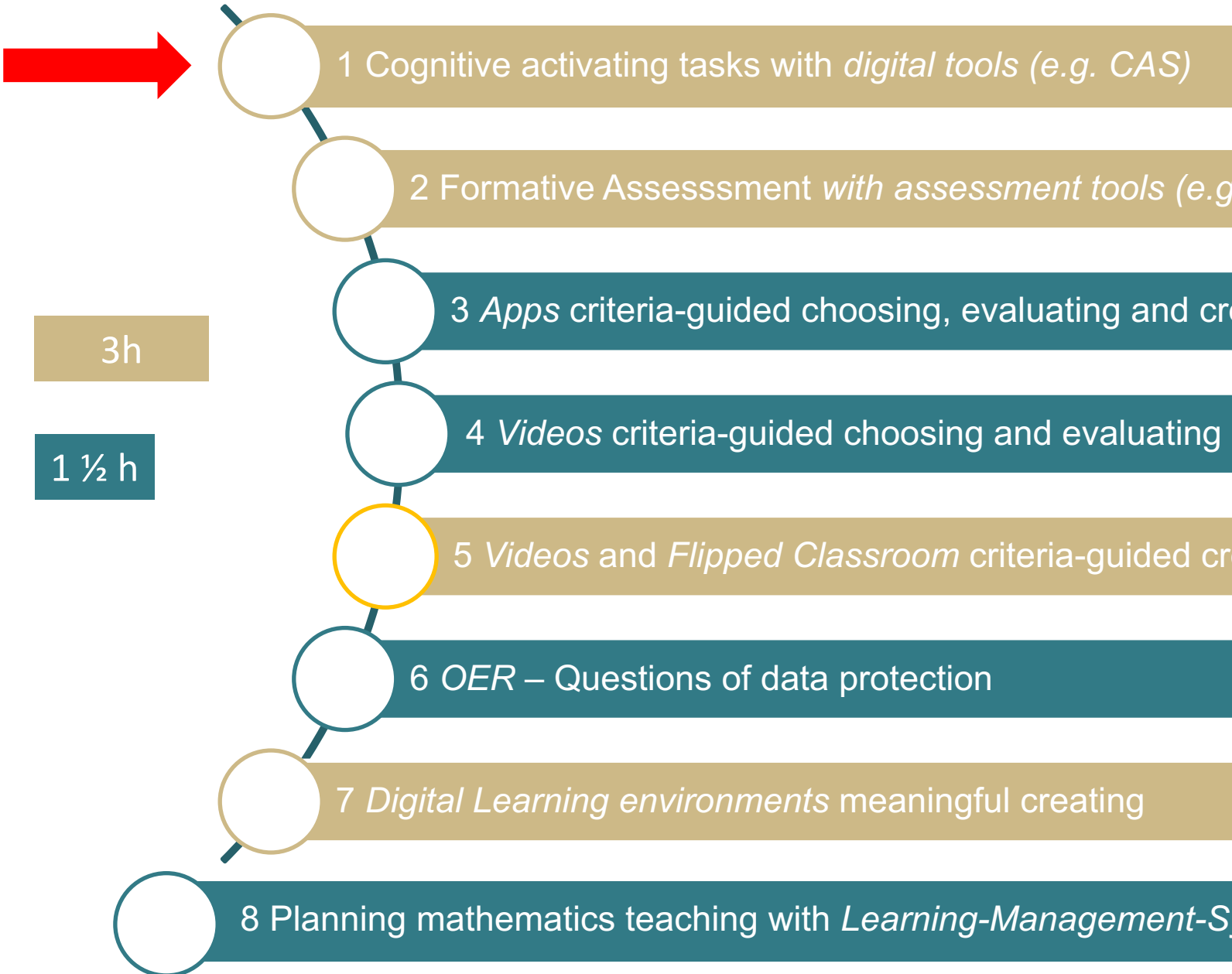
New Program: Digital Media for cognitive activation



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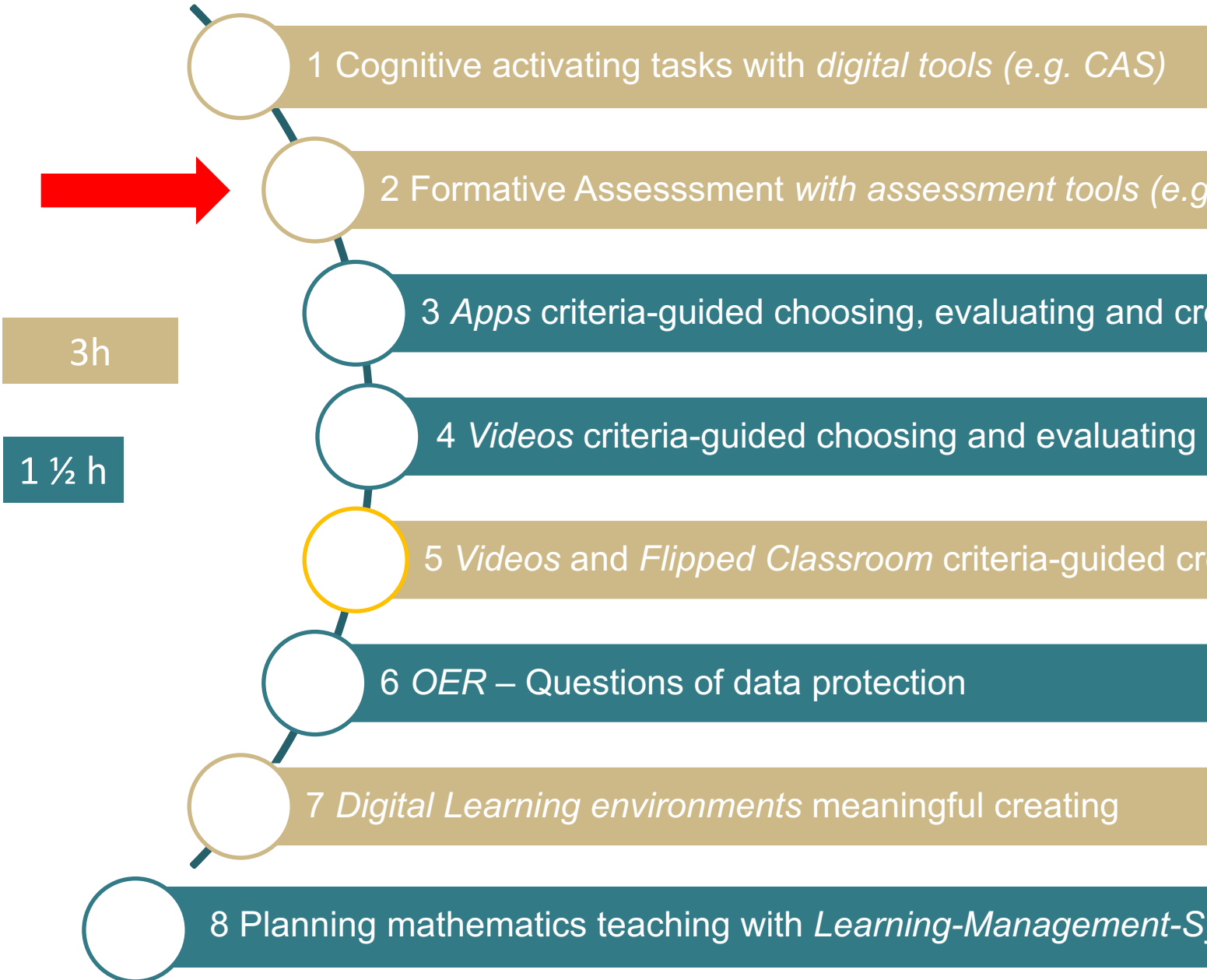
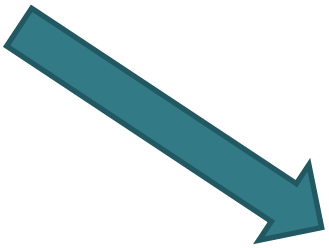


SMART – a digital formative assessment tool



The Challenge is to t
knowledge out of the
and make it available
teachers inside their
classrooms.

What is SMART?

smart
specific mathematics assessments

Origin: University of Melbourne (Kaye Stacey et al.)
currently adapted for German-speaking countries and traditions
Research: 12 years and more than 500.000 students
130 SMART-Tests for grades 5 – 9

Over 130 comprehension-oriented tests covering
content areas and 65 individual topics

Numbers

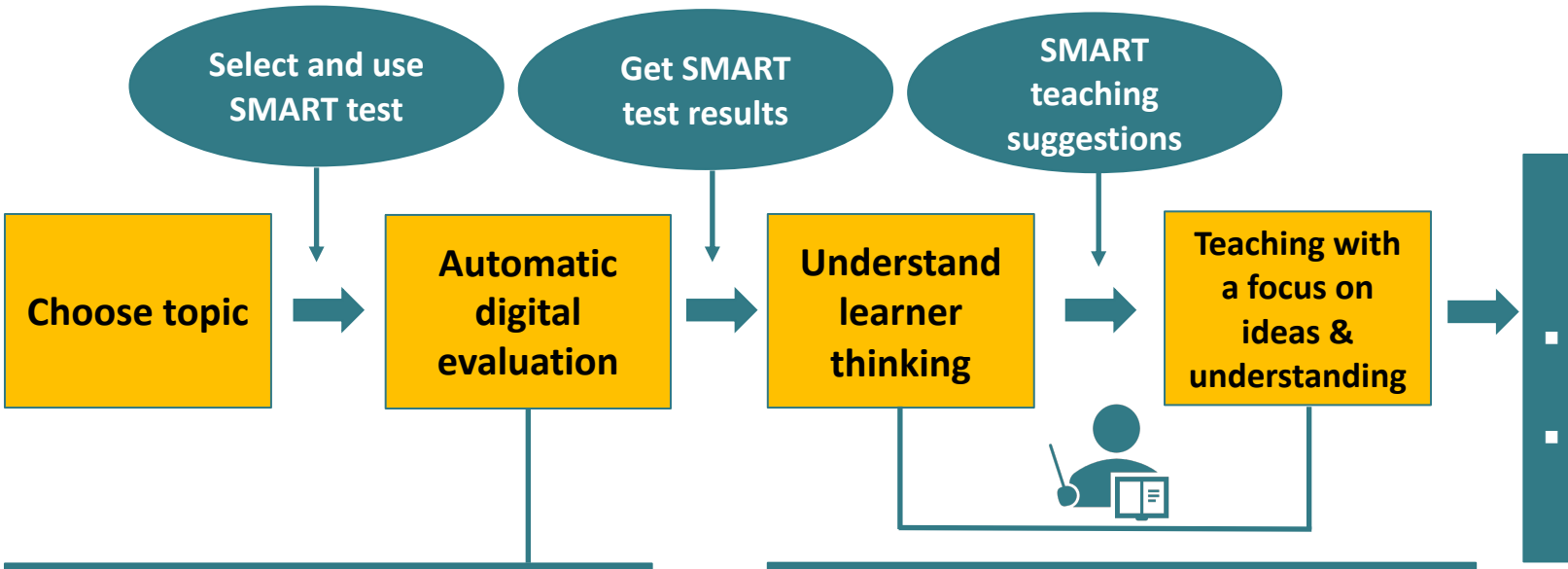
Geometry

Algebra

Stochastics and probability

Measurements

The SMART concept – digital formative assessment



Digital diagnostic analysis

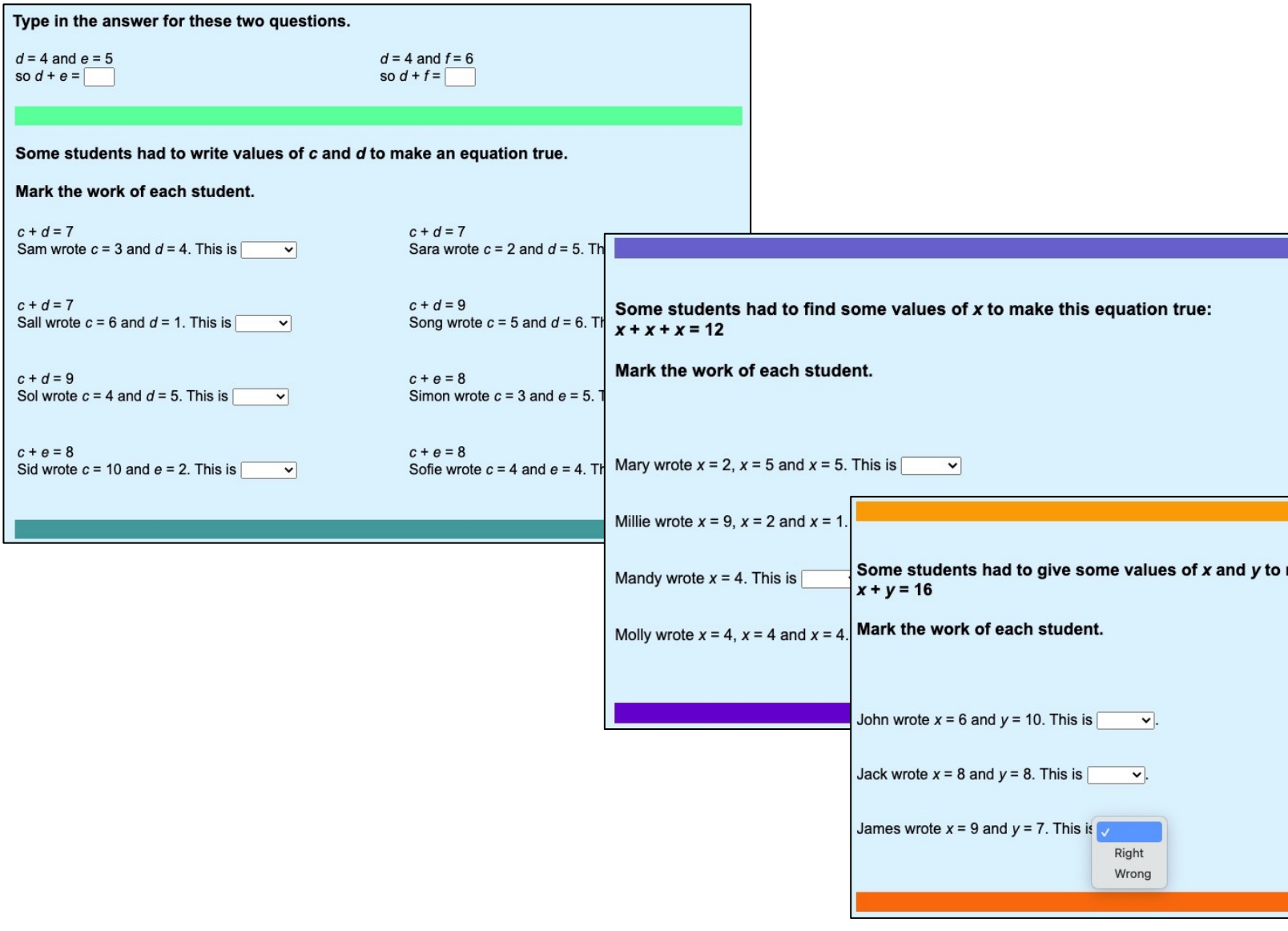
- Misconceptions
- Individual level of understanding
- Gaps in prior knowledge
- Typical errors

Professionalization of teachers

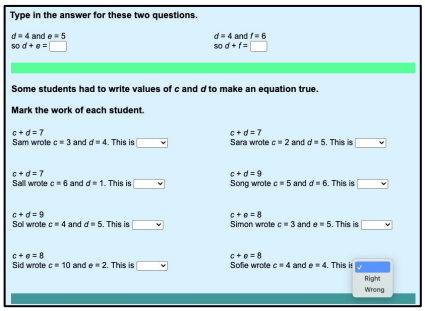
- Improvement of diagnostic competence
- Strengthening of didactic knowledge

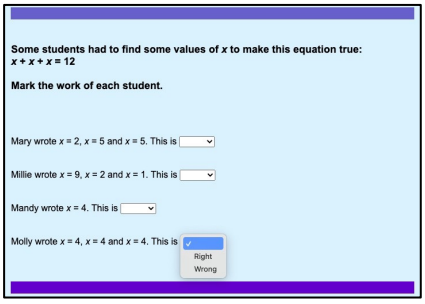
Stacey et al. 2009 / Price et al. 2013 / St

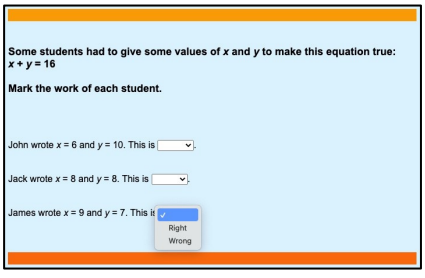
SMART test example: Values for letters



SMART test example: Values for letters







► Developmental stages

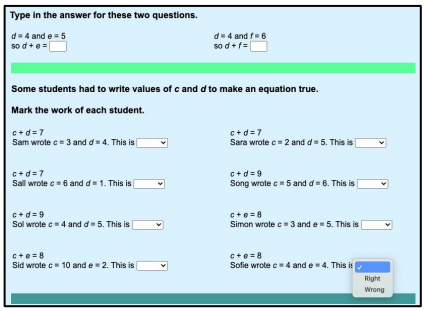
Stage 1: These students know that letters can stand for nu
are able to correctly substitute into very simple alg
expressions, but they believe that the **values** that
take are in some way **related to their place in the**

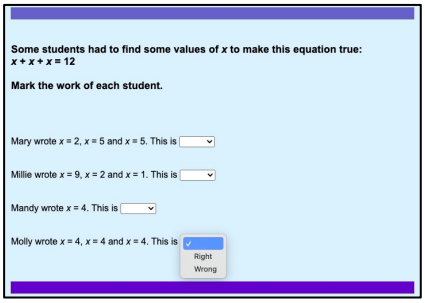
Stage 2: These students interpret an algebraic letter only
holder for a number in a number sentence, so the
letter to have several values in one expression.

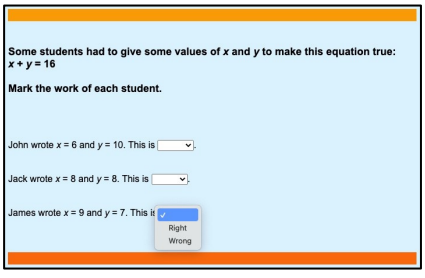
Stage 3: These students appreciate that each time a part
is used in an equation it stands for the same num
they over-generalise to "**different letters must be**
numbers".

Stage 4: These students know that in one algebra questio
must stand for only one number and that differen
stand for the same number.

SMART test example: Values for letters







► Misconceptions and common errors

A: Students often give a letter a **value related to it the alphabet**, such as *b* = 2.

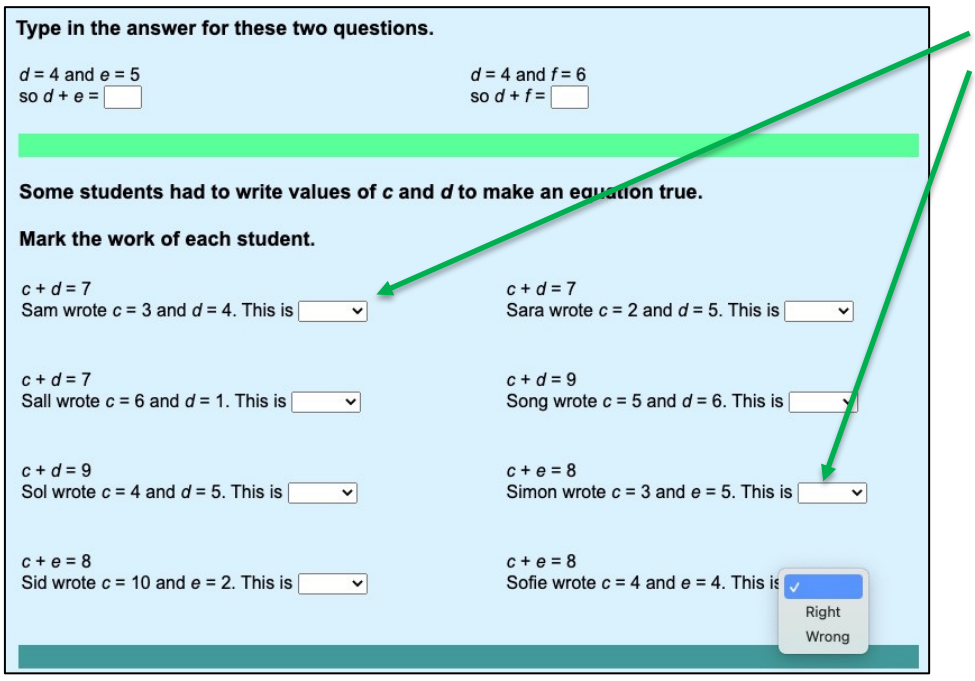
C: Students believe that the values of **consecutive** be **consecutive numbers**.

O: Students believe that if one **letter is before ano** alphabet, its value must be **smaller**.

R: When the same letter is used more than once in expression, these students recognise that it has th value but **state this value separately for each occu**

SMART test example: Values for letters

► Misconceptions and common errors



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