Submission to Department of Education and Skills

in response to the Draft National Plan to improve literacy in Schools.

"Many elements from the history, science and geography curricula may be explored concurrently, and much of the work involved will contribute to the development of the children's oral language, literacy numeracy and communication skills."

Primary Science Curriculum p4

We welcome this document which generates much needed discussion on literacy and numeracy in schools and we acknowledge the importance of literacy and numeracy and recognise that there needs to be a response to the apparent drop in standards. In a spirit of positive engagement we would like to raise some points from the perspective of History Geography, Science and SPHE in the primary curriculum and particularly in the infant curriculum.

Proposal for integrated environmental education rather than history, geography and science.

While supporting the overall aim of supporting literacy and numeracy, we believe there can be a stronger emphasis on literacy and numeracy in the important curricular areas of history, geography, science and SPHE. However, returning to environmental education would be a retrograde step. Firstly, much of the thinking in environmental education has moved on to the concept of education for sustainability and even the term 'environmental education' is somewhat narrow in the context of the local and global challenges which we currently face. Secondly, an integrated approach to environmental education is likely to lead to a significant dilution of the areas of History, Geography and Science and an obscuring of the learning outcomes specific to these areas in favour of the learning outcomes for Literacy and Numeracy. It is likely that environmental education at Infant Level will become more of an incidental event, if the discrete time allocation to History, Geography and Science is discontinued. The teaching of these subjects as discrete areas will serve to retain their status and significance while consolidating and expanding critical core skills in Literacy and Numeracy. Such skills include: writing skills, discussion, language development, listening and speaking, data recording and analysis, sorting and classifying, the development of concepts of time and chronology, among others. These skills also feature significantly in SPHE.

Alleged erosion of time for literacy and numeracy due to SESE/SPHE

The goals of promoting literacy and numeracy along with the goals of helping young children work as scientists, geographer and historians are not mutually exclusive. Also the needs for a concerted social, personal and health education have never been greater.

The allegation that the inclusion of subjects like SESE and SPHE in the curriculum led to a reduction of time for literacy and numeracy is debatable. Social and Environmental Studies occupied a place in the 1971 Curriculum, consisting of two distinct areas named Social
Studies and Environmental Studies. The Social Studies area comprised Civics and History, while the Environmental Studies area comprised Geography and Elementary Science.

In the review of this curriculum, these subject areas are addressed in Social, Environmental and Scientific Education (SESE) which comprises History, Geography and Science, and Social, Personal and Health Education (SPHE) which incorporates and extends the previous Civics programme. However, there was no discernable increase to the time allocated to these subject areas.

Proposed contribution of History, Geography, Science and SPHE to literacy and numeracy.

We endorse the integration of literacy (including language development) and numeracy across curricular areas and subjects. However, we believe that the potential for the integration of literacy and numeracy skills across the curriculum is not adequately recognised. Hence, the explicit contribution of history, geography, science and SPHE to literacy and numeracy needs to be highlighted and acknowledged.

History

It has clearly been established that young children can possess the readiness to undertake work in History in the Junior and Senior Infant classrooms, provided that due recognition is given to the necessary skills and competencies that need to be nurtured by teachers. A central focus of the history curriculum is that of language development, with an emphasis on maximizing the potential of all history lessons for language development, building on the strands of ‘Myself’ and ‘Story’. Similarly, a key focus of the history lesson is that of building the child’s concepts of time and chronology, thereby contributing significantly to the development of the child’s numeracy skills.

Geography

Geography and literacy are intrinsically linked e.g. good geography teaching involves the development of core literacy and numeracy skills. Literacy skills in reading, writing, talking, listening and viewing are essential to the acquisition of geographical skills and knowledge. Acquiring and processing information requires reading, listening to and viewing a range of information sources; communicating requires students to present information using a variety of oral, written and non-verbal text types. Numeracy skills are essential foundations for the acquisition of competence working with geographical tools. Any work with maps, graphs and statistics requires a student to be numerate. So primary geography teachers need to explicitly teach the numeracy skills required to gain knowledge from maps, graphs and statistics. Numeracy involves using mathematical ideas to help make sense of the world. To become numerate, students need to draw on an understanding of number, measurement, probability, data and space to help interpret the world around them. Geography provides a myriad of opportunities to enhance student numeracy through real-world applications of Mathematics. The tools a geographer uses to describe and explain environments are often mathematical in nature. Explicit literacy and numeracy teaching can enhance pupils’ understanding and enjoyment of geography.
Science

Primary science is a way of thinking and doing, asking questions and finding ways of answering them through practical activities. The purposes of Primary Science Education is to provide opportunities for the children to develop knowledge of scientific concepts; to develop positive attitudes towards science realising the relevance of science in their everyday lives and most importantly to their develop scientific process skills. The main scientific process skills are: Observation (looking at the evidence), Predicting, Recording data, Higher order thinking, Analysing the information(Sorting and classifying, recognising and interpreting patterns), Student and teacher questioning, Collaboration (dialogue), Arriving at conclusions, Measuring and Estimating and Experimentation. The practice and development of the above process skills contribute significantly to developing the child’s language, communication and literacy skills and also their mathematical and numeracy skills.

‘Much of the child’s learning in science takes place in the interaction between language, whether Irish or English, and experience. Through discussing their ideas and the results of their scientific investigations children will develop their scientific understandings.’

Primary Science Curriculum p10

Dialogue, exploratory talk, getting children to attempt to explain and provide their own explanations, prompting and probing questions, speech as reflection and communication, are fundamental teaching strategies employed in the Primary Science Classroom. Dialogue is a key principal in the Primary Science Curriculum. Answering questions, suggesting explanations are essential features of science because science is an attempt to provide rational explanations of events and phenomena. Children naturally want to explain and communicate their observations.

‘One consequence of the introduction of three new subjects (drama, science and SPHE) in the curriculum may have been a reduction in the amount of time devoted to the core areas of literacy and numeracy.’

Better Literacy and Numeracy for Children and Young People p28

As a result of introducing the Primary Science Curriculum, it can be strongly argued that the amount of time devoted to the development of literacy and numeracy (see below) has actually increased due to the practice of the scientific process skills previously mentioned above.

Science and mathematics are disciplines that have much in common. Both disciplines have similar scientific processes in common such as inquiry and problem solving and both fundamentally require quantitative reasoning. These important connections and natural overlaps between the disciplines have lead to much interest in how learning in one discipline can support learning of the other.

There is a very strong link between the scientific process skills that should be developed in primary children i.e. measuring, recording data, presenting data, looking at patterns in data, analysing data and arriving at conclusions and mathematical skills. This link should be fostered and utilised in the primary classroom. The development of these scientific process skills and mathematical skills from a young age encourages critical thinking and deductive reasoning necessary for the practice of life
long scientific enquiry.

Integration is one of the key principles of the primary curriculum. Mathematical skills are naturally and easily integrated into the primary science curriculum and it is obvious that the scientific process skills of Measuring, Estimating, Recording data, Experimentation, Analysing the information (for example interpreting patterns), Presenting data graphically and Arriving at conclusions all involve the use and practice of mathematical skills.

'Replace the additional subject-specific material included in the infant curriculum in the Primary School Curriculum by using integrated environmental education rather than history, geography and science.'

Better Literacy and Numeracy for Children and Young People p28

Integrating mathematical skills into the science lesson, support children in making connections between ideas and in constructing deeper understandings. However the above suggestion of replacing the three SESE Subjects as one integrated environmental education subject would have disastrous consequences for the development of children’s literacy and numeracy skills. It is important that they have the opportunity to develop these skills in a variety of different contexts and different subject areas. It can be strongly argued that this significant contribution to the development of numeracy and literacy skills in the young child through the science curriculum would be considerably affected by replacing it with an integrated environmental education programme.

**SPHE**

The development of Literacy and Numeracy skills features both explicitly and implicitly in the SPHE curriculum. The use of pictures, photos and visual images are used in a number of ways to help “to develop skills of discernment and critical analysis [in order] to deal with much of the conflicting information and misinformation that they receive from various sources” (Teacher Guidelines, SPHE, p. 68). The following suggestions for using pictures and photographs, outlined in the SPHE Guidelines link directly with the development of Literacy and Numeracy skills: reading a photograph, using pictures as a stimulus for discussion, ranking pictures, using captions, creating speech and thought bubbles, exploring perspectives and bias, classifying and setting, exploring a television advertisement (Teacher Guidelines, SPHE, p. 69). These suggestions are followed by a detailed set of exemplars which demonstrate the extensive potential in the use of pictures and photographs.

Discussion is a significant component of the SPHE curriculum and of Literacy. Many of the techniques recommended for the promotion of discussion in SPHE feature literacy skills. These include open-ended statements, circle work, agree or disagree activities, debates and quizzes, interviews, stories and poems (Teacher Guidelines, SPHE, p. 79). Again these suggestions are followed by a detailed set of exemplars. It is therefore difficult to understand how time allocated to SPHE could be viewed as detracting from development of Literacy skills.

**Conclusion**
It is through topics such as those which are part of the SESE/SPHE curricula that the child’s literacy skills are developed and enhanced. The challenge for teachers and schools is to implement the curriculum as has been laid out in the 1999 documentation where there is a clear commitment to the development of language and literacy through History, Geography, Science and SPHE. A compromise may be to have an integrated curriculum for SESE, promoting the skills of literacy and numeracy that are generic to all SESE areas, but with distinct learning outcomes for each component area of history, geography, science and SPHE as *The World Around Us* curriculum does at Foundation Stage and Key Stage 1 & 2 in the Northern Ireland. Ultimately improving literacy and numeracy are priorities for all stakeholders in education. Nevertheless, it would be short sighted to dismiss the importance of history, geography, science and SPHE in the curriculum in general and in the infant curriculum in particular. As specialists in these areas, we would welcome further discussion and we are keen to support further developments in the improvement of literacy and numeracy in the primary curriculum.

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