Supporting teachers to improve learner performance: The use of ICT

Keynote Address: E-Learning Showcase

Gauteng Department of Education Tshwane Cluster CSIR Conference Centre

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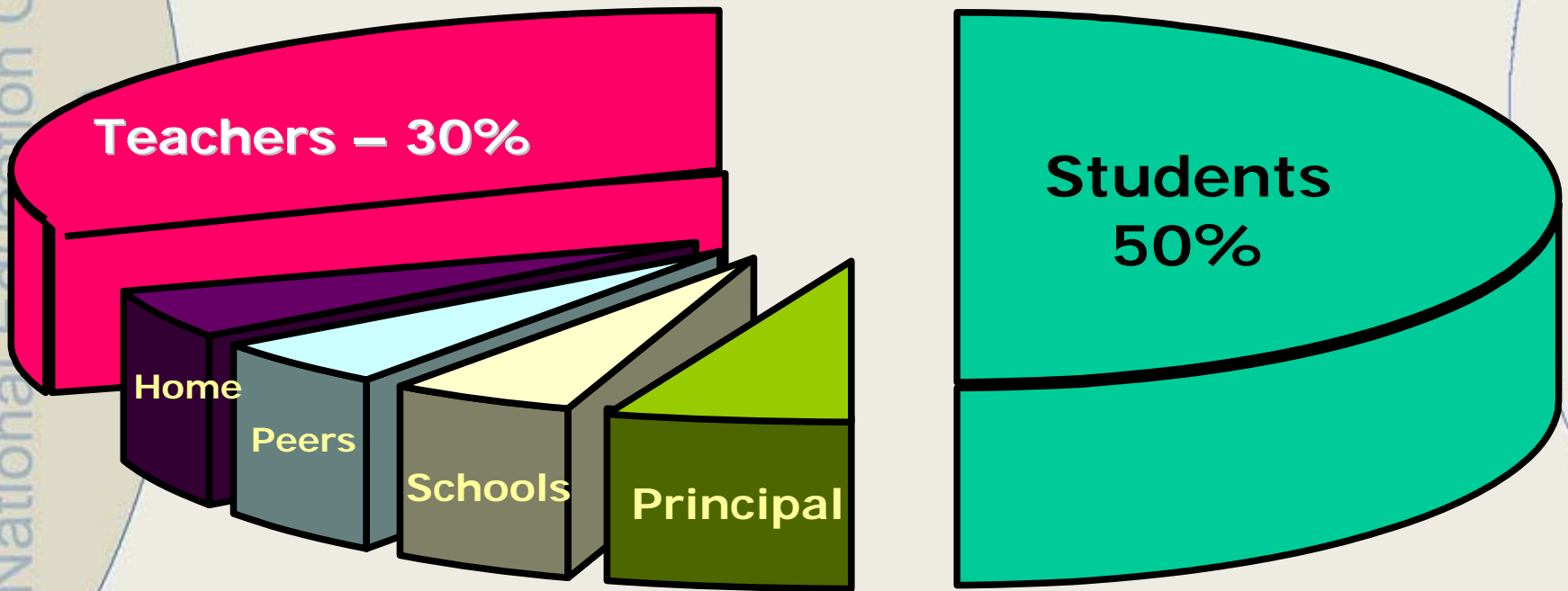**National Education Quality Initiative**

CRITICAL POINT

Improve the quality of feedback to enhance learning

How?

Supporting teachers obtain relevant evidence

What do we know about the factors that improves learner performance in schools?

Variation in performance explained by:

Teachers – 30%

Home

Peers

Schools

Principal

Students 50%

National Education Quality

Social science that makes a difference

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John Hattie - Results based on

- **over 337 meta-analyses,**

- **200,000 effect-sizes from**

- **180,000 studies,**

- **representing approx 50+ million students, and**

- **covering almost all methods of innovation.**

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Most significant effects

Influence	Effect Size	Source of Influence
Feedback	1.13	Teacher
Students' prior cognitive ability	1.04	Student
Instructional quality	1.00	Teacher
Direct instruction	.82	Teacher
Remediation/feedback	.65	Teacher
Students' disposition to learn	.61	Student
Class environment	.56	Teacher
Challenge of Goals	.52	Teacher
Peer tutoring	.50	Teacher
Mastery learning	.50	Teacher
Parent involvement	.46	Home
Homework	.43	Teacher
Teacher Style	.42	Teacher
Questioning	.41	Teacher

What do we need to do to support our teachers improve learning in schools?

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Require:

District tools & systems (provincial and national)

Classroom tools & systems

✓ **Prioritize support required**
✓ **Identify schools/learners**
✓ **Enhance feedback provided**

Extend Systemic Evaluation (NA)

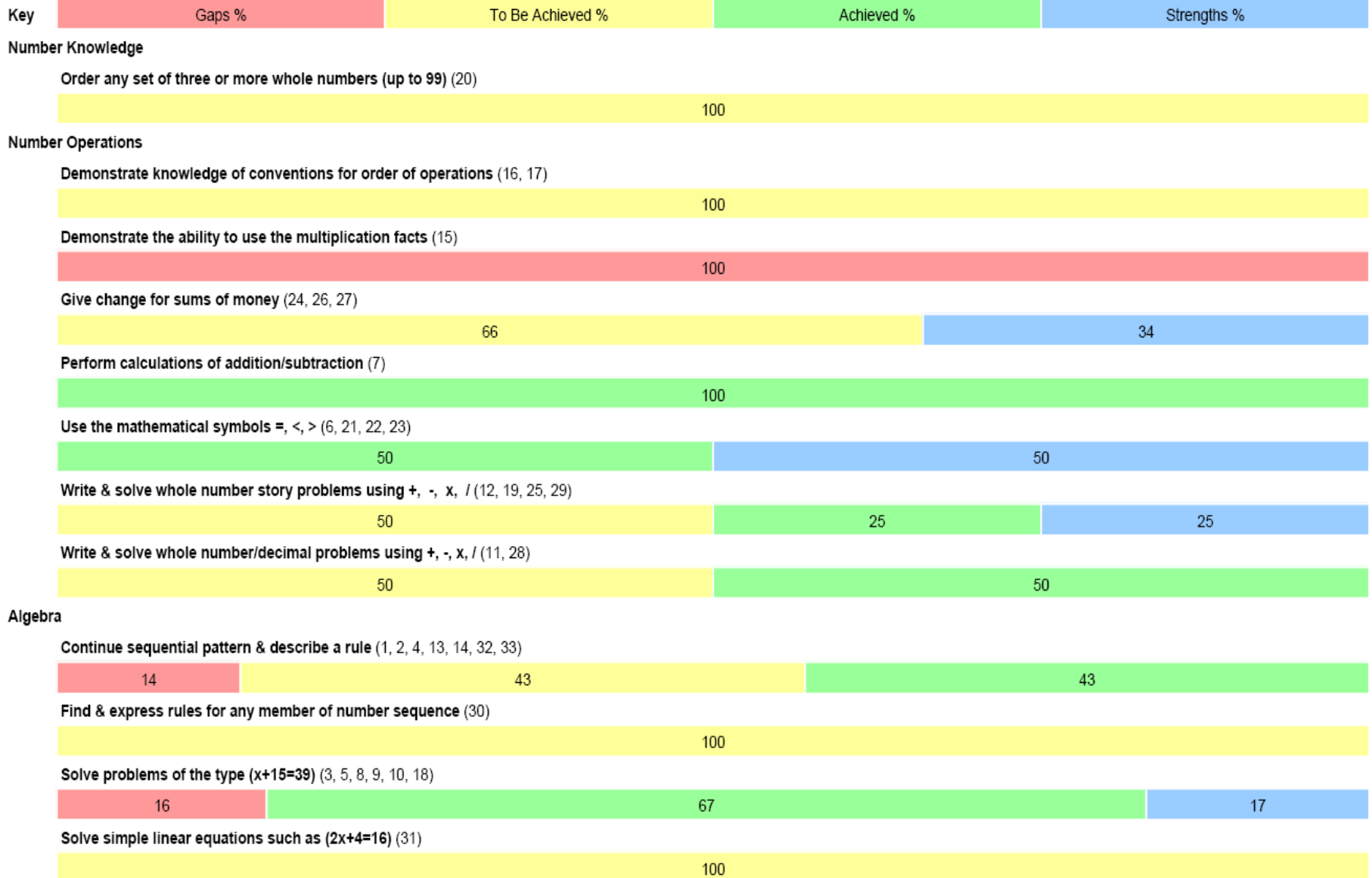**Classroom Assessment Resources to Improve Learning**

Classroom Assessment

- **Empower** teachers to:
    - Identify learner strengths & weakness
    - Determine appropriate interventions
    - Obtain ideas for "next steps"
    - Records trends in performance over time
- For use by TEACHER ONLY – i.e. **lowstakes** (not M&E by principal or district)

Classroom Assessment

- **<u>CRITICAL for providing relevant feedback</u>**
- Available when you need it
- Specific to curriculum/learning outcomes
- Reduce work load

Classroom Performance Profile

Key	Gaps %	To Be Achieved %	Achieved %	Strengths %

Number Knowledge

Order any set of three or more whole numbers (up to 99) (20)

To Be Achieved: 100

Number Operations

Demonstrate knowledge of conventions for order of operations (16, 17)

To Be Achieved: 100

Demonstrate the ability to use the multiplication facts (15)

Gaps: 100

Give change for sums of money (24, 26, 27)

To Be Achieved: 66	Strengths: 34

Perform calculations of addition/subtraction (7)

Achieved: 100

Use the mathematical symbols =, <, > (6, 21, 22, 23)

Achieved: 50	Strengths: 50

Write & solve whole number story problems using +, -, x, / (12, 19, 25, 29)

To Be Achieved: 50	Achieved: 25	Strengths: 25

Write & solve whole number/decimal problems using +, -, x, / (11, 28)

To Be Achieved: 50	Achieved: 50

Algebra

Continue sequential pattern & describe a rule (1, 2, 4, 13, 14, 32, 33)

Gaps: 14	To Be Achieved: 43	Achieved: 43

Find & express rules for any member of number sequence (30)

To Be Achieved: 100

Solve problems of the type (x+15=39) (3, 5, 8, 9, 10, 18)

Gaps: 16	Achieved: 67	Strengths: 17

Solve simple linear equations such as (2x+4=16) (31)

To Be Achieved: 100

Learner Performance Profile

aMs Score

Correct

Strengths

- Solve problems of the type (x+15=39): (10)
- Use the mathematical symbols =, <, >: (21, 23)
- Write & solve whole number story problems using +, -, x, /: (25)
- Give change for sums of money: (24)

Achieved

- Use the mathematical symbols =, <, >: (6, 22)
- Solve problems of the type (x+15=39): (3, 5, 8, 9)
- Write & solve whole number story problems using +, -, x, /: (12)
- Write & solve whole number/decimal problems using +, -, x, /: (11)
- Continue sequential pattern & describe a rule: (1, 2, 4)
- Perform calculations of addition/subtraction: (7)
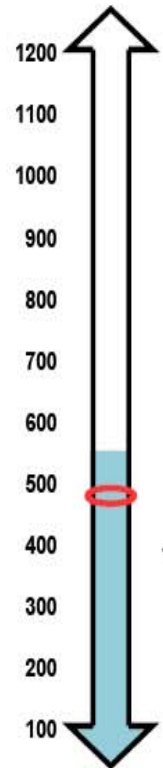
Incorrect

To Be Achieved

- Write & solve whole number story problems using +, -, x, /: (19, 29)
- Order any set of three or more whole numbers (up to 99): (20)
- Give change for sums of money: (26, 27)
- Continue sequential pattern & describe a rule: (14, 32, 33)
- Write & solve whole number/decimal problems using +, -, x, /: (28)
- Demonstrate knowledge of conventions for order of operations: (16, 17)
- Find & express rules for any member of number sequence: (30)
- Solve simple linear equations such as (2x+4=16): (31)

Gaps

- Demonstrate the ability to use the multiplication facts: (15)
- Continue sequential pattern & describe a rule: (13)
- Solve problems of the type (x+15=39): (18)

1200
1100
1000
900
800
700
600
500
400
300
200
100

<

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Individual learner trends

Performance by Curriculum levels

Goal Summary Report | Mathematics | Jane Jones | August 2005

Student Characteristics

Year Level	Year 5
Gender	Female
Location	Urban
Language at home	English

Plot

Time period	Nov 04
to	Aug 05
Percentile band	90th
and	10th

Trend Lines

✓ Curriculum target
✓ Teacher defined

Achieved above target
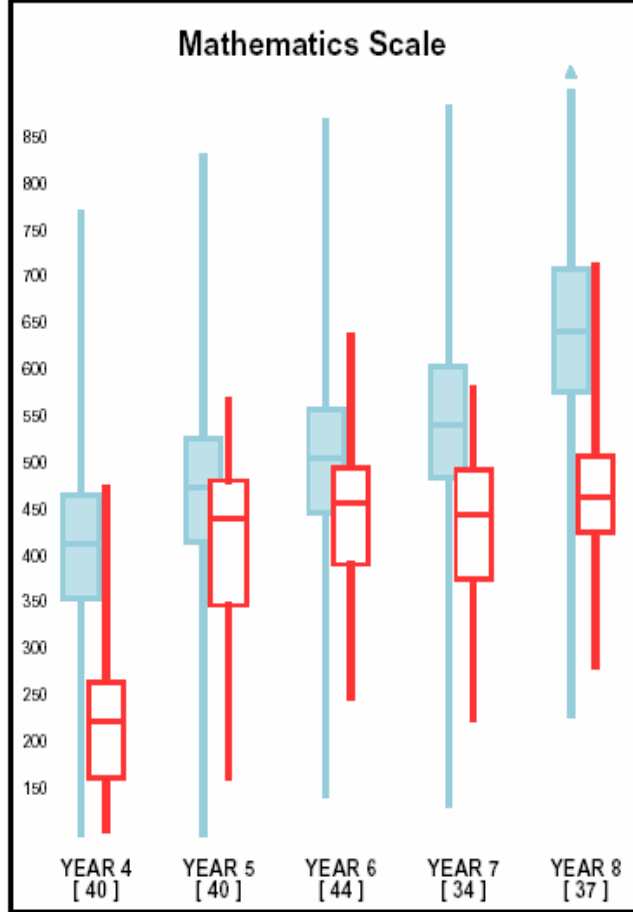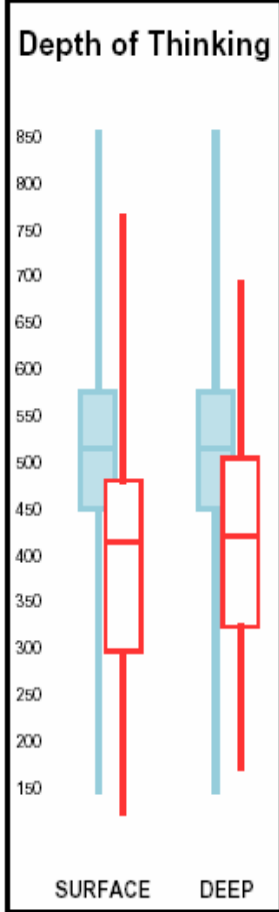Achieved target
Achieved below target

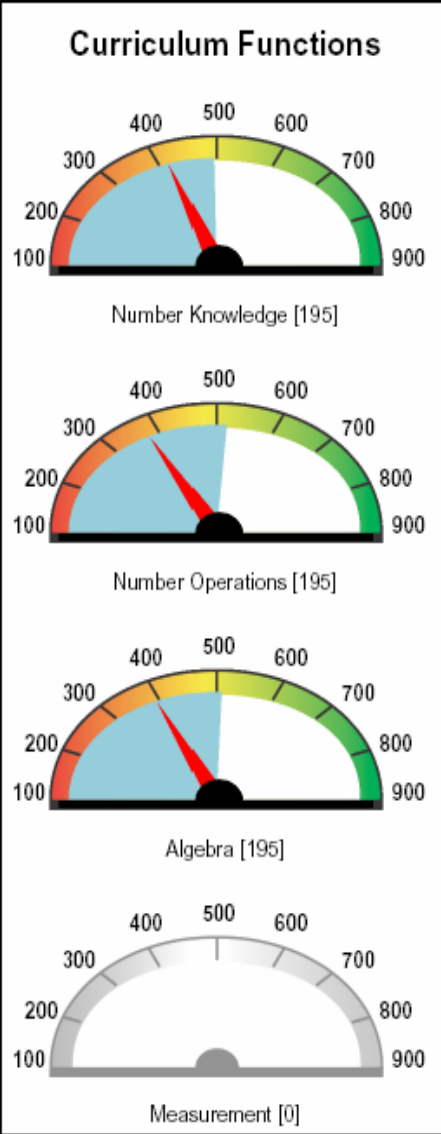**Summary of Performance vs Goals**

90th

10th

Year 4   Year 5   Year 6   Year 7   Year 8
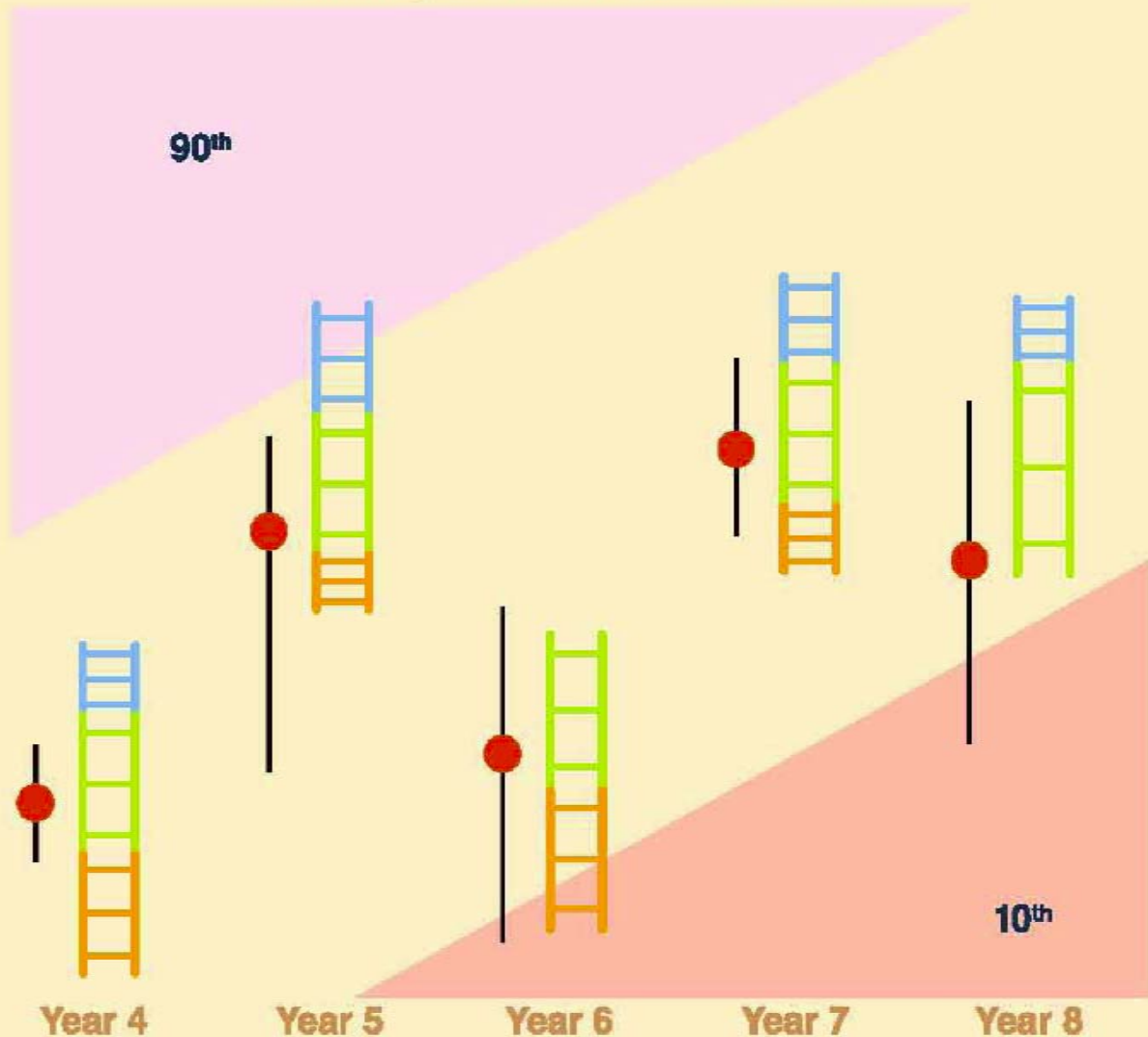
Interaction Effects

Ethnicity: All
Year: 4, 5, 6, 7, 8
Gender: All

Language: All
Cluster: All Clusters

Location:

No. of Students: 195

SA Performance: ▬■▬   Your Group Performance: ▬□▬   No. of Results: [*n*]

Curriculum Functions

Number Knowledge [195]

Number Operations [195]

Algebra [195]

Measurement [0]

Depth of Thinking

SURFACE   DEEP

Mathematics Scale

YEAR 4 [40]
YEAR 5 [40]
YEAR 6 [44]
YEAR 7 [34]
YEAR 8 [37]

Attitude

Curriculum Functions

Geometric Knowledge [0]

Geometric Operations [0]

Probability [0]

Statistics [0]
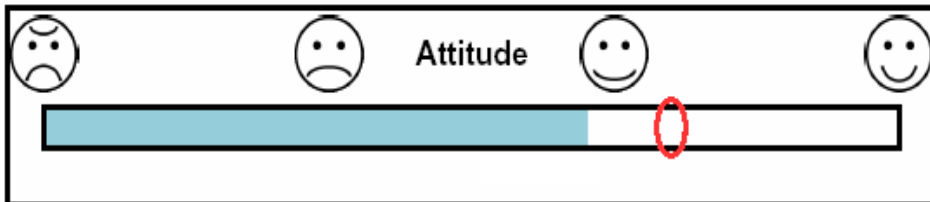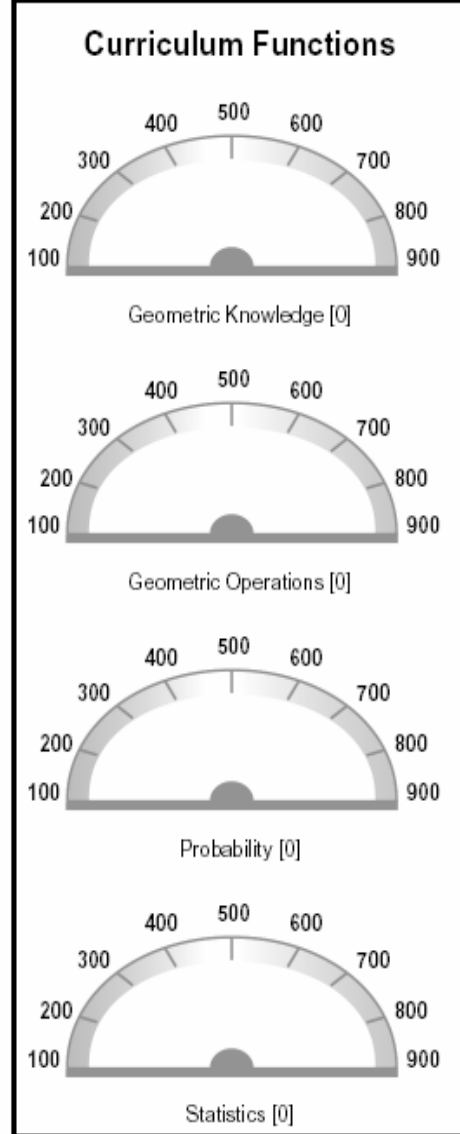
Reading
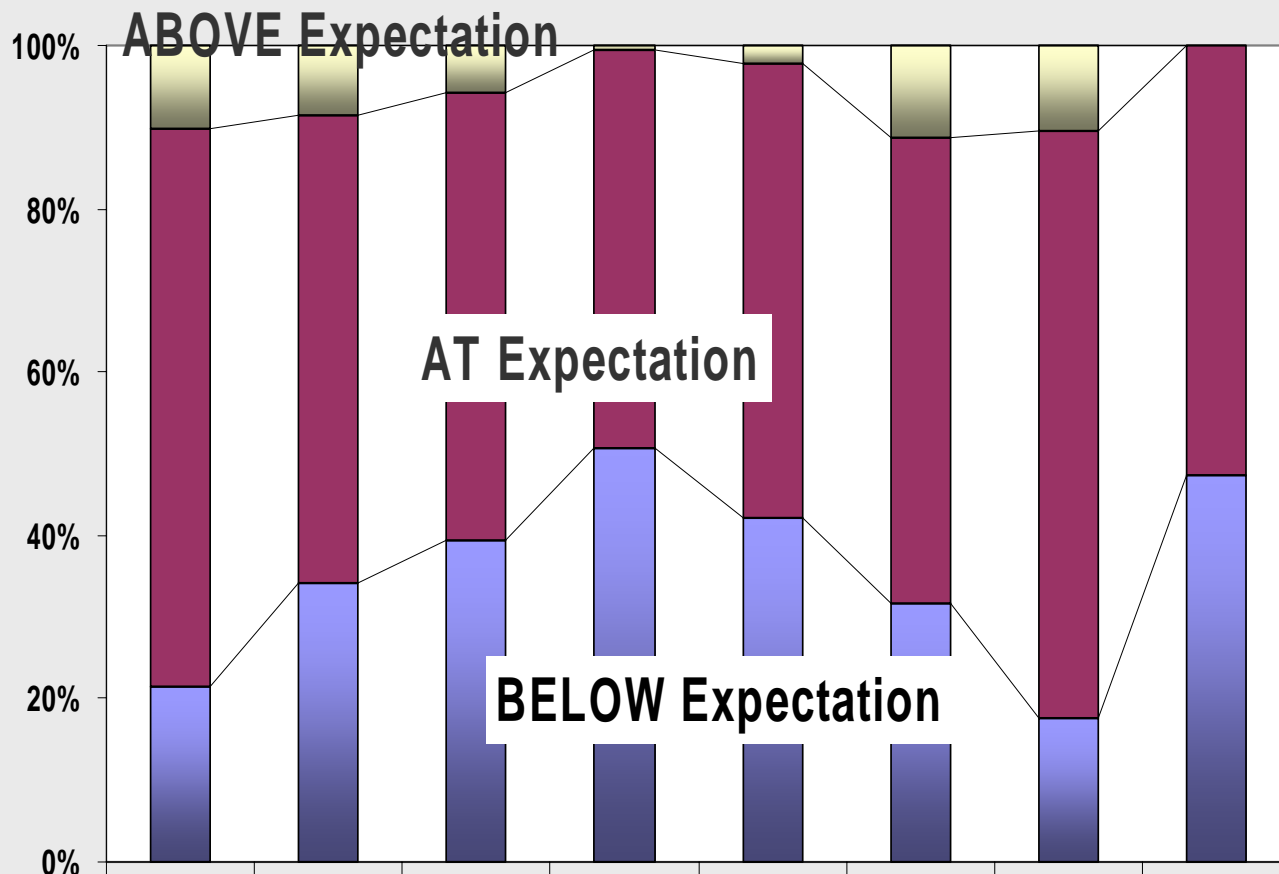
	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Above expectation	10	9	6	1	2	11	10	0
At expectation	68	57	55	49	53	57	72	53
Below expectation	22	34	39	51	40	32	18	47

Maths

	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12
Above expectation	3	3	1	2	2	4	1	0
At expectation	81	70	74	85	61	65	52	24
Below expectation	16	27	25	13	34	32	47	76

Below expectation   At expectation   Above expectation

By Content Area: Number
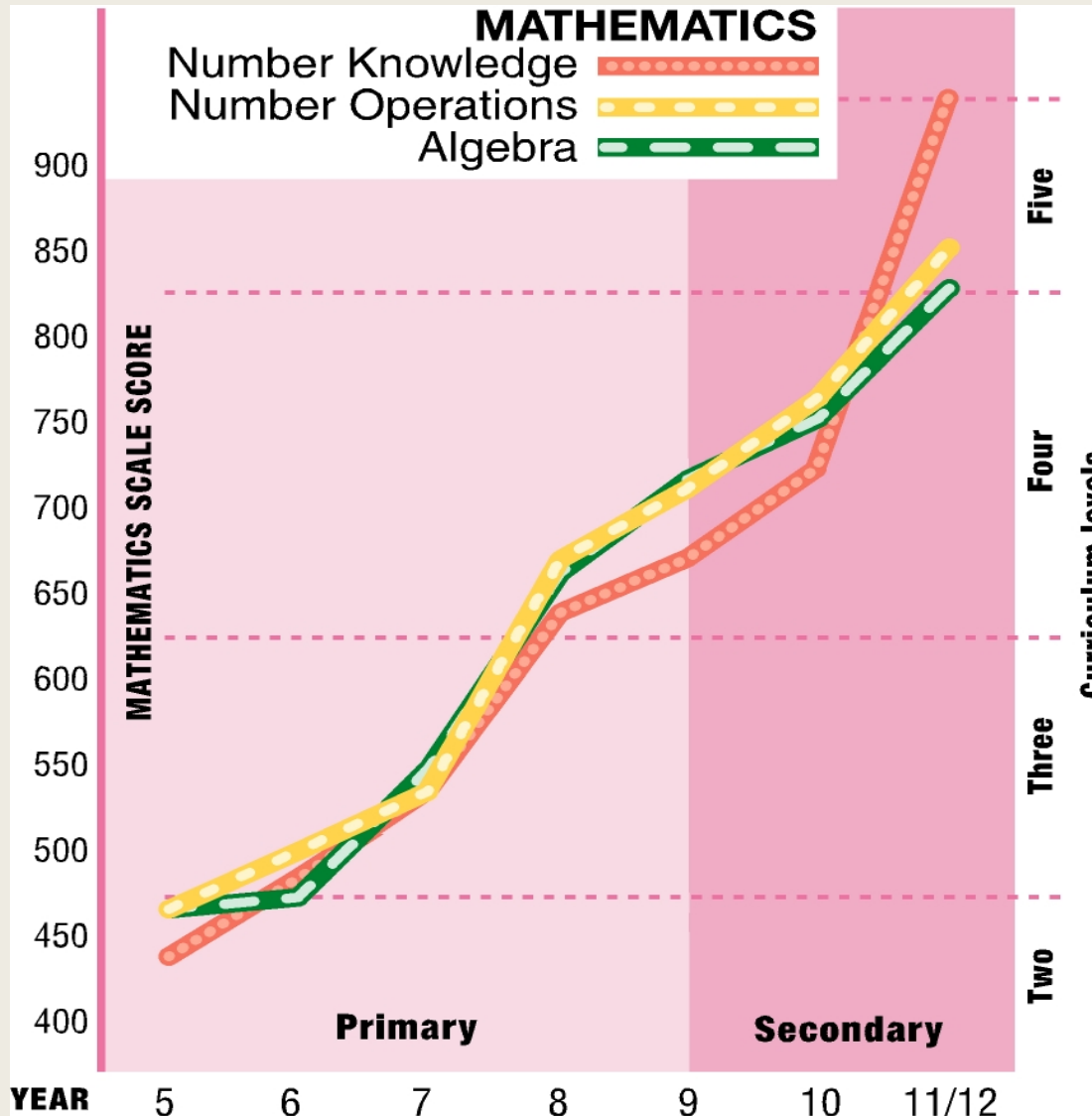
Boys and girls …
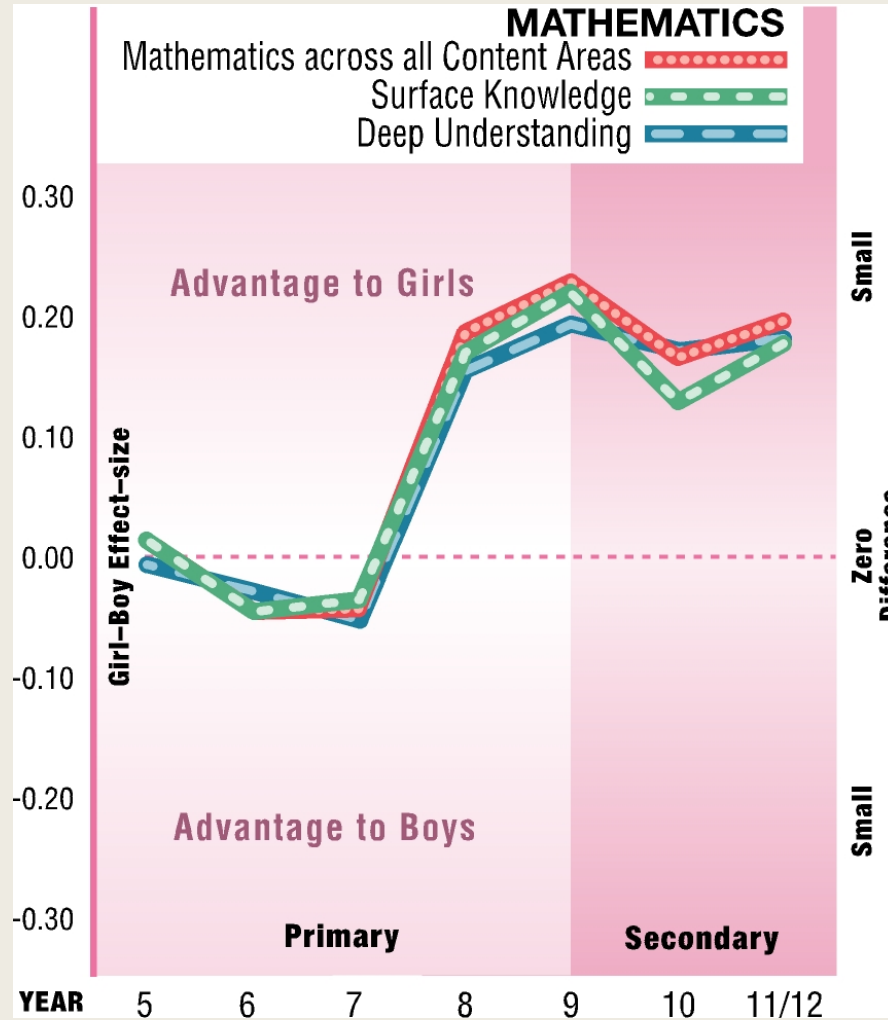
School types
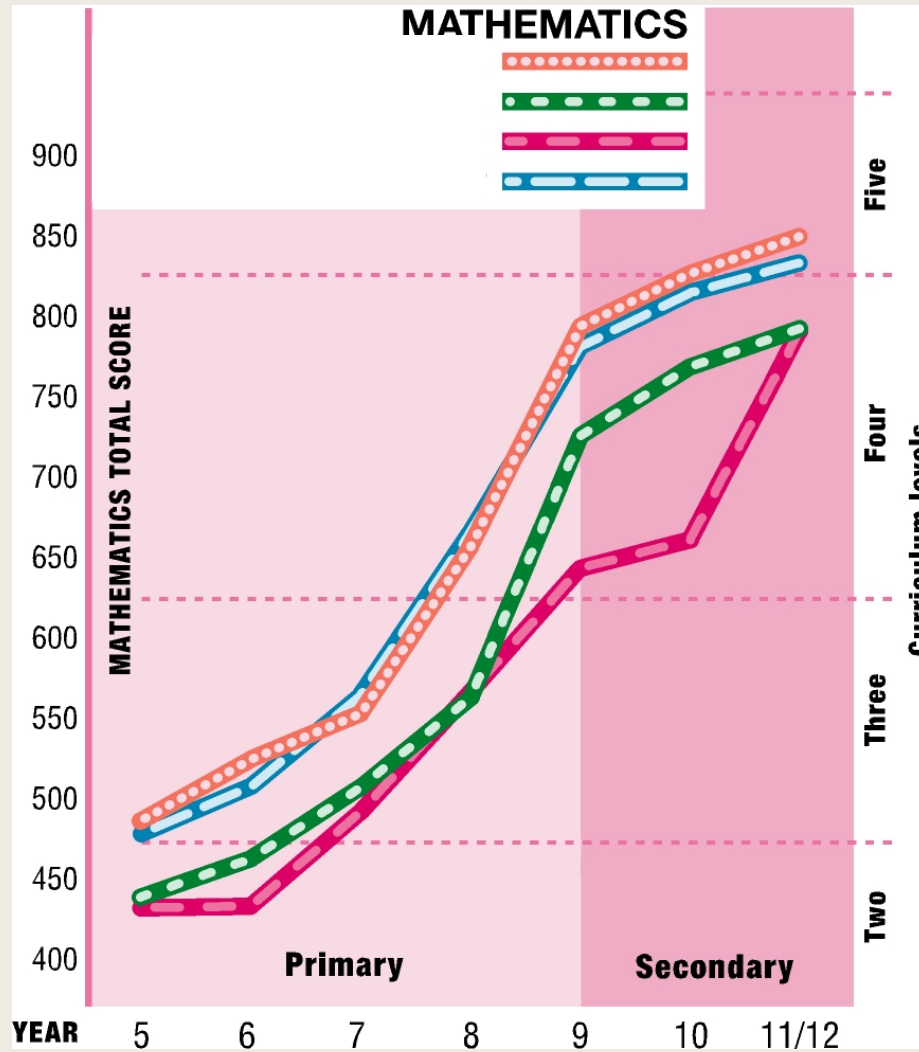
How are items developed?

- **Items developed to represent all curriculum outcomes & assessment standards**

- **All items piloted at a national scale, e.g. part of systemic evaluation**

- **Appropriate items selected & packages into software**

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Context of applications

- **To cater for learners with no/full access to computers & internet**
- **Address schools with a wide range of resources – schools with:**
  - **no computers,**
  - **One/few computers**
  - **School access to internet**
  - **Learner access to computers**
  - **Learner access to internet**

Relevant tools developed as:

- **CD version**
- **Internet version**
- **Paper & Pencil version**
  - **E.g. HSRC's Assessment Resource Banks – successfully applied in DDSP project**

Teacher Self Assessment Tasks

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Demo

[..\..\..\..\Program Files\asTTle\asTTleApp\asTTle V3.exe](..\..\..\..\Program Files\asTTle\asTTleApp\asTTle V3.exe)

Thank you

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