Technology Education at present

Technology Education in Scottish Schools - Statement of Position SCCC (1996)

- Technological Capability:
  
  Perspective, Sensitivity, Confidence, Creativity

5-14 Environmental Studies
Society, Science, and Technology
5-14 Environmental Studies:

Society, Science and Technology (2000)

- Scientific and technological principles, ideas and applications
- Study of society at different times and in different places
- Develop skills in understanding of environmental, economic and social factors that help develop informed values and attitudes towards the environment and to **take better informed decisions**
- Better able to act in ways sensitive to global issues consistent with **sustainable development**
- Develop understanding of their rights and responsibilities, active **citizenship and social justice**
Technology Education at present

- Primary experience (P1-P7 entitlement) generalist teachers
- Secondary experience (S1/ S2 entitlement)
  - Technical / CDT & Home Economics specialist teachers

Optional Scottish Qualification Authority (SQA) e.g.

- Standard Grade:
  - Craft and Design; Graphical Communication; Technological Studies; Home Economics;

- Access e.g. Enterprise through Craft, Hospitality (practical cookery);

- Intermediate 1, 2 & Higher & Advanced Higher Grade:
  - Product Design, Graphic Communication; Technological Studies; Fashion & Textiles technology; Health & Food Technology; Hospitality (practical cookery); Lifestyle & Consumer technology Practical Craft Skills;

Support for
- flexibility, breadth and balance
- the comprehensive principle

Desire to address
- overcrowding
- issues of progression
- balance between ‘vocational’ and ‘academic’
- preparing people for life long learning and employment
- ensuring assessment supports learning
- increasing choice
National Context

- Aspirational agenda
  - to improve attainment, particularly of those with lowest levels of attainment
  - to increase economic performance, improve health, reduce poverty, reflect diversity

- Need for young people to develop adaptability, creativity, thinking and learning skills

- Children’s services agenda: much wider range of adults involved; holistic view of children

- Partnerships: between sectors and services, with parents, employers, sport and culture organisations, community

- New understanding of learning processes

- Potential of ICT
Making Connections

- Assessment is for Learning
- Determined to Succeed
- Health Promoting Schools
- Eco Schools
- Glow
- New ways of recognising achievement
- Review relationships (SG & NQ)
- Skills for Work
‘Skills for Work’ Courses 2006 → :

- **Access 3 (SCQF level 3)**
  - Construction & Engineering

- **Intermediate 1 (SCQF level 4)**
  - Construction Crafts
  - Early Education and Childcare
  - Sport & Recreation
  - Hairdressing
  - Rural Skills.

- **Intermediate 2 (SCQF level 5)**
  - Construction Crafts
  - Early Education & Childcare
  - Financial Services
  - Sport & Recreation
  - Engineering
  - Energy

- **Intermediate 1 (SCQF level 4)**
  - Engineering
  - Hospitality & Catering

- **Higher (SCQF level 6)**
  - Health & Social Care
Values
- wisdom
- justice
- compassion
- Integrity

Principles for 3-18 years
- challenge & enjoyment
- breadth
- progression
- depth
- personalisation & choice
- coherence
- relevance

Purposes
- Successful learners
- Confident individuals
- Responsible citizens
- Effective contributors

Curriculum for Excellence 2004→
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 lifestyle
• 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
Proposed achievement framework 3-18 years

<table>
<thead>
<tr>
<th>Level</th>
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Curriculum Areas

- Expressive Arts
- Health and Wellbeing
- Languages
- Mathematics
- Religious and Moral Education
- Sciences
- Social Studies
- Technologies
Technologies

includes creative, practical and work-related experiences and outcomes in

craft, design, engineering, graphics, food, textiles, business and information technologies
Over-arching statements

- impact of technology
- informed attitudes towards technology
- sustainability
- ethical, cultural, economic issues informed attitudes towards technology
- safety and hygiene
Essence of lines of progression

- Design evolution, consequences, topical, controversial
- New & emerging technologies
- Sustainable development, global dimensions
- Energy Transfer, structures, mechanical systems
- Use of specialist skills & equipment
- Properties & functionality of materials, tools and software
- Design features of everyday items
- Design challenges
- Graphic Techniques
- CAD / CAM
- Control Technology

*described in* experiences & outcomes
Timeline of CfE

- Launch of ‘Technologies’
  14th April 2008

- Consultations, Trialling and engaging
  Spring → Jan 2009

- Building the Curriculum 3
  ‘How child’s learning will be organised’ – late Spring 2008

- Implementation
  first to fourth level - August 2009

SQA review of National Units, certificates Standard Grades etc.. *ongoing from now*
Technology Education in Scottish Schools

Susan McLaren
Curricular Studies, Faculty of Education
University of Strathclyde, Glasgow
Technology Education at present

Technology Education in Scottish Schools - Statement of Position SCCC (1996)

- Technological Capability: Perspective, Sensitivity, Confidence, Creativity

5-14 Environmental Studies
Society, Science, and Technology

5-14 2000 replacing the 5-14 Environmental Studies 1993. The 1993 guidelines also included Health Education and ICT. The concept of the 5-14 to was to help transition and progression through primary school and first 2 years of secondary school after which learners had the option to select the certificate courses they wanted to follow. There is no obligation to take particular subjects other than English and Maths.
5-14 Environmental Studies:

Society, Science and Technology (2000)

- Scientific and technological principles, ideas and applications
- Study of society at different times and in different places
- Develop skills in the understanding of environmental, economic and social factors that help develop informed values and attitudes towards the environment and to take better informed decisions
- Better able to act in ways sensitive to global issues consistent with sustainable development
- Develop understanding of their rights and responsibilities, active citizenship and social justice

Within the guidelines there were descriptions of targets for Science, Society and Technology Education as components within the ES context.
Technology Education at present

- Primary experience (P1-P7 entitlement) generalist teachers
- Secondary experience (S1/ S2 entitlement)
  - Technical / CDT & Home Economics specialist teachers

Optional Scottish Qualification Authority (SQA) e.g.

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  - Product Design, Graphic Communication; Technological Studies; Fashion & Textiles technology; Health & Food Technology; Hospitality (practical cookery); Lifestyle & Consumer technology Practical Craft Skills;

Home Economics also at Access level

Support for
- flexibility, breadth and balance
- the comprehensive principle

Desire to address
- overcrowding
- issues of progression
- balance between ‘vocational’ and ‘academic’
- preparing people for life long learning and employment
- ensuring assessment supports learning
- increasing choice

Scotland is currently pursuing its biggest education reform for a generation. At its heart, Curriculum for Excellence is the programme of work that is reviewing the current curriculum. It aims to provide:

• more freedom for teachers
• greater choice and opportunity for pupils
• a single coherent curriculum for all children and young people aged 3-18.

Curriculum for Excellence challenges us to think differently about the curriculum. It encourages those working in education to plan and act in new ways. It also poses challenges for learning and teaching.

The implementation of Curriculum for Excellence will go beyond the provision of guidance on curriculum content. It will have implications for:

• the teaching profession and other staff
• the organisation of the curriculum in our schools and centres
• the qualifications system
• the recognition of wider achievement
• the improvement framework.
National Context

- Aspirational agenda
  - to improve attainment, particularly of those with lowest levels of attainment
  - to increase economic performance, improve health, reduce poverty, reflect diversity

- Need for young people to develop adaptability, creativity, thinking and learning skills

- Children's services agenda: much wider range of adults involved; holistic view of children

- Partnerships: between sectors and services, with parents, employers, sport and culture organisations, community

- New understanding of learning processes

- Potential of ICT

The Review Group was also asked to take account of the context at the time:

It recognised that the current curriculum does not adequately meet the needs of all young people in Scotland. In particular, there is a need to raise the levels of attainment and achievement of young people, but particularly of those who currently achieve least.

Recognise that the prosperity and wellbeing of the country depend upon having a curriculum which enables all children to flourish and contribute.

We know that, for tomorrow’s workforce, we need to equip children to be adaptable, creative, and with good thinking and learning skills

In addition, we no longer see schools as working in isolation but as major contributors to the wider children’s services agenda – with other services increasingly working in partnership with schools and a wider range of adults – beyond teachers – supporting children’s education and development

We now know more about how children learn, so the time is right to build that knowledge more fully into our thinking on the curriculum

And developments in ICT open up enormous potential to enrich and enliven learning, and also allow learners to communicate with each other in different ways.

Having considered these issues the Group set about its task of defining PURPOSES and PRINCIPLES for the curriculum.

Conscious of the risks associated with a purely instrumental view of education and the curriculum, it agreed that the work should be firmly based upon explicit values – values which it would wish to be applied in reviewing the curriculum and values which the curriculum should aim to develop in young people.
Making Connections

- Assessment is for Learning
- Determined to Succeed
- Health Promoting Schools
- Eco Schools
- Glow
- New ways of recognising achievement
- Review relationships (SG & NQ)
- Skills for Work

Aspires to

- Improve attainment and achievement
- Increase economic performance, improve health, reduce poverty and reflect diversity
- Involve a wider range of adults and children services
- Create partnerships between sectors and service, parents, employers, sport and cultural organisations and community
- Recognise and exploit the potential of ICT
### ‘Skills for Work’ Courses 2006:

<table>
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The rationale for the SfW courses is that they would be introduced to help young people to develop skills and knowledge in a broad vocational area, core skills, an understanding of the workplace, positive attitudes to learning, and employability skills. Furthermore, “a key feature of these courses is the emphasis on experiential learning. This means learning through practical experience and learning by reflecting on experience” (Scottish Executive (2005b), p.50). The courses are intended to provide progression pathways to employment, training or further learning for pupils of all abilities.

1.3 Significantly, the Scottish Executive positioned SfW in the broader educational policy and lifelong learning agendas. SfW was identified as a contributor to Learning for Life, one of the five National Priorities in Education, which focuses on equipping young people with “the initial skills, attitudes and outlook to prosper in a changing world and to stimulate innovation, entrepreneurship and ambition” (Scottish Executive, 2005b, p.8). The Scottish Executive also stated that SfW would make a major contribution to achieving the aspirations for young people, enunciated in A Curriculum for Excellence, that “they should be successful learners, learners, confident individuals, responsible citizens and effective contributors to society and at work” (Scottish Executive (2005c), p.1). Furthermore, it was noted that SfW would help to fulfil the commitment in the Scottish Executive Partnership Agreement, A Partnership for a Better Scotland, “to enable 14-16 year olds to develop vocational skills and improve their employment prospects by allowing them to undertake courses in further education colleges as part of the school-based curriculum” (Scottish Executive, 2005c, p.2).
Wisdom, justice, compassion and integrity are the words inscribed on the mace of the Scottish Parliament.

alter the balance between a process that is heavily dependent on content, and learning and teaching approaches that improve pupils’ understanding of what is being taught.

‘One of the prime purposes of education is to make our young people aware of the values on which Scottish society is based and so help them to establish their own stances on matters of social justice and personal and collective responsibility.’
This statement of purpose lies at the heart of the document and is intended to be a memorable and compelling reference point for teachers, parents and children.

The child is at the centre of this diagram, and our aspiration for each child is represented through the four capacities which surround the child.

In each case the capacity is expanded into ‘attributes’ and ‘capabilities’: it is our task to design a curriculum which will enable each child to develop these attributes and capabilities.

You see here the beginning of a winnowing tool for the review of the curriculum – any activity which is not clearly directed to achieving these aims does not earn its keep and should be removed.

TECHNOLOGIES

The review document then explores the ethos and teaching and learning methodologies which will be needed if these outcomes are to be achieved (for example, ) It then moves on to define updated principles for the design of the curriculum. Many of these are familiar but the principles begin with challenge and enjoyment – fully evidence-based – and depth has greater prominence than at present.

Developing successful learners

Children and young people need to become skilled users of a wide range of technologies, and learning in the technologies equips them with these skills. Technological activities can contribute strongly to the development of problem-solving skills. They promote creative thinking and encourage children and young people to make connections across different kinds of learning and new situations
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‘Building the Curriculum 3’ will provide further clarification and guidance of this framework.
Curriculum Areas

- Expressive Arts
- Health and Wellbeing
- Languages
- Mathematics
- Religious and Moral Education
- Sciences
- Social Studies
- Technologies

Expressive Arts- includes Art, Drama, Music and Dance
Health and Well Being- includes food, health and PE
Languages- includes classical language, modern language, Literacy, English, Gaelic
Mathematics- includes- Numeracy
Religious and Moral (for non-denominational) and Roman Catholic Religious Education (for RC schools)
Sciences- includes aspects of physics, biology, chemistry, socio-science
Social Subjects- includes business, classical Studies, geography, history, modern studies
Technologies- engineering, craft, design, graphics, food, textiles, information technologies
Technologies

includes creative, practical and work-related experiences and outcomes in

craft, design, engineering, graphics, food, textiles, business and information technologies
Over-arching statements

- impact of technology
- informed attitudes towards technology
- sustainability
- ethical, cultural, economic issues informed attitudes towards technology
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- Design evolution, consequences, topical, controversial
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- Use of specialist skills & equipment
- Properties & functionality of materials, tools and software
- Design features of everyday items
- Design challenges
- Graphic Techniques
- CAD / CAM
- Control Technology

*described in experiences & outcomes*

Some aspects of ICT are the responsibility of all teachers. 3rd kevel ICT any related teacher. The level tends to be specialist.
Timeline of CfE

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  14th April 2008

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  SQA review of National Units, certificates Standard Grades etc.. ongoing from now

Consultation includes request for individuals to participate in an on-line questionnaire and provide written responses as they wish.

The guidelines have included questions and prompts for reflection to support schools in their review and evaluation of what it means for them and what they wish to say in response. Teachers are being asked to interpret experiences and outcomes to build appropriate learning specific to the needs of their learners in the context of their schools. They are being asked to appraise existing practice to seek out good practice and identify changes that are required to better fit the aspirations of Curriculum for Excellence.

The BIG question, which has been hanging unanswered for 3 or so years at least, is the future of the certificate courses and the structure through which learners travel and how and when these are presented.