Whose curriculum is it anyway?

*How do our individual experiences and values interact to define our views of what mathematics is?*

**Geoff Wake**
Centre for Research in Mathematics Education
University of Nottingham
Coherent and integrated

The four integrated elements of Cambridge Mathematics are:

• the Cambridge Mathematics Framework, the content spine to which the other elements will link
• resources, both paper based and electronic
• a coherent formative and summative assessment offer
• a professional development framework encompassing both subject and pedagogical knowledge
The Framework will:

- **be a map of the full domain of mathematical knowledge** from pre-school to the end of the upper secondary phase of education and training arrangements
- be loosely age-related and based on progressions in organising concepts and principles
- be the basis for different curriculum pathways which will flesh out a more detailed hierarchy
- be a basis for deriving standards
- **be illustrated by indicative content and exemplar performances**
The Framework will:

• be evidenced both from the study of a range of mathematics curricula and mathematics assessments, and from a theoretical perspective of conceptual progression

• allow for the description of skills and dispositions necessary for effective use of mathematics
Show that the area of the parallelogram $= (a \times b) \times (c \times d)$
for what values of \( k \) does the generalisation

\[
\begin{array}{cccc}
3 & k & k & (2k - 6) & (3 + k)
\end{array}
\]

give five numbers
with median = mean = mode = range = \( k \)?
The mass of a 10p coin is 6g.
The mass of a 10p coin together with a 5p coin is 10g.
A number of 10p coins and 5p coins altogether have a mass of 60g.

How many 10p and how many 5p coins could there be?

Have you found all the different possibilities?
PAINT PRICES

Calculate the missing prices of the paint cans below. The prices are proportional to the amount of paint in the can.

2 litres 5 litres 11 litres 14.5 litres
£10 £... £... £...

Litres
0 1 2 5 10 12 14.5
Price (£)
0 5 10 25 50 60 70 72.50
| Social group | Industrial trainer | Technological pragmatist | Old humanist | Progressive educator | Public educator |

Ernest (1991)
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<thead>
<tr>
<th>Social group</th>
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<td>Body of structured pure knowledge</td>
<td>Process view</td>
<td>Social constructivism</td>
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<td><strong>Activity exploration</strong></td>
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<td>Theory of Resources</td>
<td>chalk-and-talk</td>
<td>Hands-on technology</td>
<td>Visual aids</td>
<td>Rich environment</td>
<td>Authentic</td>
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Ernest (1991)
Learning as doing
learning as practice
learning as meaning
learning as identity
learning as belonging
learning as becoming

Wenger (1998)
Design for learning

- participation
- reification
- local
- global
- designed
- emergent
- identification
- negotiability

Wenger (1998)
Whose curriculum is it anyway?

How do our individual experiences and values interact to define our views of what mathematics is?

….and what a “mathematics framework might be?”