Assessment Report Submitted by "**Indus Learning Solutions Pvt. Ltd.**"

Organization	Project	Assessment Type	Academic Year	Assessment Date	Report Date
Ruchika Social Service Organization	Remedial education for poor children	Base Line	2012-13	August 30th -31th, 2012	October 3rd, 2012

Total number of students (EG) Math in Oriya	Total number of students (CG) Math in Oriya	Total number of schools (EG) English-II	Total number of schools (CG) English-II	Location	Organization
247	161	246	171	Bhubaneswar	Ruchika Social Service Organization

Test Scores in Math in Oriya:

Grade	Number of Students (EG)	Mean Score - BL (%)	Number of Students (CG)	Mean Score - BL (%)
3	76	63	58	39
5	84	46	63	21
7	87	52	40	18

(EG- Experimental Group; CG- Control Group; BL- Base Line)

Areas of strengths & weaknesses:

Grade	Top 3 areas of strengths	Top 3 areas of weaknesses
3	Students are able to add two digit numbers by drawing representation of tens and ones with or without regrouping	Students should be able to solve problems on subtraction presented through verbal description
5	Students are able to read and write 4 digit numbers	Students should be able to solve problems based on multiplication/addition facts
7	Students are able to order and compare numbers and use <, > or = symbol	Student should be able to understand the concept of variable and solve simple equations of one variable

Test Scores in English-II:

Grade	Number of Students (EG)	Mean Score - BL (%)	Number of Students (CG)	Mean Score - BL (%)
3	75	84	66	51
5	84	54	61	29
7	87	54	44	21

(EG- Experimental Group; CG- Control Group; BL- Base Line)

Areas of strengths & weaknesses:

Grade	Top 3 areas of strengths	Top 3 areas of weaknesses
3	Students are able to make appropriate pairs	Students should be able to complete the sequence of letter of the alphabets
5	Students are able to fill in the appropriate letters to complete the word	Students should be able to write their preferences
7	Students are able to identify the correct expression shown in the picture	Students should be able to give reasons to support a response to a story. (Say whether they like a character and why)

RSSO Base Line 2012-13(BL12)

The Ruchika Social Service Organization (RSSO) provides a non-formal education to children in and around the Bhubaneswar railway station. Today, it provides a holistic education program that also covers related facets like nutrition, medical and maternal care, hygiene, personal cleanliness among other topics. This assessment was conducted by Indus Learning in August 2012. The purpose of the assessment is to:

a. Gauge the attained levels of learning in students across the selected class-subject combinations in Math and English II (English as a second language).
b. To measure the impact of the intervention by RSSO to get indications on which part of the improvement has been due to the intervention undertaken.
c. Provide a line of action to RSSO in the schools where the program is being carried out.

Census sampling was followed and all students of the program were assessed. RSSO was asked to identify control group students that were similar to the experimental group.

Role of Indus Learning:

Indus Learning designed and conducted the BL12 assessment in August 2012.The assessments are designed to address the common content areas (Standards and Objectives) between different State Board curricula, using NCERT NCF 2005 as the curriculum benchmark.

The Common Assessment aims to pave the way forward to build an effective remediation program for RSSO. The End Line will also work as a reference to measure the learning levels and improvements that the remedial program aims to bring in the students at the end of each phase of intervention.

Overall Observations

A significant difference in the performance of Control Group (CG) students and the Experimental Group (EG) students has been observed. The Average Scores of the EG students are significantly higher as compared to CG students as well as the EG Average scores of the past 2 years (2010-11, 2011-12).

Data pertaining to year of joining the RSSO program should be captured and reasons for students' performance to be analyzed and the reasons for this student performance to be established

Overall Performance (% Average Marks)

An independent sample t-test was conducted to evaluate the mean difference between the EG and CG populations. The analysis was conducted to determine whether the difference in the two means is a real difference between the two populations or simply the result of sampling error. The table below shows average marks scored by Grade 3, Grade 5 and Grade 7 students in Math and English-II along with the results of the *t*-test.

Grade	Subject	CG	EG	*t-stat*	p-Value (Sig value)
3	Math in Oriya	27.0	**43.6**	7.642*	0.000
	English-II	25.5	**42.2**	10.071*	0.000
5	Math in Oriya	15.0	**32.0**	8.215*	0.000
	English-II	18.9	**34.9**	7.907*	0.000
7	Math in Oriya	12.5	**36.3**	10.255*	0.000
	English-II	13.4	**35.1**	10.993*	0.000

(EG- Experimental Group; CG- Control Group)

**** p-value < 0.05, significant at 0.05 level of significance***

Significant difference in performance of EG students of Grade 3, Grade 5 & Grade7 as compared to CG students with EG students performing better than the CG students.

- Grade 3 EG students have scored more in Maths and English II as compared to CG students, as their average score is 43.6 and 42.2 respectively as compared to 27 and 25.5% of the CG.
- Similarly, in grade 5 EG student's average score in Maths is 32.0 and in English II is 34.9 which is significantly more that CG scores.
- Grade 7 EG average scores are 36% and 35% for Math and English - II which are significantly high as compared to CG's (control group) average scores.

Overall learning levels of the students are low in both Math and English – II with average scores ranging between 32% to 44%.

Performance of students as compared to previous years: Performance of the RSSO students was compared to previously conducted assessments. The data for the past year assessments in provided in Appendix 2. The average performance of the EG students in BL12 is higher as compared to the base lines conducted in 2010 and 2011

- Math Grade 3: The scores in August 2010 and September 2011 were 33% and 43% respectively as compared to 63% in the current assessment
- English Grade 3: The scores in August 2010 and September 2011 were 39% and 58% respectively as compared to 85% in the current assessment
- Math Grade 5: The scores in August 2010 and September 2011 were 22% and 26% respectively as compared to 46% in the current assessment
- English Grade 5: The scores in August 2010 and September 2011 were 12% and 28% respectively as compared to 54% in the current assessment
- Math Grade 7: The scores in August 2010 and September 2011 were 28% and 32% respectively as compared to 52% in the current assessment
- English Grade 7: The scores in August 2010 and September 2011 were 16% and 26% respectively as compared to 54% in the current assessment

Classification of Students Across Different Indicative Grade Levels

The following table displays the indicative grade level classification of the students in BL12 for Grade 3, Grade 5 and Grade 7, for different subjects. For the purpose of classification a student has been assumed at the highest grade in which he/she has scored more than 50%. While the Indicative Grade level in Math maps onto NCERT, two separate indicative grade levels have been provided for English – II (NCERT and Oriya Board). The difference in the indicative Grade levels of English – II is owing to the fact that English is introduced by Oriya board in Grade 3.

Maths:

Grade	Subject	Indicative Grade level	EG/CG	Below Grade 1	1	2		
3	Math in Oriya	As per NCERT & As per Oriya Board	EG	13	7	**80**		
			CG	50	28	22		
				Below Grade 2	**2**	**3**	**4**	
5	Math in Oriya	As per NCERT & As per Oriya Board	EG	16	1	0	83	
			CG	43	5	0	52	
				Below Grade 3	**3**	**4**	**5**	**6**
7	Math in Oriya	As per NCERT & As per Oriya Board	EG	16	2	11	1	**70**
			CG	**79**	0	13	5	3

(EG- Experimental Group; CG- Control Group)

Significant majority of EG students are at current indicative grade level.

- In Grade 3 Math, 80% students of the experimental group are in grade level 2, as compared to control group where only 22% of the students are in grade level 2.
- In Grade 5, 83% students of experimental group belong to grade level 4 as compared to control group where 52% students are in grade level 6 and 43% students are below grade level 2.
- In Grade 7, 70% students of the experimental group are at grade level 6, as compared to 3% of control group students.

English:

Grade	Subject	Indicative Grade level	EG/CG	Below Grade 1	1	2	Below Grade 3	3	
3	English II	As per NCERT	EG	0	100	0			
			CG	27	73	0			
		As per Oriya Board	EG				1	**99**	
			CG				**44**	56	
				Below Grade 2	**2**	**Below Grade 3**	**3**	**4**	**5**
5	English II	As per NCERT	EG	61	39				
			CG	90	10				
		As per Oriya Board	EG			16	26	**37**	21
			CG			**57**	30	8	5
				Below Grade 3	**3**	**Below Grade 4**	**4**	**5**	**6**
7	English II	As per NCERT	EG	27	29		44		
			CG	27	29		44		
		As per Oriya Board	EG			15	10	**41**	**34**
			CG			**84**	9	5	2

(EG- Experimental Group; CG- Control Group)

Majority of the EG students are at Grade level as per Oriya Board. Their categorization as per NCERT is around grade 1,2 and 3 which is understandable given the fact that English is a second language and introduced in grade 3 in Orissa.

- In Grade 3 English II, 99% students of the experimental group are in current grade level 3 while 44% students of control group are below grade 3.
- In Grade 5 English II, 37% students of experimental group are in grade level 4, as compared to control group where 57% students are below grade level 3.
- In Grade 7 English II, 34% students of experimental group are in grade level 6, 41% are in grade level 5 while 84% students of control group are below grade 4.

Student Frequency Distribution: Proficiency Band

To track the movement of achievement of the group over a period of time and to provide valuable inputs on the effectiveness of the educational program, it is important to analyze the performance of the students and observe the percentage of students that are in low, medium or high achievement brackets.

Performance of the students has been distributed in the following bands:

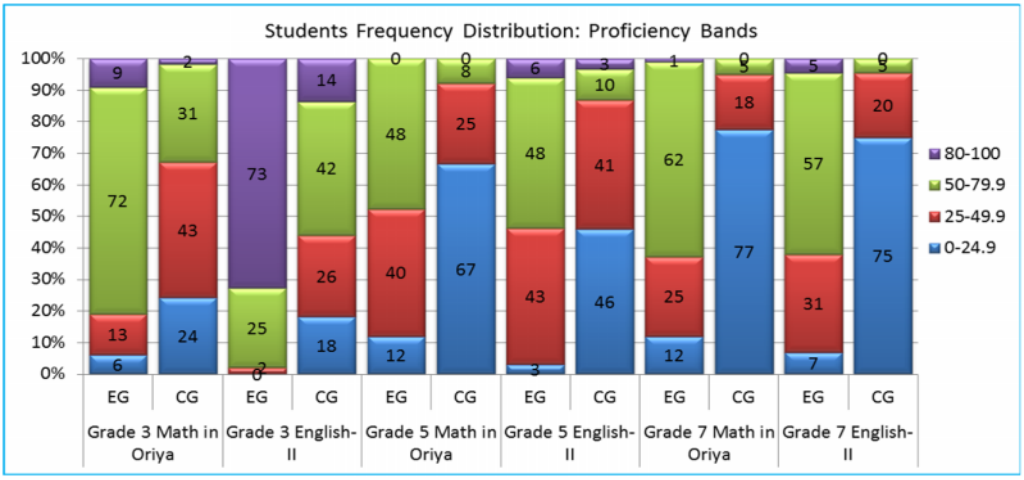
No Proficiency - 0% to 24.9%

Attaining Proficiency - 25% to 49.9%

Proficient - 50% to 79.9%

Advanced Proficiency - 80% to 100%

The following garph and table display the grouping of students across various bands



(EG- Experimental Group; CG- Control Group)

Grade	Subject	EG/CG	Student Grouping			
			0-24.9	25-49.9	50-79.9	80-100
3	Math in Oriya	EG	6	13	**72**	9
		CG	24	43	31	2
	English II	EG	0	2	25	**73**
		CG	18	26	42	14
5	Math in Oriya	EG	12	40	**48**	0
		CG	67	25	8	0
	English II	EG	3	43	**48**	6
		CG	46	41	10	3
7	Math in Oriya	EG	12	25	**62**	1
		CG	77	18	5	0
	English II	EG	7	31	**57**	5
		CG	75	20	5	0

(EG- Experimental Group; CG- Control Group)

The EG has a significant percentage of students (48% to 72%) students in the Proficiency Bands of 50% to 79.9%

Grade 3:

- In Grade 3 Maths, 72% students of experimental group have achieved proficient band and 9% students have achieved the advanced proficiency band *i.e.* 80%-100%. Whereas 31% of control group have achieved proficient band *i.e.* 50%-79.9%.
- In Grade 3 English II, 73% student of experimental group and 14% of control group have achieved the advanced proficiency band *i.e.* 80%-100%, and 25% students of experimental group and 42% of control group have achieved proficient band *i.e.* 50%-79.9%.

Grade 5:

- In Grade 5 Maths, 48% students of experimental group and 8% of control group have achieved the proficient band *i.e.* 50%-79.9%.
- In Grade 5 English II, 6% students of experimental group have achieved the advanced proficiency band 80%-100%, while 48% students of experimental group and 10% of control group have achieved proficient band *i.e.* 50%-79.9%.

Grade 7:

- In Grade 7 Math, 62% students of experimental group are proficient whereas 77% students of control group are still under no proficiency band.
- In Grade 7 English II, 5% students of experimental group have achieved the advanced proficiency band 80%-100%, whereas no student of the control group has achieved the same band. For the experimental group 57% of the students are in the 50%-79.9% achievement band, and 75% students of control group belong to no proficiency band.

Reliability

Reliability is the consistency of a set of measurements or of a measuring instrument for a particular population. It is the degree to which an instrument will give similar results for the same individuals at different times. The following table displays the Reliability of the instruments to the population. For details on Reliability interpretation and computation refer Appendix 3.

Reliability			
Subject	**Grade 3**	**Grade 5**	**Grade 7**
Math in Oriya EG	0.89	0.93	0.91
English-II EG	0.84	0.94	0.92
Math in Oriya CG	0.93	0.94	0.93
English-II CG	0.94	0.96	0.93

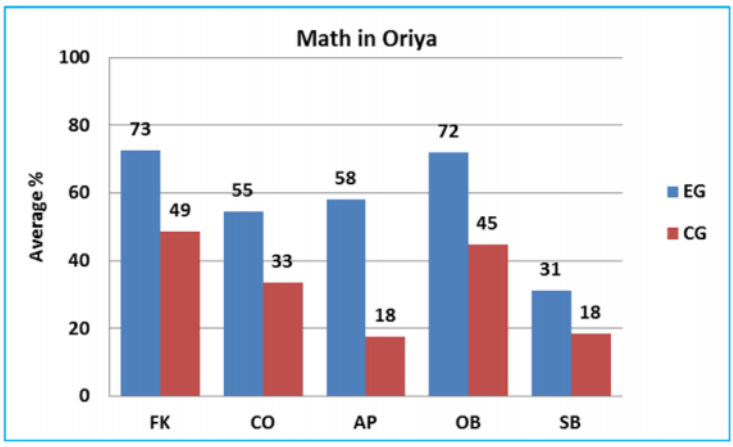
The reliability is found to be more than the benchmark value of 0.70 across all assessed grades. Therefore, we can conclude that the data is reliable or the questions are correlated among themselves for both the experimental group and the control group.

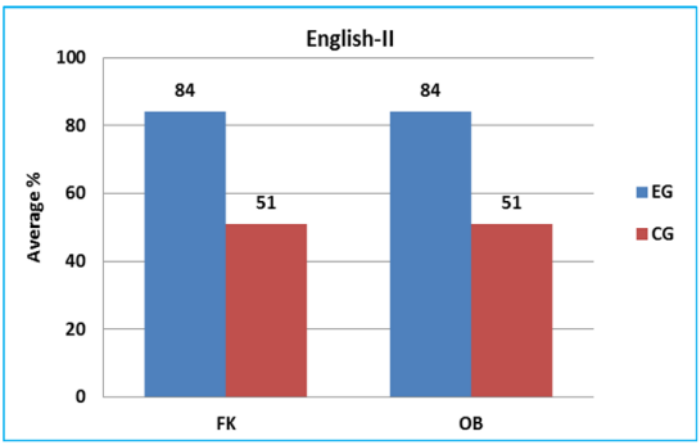
CLASS III

The following section displays the performance on different types of questions, standard wise performance and areas of improvement of Grade 3 students.

Average Scores on Factual Knowledge, Comprehension and Application; Objective and Subjective Items

The following graph shows the performance of students on Factual Knowledge (FK), Comprehension (CO), and Application (AP), Subjective (SB) and Objective (OB) based items.





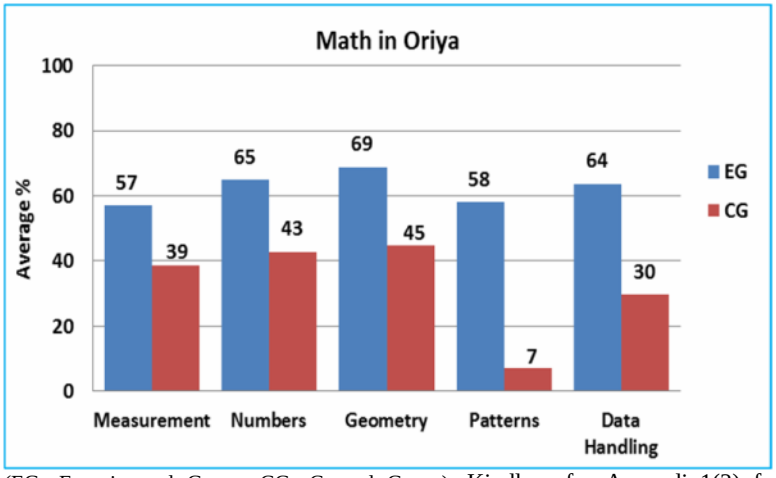
(EG- Experimental Group; CG- Control Group)
Kindly refer Appendix 1(1) for details.

Performance of the experimental group students in BL12 is better in factual knowledge as compared to comprehension and application. Also, their scores are better on objective items than on subjective items.

Standard Wise Performance

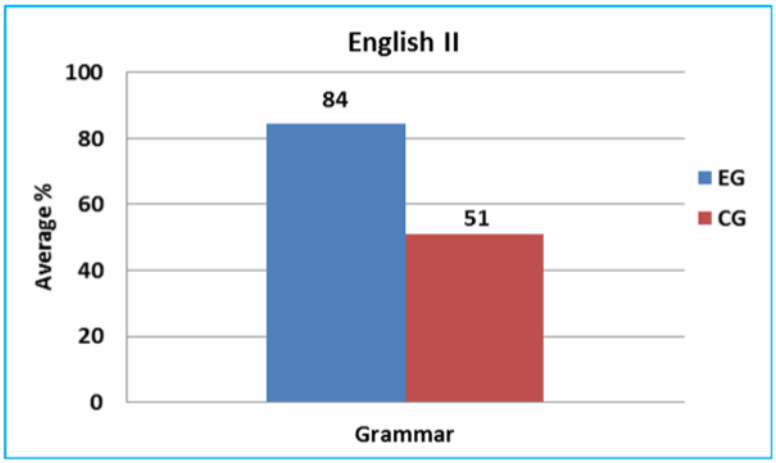
The following graph shows the performance of students on different standards used in BL12.

Also given are the areas of improvements in detail, which will help the organization to focus on the areas in which students need more attention.



(EG- Experimental Group; CG- Control Group), Kindly refer Appendix1(2) for details.

Areas of Improvement in Grade 3 Math in Oriya	
1	Students should be able to solve problems on subtraction presented through verbal description
2	Students should be able to measure lengths and distances using non-uniform units
3	Students should be able to give a subtraction problem to a corresponding multiplication problem and vice versa
4	Students should be able to read and interpret data related to days of a week and months of the year
5	Students should be able to extend patterns based on shapes/ symbols.



(EG- Experimental Group; CG- Control Group), Kindly refer Appendix 1(2) for details.

Areas of Improvement in Grade 3 English II	
1	Students should be able to complete the sequence of letter of the alphabets
2	Students should be able to identify the smaller object
3	Students should be able to write the lower case letters for the given uppercase case letters
4	Students should be able to complete the words by filling in the the appropriate letters
5	Students should be able to identify the names of the animals

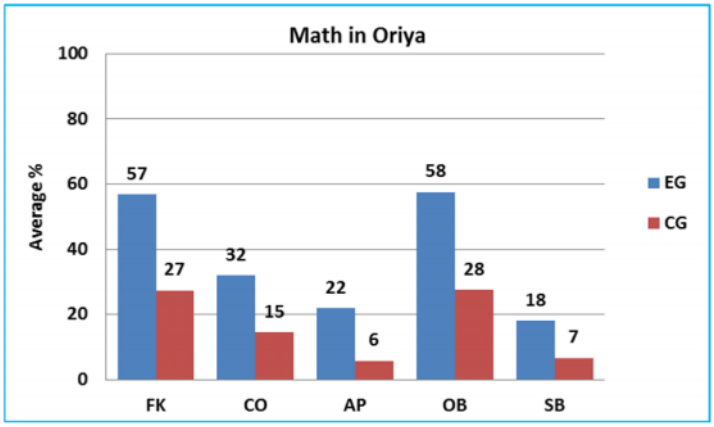
- Student performance is highest on items assessing geometry and numbers.

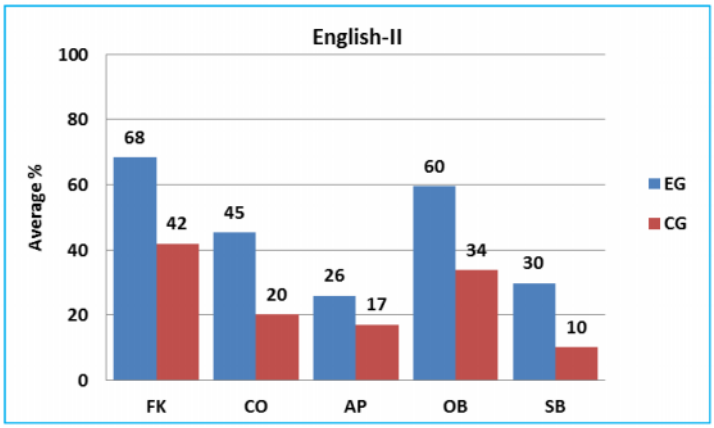
CLASS V

The following section displays the performance on different types of questions, standard wise performance and areas of improvement of students.

Average Scores on Factual Knowledge, Comprehension and Application; Objective and Subjective Items

The following graph shows the performance of students on Factual Knowledge (FK), Comprehension (CO), and Application (AP), Subjective (SB) and Objective (OB) based items.





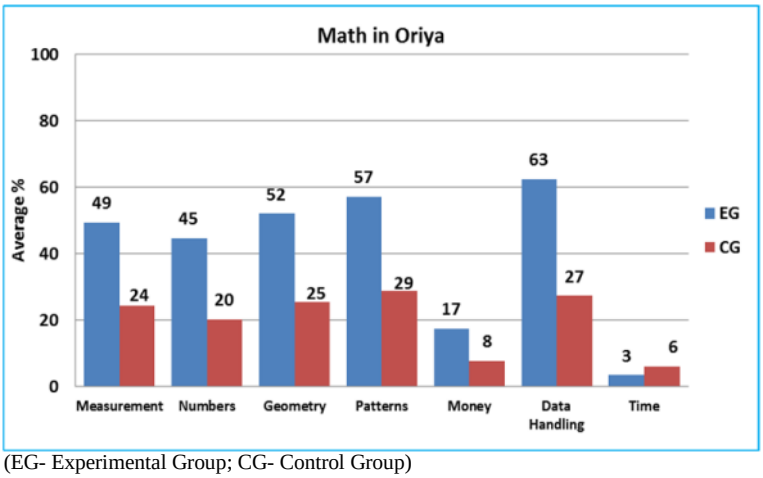
(EG- Experimental Group; CG- Control Group)
Kindly refer Appendix 1(1) for details.

Performance of the experimental group students in BL12 is better in factual knowledge as compared to comprehension and application. Also, their scores are better on objective items than on subjective items.

Standard Wise Performance

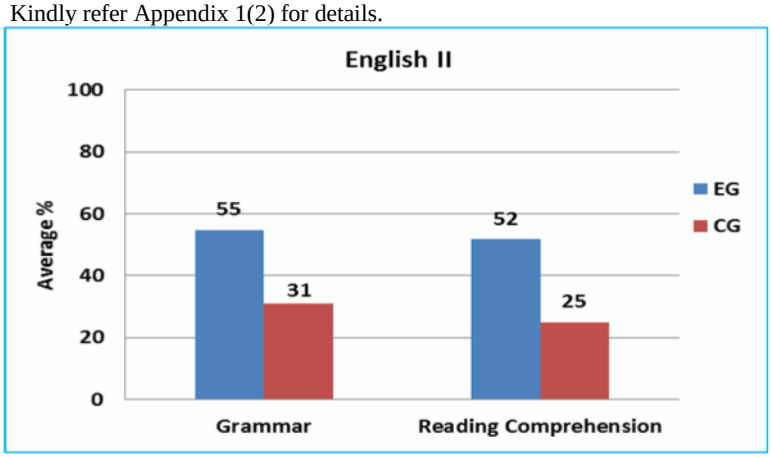
The following graphs provide a comparison of performance of students on different standards in BL12.

Also given are the areas of improvements in detail, which will help the organization to focus on areas in which students need more attention.



(EG- Experimental Group; CG- Control Group)
Kindly refer Appendix 1(2) for details.

Areas of Improvement in Grade 5 Math in Oriya	
1	Students should be able to solve problems based on multiplication/addition facts
2	Students should be able to solve word problems based on multiplication of time
3	Students should be able to make rate charts and bills for word problems on real life situations.
4	Student should be able to understand the concept of area of simple shapes.
5	Students should be able to solve division problems presented through verbal description



(EG- Experimental Group; CG- Control Group) Kindly refer Appendix 1(2) for details.

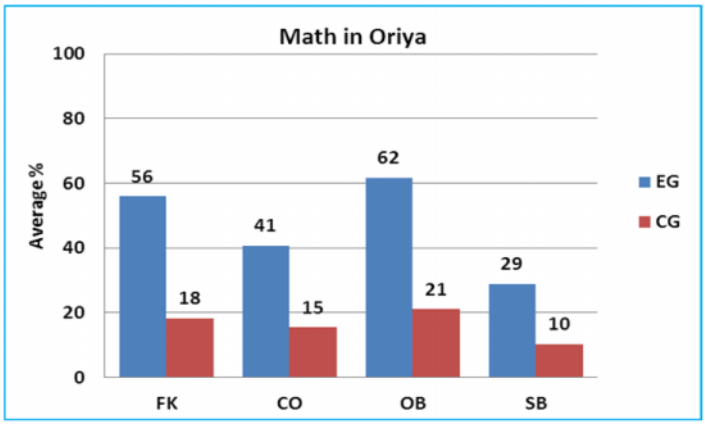
Areas of Improvement in Grade 5 English II	
1	Students should be able to write their preferences
2	Students should be able to fill in the missing singular and plural forms
3	Students should be able to locate/ recall details at the factual level.
4	Students should be able to rearrange the jumbled words in order to make meaningful sentences
5	Students should be able to rewrite the given sentence using the appropriate punctuation marks

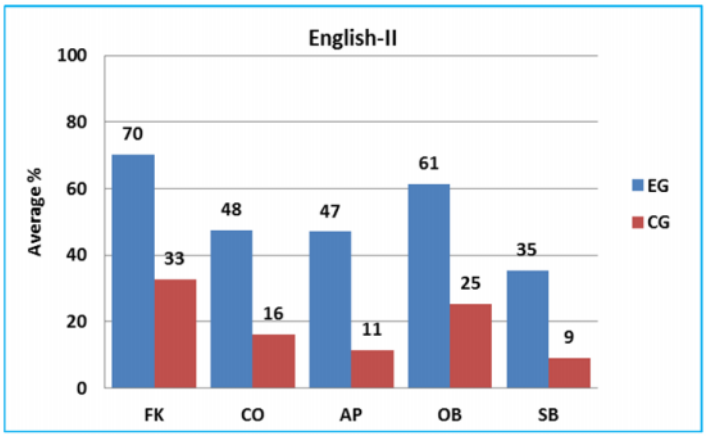
CLASS VII

The following section displays the performance on different types of questions, standard wise performance and areas of improvement of students.

Average Scores on Factual Knowledge, Comprehension and Application; Objective and Subjective Items

The following graph shows the performance of students on Factual Knowledge (FK), Comprehension (CO), and Application (AP), Subjective (SB) and Objective (OB) based items.



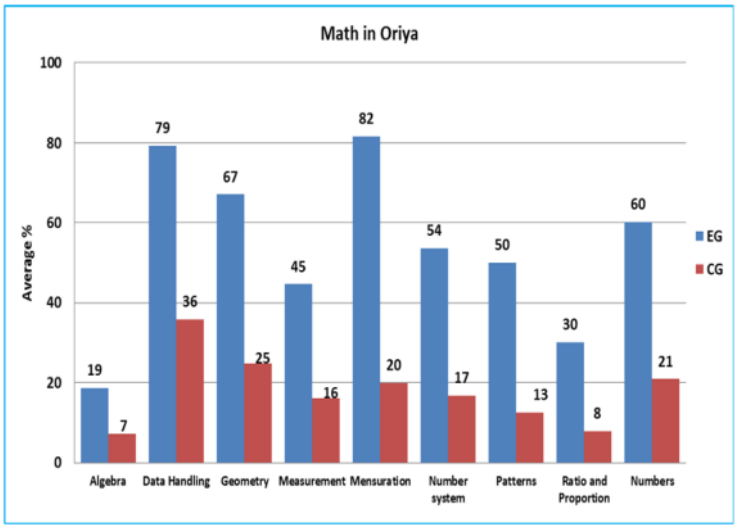


(EG- Experimental Group; CG- Control Group) Kindly refer Appendix 1(1) for details.

Performance of the experimental group students is better on items based on Factual Knowledge questions. Student scores are low on items of subjective nature requiring an extended written response. There is a difference in scores across all parameters between the CG and EG students.

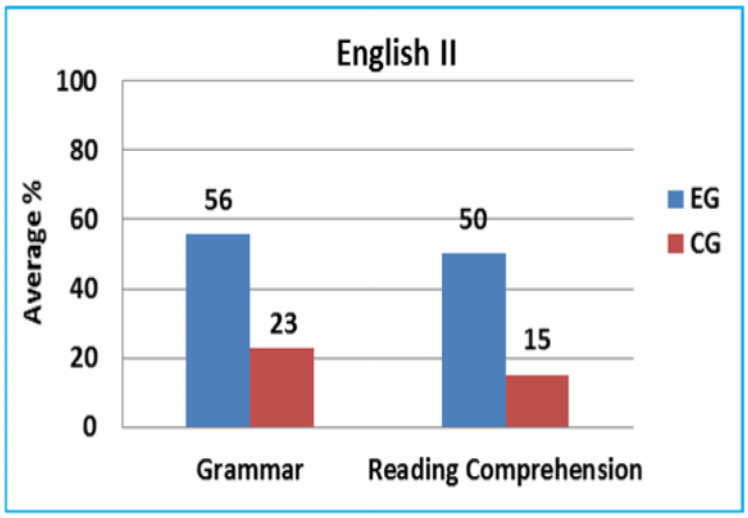
Standard Wise Performance

The following graphs provide a comparison of performance of students on different standards in BL. Also given are the areas of improvements in detail, which will help the organization to focus on the areas in which students need more attention.



(EG- Experimental Group; CG- Control Group) Kindly refer Appendix 1(2) for details.

Areas of Improvement in Grade 7 Math in Oriya	
1	Student should be able to understand the concept of variable and solve simple equations of one variable.
2	Students should be familiar with equivalent fractions
3	Students should be able to read and write Roman numerals
4	Students should be familiar with the addition/ subtraction of the algebraic expression
5	Students should be able to find the value of an algebraic expression by substituting the value of the variables



(EG- Experimental Group; CG- Control Group) Kindly refer Appendix 1(2) for details.

Areas of Improvement in Grade 7 English II	
1	Students should be able to give reasons to support a response to a story. (Say whether they like a character and why)
2	Students should be able to change the given sentence into an exclamatory sentence
3	Students should be able to rewrite the sentence using the appropriate adverb
4	Students should be able to identify the cause and effect relationship
5	Students should be able to relate information and events in texts to one's prior knowledge or life experience

- Student performance in data handling and mensuration based questions is comparatively better while student's performance is poor on questions related to algebra and ratio and proportion.

Appendix 1: Data Tables

1. Overall Score % Table:

Overall Average Percentage (%) Score									
Grade	**Subject**	**EG/CG**	**TS**	**FK**	**CO**	**AP**	**OB**	**SB**	**N**
3	Math in Oriya	EG	63	73	55	58	72	31	76
		CG	39	49	33	18	45	18	58
	English II	EG	84	84			84		75
		CG	51	51			51		66
5	Math in Oriya	EG	46	57	32	22	58	18	84
		CG	21	27	15	6	28	7	63
	English II	EG	54	68	45	26	60	30	84
		CG	29	42	20	17	34	10	61
7	Math in Oriya	EG	52	56	41	80	62	29	87
		CG	18	18	15	45	21	10	40
	English II	EG	54	70	48	47	61	35	87
		CG	21	33	16	11	25	9	44

2. Standard Wise Performance:

Grade	Subject	Standards	EG	CG
3	Math in Oriya	Measurement	57	39
		Numbers	65	43
		Geometry	69	45
		Patterns	58	7
		Data Handling	64	30
	English II	Grammar	84	51
5	Math in Oriya	Measurement	49	24
		Numbers	45	20
		Geometry	52	25
		Patterns	57	29
		Money	17	8
		Data Handling	63	27
		Time	3	6
	English II	Grammar	55	31
		Reading Comprehension	52	25

Grade	Subject	Standards	EG	CG
7	Math in Oriya	Algebra	19	7
		Data Handling	79	36
		Geometry	67	25
		Measurement	45	16
		Mensuration	82	20
		Number system	54	17
		Patterns	50	13
		Ratio and Proportion	30	8
		Numbers	60	21
	English II	Grammar	56	23
		Reading Comprehension	50	15

Appendix 2: RSSO Previous Assessments Average Scores

Grade 3 Average (%)			
	Date	Math in Oriya	English-II
BL1	August (2010)	33	39
EL1	April (2011)	42	58
BL2	September (2011)	43	58
EL2	March (2012)	53	71
EG RSSO BL3	August (2012)	63	84
CG RSSO BL3	August (2012)	39	51

No. of Students		
	Math in Oriya	English-II
BL1	176	175
EL1	156	157
BL2	138	138
EL2	90	91
EG RSSO BL3	76	75
CG RSSO BL3	58	66

Grade 5 Average (%)			
	Date	Math in Oriya	English-II
BL1	August (2010)	22	12
EL1	April (2011)	40	36
BL2	September (2011)	26	28
EL2	March (2012)	39	47
EG RSSO BL3	August (2012)	46	54
CG RSSO BL3	August (2012)	21	29

No. of Students		
	Math in Oriya	English-II
BL1	228	227
EL1	197	194
BL2	136	144
EL2	79	87
EG RSSO BL3	84	84
CG RSSO BL3	63	61

Grade 7 Average (%)			
	Date	Math in Oriya	English-II
BL1	August (2010)	28	16
EL1	April (2011)	32	31
BL2	September (2011)	32	26
EL2	March (2012)	34	49
EG RSSO BL3	August (2012)	52	54
CG RSSO BL3	August (2012)	18	21

No. of Students		
	Math in Oriya	English-II
BL1	172	176
EL1	149	151
BL2	162	162
EL2	106	108
EG RSSO BL3	87	87
CG RSSO BL3	40	40

Appendix 3: Reliability

Reliability is the consistency of a set of measurements or of a measuring instrument for a particular population. It is the degree to which an instrument will give similar results for the same individuals at different times. The following table displays the Interpretation values of Reliability scores of the instruments to the population.

The reliability is interpreted as per the following table:

Reliability Value	Interpretation
0.95 – 0.99	Very High – of the level of best standardized tests
0.90 – 0.95	High – Sufficient for measurement of individuals
0.80 – 0.90	Fairly High – Possible for measurement of Individuals
0.70 – 0.80	Acceptable – Sufficient for group measurement
Below 0.70	Low, useful for only group averages and surveys.

The formula for computaion of reliability is provided below:

$$\alpha = \left(\frac{k}{k-1}\right)\left[1 - \frac{\sum_{i=1}^{k} {\sigma_i}^2}{{\sigma_t}^2}\right]$$

α = test reliability index, k = the number of test items, ${\sigma_t}^2$ = total test variance, ${\sigma_i}^2$ = variance for item i