Best-fit decisions
Marking PATs

- 25% affected by errors
- More negative errors for ‘lower ability’ students
- More errors for girls
Scientific accuracy
Understanding of principles
Aptitude for science
Attitude towards science
Interest in science
O level suitability
Science career suitability
How we think

Why we (sometimes) make mistakes

Using the PaCT to make best-fit decisions
THINKING, FAST AND SLOW

DANIEL KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS
System 1
and System 2
SYSTEM 1
Associative
Quick
Automatic
Effortless
37 × 17
SYSTEM 2

Slow
Rational
Effortful
Lazy
Heuristics

Mental shortcuts
Substituting one question for another
The availability heuristic
Words that start with a ‘k’
or
words that have k as the third letter?
WASH
The representative heuristic
Person 1

Intelligent
Industrious
Impulsive
Critical
Stubborn
Envious
Person 2

Envious
Stubborn
Critical
Impulsive
Industrious
Intelligent
The anchor and adjust heuristic
Keys to making best-fit judgments

Understand ‘best-fit’
Know the sets of illustrations
Beware of the halo affect
Justify your decisions
Moderate your judgments with others
Be strategic
How does this set of illustrations compare with what you know about Aiden's writing?

- His writing is less sophisticated
- This is the best fit
- His writing is more sophisticated
by themselves and most of the time?
Mathematics

- Additive Thinking
- Multiplicative Thinking
- Patterns and relations
- Using symbols
- Geometric thinking
- Measurement thinking
- Statistical investigations
- Interpreting statistical and chance situations
What’s the big idea?

The students have begun to recognise that numbers are abstract units that can be either treated as wholes or partitioned and recombined. This is called part-whole thinking. Students partition single-digit numbers to form "tidy numbers" or use known addition facts to ten to solve problems. The language of the problem guides the student to the operation of addition or subtraction.
What’s the big idea?

The students' reading processing systems are functioning smoothly and are becoming self extending. The students automatically read all high-frequency words and solve new challenges, including straightforward multisyllabic words, within more difficult text at speed, giving necessary attention to sub-word level. They understand the meaning of punctuation features, such as parentheses, and print features, such as bold print and italics ……
Set 4: Additive
Rapata solves this problem by counting on from the bigger number and explains that this is more efficient. He knows that he can change the order of addends without changing the sum (the commutative property). In his response he recognises the context of the problem.
Set 5: Additive

Jo is able to **partition** a single digit into smaller parts. She makes it clear that her choice of partition is deliberate to achieve a tidy number to work with. Jo uses the term ‘tidy number’ to describe the decade. Jo illustrates her thinking process with an addition equation although the way she writes it is technically incorrect.
<table>
<thead>
<tr>
<th>SIGN/SCORE</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Blue/pale</td>
<td>Body pink, extremities blue</td>
<td>Pink</td>
</tr>
<tr>
<td>Pulse Rate</td>
<td>None</td>
<td>&lt; 100</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>Grimace</td>
<td>None</td>
<td>Grimace</td>
<td>Cries</td>
</tr>
<tr>
<td>Activity</td>
<td>Limp</td>
<td>Some</td>
<td>Active</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow/irregular</td>
<td>Strong cry</td>
</tr>
</tbody>
</table>
“It is strongly advised that an observer, other than the person who delivers the infant, be the one to assign the score.”

“… experience has demonstrated that the person delivering the infant should not be the one to assign the score. He or she is invariably emotionally involved with the outcome of the delivery and with the family, and cannot or unconsciously does not make an accurate decision as to the total score.”
Picture references

Students working in science lab
http://www.freeimages.com/photo/science-students-1241156

Students
http://www.freeimages.com/photo/students-1441602

Boys and girls
http://www.freeimages.com/photo/girls-and-boys-2-1544169

Brain
http://www.freeimages.com/photo/brain-001-1172516

Virginia Apgar

Strategy image

Scales
http://www.freeimages.com/photo/balance-1172800
Picture references

Halo

Blocks
http://www.freeimages.com/photo/stability-1-1240118