Gaya

Short presentation

Bihar School Assessment May 2014

Main Findings & Implications for Action

What were the objectives of the exercise?

Bihar Government invited ASER Centre/Pratham to conduct a school-based assessment of student achievement in May 2014. This was done in collaboration with SCERT & UNICEF.

The objectives of the exercise were to generate:

- Data for student performance for children in Std 2, 4 and 6. (Other assessments had been done earlier in the year by other agencies for Std 3, 5 and 7 in 2013-14.)

- Cluster level report cards that could guide CRCCs to improve teaching-learning in their schools.

- Build capacity for doing assessments and make links to go from assessments to action. The trainings at state and district level included classroom sessions and field practice. Each district team graded all the student papers after data collection in the field. This was done so that the district teams gained first hand exposure to children's assessment.

Who, what, where

All **38 districts** were included in the study

~ 2 clusters were randomly sampled in each district
Total = **79 clusters**

All schools in the cluster were covered – primary and upper primary
Total = **1047 schools**

All children in Std 2, 4 and 6 were surveyed in each school in the sampled cluster
Total = **~ 63,000 children**

200 Master trainers led the entire exercise in the field.

5 Master Trainers per district:
3 from ASER/Pratham
2 from DIET/district

In each district **60 surveyors**: either DIET students or CRCCs

2 surveyors assigned to each school in the sampled cluster

~ 2500 trainers & surveyors

State level training for 4 days for Master Trainers who would lead the work in each district
Second week of May

District level training for 4 days for surveyors
Third week of May

State and district level training had one day of field pilot in nearby schools

Two surveyors went to each school for 3-5 days in the first half of the day. Second half of the day for grading papers.
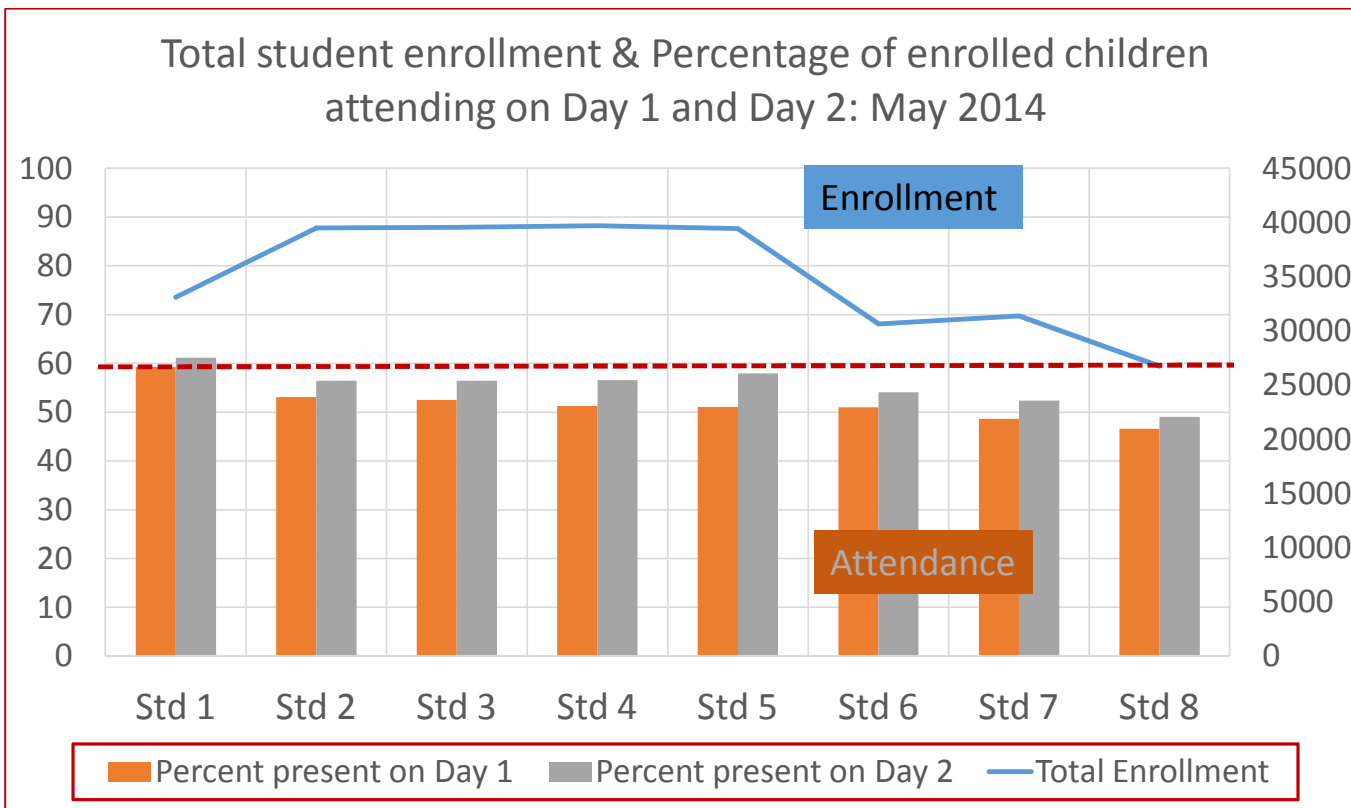**Last week of May**

14 working days

Who, what, how

Who was tested? What subjects? One-on-one or written?

Total schools surveyed = 1047 (616 primary schools & 431 upper primary schools)
Total clusters surveyed = 79

Grade	One on one test /Oral		Written test	
	Hindi (Reading)	Math	Hindi	Math
Std 2	22,425	22,425	Std 2 children were not given any written test	
Std 4	22467	22465	22,467	22,465
Std 6	17,646	Std 6 children not given this test	17,648	17,640
Total children tested	62,538	44,890	40,115	40,105

The unique feature of this exercise was that all children were given a one-on-one reading test. The older children in Std 4 and 6 also had pen-paper tests in language and maths. Large scale reading assessment indicates the importance of reading as a foundational skill.

Attendance in schools in the last week of May 2014

Total student enrollment & Percentage of enrolled children attending on Day 1 and Day 2: May 2014
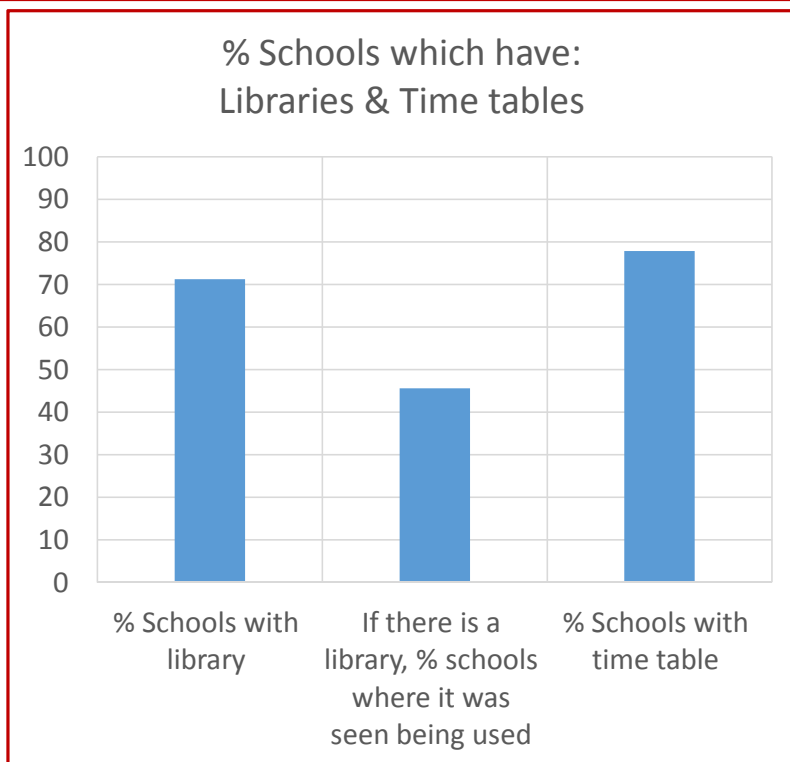
This exercise was carried out in the last week of May 2014.
This was the last week before summer vacations began and also there was very bad weather during this time.

Teachers Appointed	5751
Percent present day 1	87.8
Percent present day 1	84.5

What are the schools like?

Do schools have libraries, time tables

% Schools which have: Libraries & Time tables

Do classes sit together or do they sit independently?

Seating arrangements by std and type of school	Std 2	Std 2	Std 4	Std 4	Std 6
	Primary	Primary + Upper Primary	Primary	Primary + Upper Primary	Primary + Upper primary
	% Schools	% Schools	% Schools	% Schools	% Schools
Single grade (class) sitting by themselves	14.9	38.1	12.4	39.7	50.9
2 or 3 grades sitting together	59.4	51.4	59.6	48.1	35.1
More than 3 grades sitting together	21.3	5.1	17.4	5.4	4
Data missing	4.4	5.4	10.6	6.8	10
Total percentage	100	100	100	100	100
Total schools visited	611	428	611	428	428

Much more information about schools and facilities, indicators for Mission Gunwatta activities and materials available from the May assessment data: school tables.

One-on-one reading tasks

Story level

Std. II level text

BASIC ASER READING TOOL: HINDI

Para level

Std I level text

रामपुर में कुछ ज़मीन ख़ाली थी। वहाँ कुछ नहीं उगता था। वहाँ कोई खेलने नहीं जाता था। एक दिन कुछ लोग आये। उन्होंने गाँव के लोगों को बुलाया। सबने मिलकर तय किया कि यहाँ बग़ीचा बनाया जाये। खाद मंगाकर हर तरह के पौधे लगाये गये। सही समय पर पानी दिया गया। आज वहाँ एक सुंदर बग़ीचा है। इसलिए वहाँ सब खेलने जाते हैं।

बग़ीचे में एक पेड़ है।
पेड़ पर एक तोता रहता है।
तोते का रंग हरा है।
वह लाल टमाटर खाता है।

Letters

Letter level

च

म स

प ग द

ल थ

बच्चे से कोई भी 5 अक्षर पढ़ने को कहें।
कम से कम 4 सही होने चाहिये।

Common simple words

**Word level**

आग

ताला

गिर पैसा

देश

पानी बूढ़ा

बच्चे से कोई भी 5 शब्द पढ़ने को कहें।
कम से कम 4 सही होने चाहिये।

Children in Std 2, 4 and 6 were all asked to read aloud, so that their reading ability could be assessed.

Each child is asked to read. Each child is marked at the highest level at which he or she could read.

So a child who can read at "para" level can of course read letters and words. But she is marked at the highest level she can read comfortably.

Different estimates of children's reading levels by grade and over time
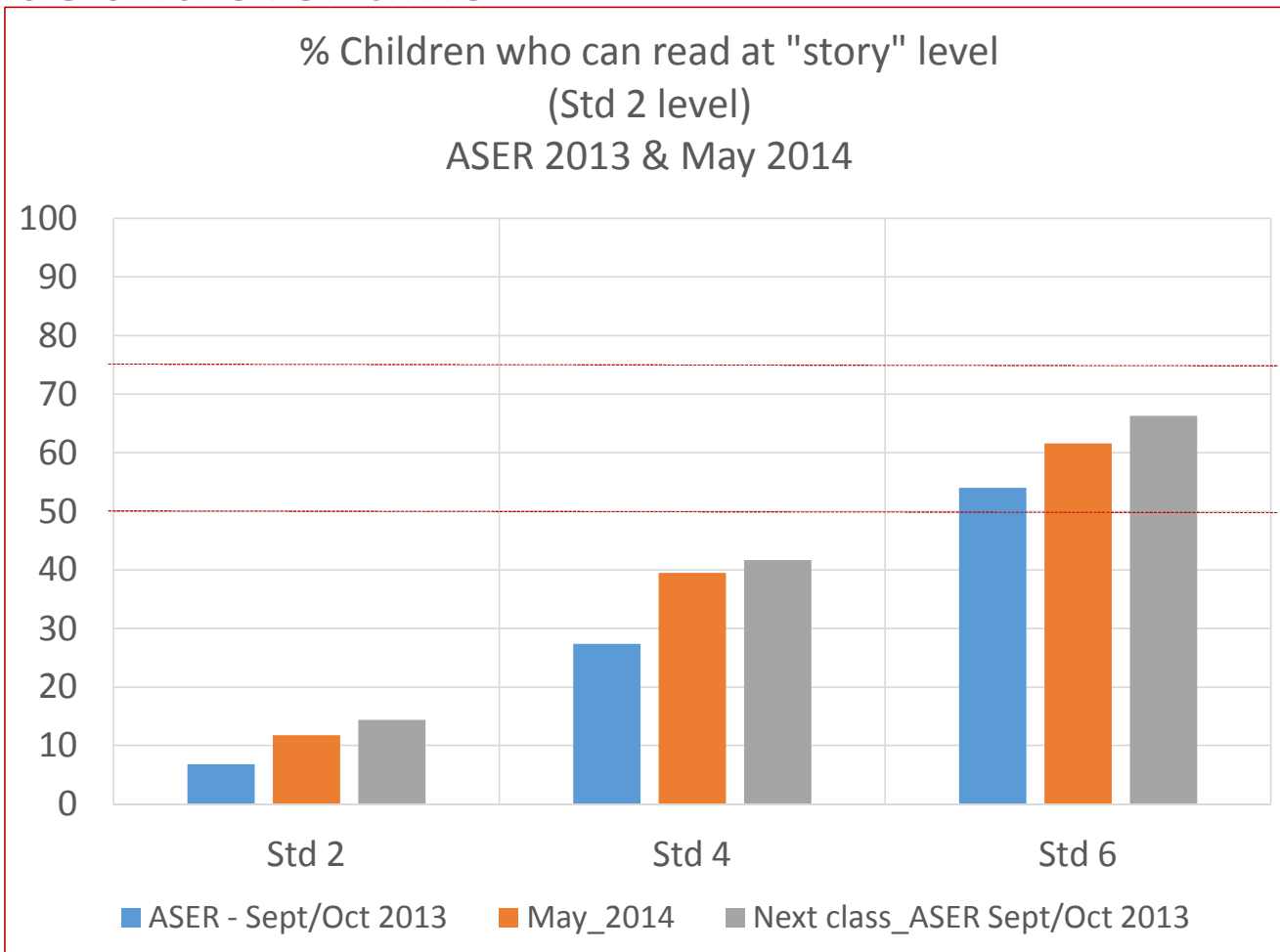
More older children can read. But pace/skill of basic reading needs to be accelerated.

% Children who can read at "story" level (Std 2 level) ASER 2013 & May 2014

Legend: ASER - Sept/Oct 2013 ▪ May_2014 ▪ Next class_ASER Sept/Oct 2013

Sources of data/methods of data collection are different:
- ASER Sept-Oct 2013 is a household survey (here only the govt school children figures are reported)
- May 2014 is a school based assessment (but attendance is below 60%)

- Keeping the differences in the method of data collection in mind, May figures are higher than the Sept figures for basic reading.

- "Next class" ASER 2013 is an "extrapolation" to see what the trends over time may look like.

Std 4 : Language- pen and paper assessment

No.	Task (Total children tested = 22354)	% Children getting the correct answer
Vocabulary tasks		
1	Matching a given picture to the right word	**over 70%**
2	Vocabulary tasks - synonym	37%
3	Vocabulary tasks - antonym	32%
Reading-comprehension: Short seen question (narrative text)		
4	Direct fact retrieval	36.3%
Reading-comprehension: Longer unseen passage (informative text)		
5	Direct fact retrieval	37.3%
6	Integrate information (Fact retrieval from more than one sentence in the text)	28.7%
7	Inference	17.0%
8	Synthesize/summarize	25.9%

Implications from assessment:

Apart from the easy items (matching pictures with words), for all the other questions 1 out of 3 children get correct answers for most questions.

Doing tasks other than fact retrieval from the text seems to be difficult for children especially for children who cannot read fluently.

Suggestions for action: In classroom teaching, more focus needs to be given to discussions with text & critical thinking activities. Such preparation and practice could be included in pre and in-service teacher trainings. Strengthening of basic reading skills needs to continue.

Std 6 : Example 1: Vocabulary tasks

Q1. वाक्य पूरा करने के लिए सही शब्द चुनो।

अपना काम पूरा किए बिना रमा ____ नहीं करती।

a) गुस्सा ☐
b) ज़िद ☐
c) खुश ☐
d) विश्राम ☐
e) उत्तर पता नहीं ☐

A total of 17648 children in Std 6 took the pen-paper language test.
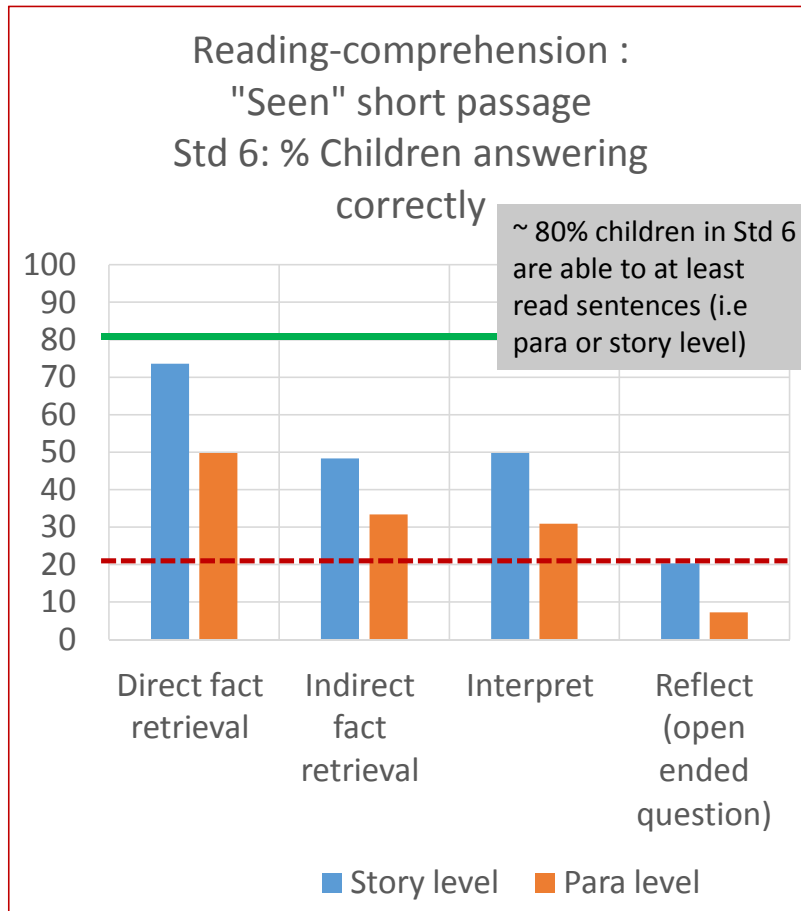
About half of all children tested are able to do the questions on word usage and vocabulary correctly.

% Children answering correctly	Items	All children tested
Word usage : Choose correct word from word list to complete a given sentence	Item 1	51.2
	Item 2	57.4
	Item 3	57.9
	Item 4	43.2
Find synonym word	Item 5	50.9
Find antonym word	Item 6	32.3
	Item 7	47.9
Find correct meaning of proverb (muhavara)	Item 8	52.5

Q5. इनमें से कौन-सा शब्द 'इनाम' का समानार्थी/समान अर्थ वाला शब्द है?

a) पकवान ☐
b) निमंत्रण ☐
c) पुरस्कार ☐
d) संस्कार ☐
e) उत्तर पता नहीं ☐

Std 6 : Links between reading & comprehension

Reading-comprehension :
"Seen" short passage
Std 6: % Children answering
correctly

~ 80% children in Std 6 are able to at least read sentences (i.e para or story level)

Among comprehension items, children find it easier to do the fact retrieval tasks than the questions which need interpretation, application or reflection.

Fluent readers do much better than others in comprehension tasks.

In our classroom teaching, much more focus needs to be put on deeper discussion of texts and on higher order critical thinking skills so that children learn how to interpret, infer, summarize and reflect. These abilities will strengthen if there is more in depth discussions in the classroom based on texts. .

In Std 6, 61.6% are reading at Std 2 level or higher. 18% can read at para level (Std 1 level).

One-on-one math assessment.

गणित की जाँच SAMPLE (1)

unicef | ASER

अंक पहचान 1—9		संख्या पहचान 10—99		जोड़		घटाव	
3	7	64	88	27 + 42	55 + 23	51 − 35	84 − 19
1	4	92	56	47 + 21	65 + 33	67 − 49	73 − 36
8	9	37	72	51 + 36	34 + 12	56 − 38	62 − 13
5	2	85	11	46 + 32	71 + 22	45 − 18	43 − 24
		29	87				

बच्चे को कोई भी 5 अंक पहचानने को कहें। कम से कम 4 सही होने चाहिए।	बच्चे को कोई भी 5 संख्या पहचानने को कहें। कम से कम 4 सही होनी चाहिए।	बच्चे से कोई भी 2 जोड़ के सवाल करने को कहें। दोनों ही सही होने चाहिए।	बच्चे से कोई भी 2 घटाव के सवाल करने को कहें। दोनों ही सही होने चाहिए।

This set of arithmetic tasks are progressive. Children were marked at the highest level they could do correctly.

Std 2 & Std 4: Findings – Math one-on-one testing?

MAY 2014 : BASIC MATH TEST : ONE-ON-ONE		
% Children ability to do basic maths at different levels by grade	**Children's std refers to their grade in in 2013-14 school year:**	
	Std 2	Std 4
Can do 2 digit subtraction with borrowing	14.8	46.6
Can do 2 digit addition without carry over but not 2 digit subtraction with borrowing	21.5	24.9
Recognizes 2 digit numbers but cannot do 2 digit addition	10.0	8.0
Recognizes 1 digit numbers but not 2 digit numbers	42.5	17.3
Not yet able to recognize numbers till 9	10.4	2.5
Total %	100	100
Number of children tested	22424	22467

53% in Std 2 not comfortable with numbers till 100

27% in Std 4 need to learn basic addition subtractn

For Std 2 & 4 basic foundational skills in number knowledge & operations is needed.

Std 4 : How well can Std 4 children do the math written test paper? Basic tasks

Number knowledge & simple operations			% Children who get correct answers	
Q1a	2 digit	Comparison of numbers	67	Multiple choice questions
Q1b	3 digit	Comparison of numbers	62.8	Multiple choice questions
Q1c	3 digit	Comparison of numbers	50.6	Multiple choice questions
Q3a	3 digit	Write number in numerals	46.4	Requires reading
Q3b	3 digit	Write number in numerals	46.9	Requires reading
Q4a	2 digit	Numerical addition sum with carryover	69.8	Does not require reading
Q4b	2 by 1	Numerical multiplication	60.2	Does not require reading
Q4c	2 by 1	Numerical division	47.5	Does not require reading

By end of Std 4:
- Between half and two-thirds of all children are able to do basic number knowledge tasks and basic operations with 2 digit numbers.
- About two thirds of the children in Std 4 seem comfortable with 2 digit numbers and operations. By this stage in school, all children should have number knowledge of all numbers up to 100 and beyond. About half the children can deal with 3-digit numbers.

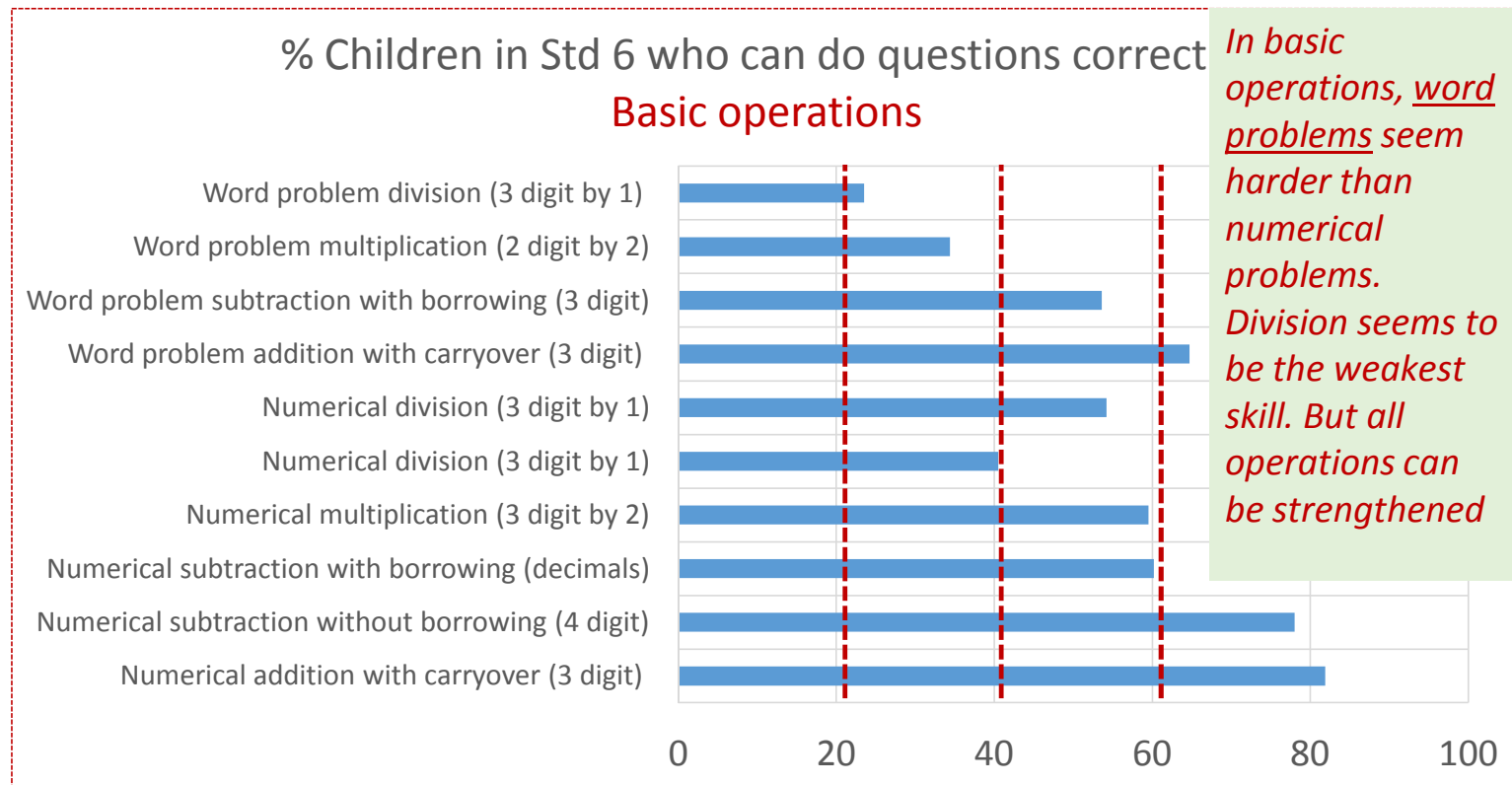# Std 4: How well can Std 4 children do the math written test paper? Word problems

% Children getting correct answers			All children	Of children who are reading at story & para level what % can do these problems?	Story	Para
Q7	2 digit	Word problem subtraction (borrow)	49.1		68.8	50.8
Q8	2 by 2	Word problem multiplication	30.1		46.2	28.6
Q9	2 by 1	Word problem division	31.1		47.7	30.4

Q7. एक दुकानदार के पास 70 किलो आलू थे। उसने 35 किलो आलू बेच दिए। बताओ कि दुकानदार के पास कितने किलो आलू बचे?

Q8. एक कलम की कीमत 15 रुपये है। रमेश ने दुकानदार से 12 कलम खरीदे। बताओ कि रमेश ने दुकानदार को कुल कितने रुपये दिए?

Q9. सीमा दीदी 75 बिस्कुट को 5 बच्चों में बराबर-बराबर बाँटती है। अब बताओ कि हर बच्चे को कितने बिस्कुट मिलेंगे?

- To do these type of word problems correctly, a child should know how to read, understand what operation is to be done and then be able do the operation correctly.
- Even among children who can read, we can see that a large proportion do not know what is to be done to solve the word problems.
- Comparison between questions reveals that for the same operation, more children can correctly do the numerical problem rather than the word problem.

# How well can Std 6 children do the math written test paper? Basic operations

- 17640 Std 6 children took the math written test.
- 70-80% children could do the number knowledge questions correctly.

% Children in Std 6 who can do questions correctly: Basic operations

Word problem division (3 digit by 1)
Word problem multiplication (2 digit by 2)
Word problem subtraction with borrowing (3 digit)
Word problem addition with carryover (3 digit)
Numerical division (3 digit by 1)
Numerical division (3 digit by 1)
Numerical multiplication (3 digit by 2)
Numerical subtraction with borrowing (decimals)
Numerical subtraction without borrowing (4 digit)
Numerical addition with carryover (3 digit)

0   20   40   60   80   100

In basic operations, word problems seem harder than numerical problems. Division seems to be the weakest skill. But all operations can be strengthened

How well can Std 6 children do the math written test paper? Applied questions

Example of an applied question

Q18. राजू के पास एक खेत है, जहाँ उसकी भेड़ चरती है। नीचे दिया गया चित्र राजू के खेत की लंबाई और चौड़ाई को दर्शाता है।

6m

12m
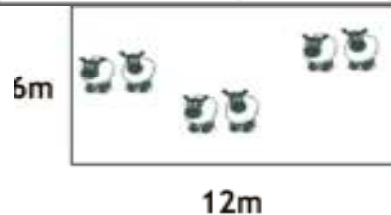
a) इस खेत का क्षेत्रफल (Area) निकालो।

b) इस खेत का परिमाप/परिमिति निकालो।

c) एक मीटर तार की कीमत 20 रुपये है। राजू को अपने खेत के चारों ओर तार लगाने में कितने रुपये खर्च करने होंगे?

% Children getting correct answer	Of all story level readers % who can do this problem correctly	Of all para level readers % who can do this problem correctly
Area question	36.8	23.7
Perimeter question	27.2	15.3
Calculation question	16.8	9.8

Children's basic concepts as well as the ability operations need to be strengthened. Other applied questions also indicate similar performance.

This is another example of how reading level influences the ability to do maths.

SUGGESTIONS FOR ACTION TO IMPROVE LEARNING

A. Strong focus on basic skills needs to continue – basic reading and arithmetic skills (number knowledge and operations).

Std 1-2 : Ensure foundational skills
Std 3-5 : Continue "catch up" remedial strategy
Std 6-8 : Need to think about learning support for those who lack basic skills.

B. Increased classroom interaction between teachers and children - discussions and on applying what they know to situations e.g comprehension of texts, word problems, writing and expression.

These practices need to be explicitly integrated into trainings, "practice" sessions and better schools in the cluster as demonstration models.

CLUSTER LEVEL STRATEGIES

Cluster report cards can be a useful mechanism for strengthening schools in the cluster and focussing the work of the CRCCs in improving learning.

Such assessments show the variation between schools in the same cluster.

Need to have strategy in which the "good" schools can help the "weaker" schools in the same cluster.

SUGGESTIONS FOR WAY FORWARD

- **WORKSHOP WITH CRCCS + DIET**
  2 day workshop at SCERT with all CRCCs whose clusters were part of the study + one member from each DIET. In this workshop based on the assessment exercise, discussions on:
  - Findings
  - Monitoring strategy for cluster
  - Preparation to share the findings and action with schools in the cluster.

- **BASIC COURSE ON ASSESSMENT for DIET faculty**
  - Outline has been shared with SCERT & UNICEF
  - 2 modules of 4-5 days each based on the assessment work done in May 2014. One module on language and one module on math.
  - ASER Centre/Pratham collaboration with SCERT to conduct this course.

PRATHAM COLLABORATION WITH STATE GOVERNMENT ON IMPROVING LEARNING AS PART OF MISSION GUNWATTA

In 2013-14, Pratham teams worked closely with district teams in 12 districts for Mission Gunwatta especially to assist in the work with learning improvement for Std 3-5. We propose to continue this collaboration.

In addition:

- Propose to work with CRCCs in the sampled clusters in these 12 districts to help to improve learning levels. "Model" clusters.

- Propose to work with interested DIETs in their laboratory schools to improve learning.