2030 vision
Cambridge
EDUCATION AND SKILLS

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Problem solving, thinking and creativity

….what we teach and what we expect children to learn….

Cambridge in 2030

Predictions

- Jobs?
- Careers?
- Hobbies?
- Technology?
- Health?
- Education?

Jobs and careers

The Cambridge Sub-region is one of the fastest growing areas of the UK. This reflects a local economy which contains a range of businesses which are relatively highly focused on technology based activities and with a high value output.

- We need to encourage the skills to bring products to market successfully. This involves product development, design for manufacture, and marketing skills, together with finance availability. These demand creative and intellectual skills in which the sub-region is not strong. Far more jobs are created by the *use of technology than by its development. (C2030 Economics and Technology)*
- There is a steady shift in the employment market away from manual and low skill jobs and toward those requiring higher levels of management expertise and problem-solving skills, many of which are mathematical in nature. (*ACME 2011*)

Technology

- The universal use of computers in the workplace has (already) increased the demand for mathematical skills and understanding underlying mathematical models.

- What would preparation for even greater use of technology in the workplace look like?

The existing curriculum (maths)

- Compulsory
- Content v ‘using and applying’
- Difference between intended and actual curriculum
- Valuing what’s tested (accountability)
- Power of computers not harnessed (*JMC 2012*)

The effects

- young people in England are often unmotivated by the subject, employers have problems recruiting people with sufficient mathematical skills and universities find they often have to offer remedial courses in mathematics.

(*ACME Mathematical Needs, 2011*)

Why?

- teaching is focused on utilitarian aims rather than the underlying concepts and abstract structures
- less easy-to-test aspects of mathematical proficiency reduced to procedures in high-stakes assessments
- produces students who may learn one or two recipes but who cannot transfer this knowledge to progress in mathematics or apply it in unfamiliar ways.
- procedural v conceptual

(*ACME Mathematical Needs, 2011*)

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Technology in education

As a tool for learning – Conrad Wolfram

- Posing the right question
- Real world- mathematical model
- Computation
- Mathematical model - real world and verify

Problem solving, thinking and being creative

- Is our current curriculum fit for purpose?
- What influence might be brought to bear – on whom, by whom?

Key educational technologies to watch

(6-12 months)

- Cloud Computing
- Mobile Devices

(2-3 years)

- Game-based Learning
- Open Content

(4-5 years)

- Learning Analytics
- Personal Learning Environments (PLEs)
- (Key Technology blog)

- If you think our future will require better schools, you're wrong.
- The future of education calls for entirely new kinds of learning environments.
- If you think we will need better teachers, you're wrong.
- Tomorrow's learners will need guides who take on fundamentally different roles.
- As every dimension of our world evolves so rapidly, the education challenges of tomorrow will require solutions that go far beyond today's answers. http://www.futureofed.org/

- What are the barriers to optimal use of technology in and for education?

Coming soon…

- New curriculum: 2012
- School structures: Free Schools, Academies
- Post- 16 landscape: 17 from 2013 and to 18 from 2015

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