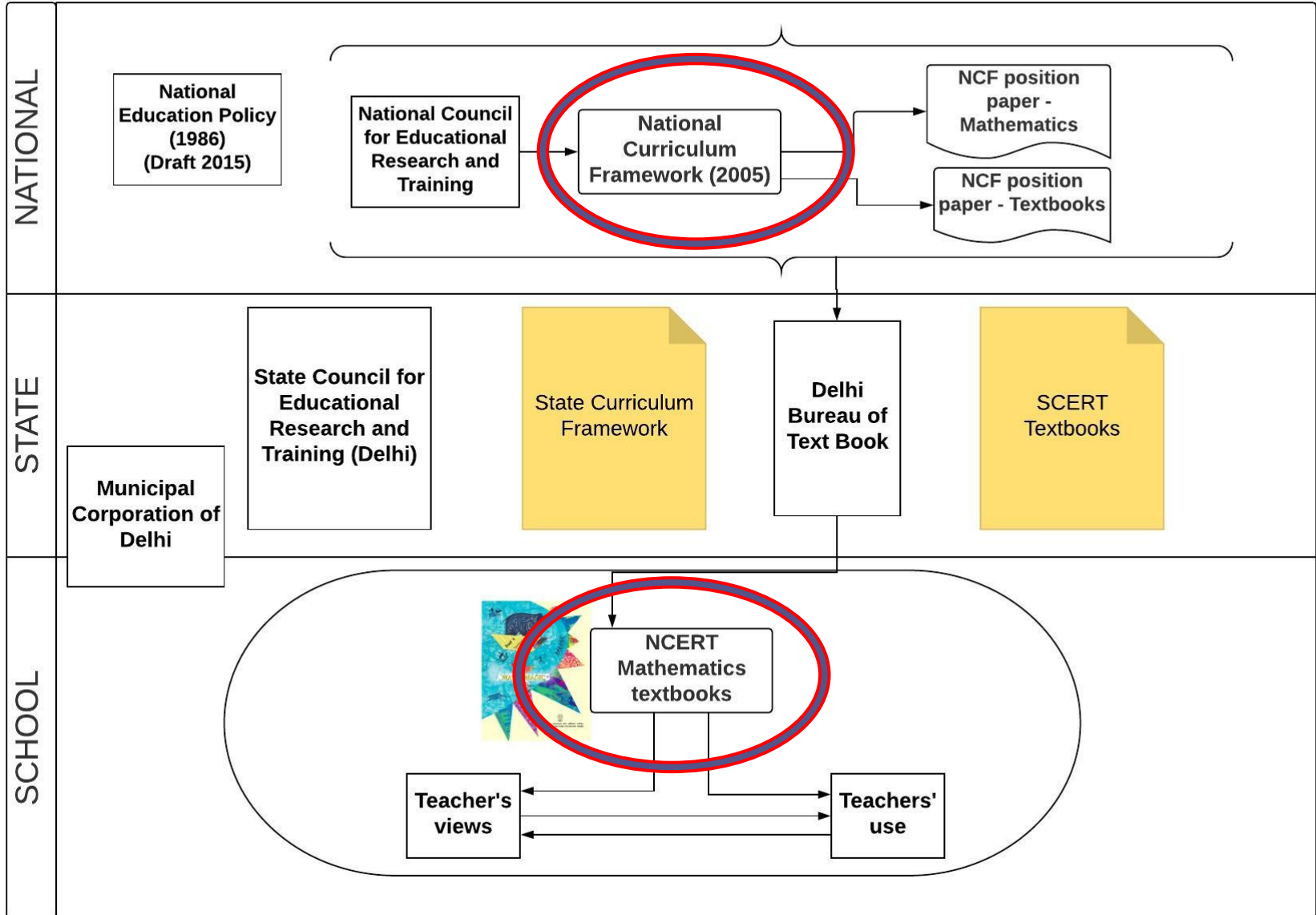


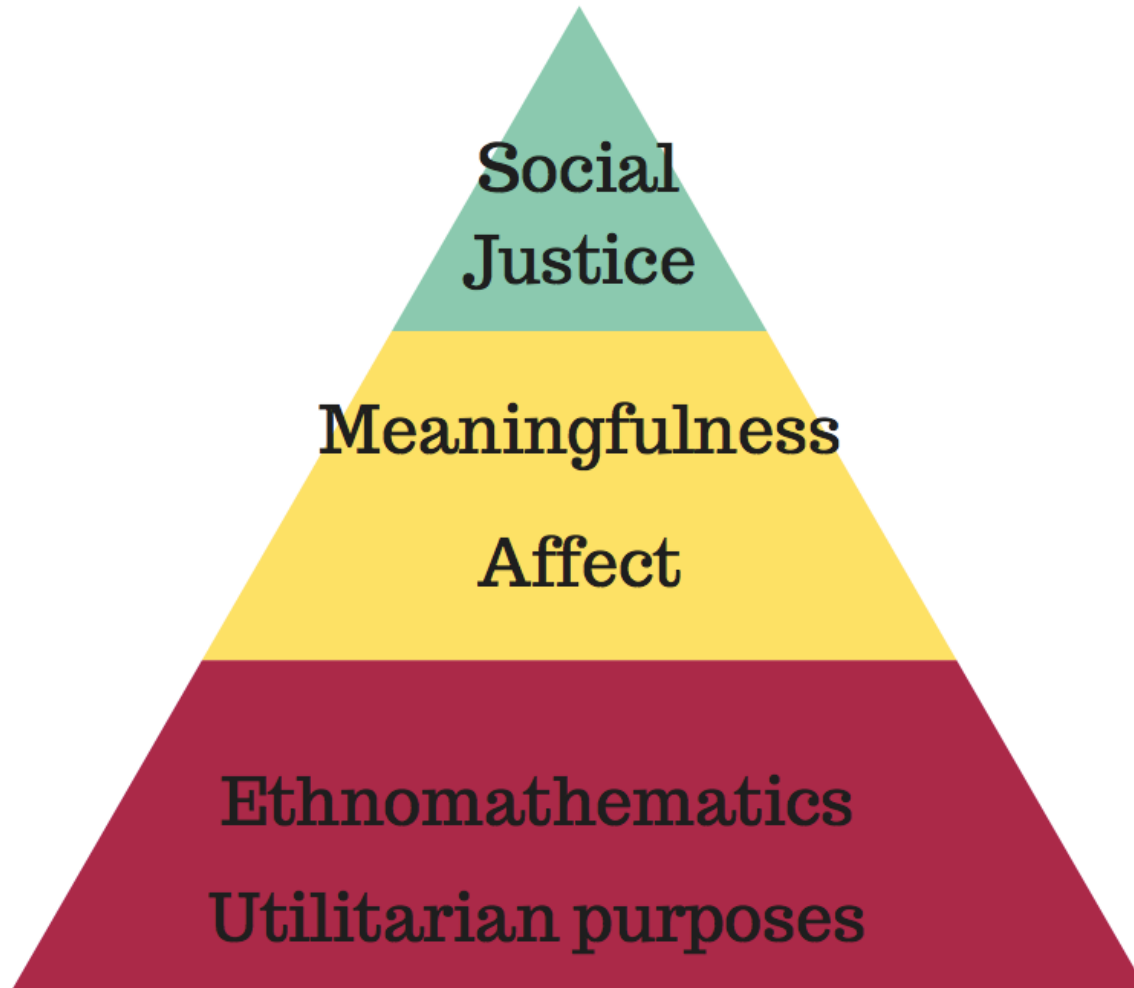
Exploring out-of-school contexts in primary school
mathematics textbooks and classroom teaching in
Delhi, India

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National Curriculum Framework 2005: Out-of-school context





How Many Squares? Task 5.3.1

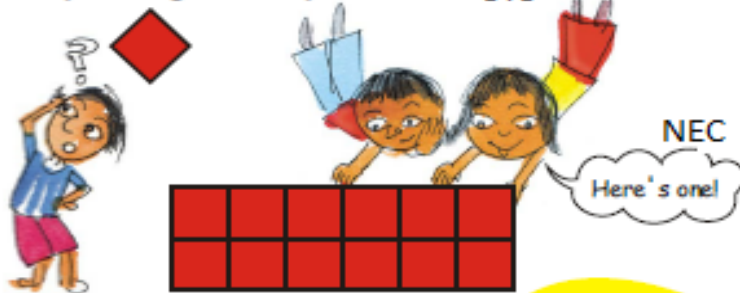


ST1

Measure the side of the red square on the dotted sheet. Draw here as many rectangles as possible using 12 such squares.

ST2

How many rectangles could you make? - ST3 -



NEC

Here's one!

NEC Each rectangle is made out of 12 equal squares, so all have the same area, but the length of the boundary will be different.

Length of the boundary is called perimeter.

NEC

Which of these rectangles has the longest perimeter? ST4

Which of these rectangles has the smallest perimeter? ST5

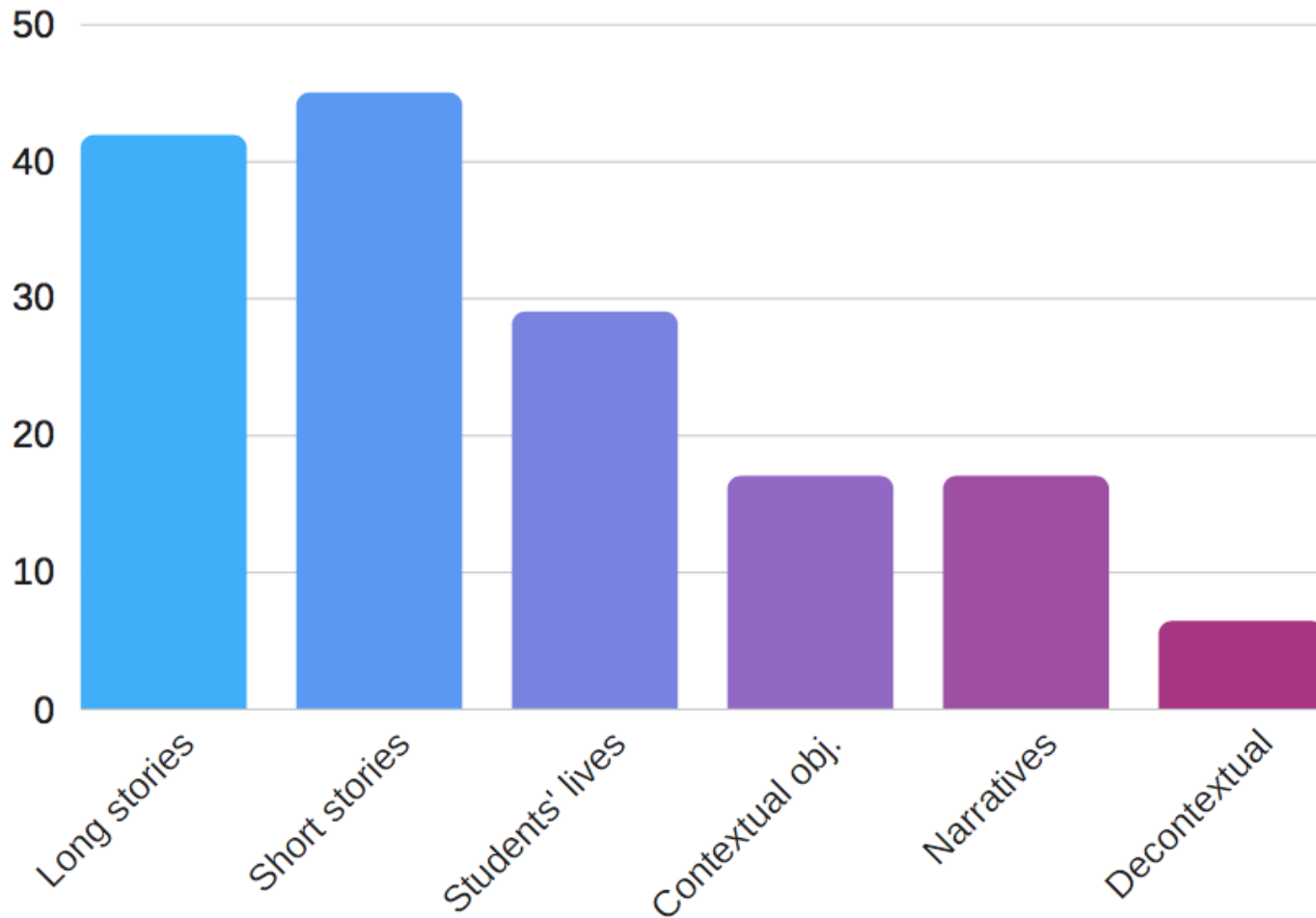


Children are not expected to learn the definition of the term 'area', but develop a sense of the concept through suitable examples. Give them many opportunities in the classroom to compare things in terms of area and guess which is bigger. Things like stamps, leaves, footprints, walls of the classroom etc. can be compared.

Mathematics textbooks (Book 4 and 5)

- Story based: Long or short
- Contextual objects
- Students' everyday lives
- Narratives
- Social justice

Mathematics textbooks (Book 4 and 5)



Context: Stories

Long story

1 Building with Bricks

Brick Patterns for Jagriti School

This is the true story of Jagriti School in Murshidabad (West Bengal). When its building was being made, there was a plan to make brick patterns on the floor and walls. Jamaal, Kaalu and Piyaar were the masons for the brick work. They wanted to get new ideas for the school building. So they took their other friends to see the old tomb of Murshid Kuli Khan. (See photos.)



This building has a big floor with about two thousand beautiful brick patterns. These were made by masons long back – about three hundred years ago.



Look how the bricks are arranged in these five floor patterns.



Which floor pattern do you like the most? _____

Have you seen such patterns anywhere?

The masons came back excited. Jamaal said— Ah! In those days they had made so many interesting brick patterns. We had forgotten these! Let us make some nice designs on the floor of this school.



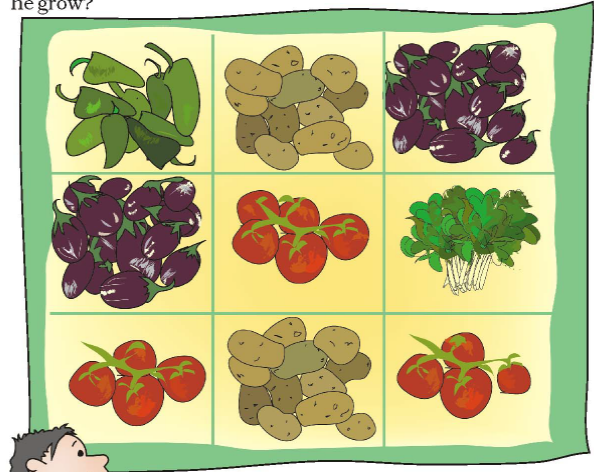
Each mason made a different brick pattern. The school is proud to have such a beautiful building! Children play and sing on it and also make new patterns themselves.



Short story

Ramu's Vegetable Field

Ramu's vegetable field has 9 equal parts. What vegetables does he grow?



- 1) Which vegetable grows in the biggest part of his field? What part?
- 2) On what part of the field does he grow potatoes?
- 3) What part of the field is used to grow spinach? What part is used for brinjals?
- 4) Now you write some questions by looking at this picture.

Context: Students lives

Do you like sky watching? If yes, then this one should interest you:

a) At what time does the sun rise at your place? _____



b) When does the sun set? _____



Does the sun rise and set at the same times every day?



Look at a newspaper and see the time of sunrise and sunset in different months.



Context: Objects

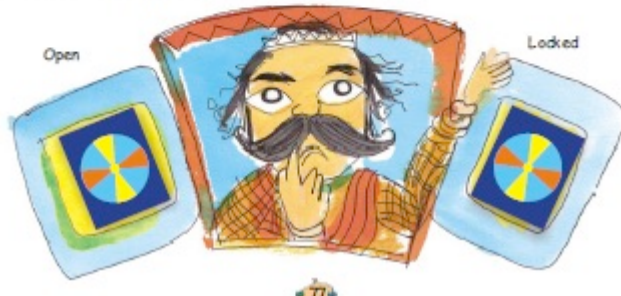
Half a Turn Schematised

Once there was a king. He was upset because thieves kept stealing costly jewels from his locker. Here is what the locker looked like:



The locker could be opened by giving its handle half a turn. Another half turn and the locker would be locked again.

The king would often leave the locker open thinking it was locked. Can you guess the reason?



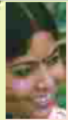
Illustrated

1) Look at the angles in the pictures and fill the table.

Angle	Right angle	More than a right angle	Less than a right angle
			✓

Context: Social justice

Explicit: Caste discrimination



People laughed and teased us about our work. They called it *ganda kaam* or 'dirty business'. But I did not think so. I knew this idea would work.

Now we have a *pucca* house with electricity. We have a fridge, a TV and a gas stove. My husband's brothers, sister and also my daughter go to school.



I have 9 rickshaws of my own. I give the rickshaws on rent, each for Rs 20 a day. On Sundays I do not take any money for them.

How Much does Kiran Earn from 9 Rickshaws in a Day?

Implicit: Gender representation

On hearing this, doctors from all over the country came. But only Dr. Vaidika could cure him.

Oh great! My pain has gone. Thank you, Dr. Vaidika.

So, can I have my reward now, sir?



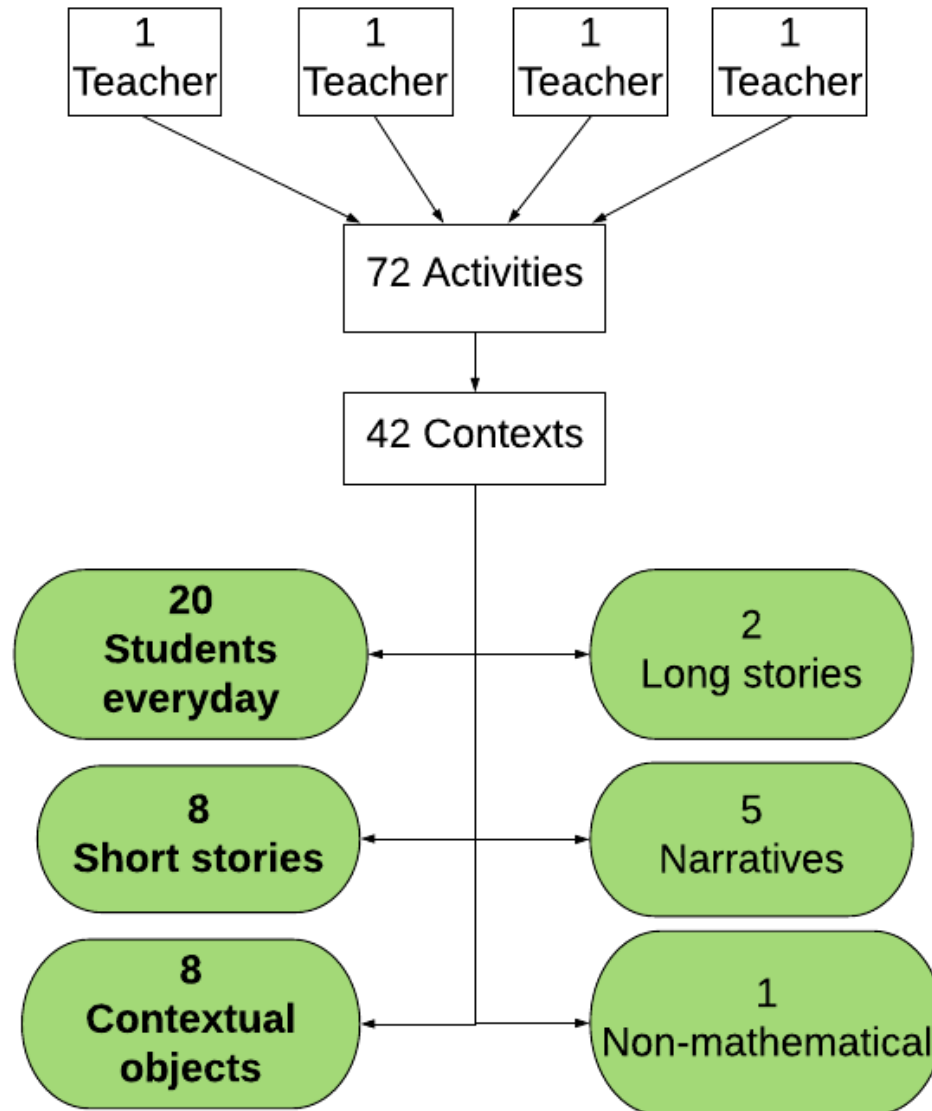
Vaidika was unhappy when she reached home. She told her daughter the whole story.

How can I weigh an elephant? Where will I get such a big balance?

Don't worry Ma. I have an idea tell the king to arrange an elephant and a big boat.



Classroom observations: Analysis



Students' everyday lives

T: Have you been to the bazaar with your mother to buy clothes?

T: Then your mother must be saying that – give 1 m cloth or 2 m cloth. Does she?

S: Ma'am some even measure *saaris*. It is 7 cm long.

T: Yes, you get *saaris* measure too.

T: How long should *saaris* be?

S: Seven, six

T: Yes, it should be 6. But how long do they turn out to be?

S: Ma'am, five

T: Yes, sometimes they turn out to be 5 as well. So will your mummy take such a *saari*?

S: No

Short story based

T: Kajal has taken one apple for 2 rupees. okay?
So how much will be 6 apples for?

T: If one rope is for three rupees, then, four ropes will be for how much?

Conclusion

- Students experiences are being included in the classroom to an extent
- Multiple representations
- Contextual short stories are being used (Lubienski, 2002; Boaler, 1993)
- Social justice is not being explicitly addressed (Gutstein, 2006)

THANK YOU!!

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