worker because they might hurt us when they get a chance.
- D. It is not ok to abuse the worker because all people should be respected equally.

Sensitivity Towards Others - People from Other Countries



A104-8, A107-11, A109-11: Treating workers from other countries

**GRADES 4, 7, 9 | V and A**

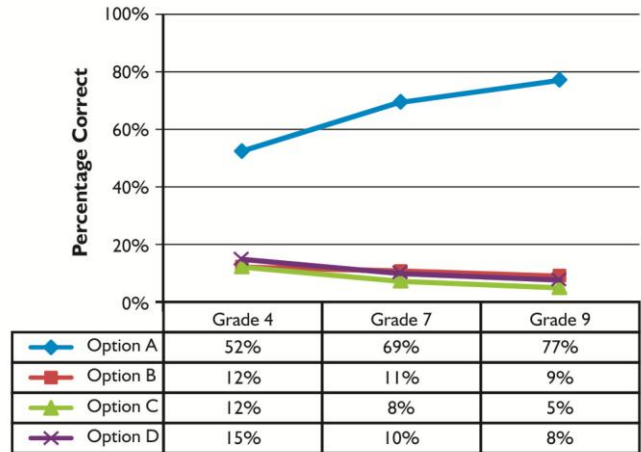
A majority of the students believe that bullying should be reported to an adult. However, younger students are more likely to believe that someone who gets teased deserves it, or feel helpless about it, or say that there is no problem as long as no one gets hurt.

A 12-year-old student is being repeatedly teased (made fun of) by another, more powerful, student. As a result, the student who is being teased is feeling angry and sad.

What do you think about this?

- A. We should talk to an adult and seek help.
- B. Someone who gets teased usually deserves it.
- C. We can't do anything about it because the other student is too strong.
- D. No one is getting physically hurt, so there is no need to worry about the student who is being teased.

Sensitivity Towards Others - Teasing Other Students



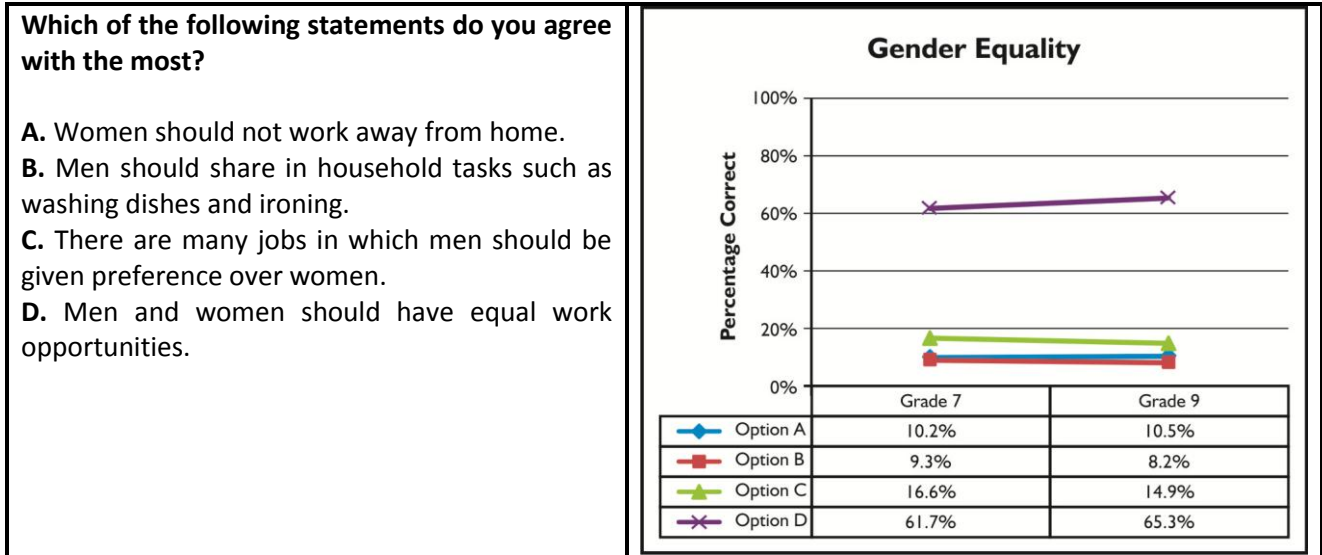
A104-9, A107-12, A109-12: Teasing other students

**4.2.2 Gender Equality**

**GRADES 7, 9 | V and A**

Though a majority of students say that men and women should have equal work opportunities, there is some resistance towards the economic participation of women. About 15% to 17% of students say that men should be given preference over women for certain jobs, and about 10% of

students also say that women should not work away from home.



A107-16, A109-16: Views towards men and women

### 4.3 LIVING A HEALTHY LIFE

#### Students' attitudes towards healthy eating, preventing diseases, preventing substance abuse, violence

Older students are less likely to stigmatize people who are suffering from diseases like vitiligo. They also seem to be more aware of the negative consequences of fast food. About 32% of the students in Grade 4 and about 22% in Grade 7 disagree or strongly disagree that eating too much fast food leads to health problems. A majority of the students believe that using drugs leads to violence. It is of some concern, however, that about 39% students in Grade 7 and almost half the students in Grade 9 believe that their peers have tried smoking cigarettes or using drugs.

Here are some questions that were asked under this competency and their performance.

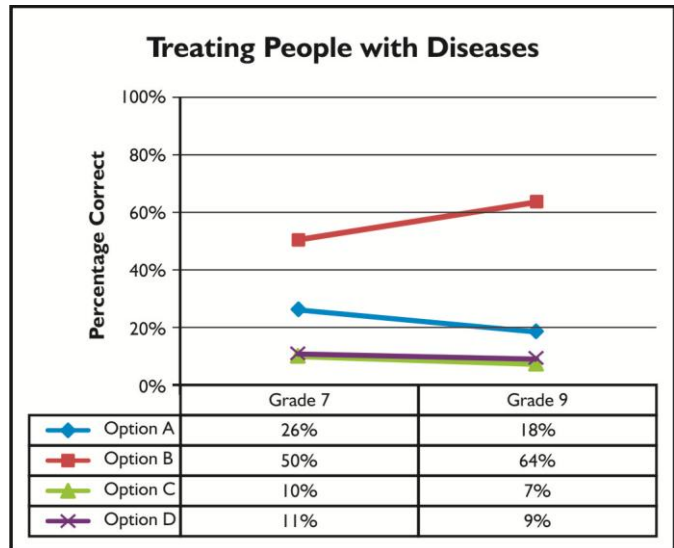
#### 4.3.1 Treating people with diseases

**GRADES 7, 9 | V and A** As students move to higher grades (50% in Grade 7 to 64% in Grade 9), they are more accepting of people suffering vitiligo and are aware that people with the disease are capable of participating in everyday life. However, there seems to be some social stigma attached to it due to various misconceptions – many students (26% in Grade 7 and 18% in Grade 9) harbour the misconception that it is a contagious disease, or that people suffering from it should not be allowed to use certain public facilities (10% in Grade 7 and 7% in Grade 9). A number of students (11% in Grade 7 and 9% in Grade 9 ) also think that people who suffer from it are to be blamed for catching it.

**Vitiligo (“Hudhu Bali”)** is the condition in which there is a loss of brown colour (pigment) from areas of skin, resulting in irregular white patches on your skin. A person can live a normal life even if they have this condition.

Which of the following statements about vitiligo do you agree with?

- A. We should avoid going near a person with vitiligo because we might catch it by being near them.
- B. People with vitiligo are capable of participating in everyday life like people with any other disease.
- C. People with vitiligo should not be allowed to use public facilities like toilets.
- D. People with vitiligo are solely to blame for catching the disease.



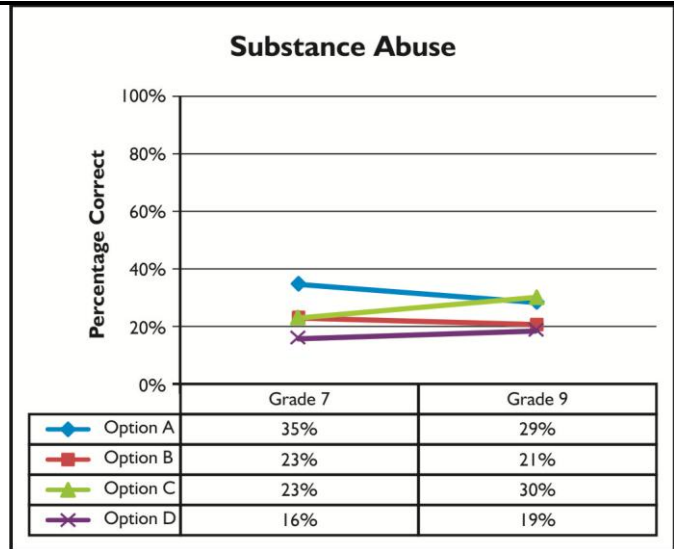
A107-6, A109-6: Views towards people with vitiligo

### 4.3.2 Substance abuse

**GRADES 7, 9 | V and A** 39% of grade 7 students believe their friends might have tried smoking cigarettes or using drugs and this percentage increases to 49% in Grade 9.

I believe that some of my friends have tried smoking cigarettes or using drugs.

- A. Strongly disagree
- B. Disagree
- C. Agree
- D. Strongly agree



A107-25, A109-25: Smoking

## 4.4 LEARNING FOR SUSTAINABLE DEVELOPMENT

### Students’ attitudes towards environmental problems, personal use, social responsibility

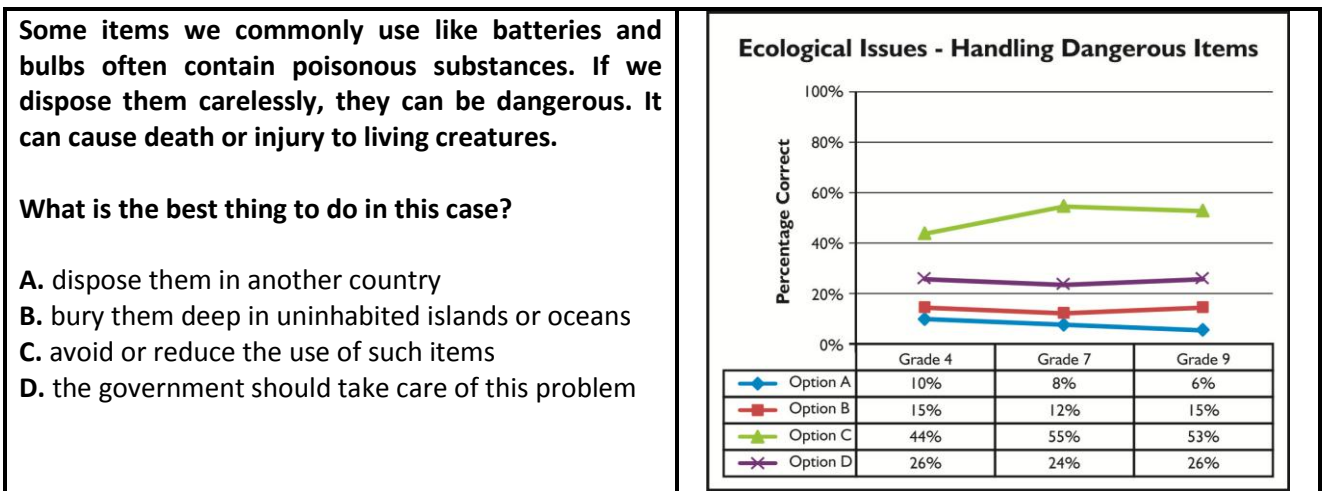
Older students seem to have a stronger sense of responsibility when it comes to garbage disposal. Younger students (26% in Grade 4) think that if there are no dustbins, it decreases personal responsibility. Older students are also more likely to better understand the effect of personal use on the environment and saving

energy. Most students agree that personal use can contribute towards solving environmental problems. Younger students are more likely to say that environmental problems don't affect them or that they cannot do anything to help solve environmental problems. They are also more likely to believe that environmental problems will be "solved by science" at some future time. Many students (20-25%) also think that it is ok to dispose of these items in another country or by burying them deep in uninhabited places. About 40%-45% students think there are enough natural resources to sustain us for millions of years indicating that students may not be fully aware of the effect of human activity on the environment.

Here are some questions that were asked under this competency and their performance.

#### 4.4.1 Ecological Issues

**GRADES 4, 7, 9 | V and A** 44%-53% of the students think that personal use can make a difference to the environment. However, about 25% of students think that garbage disposal is the responsibility of a higher authority. Many students (20-25%) also think that it is ok to dispose of these items in another country or by burying them deep in uninhabited places, indicating the prevalence of the attitude that if the matter is "out of sight" or "far away", it ceases to be a problem.



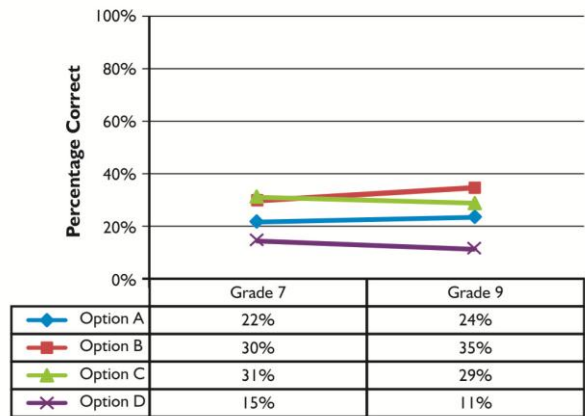
A104-3, A107-4, A109-4: Handling dangerous items

**GRADES 7, 9 | V and A** 40%-45% students agree or strongly agree that the earth has plenty of natural resources to support us for millions of years. This indicates that many students may not be taking a wider view of the effect of human activity on natural resources.

**At the rate we are consuming things now, the earth has plenty of natural resources to support us for millions of years.**

- A. Strongly disagree
- B. Disagree
- C. Agree
- D. Strongly agree

**Ecological Issues - Use of Natural Resources**



A107-21, A109-21: Views towards the use of natural resources

## 4.5 USING TECHNOLOGY AND THE MEDIA

### Students' attitudes towards media literacy, ethical use of information, internet safety

Older students are more likely to be careful of meeting with strangers who might chat with them, while younger students are more likely to give out information to someone unknown or believe that it is ok to meet a stranger if there are a lot of people. Most students (60%-68%) are against plagiarism and think copying from websites will not help them learn. 41% of students in Grade 7 are not as media literate as older students and are likely to believe that whatever is reported in newspapers to be true. Most students (66%-74%) are aware that some websites on the internet may be harmful. Here are some questions that were asked under this competency and their performance.

#### 4.5.1 Use of Technology

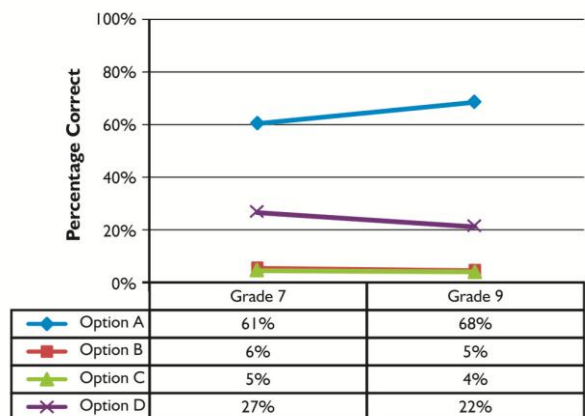
**GRADES 7, 9 | V and A** Most students (60%-68%) think copying from websites will not help them learn. However, many students (22%-27%) are likely to think that the responsibility lies with the person checking the information, not the person plagiarising it.

**A student copies an essay from a website. The teacher gives this student high marks for it and praises him in class.**

**What do you think about this?**

- A. The student should write his own essay as he will learn only by doing that.
- B. Information on websites is free and can be used in any way people like.
- C. The student is not breaking any laws so it is ok if he copied the essay.
- D. Teachers should check students' work on the internet and only then give marks.

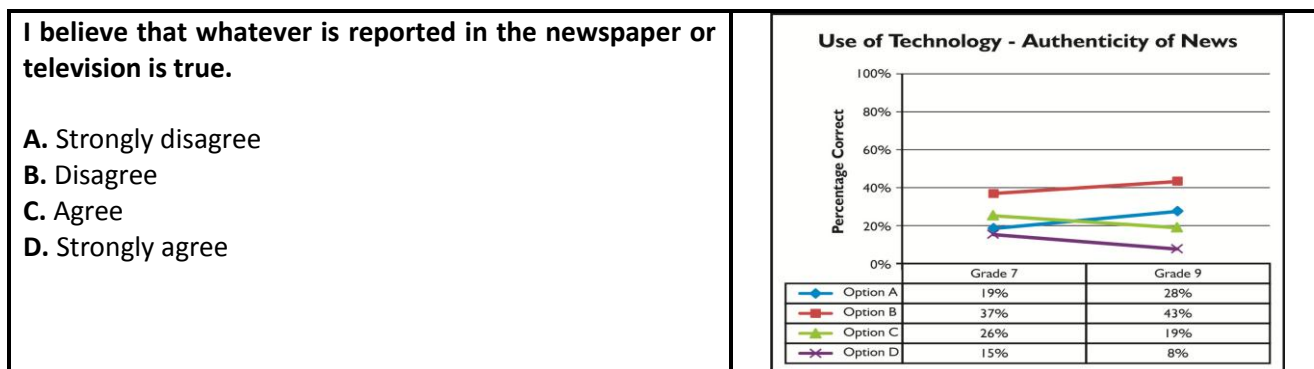
**Use of Technology - Using Websites**



A107-10, A109-10: Using websites

## 4.5.2 Authenticity of reported news

**GRADES 7, 9 | V and A** Older students are more likely to question what is reported by the media. 41% of students in Grade 7 believe whatever is reported in newspapers to be true. This decreases to 27% in Grade 9.



A107-48, A109-48: Authenticity of the reported news

## 4.6 PRACTICING ISLAM<sup>5</sup>

In this area, students' attitude towards aspects related to 'Akhlāg', 'Ibaadath' and 'Ageedha/Thauheed' are assessed.

Overall, majority of students have shown positive attitude towards the aspects assessed in this competency. In general, as students get older, they tend to have stronger views and more positive views on aspects related to Islam. For instance, 69 % of Grade 9 students are willing to take some actions to avoid someone being cheated. Likewise, around 85% of Grade 9 students chose options that showed the importance of fasting and also as students get older they seem have a greater faith in Islam.

However, there are concerns as there are a number of students who have selected options that show that need to develop a stronger value system in relation to Islam.

Here are some of the questions that were asked under the competency and their performance.

### 4.6.1 Akhlāg

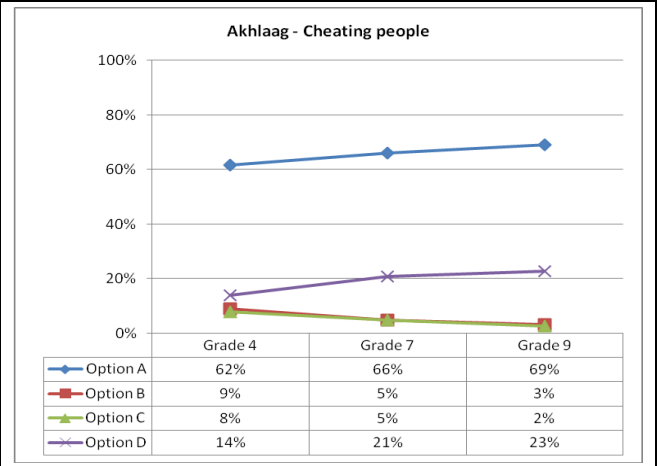
**GRADES 4, 7, 9 | V and A** Most of the students (62-69%) indicated that they would explain to the shopkeeper not to sell the expired juice packets, showing that they are NOT in favour of cheating someone and would also take some sort of action. Interestingly, as students get older they do feel the need to inform a high authority regarding the situation. However, there are still few students (2%) in higher grades who would do otherwise, such as buying the product and selling at a higher price.

<sup>5</sup> Findings in this section have been analysed and reported by the National Institute of Education.

Asima sees a shopkeeper selling juice packets very cheap. She noticed that the expiry date written on the juice packets is 12 December 2012. She knows it is bad to sell items after the expiry date.

What is the best thing to do in this case?

- A. Tell the shopkeeper not to sell them.
- B. Ignore it as it is not her problem.
- C. Buy them and sell them to a friend at a higher price
- D. Secretly tell the police or island councillor about it.

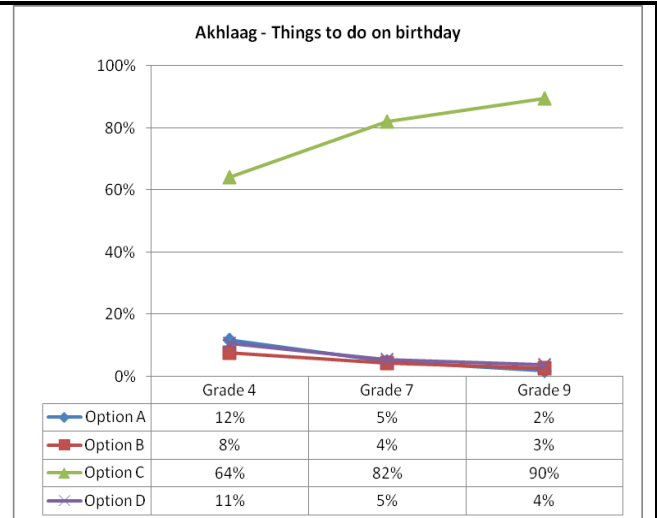


A104-13, A107-17, A109-17: Cheating people

**GRADES 4, 7, 9 | V and A** As students get older they believe that the best thing to do on a birthday is to be thankful to Allah (SWT) and to plan to do better in the future. Young students show that they are more eager to celebrate their birthdays in various ways such as by distributing sweets or blowing candles and having a party.

On 10th December, Adam will be 15 years old. Which of the following is the BEST thing to do on his birthday?

- A. Distribute sweets to students in his class.
- B. Receive presents from relatives and friends.
- C. Thank Allah, think about his past actions and plan to do better in future.
- D. Blow birthday candles and have a party.



A104-12, A107-19, A109-19: Things to do on birthday

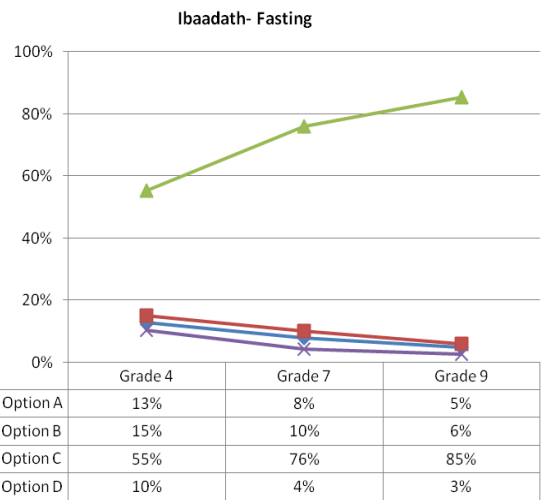
#### 4.6.2 Ibaadath

**GRADES 4, 7, 9 | V and A** As the students get older they choose the option of not breaking the fast and do the examination (85% in Grade 9) which indicates students responding in a positive manner when it comes to values related to fasting. However, 6% of students at Grade 9 level mentioned that they will break the fast, do the examination and will also tell others about it, indicating that they want others also to know about it. Interestingly, when students are younger (10% of grade 4) they will opt not to attend the exam.

**Ismail has to sit for his very important examination in the afternoon during the month of Ramadhan.**

**What should Ismail do?**

- A.** Break his fast, do the examination and NOT talk about it.
- B.** Break his fast, do the examination and tell others about it.
- C.** NOT break his fast and do the examination.
- D.** NOT attend the examination.



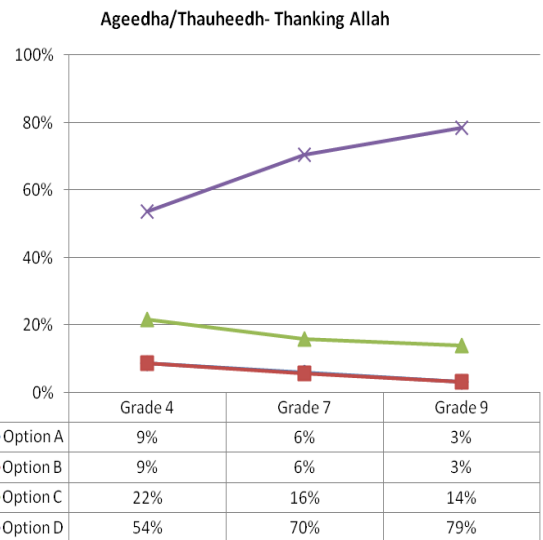
*A104-11, A107-18, A109-18: Fasting*

### 4.6.3 Ageedha/Thauheedh

**GRADES 4, 7, 9 | V and A** Most of the students either strongly agree (68%) or agree (17%) that even if things do not happen the way they want, they should be thankful to Allah (SWT) and be patient. The number of students selecting the ‘agreeing’ option also increases as they get older. However, 6% of students at Grade 9, and 12% students at Grade 7 disagreed with it.

**Even if things do not happen the way I want I should always thank Allah and be patient.**

- A.** Strongly disagree
- B.** Disagree
- C.** Agree
- D.** Strongly agree



*A104-14, A107-20, A109-20: Thanking Allah*

## 4.7 COMPARISON WITH INDIAN BENCHMARKS

To expand the meaning of ‘quality’ in education and to include educational outcomes beyond student performance in subjects and to study the attributes of quality learning environments, EI along with Wipro Limited, an Indian multinational company, conducted a study in India called the Quality Education Study (QES). A section to gather information on students’ perception and their attitude towards various social

issues was also included in the study. Some of these questions were similar to/repeated in the Maldives' study on Values and Attitudes. Here is a comparison on how Indian students and Maldivian students perceive some of the issues.

Issue	Findings
<b>Gender Equality</b>	The QES study shows that about 48% of the students think that men and women are equally good at jobs like doctor, teacher and cook, whereas the Maldives study shows that about 62%-65% of the students think that men and women should have equal work opportunities. This might indicate <b>a lesser bias among Maldivian students with regard to gender equality.</b>
<b>Sensitivity towards others</b>	The QES study shows that a large majority (70-80%) of students across different grades 4, 6 and 8 think of differently abled people as burdensome, unhappy or not able to do well in studies. This was similar to the Maldives study where 75%-87% think that differently abled people will always need help, will not do well in studies or will be unhappy. In both cases, <b>acceptance of differently abled people as being no different or capable (though low) increases as students move to a higher grade.</b>
<b>Ecological Issues</b>	In the QES study, 32-44% of the students at all three grade levels understand that personal use can make a difference to the environment, while in the Maldives study 44%-53% of the students feel the same. It is also important to note that in the QES study, a significant number (19-23%) at all three grade levels think that ecological/environmental issues are the responsibility of a higher institution e.g. government, while in the Maldives study, about 25% of students think the same. This indicates that <b>Maldivian students probably understand the ecological consequences of using certain harmful substances slightly better.</b>
<b>Civic/Citizenship Issues</b>	<b>The QES study shows that younger students seem to have a stronger sense of civic responsibility than students of Grade 8 with regard to disposal of garbage, whereas the Maldives study shows that it is the older students who have a stronger sense of civic responsibility.</b> In the QES study, older students are more likely to have the idea that if everybody is doing it, or if extra work is involved in doing something, it decreases personal responsibility. Whereas this is the case with younger students in the Maldives study, the percentage of students choosing “It is never okay to throw garbage in the sea.” (similar option ‘It is never okay to throw garbage on the street.’ in the QES study) is greater in the Maldives study (55%-85%) than the QES study (28%-34%).

## 5 RECOMMENDATIONS

- 1. Campaign to educate teachers, parents and students to recognize the importance of learning with understanding:** Starting with widespread dissemination of the findings of this report among teachers and others, we think there is a need and an opportunity to initiate a debate on issues such as rote learning and learning with understanding, so that teachers and gradually parents understand these issues and recognise the importance of learning with understanding. This can be achieved through seminars, events within schools and towns, television shows, and internet, including the use of social networking sites.
- 2. Targeted program and campaign to build the habit of reading:** Building an interest in reading and getting people to develop the reading habit can help significantly in improving both learning outcomes as well as create a 'thinking society' at large. Book exhibitions, Reading clubs (in schools and communities), competitions such as debates and elocutions, events where students discuss their 'favourite book', library visits can all help in promoting the habit of reading, and thinking about what has been read. A nation-wide campaign that promotes and rewards reading can also be very effective. Such a campaign could have goals like 100,000 students will read 400,000 books in 1 year.
- 3. Tracking outcomes and using inputs for curriculum and training:** Student outcomes should be tracked through nation-wide scientific assessments for 6 years annually, and once in 2 years after that- to track the progress of initiatives. Key bodies should have annual seminars regarding the results of these assessments- and these should be used to make the plans for teacher training and any changes to curriculum.
- 4. A computerized database and system that contains information regarding the learning of every child in Maldives, and helps administrators, curriculum experts and teacher trainers to take informed decisions:** Such a system would allow all data related to a student – performance in assessments, sports, etc., strengths-weaknesses - to be tracked at one place. The unique identification would allow student-wise progress monitoring over time even if student moves to a different school or town. It allows tracking of learning at an individual level – this will be a data mine of information to detect patterns in learning and learning difficulties. It allows easy access to information at the needed level- both summarized information is available and one can also drill down to the last level of detail.
- 5. Research using student interviews that are videographed, which would give insights to teachers and curriculum makers on common student difficulties and help improve teaching practice:** It is important to recognise that understanding what students already know and think about a concept before it is taught or while it is being taught, is an important aspect of teaching. While large scale assessments provide detailed performance data and the patterns underlying student responses, they may not fully explain why students choose a particular option or answer in a particular way. In order to uncover that, one approach is to simply ask students questions in a 'student interview', without guiding the student to the answer. These interviews are typically conducted in the class itself by trained interviewers. It is common in research studies to conduct individual interviews and use the transcripts – one advantage of the whole class interaction is that it allows for discussions among students. These interviews are video recorded and then disseminated to schools where they are used mainly for teacher feedback and training.



## 6 APPENDIX

### 6.1 APPENDIX A: LIST OF COMPETENCIES AND PERFORMANCE

#### ENGLISH - GRADE 4

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knows names of objects, birds and animals not seen in daily life	7	1,2,3,4,5,6,7	75.5%
2	Knows meanings, spellings and opposites of words used in daily life	4	11,8,9,10	45.8%
3	Correct sentence formation, punctuation and sequencing	4	14,13,15,12	49.3%
4	Comprehends very simple sentences or a simple paragraph	11	16,25,18,19,24,23,17,22,26,21,20	42.2%
5	Parts of speech, gender, number, tense, etc.	7	35,27,41,42,45,44,43	54.2%
6	Comprehends passages of intermediate difficulty	5	36,37,38,39,40	28.1%
7	Comprehends complex passage of high difficulty	6	31,34,33,32,28,29,30	35.6%

#### ENGLISH - GRADE 7

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knows names of objects, birds and animals not seen in daily life	4	3,1,4,2	71.4%
2	Knows meanings, spellings and opposites of words used in daily life	5	5,9,8,6,7	55.8%
3	Correct sentence formation, punctuation and sequencing	2	11,12	48.5%
4	Comprehends very simple sentences or a simple paragraph	13	13,21,44,16,47,14,15,46,19,20,45,17,18	54.4%
5	Parts of speech, gender, number, tense, articles, etc.	8	50,40,42,49,41,48,39,43	63.6%
6	Understands information presented in authentic material	5	34,35,36,37,38	57.1%
7	Comprehends passages of intermediate difficulty	6	31,33,27,28,30,32	48.7%
8	Comprehends complex passage of high difficulty	5	26,25,23,24,22	32.7%

**ENGLISH - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knows names of objects, birds and animals not seen in daily life	4	2,4,3,1	77.7%
2	Knows meanings, spellings and opposites of words used in daily life	5	8,7,5,9,6	55.7%
3	Correct sentence formation, punctuation and sequencing	3	11,10,12	55.2%
4	Comprehends very simple sentences or a simple paragraph	15	24,47,13,14,17,16,45,20,21,46,25,26,44,23,15	47.1%
5	Parts of speech, gender, number, tense, articles, etc.	8	18,37,48,39,49,19,50,38	43.6%
6	Understands information presented in authentic material	5	34,32,33,36,35	59.6%
7	Comprehends passages of intermediate difficulty	5	29,31,28,27,30	30.1%
8	Comprehends complex passage of high difficulty	4	41,42,43,40	24.9%

**MATHS - GRADE 4**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Number sense, related concepts and basic number competency	8	8,16,40,33,28,38,1,22	41.8%
2	Arithmetic Operations: Four basic operations, properties and shortcuts	7	2,9,15,36,35,26,23	42.1%
3	Fractions: Concepts and applications	5	12,6,19,30,34	32.5%
4	Basic shapes, Geometry and Visual estimation	5	32,10,20,11,39	35.2%
5	Measurement, Data interpretation, analysis and Graphs	5	25,4,17,24,3	43.9%
6	Applications in daily life, Commercial maths, Word and visual problems	5	13,5,18,27,29	39.1%
7	Reasoning and Problem Solving (advanced or challenging problems)	5	7,14,31,21,37	40.2%

**MATHS - GRADE 7**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Number sense, basic number competency, Integers	10	1,20,28,11,37,2,21,33,36,10	37.4%
2	Fractions, Decimals, Ratios and Percentages	5	3,13,29,14,38	51.5%
3	Basic Shapes, Geometry and Visual estimation	5	40,6,22,44,15	35.1%
4	Algebra - Concepts and applications	5	8,18,26,31,43	27.1%
5	Mensuration - Area and Perimeter, Volume and Surface Area	5	34,12,30,17,4	39.3%
6	Measurement, Data interpretation, analysis and Graphs	5	41,23,24,32,5	41.7%
7	Applications in daily life, Commercial maths, Word and visual problems	5	42,27,35,19,9	29.0%
8	Reasoning and Problem Solving (advanced or challenging problems)	5	25,7,39,16,45	39.4%

**MATHS - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Number sense, related concepts and basic number competency	6	10,18,28,37,43,1	32.9%
2	Integers and Rational numbers, Powers and Bases	4	2,45,19,29	60.8%
3	Fractions, Decimals, Ratios and Percentages	5	20,5,31,44,12	53.7%
4	Basic Shapes, Geometry and Visual estimation	5	21,32,22,39,7	30.2%
5	Algebra - Concepts and applications	5	4,14,33,40,27	30.3%
6	Mensuration - Area and Perimeter, Volume and Surface Area	5	3,13,26,24,38	34.7%
7	Measurement, Data interpretation, analysis and Graphs	4	6,23,36,30	46.1%
8	Applications in daily life, commercial maths, Word and visual problems	6	11,9,34,16,41,25	28.4%
9	Reasoning and Problem Solving (advanced or challenging problems)	5	17,8,35,15,42	34.4%

**EVS - GRADE 4**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knowledge of facts and instruments	12	4,16,1,7,10,15,2,3,18,25,8,5	42.4%
2	Understanding and application of concepts	12	21,22,33,6,32,11,20,28,24,34,9,23	39.4%
3	Reasoning and analysis	10	35,19,26,30,27,37,14,39,40,38	43.5%
4	Experimentation and Hypothesis formulation	6	12,17,36,29,31,13	36.5%

**SCIENCE - GRADE 7**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knowledge of facts and instruments	12	3,8,9,2,4,17,7,6,5,12,14,24	48.2%
2	Understanding and application of concepts	14	16,32,10,18,21,20,11,29,30,34,39,36,41,33	37.2%
3	Reasoning and analysis	13	15,44,13,1,31,22,27,28,35,37,38,42,43	38.6%
4	Experimentation and Hypothesis formulation	6	26,19,23,25,40,45	43.6%

**PHYSICS - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knowledge of facts and instruments	5	7,1,5,6,3	37.8%
2	Understanding and application of concepts	5	2,11,12,14,13	44.0%
3	Reasoning and analysis	5	9,4,10,19,18	35.9%
4	Experimentation and Hypothesis formulation	5	8,15,20,16,17	45.0%

**CHEMISTRY - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knowledge of facts and instruments	5	1,2,6,19,8	45.2%
2	Understanding and application of concepts	4	3,4,9,20	56.9%
3	Reasoning and analysis	5	7,10,16,14,17	46.4%
4	Experimentation and Hypothesis formulation	5	5,12,11,15,18	45.3%

**BIOLOGY - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Knowledge of facts and instruments	5	3,6,7,1,2	40.7%
2	Understanding and application of concepts	5	8,5,15,10,4	47.6%
3	Reasoning and analysis	6	12,9,11,14,21,20	36.3%
4	Experimentation and Hypothesis formulation	5	19,13,18,16,17	47.4%

**SOCIAL STUDIES - GRADE 7**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Physical, political and human geography	18	1,2,3,4,6,7,5,8,9,10,15,12,13,11,14,16,18,27	34.7%
2	Historical ideas and chronology	17	20,21,22,23,24,25,26,31,28,17,40,29,35,30,39,19,33	34.1%
3	Map and graph reading and interpretation	5	37,38,36,34,32	33.0%

**HISTORY - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Historical ideas and chronology	17	1,2,3,4,5,6,7,10,9,11,12,15,13,16,17,19,8	53.8%
2	Sources of history and chronology	8	20,14,22,25,23,21,24,18	43.0%

**GEOGRAPHY - GRADE 9**

Sr. No.	Competency	Total no. of questions	Questions	Skill Average
1	Physical, political and human geography	17	3,1,2,12,4,5,7,9,10,11,8,13,14,15,16,21,6	46.6%
2	Map and graph reading and interpretation	8	20,18,19,17,22,23,25,24	43.2%

## 6.2 APPENDIX B: ATOLL LEVEL STATISTICS FOR ALL SUBJECTS

GRADE 4										
S r. N o .	Atoll	English			Maths			EVS		
		N	AVG (%)	SD	N	AVG (%)	SD	N	AVG (%)	SD
1	Alif Alif	100	40.6	16	101	37.4	14.9	97	38.8	13.7
2	Alif Dhal	89	38.8	15.6	90	33.7	13.6	84	34.3	14.2
3	Baa	178	44.9	16.4	176	38.9	15.8	178	38.8	13.7
4	Dhaal	82	43.9	15.7	81	38.7	16.1	73	44.2	17
5	Faafu	94	38	15.9	92	35.9	13.4	87	35.5	11.2
6	Gaa Alif	171	40.1	17.1	180	34.7	15.3	183	36.6	15.3
7	Gaa Dhaal	224	44.1	17.4	236	36.1	15	222	37.3	15.2
8	Gnaviyani	153	50.9	21.6	152	40.2	16.4	143	41.4	16.9
9	Haa Alif	234	40.6	15.2	239	34.7	13.2	226	35	13.3
10	Haa Dhaal	332	40	18.1	328	35.5	14.7	320	34.9	14.2
11	Kaafu	163	39	15.9	161	33.8	13.6	155	34.3	13.4
12	Laamu	228	35.6	15	237	32.5	13.9	232	32	13.1
13	Lhaviyani	138	49	18.1	140	40.2	15.1	137	42.4	14.8
14	Male	1377	61.4	22.1	1346	48	17	1346	49.7	17.2
15	Meemu	60	46.5	15.6	61	41.7	13.5	58	42.8	16.9
16	Noonu	184	41.1	15.6	194	35.5	13.2	201	38.1	14
17	Raa	313	38	15	311	32	12.9	300	32.3	12.6
18	Seenu	318	52.5	23.8	313	42.5	17.4	305	46	18.1
19	Shaviyani	210	41.3	16	221	36.8	14	208	38	13.2
20	Thaa	153	41.5	16	158	35.4	13.8	150	35.3	14.4
21	Vaavu	15	52.9	16.1	14	40.7	14.2	15	42.3	11.6
	<b>NATIONAL</b>	<b>4816</b>	<b>47.9</b>	<b>21.1</b>	<b>4831</b>	<b>39.6</b>	<b>16.4</b>	<b>4720</b>	<b>40.9</b>	<b>16.6</b>

GRADE 7													
Sr. No.	Atoll	English			Maths			Science			Social Studies		
		N	AVG (%)	SD	N	AVG (%)	SD	N	AVG (%)	SD	N	AVG (%)	SD
1	Alif Alif	113	47.4	14.9	108	33.9	11.5	107	36.7	12.8	103	30	9.1
2	Alif Dhal	127	49.2	17.5	130	34.6	11.5	122	37.4	13.3	127	29.9	10.1
3	Baa	199	52.6	14.8	201	40	14.1	194	39.5	13.7	197	31.9	11
4	Dhaal	135	42.3	17.3	127	30.3	12.3	123	33.4	13.8	122	30.4	10.9
5	Faafu	137	44.9	17.7	131	34.1	12.8	127	34.8	12.8	131	30	10.2
6	Gaa Alif	209	51.1	17.7	222	33.5	13.4	210	37.9	14.1	199	33.2	10.6
7	Gaa Dhaal	222	52.2	18.9	224	35.7	14.3	221	38.9	15.7	209	33.9	11
8	Gnaviyani	193	63.1	20.5	196	40.1	15	194	49.1	18.1	185	37.9	13.4
9	Haa Alif	361	46.1	16.1	379	34.2	13.3	351	36.9	13.7	356	30.2	9.2
10	Haa Dhaal	397	45.3	17.9	396	34.2	13.1	391	34	12.9	385	30.9	10.3
11	Kaafu	212	46.5	18.3	207	32.9	12.1	198	36.2	14	208	30.3	8.7
12	Laamu	327	43.3	16.4	327	31.7	13	325	33.2	13.6	321	29.6	9.4
13	Lhaviyani	183	54.9	19.2	180	37.2	16.5	183	40.9	16.8	174	33.6	13.1
14	Male	1488	69.3	18.7	1375	45.6	16.4	1449	51.8	17.9	1365	41.5	14.1
15	Meemu	79	50.9	18.2	79	35.2	14.7	80	38.3	16.5	79	32.9	11.1
16	Noonu	233	49.2	17.9	227	34.5	13.4	221	37.8	15.2	225	31.9	11.1
17	Raa	388	48.4	17	393	34	13.5	329	36.8	13.6	322	31.4	10.1
18	Seenu	368	59.6	21.5	372	40.3	17.1	357	45.6	17.1	355	36	13
19	Shaviyani	326	48.8	15.5	324	34.8	12.8	319	37.6	13.4	320	31.2	10.5
20	Thaa	206	48	18.4	199	33.7	14.4	193	36.9	13.8	198	31.5	10.7
21	Vaavu	20	51.5	19.5	22	34.1	13.3	21	39.4	15.1	22	36.4	12.8
	<b>NATIONAL</b>	<b>5923</b>	<b>54.8</b>	<b>20.4</b>	<b>5819</b>	<b>37.3</b>	<b>15.3</b>	<b>5715</b>	<b>41.6</b>	<b>16.9</b>	<b>5603</b>	<b>34.3</b>	<b>12.5</b>

GRADE 9							
Sr. No.	Atoll	English			Maths		
		N	AVG (%)	SD	N	AVG (%)	SD
1	Alif Alif	109	44.2	15.3	116	36.2	11.9
2	Alif Dhal	148	41.7	16.6	148	37.8	11.6
3	Baa	238	45.6	16.2	233	40.3	12.9
4	Dhaal	96	44.5	15.9	88	40.5	12
5	Faafu	124	40.6	15	116	39	13
6	Gaa Alif	213	45.4	16.3	218	35.6	11.2
7	Gaa Dhaal	263	41.7	16.7	248	32.6	11.2
8	Gnaviyani	174	52.6	17.9	174	37.2	13.2
9	Haa Alif	289	42	14.4	286	37.8	11.4
10	Haa Dhaal	333	42.9	16.5	341	36.7	12.4
11	Kaafu	164	45	16.8	164	36.2	10.1
12	Laamu	226	41.2	16.5	226	34.3	10
13	Lhaviyani	137	47	16	139	35	10.8
14	Male	1638	58.8	18.4	1537	41.5	13.5
15	Meemu	84	42.8	16.4	83	36.5	11.5
16	Noonu	227	42.3	15.5	234	35.9	11.9
17	Raa	340	38.9	14.7	345	35.9	10.8
18	Seenu	379	52.7	18.9	392	38	13.9
19	Shaviyani	304	40.4	14.5	314	38	10.7
20	Thaa	163	40.7	15.7	166	35.9	11.5
21	Vaavu	19	41.9	14.6	18	32	9.5
	<b>NATIONAL</b>	<b>5668</b>	<b>48.3</b>	<b>18.5</b>	<b>5586</b>	<b>37.4</b>	<b>12.6</b>

GRADE 9										
Sr. No.	Atoll	Physics			Chemistry			Biology		
		N	AVG (%)	SD	N	AVG (%)	SD	N	AVG (%)	SD
1	Alif Alif	22	31.4	11.6	22	39.7	16.5	34	37	16.7
2	Alif Dhal	49	34.5	12.4	55	37.8	16.3	54	34	13.5
3	Baa	34	45.6	14.5	44	47.5	17.3	119	37.4	16.6
4	Dhaal	17	42.4	11.5	25	42.7	20.1	33	39.2	15.6
5	Faafu	14	40	13	25	48.2	16.4	57	36.6	14.1
6	Gaa Alif	77	40.5	13.3	71	43.8	16.1	71	42.6	15.5
7	Gaa Dhaal	82	38.2	12.2	81	45.7	15	117	39.4	14.7
8	Gnaviyani	75	41.5	14.3	73	52.8	20.6	75	43.9	18.1
9	Haa Alif	122	42	14.4	189	41.7	17.7	186	38.2	15.3
10	Haa Dhaal	132	42.7	14.1	231	42.3	16.7	239	37.6	14.8
11	Kaafu	27	42.4	15.4	45	42.2	14.1	53	37.8	12.4
12	Laamu	64	44.5	15.2	72	56.7	19	76	41	17.5
13	Lhaviyani	52	36.9	11.7	54	44.1	15.8	56	43	14.8
14	Male	895	41	15	887	55.9	19.1	878	49	16.2
15	Meemu	20	32.5	12.7	26	44.7	19.5	23	37.9	16.3
16	Noonu	48	39.7	13.6	84	43.9	17.4	112	39.4	15.6
17	Raa	103	36.6	13.6	102	38.5	16.4	129	38.2	14.7
18	Seenu	133	41.7	18	156	55	20.2	160	51.5	17
19	Shaviyani	75	42.5	14.2	204	36.2	16.6	201	38	14.7
20	Thaa	23	40.2	15	78	35.7	14.6	90	37.4	13.4
21	Vaavu	-	-	-	-	-	-	-	-	-
	<b>NATIONAL</b>	<b>2064</b>	<b>40.7</b>	<b>14.7</b>	<b>2524</b>	<b>48.09</b>	<b>19.5</b>	<b>2763</b>	<b>44.8</b>	<b>16.6</b>

GRADE 9							
Sr. No.	Atoll	History			Geography		
		N	AVG (%)	SD	N	AVG (%)	SD
1	Alif Alif	-	-	-	-	-	-
2	Alif Dhal	-	-	-	-	-	-
3	Baa	-	-	-	-	-	-
4	Dhaal	-	-	-	-	-	-
5	Faafu	-	-	-	-	-	-
6	Gaa Alif	-	-	-	-	-	-
7	Gaa Dhaal	-	-	-	-	-	-
8	Gnaviyani	1	28	0	-	-	-
9	Haa Alif	-	-	-	-	-	-
10	Haa Dhaal	-	-	-	-	-	-
11	Kaafu	1	32	0	-	-	-
12	Laamu	-	-	-	-	-	-
13	Lhaviyani	-	-	-	-	-	-
14	Male	37	52.6	14.8	66	46.3	17.1
15	Meemu	-	-	-	2	2	2
16	Noonu	-	-	-	-	-	-
17	Raa	-	-	-	-	-	-
18	Seenu	2	28	8	6	51.3	14.7
19	Shaviyani	-	-	-	-	-	-
20	Thaa	-	-	-	-	-	-
21	Vaavu	-	-	-	-	-	-
	<b>NATIONAL</b>	<b>41</b>	<b>50.9</b>	<b>15.8</b>	<b>74</b>	<b>45.5</b>	<b>18.2</b>

### 6.3 APPENDIX C: CORRECT ANSWERS - GRADE 4

ENGLISH			
Q No.	Correct answer	Q No.	Correct answer
1	A	26	D
2	D	27	C
3	D	28	B
4	A	29	D
5	A	30	B
6	A	31	C
7	B	32	C
8	A	33	A
9	A	34	C
10	C	35	B
11	D	36	B
12	A	37	B
13	D	38	A
14	D	39	C
15	C	40	B
16	B	41	B
17	D	42	C
18	D	43	A
19	B	44	A
20	C	45	B
21	D		
22	A		
23	D		
24	C		
25	B		

MATHS			
Q No.	Correct answer	Q No.	Correct answer
1	B	21	C
2	B	22	D
3	B	23	A
4	B	24	B
5	D	25	C
6	B	26	B
7	A	27	D
8	C	28	C
9	D	29	D
10	B	30	B
11	D	31	B
12	D	32	A
13	B	33	A
14	D	34	B
15	D	35	C
16	C	36	C
17	A	37	A
18	A	38	B
19	C	39	D
20	B	40	D

EVS			
Q No.	Correct answer	Q No.	Correct answer
1	A	21	A
2	C	22	C
3	B	23	C
4	B	24	A
5	B	25	D
6	A	26	C
7	D	27	B
8	B	28	D
9	B	29	D
10	A	30	B
11	C	31	C
12	B	32	A
13	D	33	B
14	C	34	A
15	C	35	A
16	B	36	A
17	C	37	A
18	A	38	A
19	B	39	C
20	D	40	D

## 6.4 APPENDIX D: CORRECT ANSWERS - GRADE 7

ENGLISH			
Q No.	Correct answer	Q No.	Correct answer
1	D	26	C
2	A	27	B
3	A	28	D
4	D	29	B
5	B	30	C
6	B	31	C
7	A	32	A
8	B	33	C
9	B	34	C
10	D	35	D
11	B	36	A
12	C	37	D
13	D	38	B
14	C	39	C
15	C	40	B
16	A	41	D
17	A	42	A
18	C	43	C
19	A	44	D
20	C	45	A
21	D	46	D
22	D	47	A
23	C	48	B
24	A	49	D
25	D	50	C

MATHS			
Q No.	Correct answer	Q No.	Correct answer
1	D	26	A
2	C	27	D
3	D	28	A
4	D	29	B
5	B	30	B
6	D	31	D
7	B	32	B
8	D	33	D
9	D	34	B
10	D	35	A
11	B	36	B
12	D	37	B
13	B	38	C
14	D	39	B
15	A	40	B
16	A	41	C
17	C	42	A
18	B	43	D
19	B	44	B
20	C	45	A
21	C		
22	C		
23	B		
24	B		
25	C		

SCIENCE			
Q No.	Correct answer	Q No.	Correct answer
1	D	26	C
2	A	27	A
3	C	28	A
4	D	29	D
5	D	30	C
6	B	31	C
7	D	32	C
8	D	33	B
9	A	34	A
10	D	35	B
11	A	36	B
12	C	37	B
13	A	38	B
14	A	39	B
15	A	40	B
16	D	41	C
17	C	42	D
18	C	43	D
19	B	44	D
20	D	45	C
21	A		
22	A		
23	C		
24	B		
25	B		

SS	
Q No.	Correct answer
1	D
2	A
3	D
4	B
5	A
6	A
7	B
8	D
9	D
10	C
11	B
12	C
13	C
14	C
15	D
16	D
17	C
18	C
19	D
20	D
21	A
22	B
23	C
24	B
25	A
26	B
27	A
28	A
29	A
30	B
31	B
32	C
33	A
34	C
35	C
36	B
37	B
38	C
39	D
40	D

**APPENDIX E: CORRECT ANSWERS - GRADE 9**

ENGLISH			
Q No.	Correct answer	Q No.	Correct answer
1	A	26	C
2	D	27	B
3	B	28	A
4	D	29	D
5	B	30	A
6	B	31	B
7	A	32	A
8	C	33	C
9	C	34	C
10	D	35	B
11	D	36	B
12	B	37	C
13	B	38	C
14	C	39	A
15	C	40	D
16	C	41	C
17	D	42	A
18	B	43	B
19	D	44	A
20	B	45	B
21	D	46	D
22	B	47	C
23	C	48	A
24	C	49	D
25	A	50	D

MATHS			
Q No.	Correct answer	Q No.	Correct answer
1	B	26	B
2	C	27	A
3	B	28	B
4	D	29	C
5	D	30	B
6	B	31	B
7	B	32	A
8	D	33	B
9	B	34	B
10	A	35	A
11	B	36	B
12	D	37	C
13	D	38	C
14	D	39	B
15	D	40	A
16	D	41	D
17	C	42	D
18	C	43	A
19	C	44	C
20	C	45	D
21	A		
22	C		
23	B		
24	C		
25	C		

HISTORY	
Q No.	Correct answer
1	C
2	A
3	B
4	D
5	B
6	C
7	A
8	B
9	A
10	A
11	B
12	C
13	D
14	B
15	A
16	A
17	A
18	D
19	B
20	A
21	C
22	B
23	A
24	A
25	D

GEOGRAPHY	
Q No.	Correct answer
1	B
2	A
3	B
4	A
5	B
6	C
7	B
8	C
9	C
10	A
11	B
12	B
13	C
14	D
15	D
16	D
17	B
18	D
19	D
20	B
21	D
22	B
23	B
24	C
25	A

PHYSICS			
Q No.	Correct answer	Q No.	Correct answer
1	A	11	B
2	B	12	C
3	A	13	C
4	A	14	A
5	C	15	C
6	B	16	D
7	D	17	B
8	D	18	D
9	A	19	D
10	C	20	B

CHEMISTRY			
Q No.	Correct answer	Q No.	Correct answer
1	A	11	D
2	D	12	B
3	A	13	B
4	D	14	C
5	B	15	C
6	C	16	C
7	C	17	B
8	D	18	B
9	B	19	D
10	A	20	C

BIOLOGY			
Q No.	Correct answer	Q No.	Correct answer
1	A	11	B
2	D	12	C
3	A	13	D
4	B	14	B
5	A	15	C
6	A	16	D
7	B	17	B
8	C	18	C
9	C	19	D
10	D	20	B

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