EAST AYRSHIRE COUNCIL

EDUCATION COMMITTEE: 23 MAY 2006

REPORT ON SCIENCE DEVELOPMENTS IN EAST AYRSHIRE

Report by Executive Director of Educational and Social Services

1. PURPOSE OF REPORT

1.1 To inform the Education Committee of the developments and improvements in science education in East Ayrshire since publication of the authority's Science Strategy Education Committee papers and of developments within "A Curriculum for Excellence".

2. BACKGROUND

2.1 The Education Committee papers of 27 May 2003 and 25 May 2004 on Science Strategy outlined the national strategy and local response to meeting its aims in attainment, curricular and staff development, and careers awareness.

2.2 "A Curriculum for Excellence: Progress and Proposals - a paper from the Curriculum Review Programme Board" (Scottish Executive March 2006) describes progress and the main findings of the curriculum review to date, provides a narrative on the recommended curriculum of the future, outlines aspects where more thinking is required, and stimulates professional discussion and reflection. The work has been carried out in partnership between the Scottish Executive, Learning and Teaching Scotland (LTS), The Scottish Qualifications Authority (SQA) and HM Inspectorate of Education (HMIE).

2.3 The revised curriculum for science identifies the main ideas of contemporary science under three main areas: Our Living World, Our Material World, and Our Physical World.

3 A CURRICULUM FOR EXCELLENCE – SCIENCE DEVELOPMENTS

3.1 **Rationale:** This rationale covers science teaching from age 3-18. The most important goal for science education is to stimulate, nurture and sustain the curiosity, wonder and questioning of young people.

3.2 Young children come to the early years setting with a natural sense of wonder and curiosity and as active and eager learners endeavouring to make sense of the world. They continue to develop ideas through investigation, first-hand experience, discussion and structured or free play. As they grow older, children ask searching questions based on their everyday observations and experiences of living things, the environment and the materials, objects and devices they interact with in their play. Young people are fascinated by new

discoveries and technology and become increasingly aware of, and passionate about, the impact of science on their lives, the lives of others and on the environment.

3.3 Science is a dynamic, creative, human process which contributes greatly to the development of human culture, both nationally and globally. The rate at which developments in science and technology are taking place has enormous implications for the wellbeing of our society. The values that guide scientific endeavour: respect for living things and the environment; respect for evidence and the opinions of others; honesty in collecting and presenting data; an openness to new ideas, are the basis of responsible citizenship.

3.4 Science is part of our heritage and part of our everyday lives at work, at leisure or in the home. It is important that all young people experience a sound science education given our rapidly evolving, technologically driven, world. Some will become the trained scientists and engineers required to build a vibrant and sustainable economy. Others will encounter science and its applications in the workplace and at home. Everyone needs to have the capacity to engage as confident individuals and effective communicators in informed debate, and make informed decisions about scientific issues of social, moral and ethical, economic and environmental importance.

3.5 In order to prepare children and young people for their future lives and careers in the 21st century the two main purposes of science education are to:

- enable young people to develop as scientifically literate citizens, able to hold and defend informed views on social, moral, ethical, economic and environmental issues related to science; and
- prepare them for further, more specialised, learning by developing their secure understanding of the 'big ideas' and concepts of science.

4 DEVELOPMENTS IN EAST AYRSHIRE

4.1 **Curriculum:** East Ayrshire has officially registered an interest in science with Learning and Teaching Scotland (A Curriculum for Excellence). A curriculum developer has worked mainly in the Grange Learning Partnership since August 2004, auditing science programmes of study, developing lessons and materials, and providing valuable networking opportunities to colleagues in primary, special and secondary schools. The programmes will become accessible to all East Ayrshire schools through its website, eac4teachers. A new teaching resource “PrimaryScience.net” will be made available from August 2006 to all schools in the authority, to support and complement science teaching.

4.2 **Attainment:** Science attainment is rigorously monitored through the Science Reference Group, which represents all sectors, and analyses uptake of courses, levels reached and strengths and weaknesses in all areas of science teaching and learning. Results are shared with the directorate, head teachers and quality improvement officers to stimulate discussion and bring about improvements in science education.

4.3 **Staff development:** Our lead teachers in the sciences identify and organise a variety of in-service courses and visits. Excellent networking opportunities exist in the curriculum management meetings three times a year, and a subject-specific in-service day provides all science teachers with the latest information and guidance on national developments. The curricular work at Grange Learning Partnership will be entered into the Council's website "eac4teachers" to enable all staff to benefit. All schools should now have a named science coordinator, and a science policy is in draft form for use in all schools.

4.4 **Science Funding:** All schools and partnerships were invited to bid for ring-fenced science monies to improve science education, particularly at transition stages (P7-S2), resulting in a wide range of innovative programmes being funded in response to locally identified needs and priorities. The Science Reference Group also advises on allocation and distribution of finance and resources.

4.5 **Resources:** Schools in the Grange Learning Partnership have been able to produce and share new resources appropriate to the new programmes of study. Knowledge and experience gained here will be offered to all schools in the Authority. The authority continues to finance the SCHOLAR programme, which provides common educational resources and a "virtual college" support network. Designed to improve student choice and flexibility, it helps students progress between school, college and university. Many schools continue to identify resources from the private sector to supplement their teaching materials.

4.6 **Careers awareness:** Schools work with appropriate national bodies to ensure that opportunities for science as a career are made known to all pupils, and ensure that boys and girls have equal access to all science courses. This has been greatly enhanced through East Ayrshire's successful involvement in the Scottish Space School, visits by astronauts to our schools, Careers Scotland, Scottish Science and Technology Network, and other local and national agencies and businesses with a science focus. One school has accessed "Researcher in Residence" for science careers, providing pupils with 4 days of careers advice in science. Schools organise a variety of visits, road shows and science fairs throughout the session to promote enjoyment of and improvement in science education.

4.7 **Other**: The authority is a member of many national bodies promoting science teaching, including the Scottish Science Advisory Group (SSAG), Improving Science Education (ISE), Scottish Survey of Achievement (Science) (SSA), and subject specific bodies for biology, chemistry and physics. Other national bodies with close links to science teaching and learning in East Ayrshire include HM Inspectorate of Education, Learning and Teaching Scotland, Scottish Qualifications Authority and Scottish Schools Equipment Research Centre (SSERC).

5 COMMUNITY PLAN IMPLICATIONS

5.1 The developments in Science Education contribute to the themes of "Promoting Community Learning" and "Improving Opportunities".

6 FINANCIAL IMPLICATIONS

6.1 The funding for the above developments has been met through probationer teacher provision and from Scottish Executive Science Development funding.

7 LEGAL/POLICY IMPLICATIONS

7.1 NIL

8. RECOMMENDATIONS

8.1 It is recommended that Members:

(i) note the progress in Science Education within the authority;
(ii) request the Executive Director to provide a further progress report in due course; and
(iii) otherwise note the contents of this report.

Graham Short
Executive Director of Educational and Social Services

JMcC/JW
28 April 2006

LIST OF BACKGROUND PAPERS

1 A Science Strategy for Scotland (Scottish Executive 2001)
2 Education Committee Paper "Science Strategy" (27 May 2003)
3 Education Committee Paper "Science Strategy" (25 May 2004)
4 "A Curriculum for Excellence progress and proposals - a paper from the Curriculum Review Programme Board" (Scottish Executive March 2006)

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