

Strategy for Introducing Thinking Science in Midlothian Schools

Background

Thinking Science is an intervention programme comprising 30 one-hour lessons to be taught on a regular basis over two years to pupils aged 11–13. The materials derive from research into children's thinking by the Cognitive Acceleration through Science Education (CASE) team at King's College, London. The target group for the introduction of the scheme in Midlothian is S1/S2 pupils in secondary science classes but ultimately the aim is to place the first five lessons of the programme in P7. This would support pupils' transition from primary to secondary, provide a powerful incentive for secondary science departments to liaise with their primary colleagues and ensure a common thread of science experienced across all Midlothian schools.

CASE Thinking Science is acknowledged by HMIE and independent researchers to have a positive impact on pupils' attainment, not only in science but also in English and mathematics. An evaluation of the programme in a Scottish content is underway in Renfrewshire where the first cohort of trained pupils were presented for Standard Grades in the 2001 examination diet.

Midlothian is part of an East of Scotland consortium of councils intent on introducing Thinking Science. The other partners are East and West Lothian, Edinburgh, Scottish Borders and Fife. The consortium approach enables a group of science teachers to be trained as Thinking Science 'experts' at reduced cost and provides a cadre of trainers who can support each other, prepare in-service materials collectively, and hopefully work between councils as the need arises. Their training comprises three two-day sessions, the final sessions taking place at the end of September 2001.

Midlothian strategy

Midlothian has two 'expert' trainers whose role is crucial to the success of the programme.

They will operate in two ways. First, they will train Midlothian science teachers to teach the material and, secondly, support the introduction of the programme by coaching colleagues in class. It is proposed that each trainer be associated with three secondary schools and be allocated one day per school in the first year of implementation.

Thinking Science is successful when teaching staff commit to the programme and are well trained. The support of the school's senior management team is paramount since they will be required to fund the limited additional cost of the programme and acknowledge the importance of staff attending regular training sessions as a recognised part of their continuing professional development (CPD). For these reasons it is important that science departments include the introduction of Thinking Science in their departmental development plans, linked to school and council objectives relating to teaching and learning and raising achievement.

The strategy is to plan for a pilot year in session 2002/03. This session (2001/02) the intention is to invite a group of enthusiastic staff from across the six secondary schools to attend training and subsequently to teach the first five Thinking Science lessons in the January to June period. These staff might act as CASE coordinators in their schools.

Proposed schedule

Session 2001/2002

- Midlothian's two CASE trainers will complete their training and continue to teach the materials to a class in their own school.
- The Development Officer will offer to give a short presentation to senior management teams in each school to engage their support.
- The Development Officer will offer science departmental presentations to sustain interest and to provide updates on progress at council level.
- All six Midlothian science departments will ensure that the introduction of Thinking Science features as a significant new development related to improving teaching and learning and raising achievement in their Development Plans for 2002/2004.
- Science departments will identify 30 CASE lesson slots over their two-year S1/S2 course.
- Science departments will identify two CASE coordinators.
- A training programme will be devised for staff by the 'expert' trainers.
- Resource kits for the first fifteen lessons will be produced for all six schools.
- Training will be offered in late autumn term to a small group of enthusiastic teachers who are keen to begin using the materials and related teaching techniques, post-January 2002.

Session 2002/2003 Pilot Year

- Term 1: Science department staff are trained on first five lessons.
- Terms 2 and 3: schools teach the first five lessons.
- Term 3: staff are trained on lessons six to ten.
- Trainers make coaching visits to each school.
- Next 15 lesson kits are prepared.

Session 2003/2004 Introduction of Thinking Science

- S1 pupils in all schools embark on Thinking Science.
- Science staff are trained on lessons 11–15 in term 1; 16–20 in term 3.

Session 2004/2005

- First cohort of pupils complete course.
- Staff complete training.

Issues

The third edition of Thinking Science will be published in late August and the council will purchase this for each school. Resource kits for the first five lessons will be produced on commission. These kits will contain CASE specific equipment but not standard items of laboratory equipment such as glassware. They will be provided to schools at a subsidised cost yet to be determined. The likelihood is that the total cost of one full year's kit (i.e. the first 15 lessons) will be in the region of £350.

Staff training

The success of Thinking Science rests on well-trained teachers fully engaged with the materials and adopting a particular teaching style. This implies that all Midlothian staff teaching the programme should receive effective training. There will be a need to establish training as a *bona fide* CPD experience. It is likely that formal accreditation for such training will be available through CASE – this is currently being considered. Training opportunities will be identified well in advance using school closure days and twilight sessions.

There will be an ongoing need for coaching by Midlothian's 'expert' teachers and their release from school will be negotiated with their respective headteachers. It is envisaged that each trainer would be released for three days per year.