

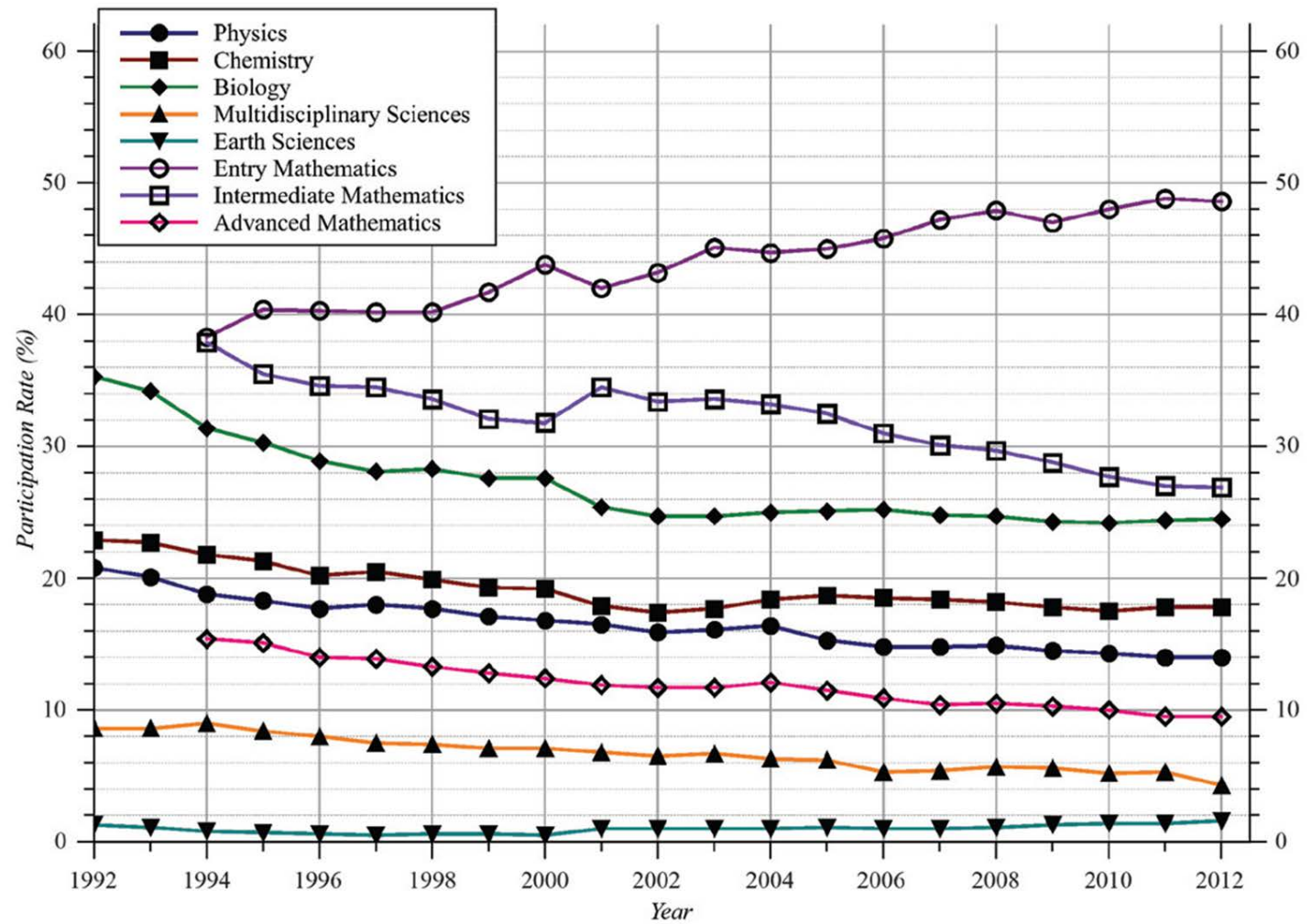
Mathematics Education in the Computational Age:


Challenges and Opportunities



Kathryn Holmes
Western Sydney University

Kennedy, J. P., Lyons, T., & Quinn, F. (2014). The continuing decline of science and mathematics enrolments in Australian high schools. *Teaching Science*, 60(2), 34-46.




MAY 2017

Why aren't students studying higher level maths?

How ATAR scaling may affect maths uptake

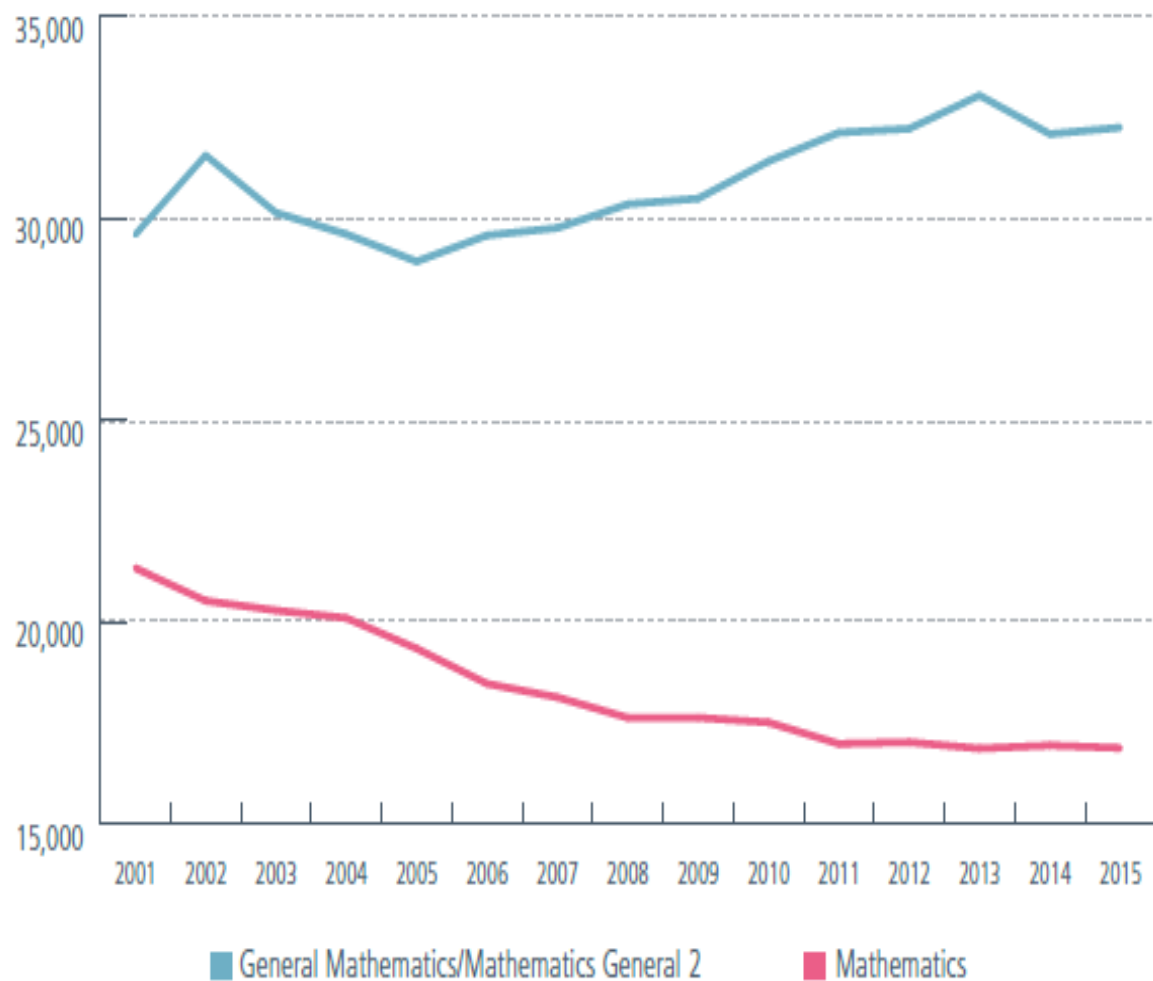
Centre for Education Statistics and Evaluation



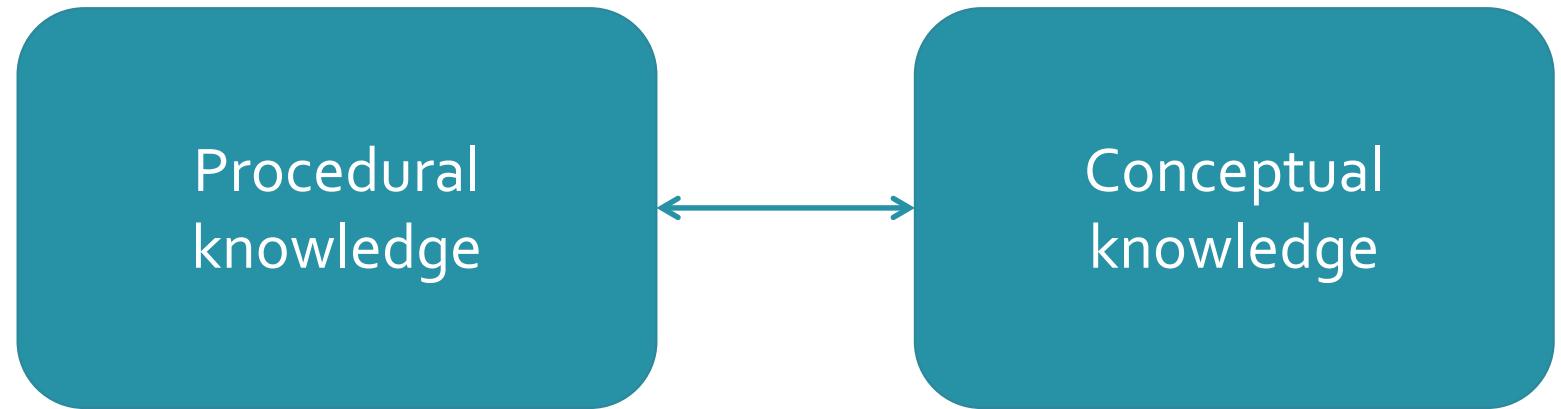
Figure 1:

Annual Enrolments in HSC General Mathematics and HSC Mathematics – 2001-2015

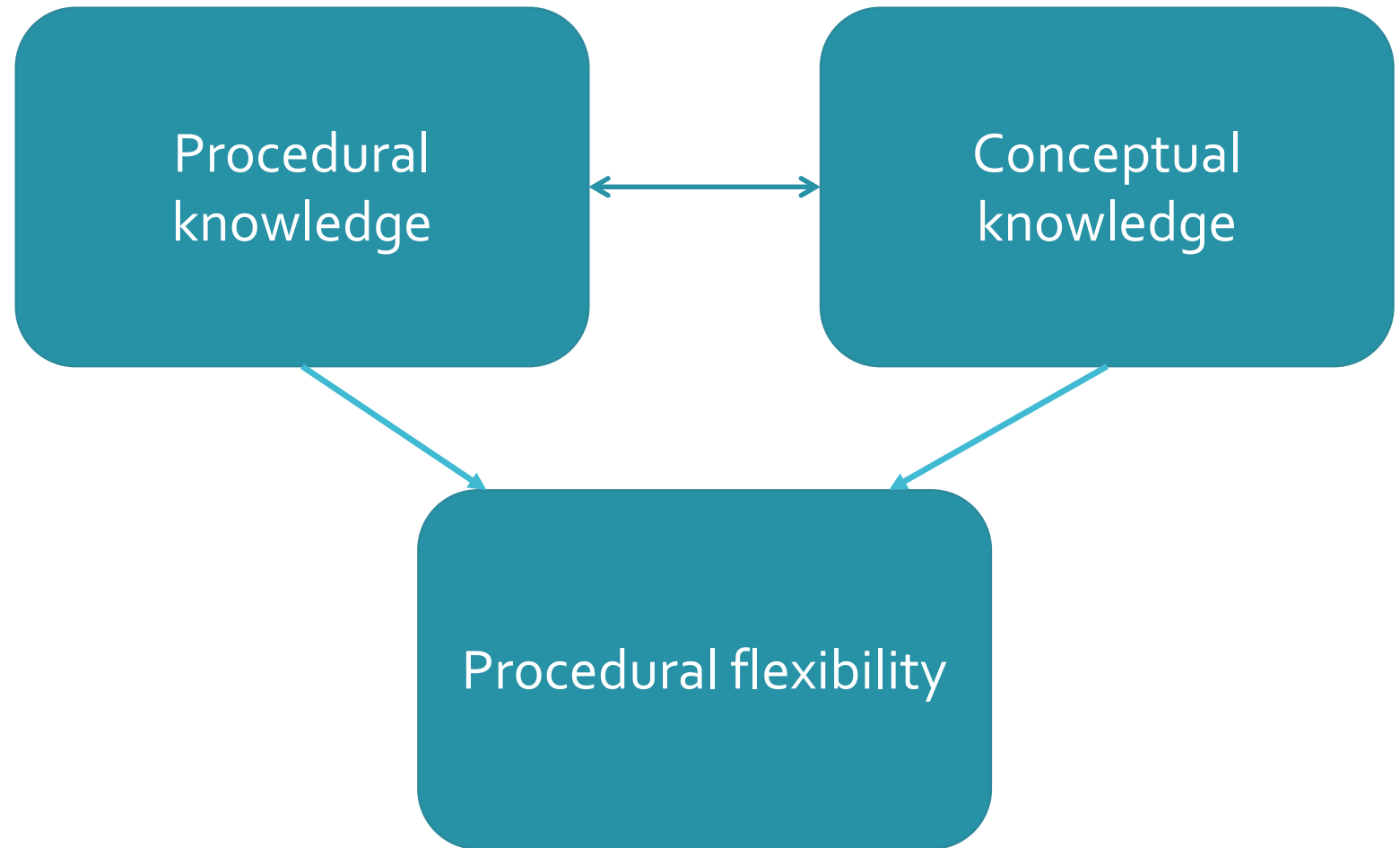
Source: Board of Studies Teaching and Educational Standards NSW (2016a).



The chicken or
the egg?





Rittle-Johnson, B. (2017).
**Developing Mathematics
Knowledge.**
Child Development Perspectives,
11(3), 184-190.



Conrad Wolfram:

Teaching kids real math with computers

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What's wrong with today's maths education?



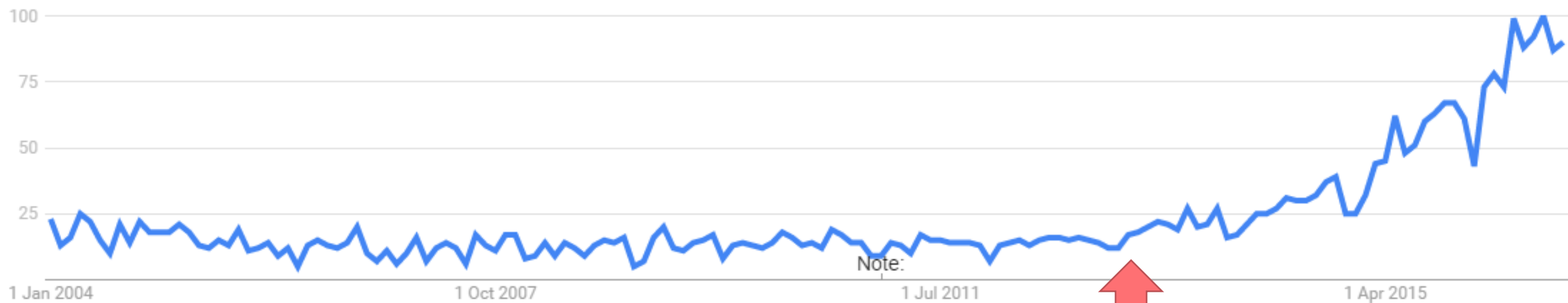
Which mathematical procedures are useful for promoting the development of deep conceptual understanding?

NSW Mathematics syllabus: Stage 4: Number & Algebra

- Use an appropriate non-calculator method to divide two- and three-digit numbers by a two digit number
- Apply a practical understanding of the distributive law to aid mental computation eg. To multiply a number by 13, first multiply by 10 and then add 3 times the number

Google Trends: STEM (Science, Technology, Engineering, Mathematics)

Interest over time 





Australian Government
Office of the Chief Scientist

AUSTRALIA'S STEM WORKFORCE

Science, Technology, Engineering and Mathematics

MARCH 2016



Australian Government

OFFICE OF THE
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Science, Technology, Engineering and Mathematics in the National Interest: A Strategic Approach

July 2013

A POSITION PAPER

Australian Government
Office of the Chief Scientist



BENCHMARKING AUSTRALIAN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

NOVEMBER 2014



ACARA STEM CONNECTIONS PROJECT REPORT

June 2016

*“Schools were generally satisfied with the coverage of the **Science** content descriptions.”*

*“Many schools found that **Technologies** was a key driver of the project as a whole.”*

*“School reports indicate that **Mathematics** was the most difficult learning area to plan for in the project. Some teachers commented that they found it hard to integrate Mathematics effectively into those projects that were focused on Science or Technologies.”*

Thank you!



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