

## RECURRING DEBATES IN SCIENCE EDUCATION: WHICH WAY FORWARD FOR THE 21ST CENTURY?

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- Perennial Curriculum debates
- Recent issues in the learning of science
- Who and what is science education for?
- The future of science education in changing contexts
- Issues / problems for the future

## Perennial Curriculum debates

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- Process versus content
- Practical work, discovery learning and 'investigations'
- Mimicking the scientific method
- What is the 'scientific method'?
- Integration versus separation
- The same for all or some for all

## Recent issues in the learning of science

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- The rise of constructivism
- The search for 'alternative frameworks' (and then wondering what to do with them)
- The new 'National Pedagogy' (evidence based?)
- The 'Learning styles and preferences' bandwagon
- Formative assessment/ assessment for learning

## Who and what is science education for?

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Three sets of arguments:

- Intrinsic value (science is interesting, stimulating part of our heritage)
- Citizenship (needed for participative democracies)
- Utilitarian (for living, for scientists, for 'training the mind')

Perennial tensions between these three

## The influence of context on science education

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### TIME

- The 'science education for an elite' era
- The Sputnik and Calder Hall era ('too cheap to meter')
- The Nuffield era ('I do and I understand')
- The 'modern' era (certainty and faith)
- The post modern era (uncertainty, cynicism)

### SPACE /PLACE

Developed/ developing; 'the knowledge based economy' ..... And so on

## Issues / problems for the future

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- Lack of interest and motivation; negative attitudes
- Perceived difficulty
- Continuing struggle for 'relevance', connection to real issues
- Prolonged shortage of teachers with knowledge of - and affinity for - the physical sciences (long-lived vicious circles)
- 'Crisis' in sciences in higher education??

### Current trend in pre-16 in UK: towards science education for citizenship and scientific literacy?

- Full paper from: [j.wellington@sheffield.ac.uk](mailto:j.wellington@sheffield.ac.uk)