

JEFF ROSS, ASSESSMENT TOMORROW

DATA AND ASSESSMENT

MathSpeak India Conference 2014

Agenda

- What is good assessment?
- Tools we can use to enhance performance
- Impact v. Cost
- Tests and evidence based education
- Tools for Monitoring Performance e.g. CEM Centre, University of Durham
 - Including quality criteria
 - Adaptive testing
 - Assessment samples
- Into the future



Outline

- Assessment is the most powerful lever we have
- Quality matters
- Technology can make assessment
 - Efficient
 - Diagnostic
 - Embedded
 - Fun
 - Valid
 - Standardised
 - Secure
 - Informative

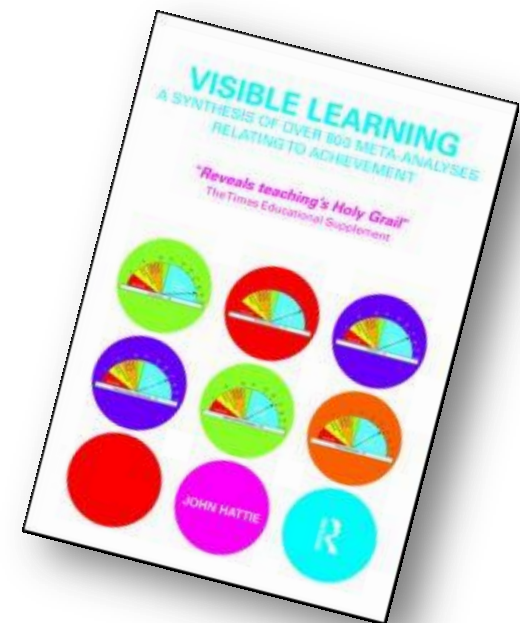


Good Assessment

- Makes learning visible
- Makes us focus on learning
- Allows us to evaluate
 - What students do and don't know
 - Against appropriate norms
 - Effectiveness of teaching
- Allows us to diagnose
 - Specific learning needs

Hence enhance performance

LETS LOOK AT ENHANCING
PERFORMANCE



Performance Enhancing Tools and Techniques -1

- After school programmes
- Arts participation/creativity support
- Aspiration interventions/improve the 'want'/motivation
- Behaviour interventions/rewarding good, reducing bad
- Block scheduling/longer periods/intensive working
- Collaborative learning, projects and peer working
- Digital technology (learning, teaching, administration)
- Early years intervention, pre-school, familial support
-



Performance Enhancing Tools and Techniques - 2

- Extended school time
- Feedback (relative to objectives and outcomes)
- Homework (Primary and Secondary)
- Individualised instruction/All Learners are different
- Learning styles/approaches to learning
- Mastery learning, blocked, unitised, assessment intensive
- Mentoring – third party guidance
- Meta-cognition and self-regulation/learning to learn
-



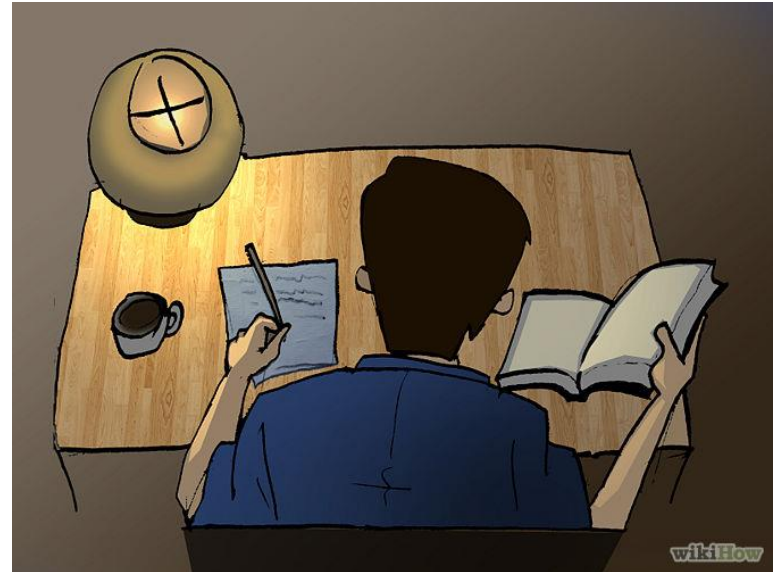
Performance Enhancing Tools and Techniques - 3

- One to one tuition
- Oral language interventions/verbal interactions
- Outdoor adventure learning
- Parental involvement
- Peer tutoring
- Performance pay/rewarding teachers for student achievement
- Phonics – for early years language
- Physical environment
-



Performance Enhancing Tools and Techniques - 4

- Reducing class size
- Repeating a year
- School uniform, school ethos approaches
- Setting or streaming – lesson specific groupings
- Small group tuition
- Social and emotional learning – improving social/emotional landscape
- Sports participation
- Summer schools
- Teaching assistants



But

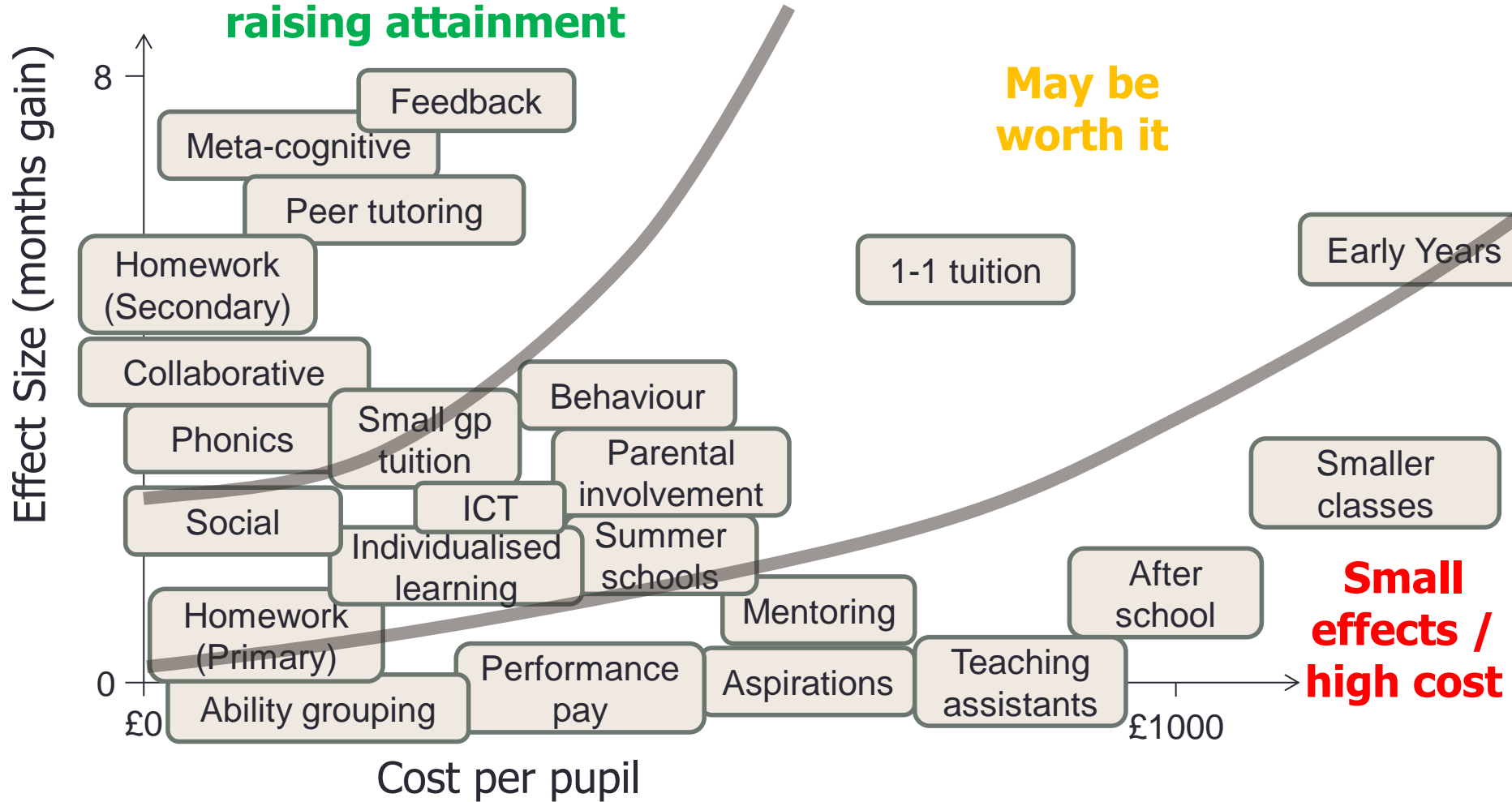
All have their own impact

All have their own cost



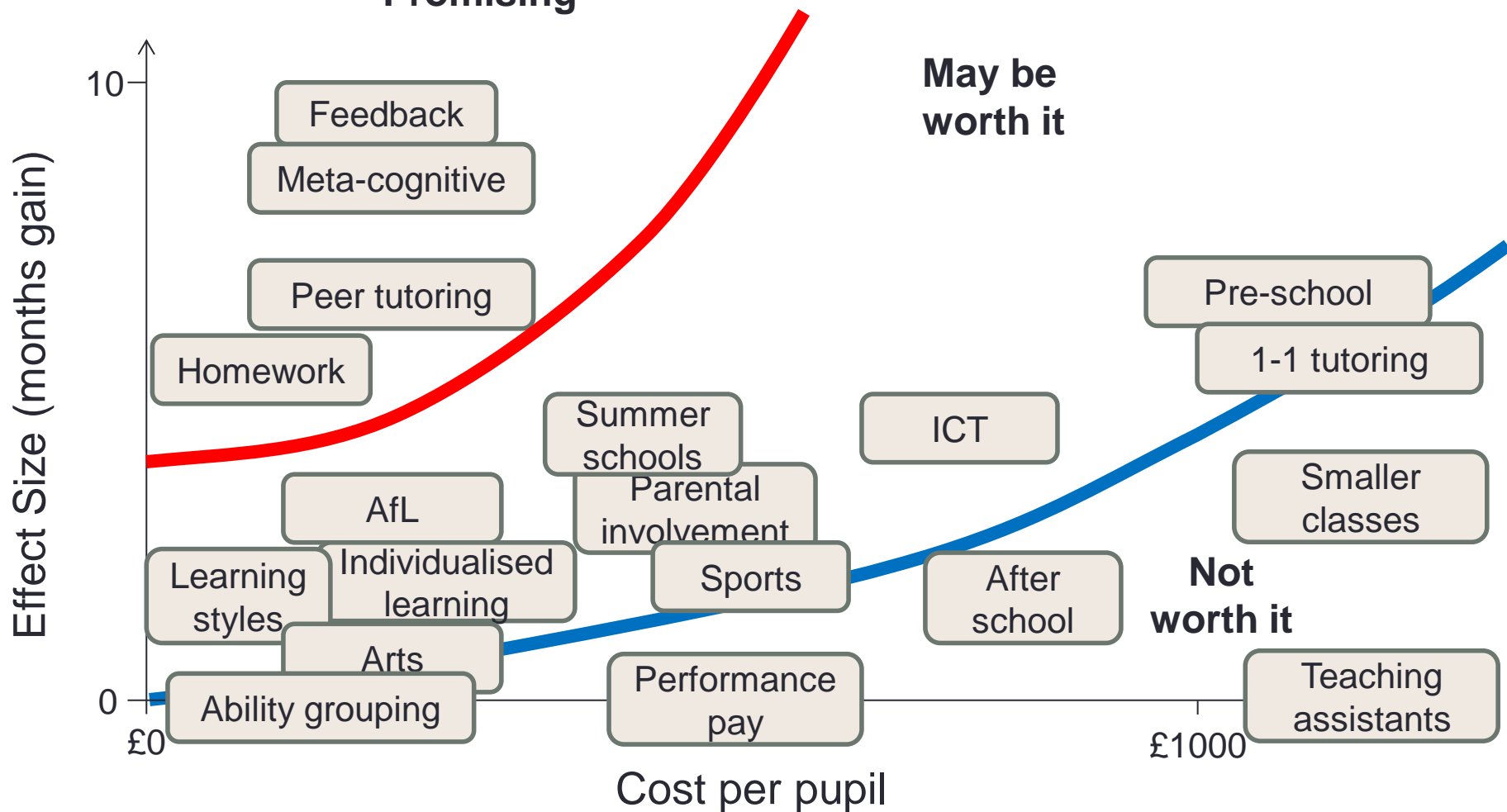
Impact vs Cost

Most promising for raising attainment



Simplified slightly

Promising



What connects all these?

- DATA
- DATA
- DATA
- INFORMATION
- INFORMATION
- INFORMATION
- INTELLIGENCE
- INTELLIGENCE
- INTELLIGENCE



It is NOT About

Grading

And

Testing



**IT IS ABOUT Getting
Data/Information/Intelligence
that helps you help the learner**

Definition of a grade

‘An inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material.’

Dressell (1983)

Would you let this test into your classroom?

- Does the test discriminate adequately between different levels of performance?
- How clearly defined are the acceptable interpretations and each student?
- How long does the test (or each element of it) take each student?
- How well do the test scores predict later performance?
- Do the responses have to be marked?
- How much time is needed for this?
- Do repeated administrations of the test give consistent results?
- What does the test claim to measure?
- How well do the test scores correlate with the measure?
- Do the test items look appropriate?
- How well does the measure correlate with measures of the same and other constructs, using the same and other methods of assessment?
- Do test scores reflect factors other than the intended construct (such as gender, social class, race/ethnicity)?

Long Term Evaluation and Monitoring

- Evidence-Based Education
 - educational policy and practice should be guided
 - best evidence about the likely effects
 - evaluate specific intervention strategies and policies.
 - If not - measure impact
- Evidence is
 - Not value free
 - Not a quick fix
 - Incomplete
 - Complex





CEM's Aim

To help educators improve educational outcomes, through

- Assessments that support learning
- Monitoring and feedback systems for self-evaluation
- Rigorous evaluation of the impact of different approaches
- Promotion of evidence-based practices and policies



CEM activity

- The largest educational research unit in a UK university (70 staff)
- 1.1 million assessments are taken each year
- More than 50% of UK secondary schools use one or more CEM system
- CEM systems used in over 40 countries
- Largest provider of computerised adaptive tests outside US

England

Scotland

Wales

Netherlands

Germany

Australia

New Zealand

South Africa

Hong Kong

Slovenia

Luxembourg

Abu Dhabi

Quality criteria for assessments (1)

Construct validity

What does the test measure? What uses of these scores are appropriate/inappropriate?

Criterion-related validity

Correlations with other assessments or measures of the same construct. Correlations may be concurrent or predictive.

Reliability

Eg test-retest, internal consistency, person-separation

Freedom from biases

Evidence of testing for specific bias in the test, such as gender, social class, race/ethnicity.

Range

For what ranges (age, abilities, etc) is the test appropriate? Is it free from ceiling/floor effects?

Quality criteria for assessments (2)

Robustness

Is the test 'objective', in the sense that it cannot be influenced by the expectations or desires of the judge or assessor?

Educational value

Does the process of taking the test, or the feedback it generates, have direct value to teachers and learners? Is it perceived positively?

Testing time

How long does the test (or each element of it) take each student? Is any additional time required to set it up?

Workload/admin requirements

Does the test have to be invigilated or administered by a qualified person? Do the responses have to be marked? How much time is needed for this?

Computer Adaptive Testing

Right answers → harder questions

Wrong answers → easier questions

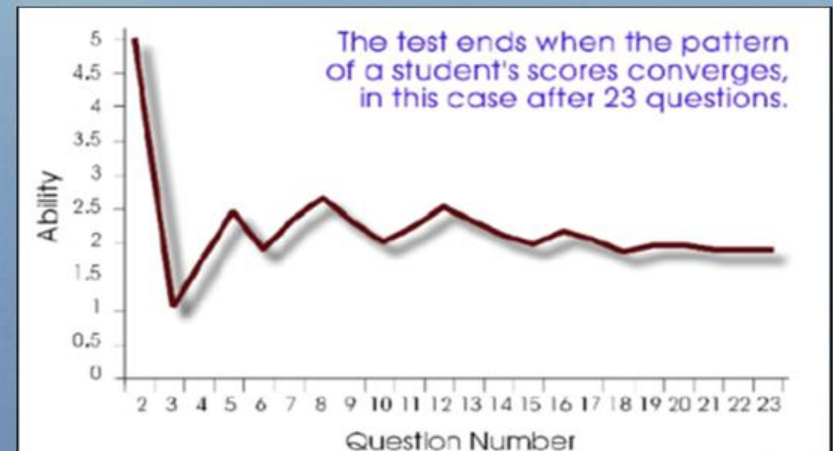
Can give same information in half the time

More accurate at the extremes

More pleasant testing experience

Need access to computers

Development costs higher



PIPS Baseline: start of school



Back an Item

Back to Start

Replay Audio

Speech

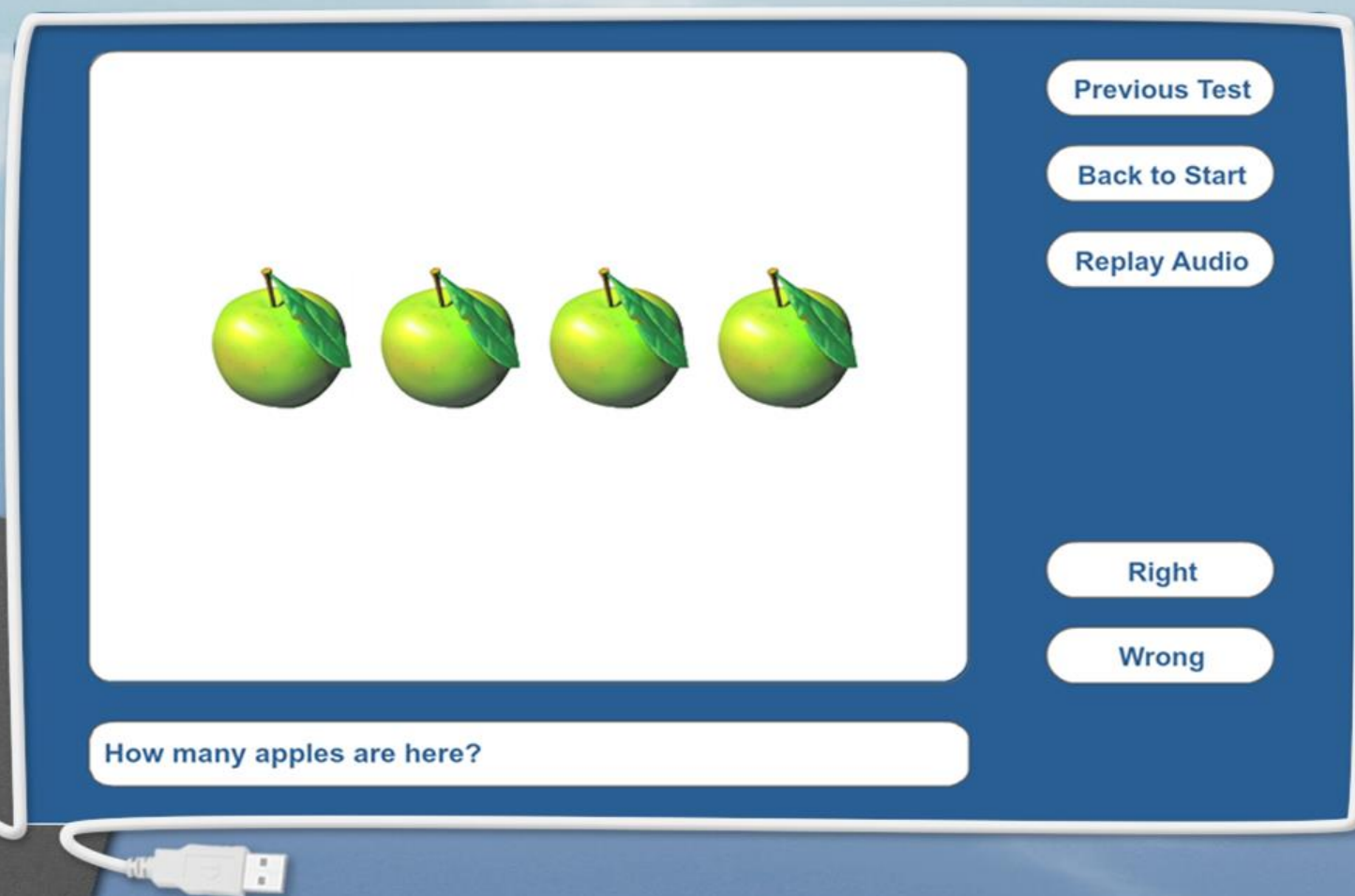
Refuse

Right

Wrong

Can you say FRIGGLEJANG?

InCAS: diagnostic assessment through primary school



InCAS: diagnostic assessment through primary school

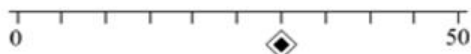


- <https://www.youtube.com/watch?v=gjmmtQt31b8>

InCAS: diagnostic assessment through primary school

General Maths

Look at this number line.



What number does the diamond (◆) represent?

3

6

30

60



Quiz 00:20:00

Question 00:05:00

Again



InCAS: diagnostic assessment through primary school

Picture Vocabulary



Quiz 00:15:00

Question 00:01:00

Again

cyclist

CABT: Developed ability 11-18

What is y if $y + 3 = 15$

$y =$

10

12

14

11

9

Name:

Next

Section: Mathematics

Question ID: M2173 Question Number: 15

Other CEM e-Assessments

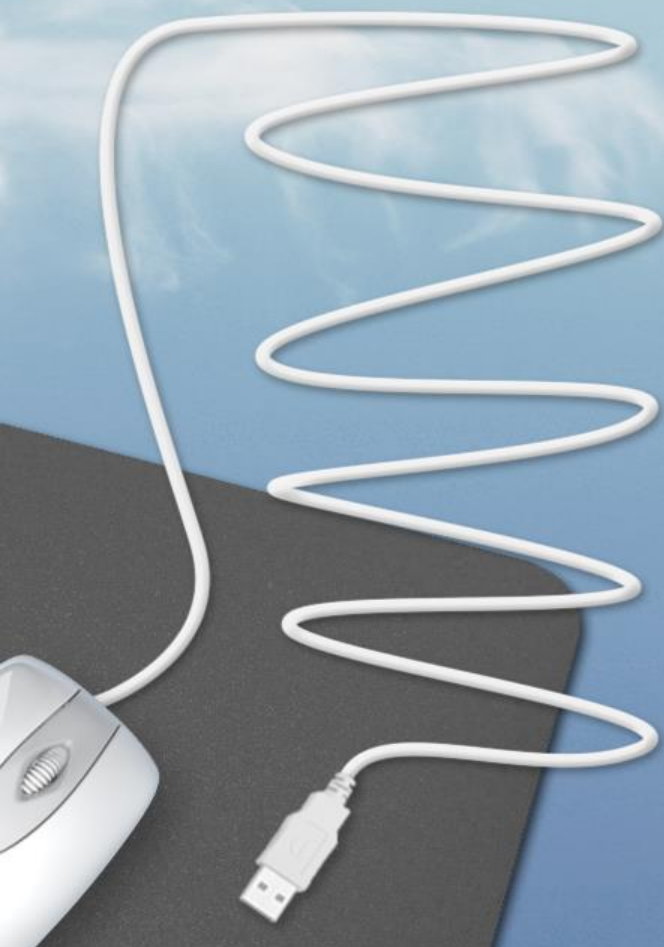
ASPECTS for children in nursery, age 3-5

INSIGHT curriculum assessment of maths, reading and science for Y9

ATTITUDINAL surveys for age 11-18

READING diagnostic dyslexia screener for Y7

ENTRANCE selection test for 11+ & 13+



In the future, technology allows

- Teachers to author, share and evaluate test items
- 'Home-made' standardised tests
- Adaptive presentation
- Automatic marking of complex responses
- Platforms for efficient and quality -controlled human judgement/marking
- Cheat detection
- Sophisticated feedback to students and teachers



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