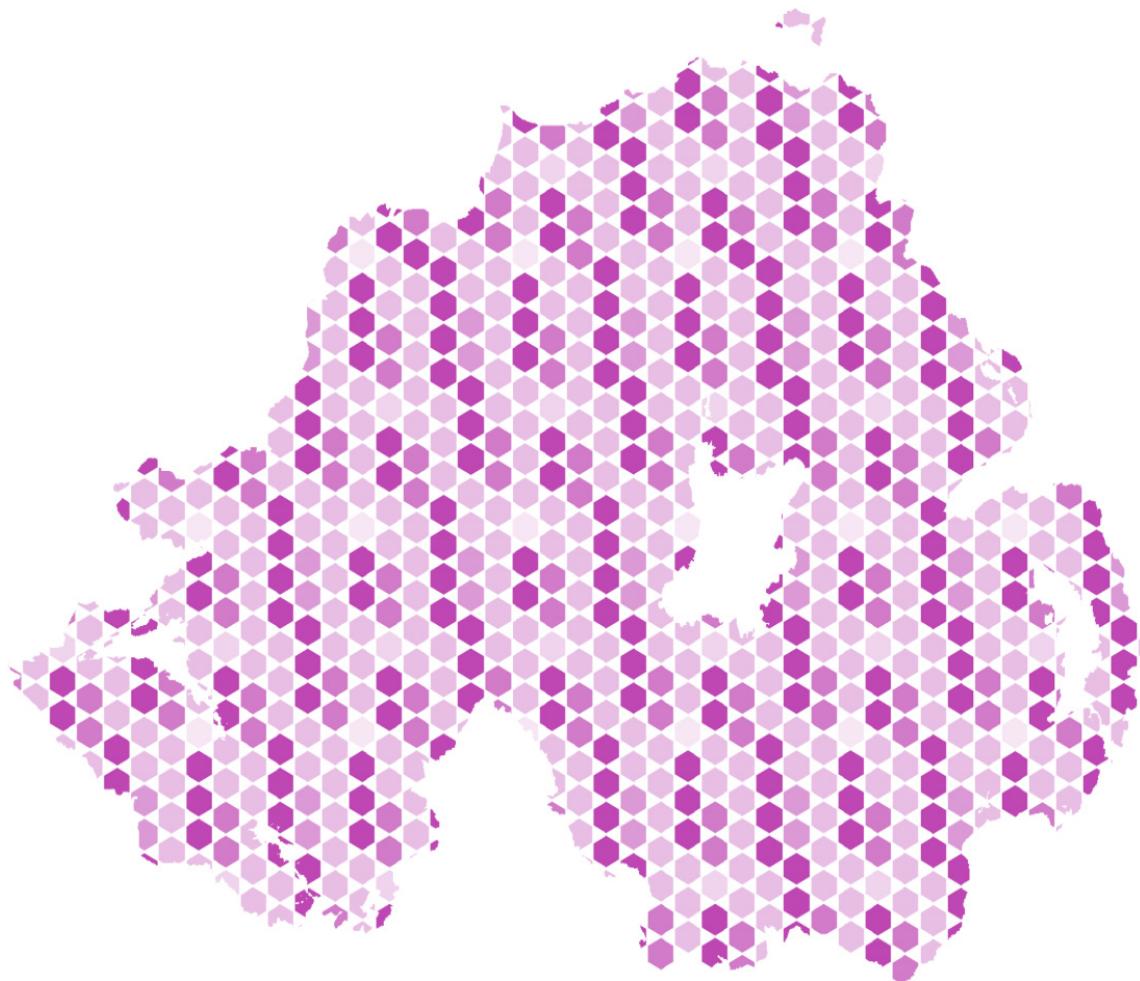


CULTURE, ARTS AND LEISURE INSPECTION



Education and Training
Inspectorate

A baseline evaluation of the STEM
related support provided by
National Museums Northern Ireland
in the delivery of the Northern
Ireland Curriculum

March 2012

CONTENTS

Section		Page
1.	CONTEXT	1
2.	LEADERSHIP AND MANAGEMENT	2
3.	QUALITY OF THE PROVISION FOR LEARNING	2
4.	QUALITY OF OUTCOMES	3
5.	AREAS FOR FURTHER DEVELOPMENT	4
6.	CONCLUSION	4

1. CONTEXT

1.1 Commissioned by the Department for Employment and Learning (DEL) and the Department of Education (DE), the review of Science, Technology, Engineering and Mathematics (STEM) commenced in June 2007. The 'Report of the Stem Review' (2009) identifies the key risks and challenges associated with decreasing participation in STEM subjects in post-primary schools, further education colleges and universities. As a consequence, there is a reduction in the number of people entering the workforce who are qualified in STEM subjects.

1.2 The 'STEM Strategy', the Government's response, identifies 3 priority actions to build the supply of STEM skills: to co-ordinate business links; to manage STEM sector attractiveness; and to facilitate STEM Continuous Professional Development (CPD).

1.3 The actions within the strategy which are most relevant to the Department of Culture, Arts and Leisure (DCAL) are that it will:

- through its learning strategy and sponsored bodies, seek to maximize the uptake of STEM learning and promotional activities by schools;
- encourage its arms-length bodies to continue to develop resources and programmes of learning that are matched to the Northern Ireland Curriculum in schools, in particular to STEM-related subjects;
- encourage the education sector to make better use of the resources, expertise and learning opportunities provided by its arms-length bodies, that support numeracy and mathematical skills within practical and inspirational settings;
- facilitate more engaging interactive learning;
- encourage the education sector to consider how the arms-length bodies can build effectively on children's prior learning;
- promote interest in core sciences and mathematics; and
- encourage stakeholders to avail of STEM-related teacher resources and CPD provided by its arms-length bodies.

1.4 In March 2012, DCAL, in consultation with National Museums Northern Ireland (NMNI), commissioned the Education and Training Inspectorate (ETI) to undertake a baseline evaluation of the STEM-related support provided by NMNI in the delivery of the Northern Ireland Curriculum.

1.5 The baseline evaluation included the constituent organisations which comprise NMNI: the Ulster Museum; the Ulster Folk and Transport Museum; the Armagh County Museum; and, the Ulster-American Folk Park.

OVERALL FINDINGS OF THE EVALUATION

1.6 In the areas inspected, the quality of education provided by NMNI is good. There are important strengths in most of its STEM-related educational provision. The inspection has identified areas for improvement which the organisation has demonstrated the capacity to address. The Education and Training Inspectorate will monitor the organisation's progress on the areas for improvement.

2. LEADERSHIP AND MANAGEMENT

The quality of the leadership and management is good.

2.1 The Director of Learning and Partnerships has a clear vision for the strategic development of the STEM-related education provision, which focuses clearly on the organisation's learning philosophy of 'explore, engage, enjoy'.

2.2 There is clear link between the organisation's strategic planning and the achievement of the objectives of the STEM Strategy, which aims to achieve the Programme for Government priority of growing 'a dynamic and innovative economy'. However, there is a need for increased collaboration between DCAL and NMNI to support and inform the organisation's implementation of the Stem Strategy.

2.3 The organisation has established a very good range of partnerships with external agencies, which provides inspiring and motivating programmes, and maximises the use of the available resources and expertise. The examples of best practice provide an excellent partnership model for future engagement with industry, and for the development of programmes that contribute effectively to the STEM agenda.

2.4 The organisation makes good use of focus groups to provide feedback on the quality and appropriateness of the learning programmes and the overall experience provided by NMNI. By building on these approaches the organisation can obtain feedback which will contribute further to the continuous improvement of the provision.

2.5 The organisation needs to embed further a rigorous process of self-evaluation, through the use of clearly identified, fit-for-purpose quality indicators. It needs to collate, analyse and interpret a wider range of quantitative and qualitative data to evaluate more robustly the quality of the provision, to prioritise areas for development and to effect further improvement.

3. QUALITY OF THE PROVISION FOR LEARNING

The quality of the provision for learning is good.

3.1 The quality of the sessions observed ranged from good to very good. The education officers and demonstrators/facilitators promote successfully the participants' motivation and engagement with the collections and their overall enjoyment in the experience of visiting a museum. The education officers use effectively a good range of teaching and learning strategies to develop the participants' analytical and investigative skills. The learners avail of the good opportunities to participate in activities which are new, unusual and unforgettable, such as visiting a museum, handling objects and artefacts, and using a flight simulator to fly in an aeroplane.

3.2 There are clear channels of communication and effective co-ordination between the lead education staff across the organisation in the planning of the learning programmes, in sharing aspects of best practice, and in maximising the use of available resources.

3.3 The education staff provide a welcoming, stimulating environment for learning on all sites across the organisation. The very good quality and often unique resources within the learning programmes are used effectively to design purposeful and enjoyable activities that promote effectively the understanding of the application of STEM in the real world. In particular, the specialist collections, such as those available within the Folk and Transport Museum and the History, Art and Science Discovery Zones within the Ulster Museum, provide a unique experience for the learners and engage their interest.

3.4 The organisation has established very good working relationships with a range of partners from industry, wildlife charities and those with responsibility for promoting engagement with STEM, such as education support services, schools and universities. In the best practice, the programmes utilise effectively the museum collections and its environment to provide inspiring and motivational STEM-related learning and to increase significantly the attractiveness of STEM careers.

3.5 The contribution made by NMNI to initial teacher education programmes raises significantly the awareness of student teachers of the potential of the museum resources to contribute to the enhancement of learning and teaching of STEM within the primary curriculum. For example, the student teachers developed a STEM-learning module using an item from the museum collection as an assessed element of the initial teacher education programme.

3.6 There is good progress in developing innovative approaches to enabling virtual access to the collections. For example, in partnership with c2k, the organisation has developed a programme which enables schools to have virtual access to the collections and to participate in virtual fieldtrips to the UFTM. The further development of additional innovative strategies would enable wider access to collections and education programmes for those learners unable to travel to the NMNI sites.

3.7 The identification of high profile exhibits and individuals around which learning programmes are planned enhances greatly the enjoyment in learning of the participants. For example, the partnership established between the Royal Society for the Protection of Birds (RSPB) and NMNI resulted in a well-known naturalist and television presenter giving talks on wildlife and providing information on the career opportunities that are available in these STEM-related areas.

3.8 The arrangements for Safeguarding are satisfactory and are in line with the guidance issued by DCAL.

4. QUALITY OF OUTCOMES

The quality of the outcomes for the participants is good.

4.1 All of the learners are well motivated and demonstrate clearly enjoyment in particular when engaged in interactive and practical activities.

4.2 The unique features of the collections and the stimulating environment provide very good opportunities for the learners to develop their problem-solving and thinking skills, to increase their social and organisational skills and to work both independently and in teams.

4.3 The good range of STEM-related activities develops significantly the learners' investigative and research skills through well-planned and appropriately challenging activities. The education staff, including the demonstrators/facilitators, develop the learners' talking and listening skills well through the effective use of questioning and written assessments.

4.4 The learners develop a good understanding of STEM-related career opportunities through their interaction with sector practitioners and through gaining direct experience in the practical application of their learning in the area of STEM.

5. AREAS FOR FURTHER DEVELOPMENT

5.1 The areas for development include:

- the increased collaboration between DCAL and NMNI to support and inform the organisation's implementation of the Stem Strategy;
- the further use of fit-for-purpose quality indicators in the regular and rigorous self-evaluation of the quality of the provision; and
- the inclusion within the strategic planning of clearly identified specific, measurable and achievable targets as a key element of the organisation's implementation plans for the Stem Strategy.

6. CONCLUSION

6.1 In the areas inspected, the quality of education provided by NMNI is good. There are important strengths in most of its STEM-related educational provision. The inspection has identified areas for improvement which the organisation has demonstrated the capacity to address. The Education and Training Inspectorate will monitor the organisation's progress on the areas for improvement

© CROWN COPYRIGHT 2012

This report may be reproduced in whole or in part, except for commercial purposes or in connection with a prospectus or advertisement, provided that the source and date thereof are stated.

Copies of this report are available on the ETI website: www.etini.gov.uk

