

Implementing the cross-curricular responsibilities in the classroom

This poster aims to exemplify to all educational practitioners how two different cross-curricular approaches can be used in the **classroom to effectively embed literacy, numeracy and digital competence** as cross-curricular responsibilities in Wales.

It also considers the benefits and challenges of implementing the cross-curricular responsibilities generally and for each cross-curricular approach. The exemplifications are **aimed at a reception age group** within the Foundation Phase but **can be adapted** for use throughout the primary school.

CROSS-CURRICULAR APPROACHES

There are many approaches that can be used to the implement cross-curricular responsibilities into your professional practice. Barnes (2015, p.65) suggests there are 'eight distinct types of cross-curricular teaching and learning' (listed below). Each of these approaches to varying degrees applies 'skills, knowledge and attitudes of a number of different disciplines' to a 'single theme, problem, idea or experience' (Barnes, 2015, p.62).



- Hierarchical
- Multi-disciplinary
- Theme-based
- Interdisciplinary
- Opportunistic
- Double-focus
- Single-transferable subject learning across the curriculum
- Tokenistic - however, this approach is not recommended as it does not enhance the learning.

Our world is rapidly changing and we need to prepare our learners for job roles that do not yet exist (WorldEconomicForum, 2016). A cross-curricular approach will support practitioners in delivering a wide range opportunities and experiences to develop the **transferable skills** that are required for learners to achieve Donaldson's (2015) four purposes of the curriculum and be successful in their lives (Estyn, 2016).

The exemplification models below have been written with direct links to the current curriculum documents alongside the Digital Competence Framework and Literacy and Numeracy Framework (Welsh Government, 2015, 2019b, 2019c) however, the **new Draft Curriculum for Wales 2022, 'What Matters?'** statements and **progression steps** have also been closely considered during their construction (Welsh Government, 2019a).

TWO CROSS-CURRICULAR MODELS

MODEL 1 - AN OPPORTUNISTIC MODEL

This first exemplary unit of work is based upon Barnes' (2015) Opportunistic Cross-curricular teaching model. An opportunistic approach to cross-curricular teaching is child-led and uses children's interactions with the world as a basis for the learning (Barnes, 2015). An opportunistic approach has been chosen for this unit of work as it provides an opportunity for learners to explore the outside environment and allows practitioners to create learning around the personal interests of the children. Bruner's (cited in Bates, 2019) Discovery Learning theory supports opportunistic cross-curricular teaching as the learners actively participate in the learning, rather than being spoon-fed by the teacher, to make their own connections and develop vital problem solving skills.

HOW?

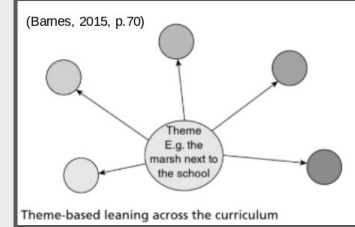
The teacher will facilitate opportunistic learning by taking the children to visit the local forest area several times, at various times of the school day and in all weather conditions, over the course of a few weeks. Formal lessons will not be planned and the children's interests will lead the learning although teachers and accompanying teaching assistants will lead focus group style activities to provide a structure to the visit. This approach supports Estyn's (2011, p.3) recommendations that schools need to 'develop a better balance between child-initiated and practitioner-led learning' outdoors. However, it is essential the intended learning aims are communicated to all staff to ensure learning is sufficiently rigorous and that the teachers facilitate learning by providing any appropriate resources to enrich their experiences (Hayes, 2010; Kerry, 2011).

WHY?

The unit of work will develop skills within the 'Knowledge and Understanding of the World' and 'Personal and Social Development, Well-being and Cultural Diversity' areas of Learning alongside ESDGC and three cross-curricular responsibilities (Welsh Government, 2015). Within the New Draft Curriculum for Wales 2022 (Welsh Government, 2019a) this unit of work will develop skills within the 'Humanities', 'Science and Technology' and 'Health and Well-being' areas of learning and experience. During the unit of work learners will 'investigate the outdoor environment safely', develop their observational and oracy skills and 'increase their curiosity' about the natural environment (Welsh Government, 2015, p.40). Donaldson's (2015) twelve pedagogical principles will be incorporated by teachers 'encouraging collaboration' and conversation with peers and adults, learners will 'identify natural and human features' and 'some animals and plants' in an 'authentic context' and develop a positive awareness of their local environment (ImpactWales, 2018, p.1; Welsh Government, 2015, p.42). The unit of work will aim to widen the children's vocabulary through conversation and questioning between peers and adults.

MODEL 2 - A THEMATIC MODEL

This second exemplary unit of work is based upon Barnes' (2015) Thematic Cross-curricular teaching model. A thematic approach to cross-curricular teaching aims to unify the exploration of 'several different subjects' through one theme to promote a deepened understanding (Barnes, 2015,). An thematic approach has been chosen for this unit of work as it is a common choice by practitioners to organise learning in Welsh schools and can be adapted to incorporate the three cross-curricular responsibilities (CornerstonesEducation, 2019). Bruner's (1966) Spiral Curriculum Theory and Donaldson (2015, p.15, p.88) support learning that is organised around 'skills and themes' and enables learners to 'encounter a range of learning and experiences in each area that build up to a broad, balanced curriculum over time'. However, Tuffelmire (2017) claims this approach can require extensive resources which will have to be considered during the planning stage.

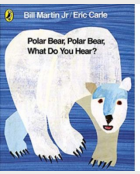


HOW?

The thematic unit of work will be based around the overarching question 'What's that sound?' and will be supported by the fictional story 'Polar Bear, Polar Bear, What Do You Hear?' by Bill Martin Jr (1991). The National Literacy Trust (2019) and Vygotsky (cited in Bates, 2019) would support the use of a story book to scaffold learning and increase children's exposure to a wide range of text types. Mid-term planning strategies will be used by the teacher to plan the thematic learning over a period of time and ensure a range of skills and cross-curricular responsibilities are developed across the curriculum (Kerry, 2011). However, each child's learning will have to be closely monitored by the teacher to ensure they experience a range of skills over time and do not avoid areas that they find more challenging (Hayes, 2010).

WHY?

This thematic unit of work will combine and develop skills within the 'Creative development', 'Knowledge and Understanding of the World' and all the other areas of learning alongside the three cross-curricular responsibilities (Welsh Government, 2015). Within the New Draft Curriculum for Wales 2022 (Welsh Government, 2019a) this unit of work will develop skills within the 'Expressive Arts', 'Science and Technology' and all the other areas of learning and experience. During the unit of work, learners' musical skills will 'be fostered and promoted' through a range of creative activities that use 'their senses, imagination and experience' (Welsh Government, 2015, p.47). The children will be exploring a 'range of sound sources' in the classroom and outdoors through cross-curricular links and will develop their listening skills that enable them to 'recognise and describe sounds' (Welsh Government, 2015, p.47). Donaldson's (2015) twelve pedagogical principles will be incorporated by teachers 'building on previous knowledge and experience to engage interest' and 'employing a broad repertoire of teaching approaches' (ImpactWales, 2018, p.1). The approach would support the delivery of Estyn's (2011, p.3) recommendations by planning 'challenging activities to develop thinking, communication, numeracy and ICT skills across the areas of learning'.



HOW CAN THE CROSS-CURRICULAR RESPONSIBILITIES BE INCORPORATED IN AN OPPORTUNISTIC MODEL?

LITERACY

Children's skills within the **oracy** strand of Literacy and Numeracy Framework can be developed through meaningful and expressive talk with peers and adults (Welsh Government, 2015, 2019c). Adults will encourage discussion by pointing out interesting features of the natural and human features alongside animals and plants to stimulate conversation and questions and widen learners' vocabulary.

Furthermore, children can develop the **writing** strand of 'Language, Literacy and Communication Skills' area of learning by practising mark making and letter formation 'to a variety of stimuli' with the sticks, mud or leaves whilst developing their 'gross and fine motor skills' (Welsh Government, 2015, p.23, p.43).

Finally, children may practice and develop their **reading** skills by using their reading strategies to read CVC and high-frequency words that appear on signs in the area, using images to support them where present (Welsh Government, 2019c).



DIGITAL COMPETENCE

Teachers could facilitate **digital competence** within the 'interacting and collaborating' and the 'producing' strand of the Digital Competence Framework (Welsh Government, 2019b) by providing iPads for the children to create a digital story book of their findings in a group. The group could use the camera to capture images and record audio to accompany their photos (Welsh Government, 2019b, p.1).

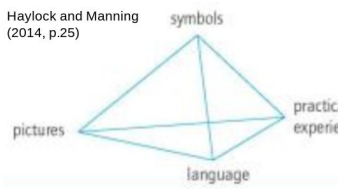
Within the 'planning, sourcing and searching' element of the Digital Competence Framework (Welsh Government, 2019b) the iPads could be also used to research, with adult support, any unknown items they find. Hwb's (2019) Encyclopedia Britannica is an ideal age-appropriate resource to support their enquiries. This research may also help to develop their reading and writing skills as the children will be using reading strategies to read the information and typing words to search for, with support.

However, internet access outdoors may impact the functionality of the hardware. Teachers could use offline software or a mobile hotspot to counteract this.

NUMERACY

The 'using number skills' strand of **numeracy** in Literacy and Numeracy Framework (Welsh Government, 2019c) can be developed by children sorting and classifying natural objects using one criterion.

Children will be able to practise their addition by 'counting reliably to 10' with 'concrete' objects in the natural environment. Haylock and Manning (2014, p.25) would support the use of concrete materials to develop children's connections between mathematical 'language, symbols, pictures and practical experiences' to promote their understanding.



Children can develop their number skills further by answering 'how many are left?' when items are removed by a peer or adult. (Welsh Government, 2019c, p.1). Children will develop their numerical reasoning by transferring their mathematical skills to play activities (Welsh Government, 2019c; Estyn, 2018b).

HOW CAN THE CROSS-CURRICULAR RESPONSIBILITIES BE INCORPORATED IN A THEMATIC MODEL?

LITERACY

Children's skills within the **oracy** strand of Literacy and Numeracy Framework can be developed by joining in, repeating and memorising the rhymes and story with some support. Adults can encourage learners to 'talk about things from their experience and share information' during individual, paired, group and whole class discussion (Welsh Government, 2019c, p.1)

Furthermore, children could develop the **writing** strand of 'Language, Literacy and Communication Skills' area by contributing to a piece of shared writing that is modelled by the teacher (Welsh Government, 2019c). The children could create their own version of the book as a group or class.

Finally, children may practice and develop their comprehension **reading** skills by responding to what has been read and relating the information and ideas from the text to personal experience with peers or class adults (Welsh Government, 2019c).

DIGITAL COMPETENCE

During the thematic unit of work, the teacher could facilitate **digital competence** within the 'data and computational thinking' strand of the Digital Competence Framework (Welsh Government, 2019b) by creating a 'treasure hunt' quiz sent from an imaginary musical character to search for a range of musical instruments or sounds on a Bee-Bot mat through a description of the sound they make. The children will demonstrate the 'problem solving and modelling' element of the Digital Competence Framework (Welsh Government, 2019b, p.2) by controlling a device 'by giving instructions' and trying 'alternative approaches' if unsuccessful whilst working as a group. The teacher will be able to use their responses to assess their ability to recognise and describe sounds.

Within the 'planning, sourcing and searching' element of the Digital Competence Framework (Welsh Government, 2019b) the iPads could be also used to research, with adult support, for further information about any of the instruments or sounds they encounter. Hwb's (2019) Encyclopedia Britannica is an ideal age-appropriate resource to support their enquiries. This research may also help to develop their reading and writing skills as the children will be using reading strategies to read the information and typing words to search for, with support.



NUMERACY

Throughout the thematic unit of work the children will develop their numerical reasoning by transferring their mathematical skills to play and classroom activities (Welsh Government, 2019c; Estyn, 2018b)

Within the 'Area and volume, Angle and position' element of **numeracy** in the Literacy and Numeracy Framework (Welsh Government, 2019c, p.2) children will develop their ability to 'move in a given direction' during practical activities that precede the Bee-Bot activity and creative movement sessions.

The 'using number skills' strand of numeracy in Literacy and Numeracy Framework (Welsh Government, 2019c) can be developed by children sorting and classifying sounds using one criterion.

Once familiar with the instruments, in groups the children could develop the strand of 'numerical reasoning' by creating a pictogram for the favourite instrument or sound of children in their class. The children could interpret the information collected and make conclusions about the most and least popular choice (Welsh Government, 2019c).

The cross-curricular responsibilities links are not discrete, they often support and develop each other.

HOW DOES THIS LINK TO THE DRAFT CURRICULUM 2022?

Both approaches would support the implementation of the new draft curriculum for Wales 2022 (Welsh Government, 2019a). They will incorporate many of the **six areas of learning and experience** and provides many opportunities for teachers to plan for children to use their digital skills alongside the other cross-curricular responsibilities across a range of inter-connected broad and exciting experiences and contexts (EducationWales, 2019b). Both a thematic and opportunistic approach can develop the skills, knowledge, attitude and values that children need to **achieve the four purposes of education** and to lead productive and fulfilling lives (Donaldson, 2015; EducationWales, 2019a).

The **twelve pedagogical principles** should be used by teachers to decide on the most appropriate pedagogical approach/es that addresses learners' needs and has the most effective impact on pupil progress (ImpactWales, 2018; Donaldson, 2015).

During both exemplary models teachers should use a wide range of **assessment for learning** strategies to effectively raise standards and learner outcomes (Black and William, 2008; Estyn, 2018a). All class adults could utilise an assessment grid during interactions to note observations and achievements that should be used to support and inform teacher assessment and future planning.

BENEFITS AND CHALLENGES OF THE MODELS

Donaldson (2015) and The Draft Curriculum for Wales 2022 (Welsh Government, 2019a) highlight the three cross-curricular responsibilities will **help learners achieve the four core purposes**.

Cross-curricular responsibilities supports Hebb's (1949, 1959) associate learning theory that learning is more effective when **connections are made** to what learners already know.

Increased choice and ownership of learning will **increase learners' motivation and engagement**. It will develop their love of learning. (Barnes, 2015; Estyn, 2016; Maslow, 1943)

Cremin, Barnes and Scoffham (2009) highlight a cross- curricular approach can help to **develop pupils and teachers creativity and other wider skills**.

Perkins (2009) and Dewey (1963) support teachers planning learning around **authentic, meaningful contexts** and support learners to gain a **better understanding that is transferable beyond the classroom**.

Roth (2000) highlighted that detailed and progressive planning is needed to **avoid a bland broth** of teaching and learning and to ensure learners' progression and deepened subject knowledge.

Rowley and Cooper (2009) and Kerry (2011) highlight a cross-curricular approach may present problems for teachers with **planning, tracking and assessment for learning**.

Children may **avoid activities** they find difficult and may not develop their weaker skills. (Hayes, 2010).

Poor or no broadband may make incorporating digital-competence within outdoor learning challenging.

Schools that have **low quantities of digital hardware** may struggle to incorporate digital competence into every lesson.

Barnes (2015) and Hayes (2010) highlights that teacher **require excellent subject knowledge** to successfully implement a cross curricular approach. Teachers may require further training.

Estyn (2016; 2018c) **effective practice reports** offer case studies that may assist further in the implementation the cross-curricular responsibilities in schools.

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BEFORE YOU GO....

It is hoped this exemplification has introduced ideas that will support your implementation of the cross-curricular responsibilities in the classroom. Whilst each of Barnes' (2015) cross-curricular models individually offer a useful planning structure, it should also be noted that the models **can be effectively adapted or combined** during sessions or units of work where appropriate. The new draft curriculum for Wales 2022 supports practitioners to be innovative and creative in their approach to 'support learners' realisation of the four purposes of the curriculum' (Welsh Government, 2019a, p.1).

Further reading

Barnes, J. (2015) *Cross-curricular Learning 3-14*. London: Sage
Dunlop, L. et al. (2013) 'Child-led enquiry in primary science', *Education 3-13*, 43(5), pp. 462-481. DOI: 10.1080/03004279.2013.822013.
Savage, J. (2012) 'Chapter 3: Cross-curricular approaches in music education', in Price, J. and Savage, J. (ed.) *Teaching Secondary Music*. London: Sage.
Kerry, T. (2011) *Cross-curricular Teaching in the Primary School: Planning and facilitating imaginative lessons*. London: Routledge.

Reference List

Amazon.com (2019) *Polar Bear; Polar Bear, What Do You Hear?*. Available at: https://www.amazon.co.uk/Polar-Bear-What-You-Hear/dp/0141383518/ref=asc_df_0141383518/?tag=googshopuk-21&linkCode=df0&hvadid=310984026894&hypo=1o1&hvnetw=g&hvrnd=2278221626253448114&hvpone=&hvptwo=&hvmqt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9045405&hvtargid=pla-524672354624&pssc=1&th=1&pssc=1 (Accessed: 9th December 2019).

Barnes, J. (2015) *Cross-curricular learning 3-14*. 3rd edn. London: Sage.

Bates, B. (2019) *Learning Theories*. 2nd edn. London: Sage.

Bruner, J. (1966) *Towards a Theory of Instruction*. New York: W.W. Norton.

Cornerstones Education (2019) *Evidence and Impact*. Available at: <https://cornerstoneseducation.co.uk/evidence/> (Accessed: 7th December 2019).

Cremin, J., Barnes, J. and Scoffham, S. (2009) *Creative teaching for tomorrow: fostering a creative state of mind*. Margate: Future Creative.

Dewey, J. (1963) *Experience and Education*. New York: Collier Books.

Donaldson, G. (2015) *Successful Futures*. Cardiff: WAG.

Education Wales (2019a) *Anna Bolt - Health and Well-being* [video]. Available at: https://www.youtube.com/watch?time_continue=93&v=zOWSNoraDbw&feature=emb_logo (Accessed: 2nd December 2019).

Education Wales (2019b) *Dan Frost - Expressive Arts* [video]. Available at: https://www.youtube.com/watch?time_continue=22&v=Q3RBqqBQYCQ&feature=emb_logo (Accessed: 2nd December 2019).

Estyn (2011) *The implementation of the Foundation Phase*. Available at: <https://www.estyn.gov.wales/sites/www.estyn.gov.wales/files/documents/Literacy%20and%20the%20Foundation%20Phase%20%20-%20September%202011.pdf> (Accessed: 1st December 2019).

Estyn (2016) *Cross-curricular themes that develop pupils' key skills*. Available at: <https://www.estyn.gov.wales/effective-practice/cross-curricular-themes-develop-pupils%E2%80%99key-skills> (Accessed: 1st December 2019).

Estyn (2018a) *Assessment for learning and thinking skills*. Available at: <https://www.estyn.gov.wales/effective-practice/assessment-learning-and-thinking-skills> (Accessed: 1st December 2019).

Estyn (2018b) *Learning through play in a real-life context*. Available at: <https://www.estyn.gov.wales/effective-practice/learning-through-play-real-life-context> (Accessed: 10th December 2019).

Estyn (2018c) *Preparing to implement the new curriculum through involving pupils*. Available at: <https://www.estyn.gov.wales/effective-practice/preparing-implement-new-curriculum-through-involving-pupils> (Accessed: 1st Devenber 2019).

Hayes, D. (2010) ‘The seductive charms of a cross-curricular approach’, *Education 3-13*. 38(4), pp. 381-387, DOI: 10.1080/03004270903519238.

Haylock, D. and Manning, R. (2014) *Mathematics explained for Primary Teachers*. 5th edn. London: Sage.

Hebb, D. O. (1949) *The organization of Behavior: A Neuropsychological Theory*. New York: Wiley and Sons.

Hebb, D. O. (1959) ‘A Neuropsychological theory’. In S. Koch (ed.) *Psychology: A study of a Science*. New York: McGraw-Hill.

Hwb (2019) *Resources: Encyclopaedia Britannica*. Available at: https://hwb.gov.wales/repository/source/britannica_school/browse?level=ebk (Accessed: 8th December 2019).

Impact Wales (2018) *Donaldson's 12 Pedagogical Principles and what you should you do with them*. Available at: <https://www.impact.wales/wp-content/uploads/2018/01/12-Pedagogical-Principles-1.pdf> (Accessed: 15th November 2019).

Kerry, T. (2011) *Cross-curricular teaching in the Primary School*. Oxon: Routledge.

Martin, B. (1991) *Polar Bear; Polar Bear, What Do You Hear?*. London: Puffin Books.

Maslow, A. (1943) ‘A theory of human motivation’. Indianapolis: Bobbs-Merrill.

National Literacy Trust (2019) *Primary Programmes*. Available at: <https://literacytrust.org.uk/primary/> (Accessed: 1st December 2019).

Perkins, D. (2009) *Making Learning Whole: How Seven Principles of Teaching Can Transform Education*. San Francisco: Jossey-Bass

Roth, K. (2000) ‘The Photosynthesis of Columbus: exploring interdisciplinary curriculum from the students’ perspective’, in S. Wineburg and P. Grossman (ed.) *Interdisciplinary Curriculum: Challenges to Implementation*. New York: Teachers college press.

Primary ICT (2019) *TTS Bee-Bot Mat*. Available at: <https://www.primaryict.co.uk/pr1985/tts-bee-bot-mat-transparent-pockets-it00090> (Accessed: 1st December 2019).

Rowley, C. and Cooper, H. (2009) *Cross-curricular Approaches to Teaching and Learning*. London: Sage.

Tuffelmire, D. (2017) *What are the benefits of using the thematic approach*. Available at: <https://www.theclassroom.com/benefits-using-thematic-approach-kindergarten-students-5672.html> (Accessed: 2nd December 2019).

Welsh Government (2015) *Foundation Phase Framework*. Available at: <https://gov.wales/sites/default/files/publications/2018-02/foundation-phase-framework-revised-2015.pdf> (Accessed: 15th November 2019).

Welsh Government (2019a) *Draft Curriculum for Wales 2022 - Hwb*. Available at: <https://hwb.gov.wales/draft-curriculum-for-wales-2022/> (Accessed: 15th November 2019).

Welsh Government (2019b) *Digital Competence Framework*. Available at: <https://hwb.gov.wales/curriculum-for-wales-2008/digital-competence-framework-curriculum-for-wales-2008-version/framework/> (Accessed: 19th November 2019).

Welsh Government (2019c) *National Literacy and Numeracy Framework*. Available at: <https://hwb.gov.wales/curriculum-for-wales-2008/national-literacy-and-numeracy-framework-curriculum-for-wales-2008-version/framework/?lang=en> (Accessed: 19th November 2019).

World Economic Forum (2016) *Employment, skills and Education* [video]. Available at: <https://www.youtube.com/watch?v=7g8OpiWR83Y> (Accessed: 10th December 2019).

UKSafetyStore (2019) *No dogs sign*. Available at: <https://www.uksafetystore.com/no-dogs-sign.html> (Accessed: 9th December 2019).