Where now for School Biology in Scotland?

Jim Stafford

Drivers of change in the future

Curriculum change

(refinement and development of CfE)

Subject change

(what we know about Biology

and how we think about biology)

Drivers of change in the future

The common denominator between *Curriculum* and *Biology* Subject drivers is:

A Skills Agenda

Should Science be part of the core curriculum in Scotland?

Core Curriculum

Literacy

Numeracy

Health and well being

Missing Core Skill

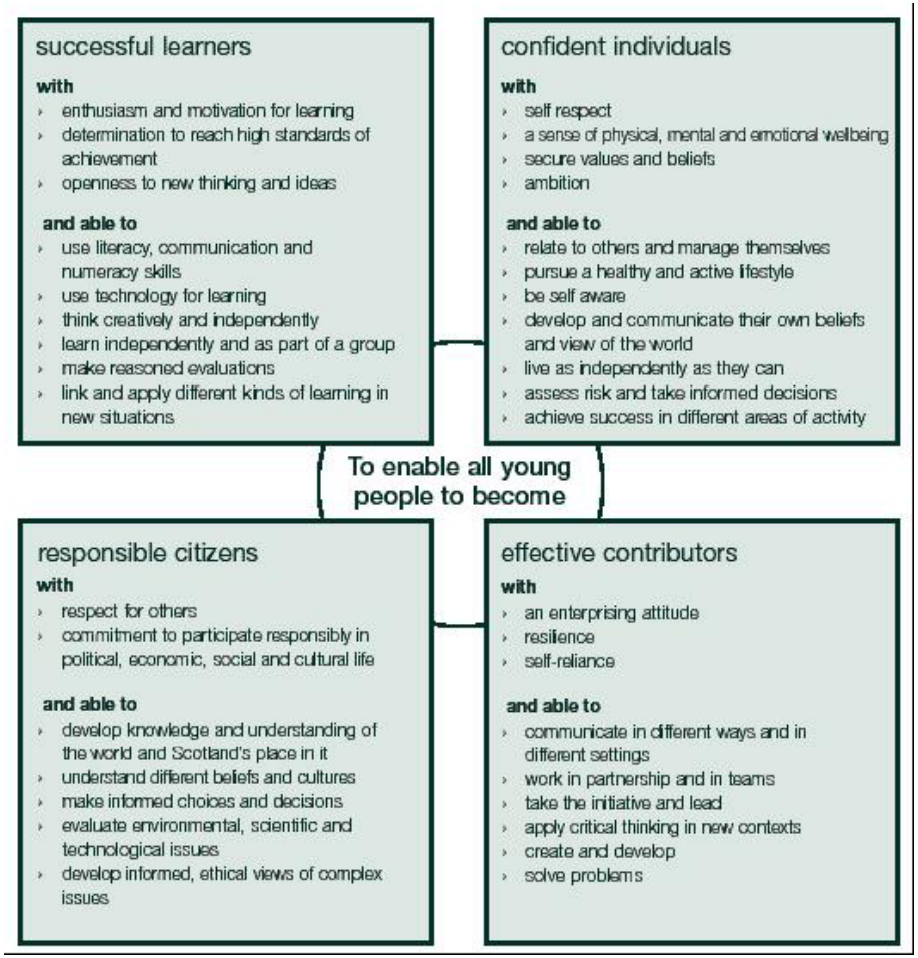
Problem Solving

Characteristics of the scientific process of problem solving

Science	***Rather than***
Conclusions	Opinions
Evidence	Persuasion and influence
Critical analysis of data and research methods	Critical analysis of argument and debate

Collected at first hand in real time

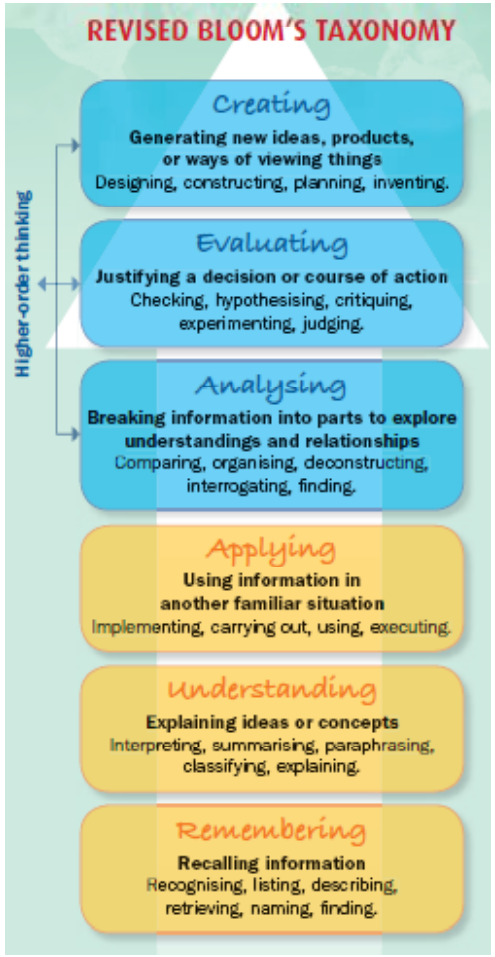
CfE as a driver of curriculum change



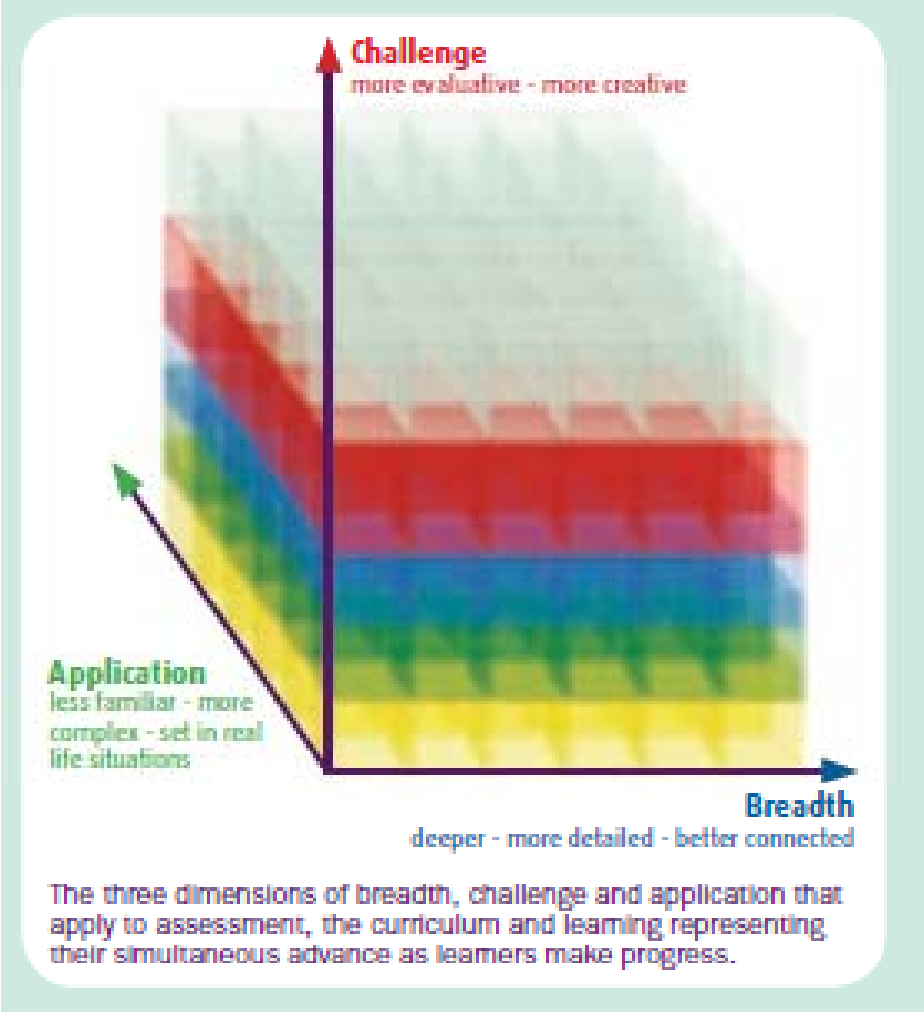
CfE as a driver of curriculum change

"If the Broad General Education does not provide learners with a more secure foundation on which to build to achieve higher levels of attainment in national qualifications, Curriculum for Excellence will have failed."

Bloom's Revised Taxonomy



CfE as a driver of curriculum change



The three dimensions of breadth, challenge and application that apply to assessment, the curriculum and learning representing their simultaneous advance as learners make progress.

Changing nature of Biology as a driver of curriculum change

Scientific Literacy sets the context for change:

- What we know about biology
- How we do biology
- What we do with biology

How we do Biology

- First hand practical work in laboratory and field
- Practical work with a clear learning purpose
- Collaborative enquiry
- Designing experiments and field observations
- Process data to present results and draw valid conclusions
- Research information and make informed comment
- Evaluate results and experimental methods
- Report findings clearly and without bias

What we do with Biology

- Critically evaluate the presentation of biological science in the media
- Discuss issues involving biology and justify a point of view based on evidence
- Make personal life style choices involving biology based on evidence
- Make informed moral and ethical judgements on the application of biology in everyday life, economic and social change and the environment

What do we need to know about Biology?

Knowledge that is important and powerful to learn:

- How Biology is done
- Key concepts and big ideas

Key concepts and big ideas

- Develop understanding of events and phenomena relevant to learners' lives
- Allow learners to explain observations and suggest hypotheses
- Allow learners to make predictions and generalisations about biology

Key concepts and big ideas

How do we identify the key concepts and big ideas of Biology?

How do we map the key concepts so that the curriculum develops the big ideas of Biology?