Where now for School Biology in Scotland?

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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 Critical analysis of

data and research argument and debate

methods

Collected at first hand in real time

CfE as a driver of curriculum change

successful learners

with

- enthusiasm and motivation for learning
- determination to reach high standards of achievement
- > openness to new thinking and ideas

and able to

- use literacy, communication and numeracy skills
- use technology for learning
- think creatively and independently
- learn independently and as part of a group
- make reasoned evaluations
- link and apply different kinds of learning in new situations

confident individuals

with

- self respect
- a sense of physical, mental and emotional wellbeing
- secure values and beliefs
- ambition

and able to

- relate to others and manage themselves
- pursue a healthy and active ifestyle
- be self aware
- develop and communicate their own beliefs and view of the world
- live as independently as they can
- assess risk and take informed decisions
- · achieve success in different areas of activity

To enable all young people to become

responsible citizens

with

- respect for others
- commitment to participate responsibly in political, economic, social and cultural life

and able to

- develop knowledge and understanding of the world and Scotland's place in it
- understand different beliefs and cultures
- make informed choices and decisions
- evaluate environmental, scientific and technological issues
- develop informed, ethical views of complex issues

effective contributors

with

- an enterprising attitude
- resilience
- self-reliance

and able to

- communicate in different ways and in different settings
- work in partnership and in teams
- take the initiative and lead
- apply critical thinking in new contexts
- create and develop
- solve problems

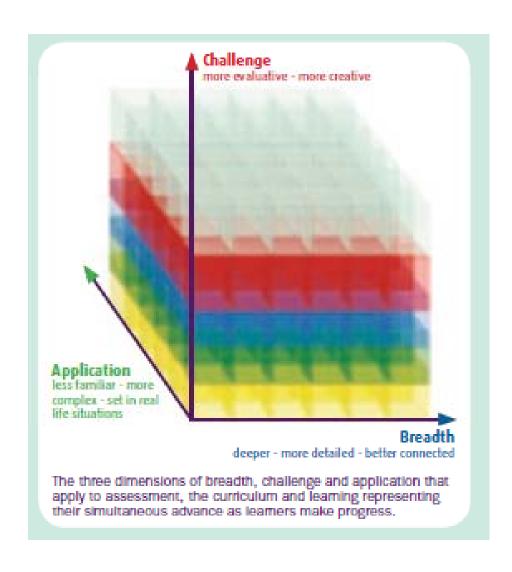
CfE as a driver of curriculum change

"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



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?