Implementing Literacy, Numeracy and Digital Competence across the Curriculum

What is cross-curricular learning?

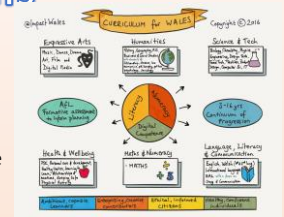
Barnes, (2015) suggests that a cross-curricular approach takes place when multiple subject disciplines are integrated within one lesson. This can take place through the use of a theme, problem or meaningful experience relating to the learning.

Why is it useful?

Ofsted, (2010, cited in Barnes, 2015) state cross-curricular learning allows children to 'make connections' within and across many subject disciplines at one time. This can be of great benefit towards their learning of different skills, as they an deepen their understanding of them, in a meaningful and useful way. Donaldson, (2015p.42) states, 'children and young people should have their learning developed across the curriculum through three Cross-curricular responsibilities: Literacy, Numeracy and Digital Competence'. This is suggested to be extremely important as it can allow for children to be equipped in skills that will prepare them for later life.

Exemplification of models

The skills in these models are aimed at the Foundation Phase, Year 2 class. These models show how the three cross-curricular responsibilities of Literacy, Numeracy and Digital Competence can be integrated within other subject disciplines, through using a cross-curricular approach. The theme based model will look at the topic of habitats and the opportunistic model will look at an educational visit to Folly Farm.



Model One – Theme-based

Lesson one: Sessions aims

- Using prior knowledge of different habitats to sort different toy animals into 4 different habitats (arctic, jungle, desert, ocean).
- Count the different animals in each habitat. They can count objects, such as the animals themselves, the number of legs or eyes etc.
- Further develop their numerical reasoning skills, through solving problems, such as, 'there are 10 animals living in the ocean, what different combinations of animals could this be?' or 'there are a number of animals in the desert, with a total of 12 legs between them. What different combinations of animals could there be?'

Skills: Literacy, Numeracy and KUW

Lesson Two: Session aims

- Educational visit to the local country park to look for different animals, using their prior and newly learned knowledge of habitats.
- Create a tally chart of the different animals that they find, within the various habitats (i.e. water, trees, underground, woods etc).
- Use the information that they gathered to create a chart using J2e, showing the most popular type of animal/ most populated habitat.

Skills: Numeracy, Digital Competence and KUW

Continuous and enhanced provision – Habitats

Lesson Three: Session aims

- Circle time activity, in which we will discuss the habitat of a 'zoo'- what animals live there and why and also what other attractions you can see there.
- Briefly recap on how to write a leaflet (prior knowledge).
- Create a leaflet advertising their own zoo.

Skills: Literacy, KUW and PSE

Lesson Four: Sessions aims

- Homework task to carry out some research regarding the pros and cons of keeping animals in captivity in zoos.
- Circle time activity, where they will discuss the information that they found out.
- Whole class debate, surrounding/ answering the question 'Should animals be kept in a zoo?'

Skills: Literacy, KUW and PSE

'Use a theme to generate exploration through the eyes of several different subjects' (Barnes, 2015 p69).

Benefits

- Allows for children to develop skills in literacy, numeracy and digital competence in a meaningful way, that can be applied to real life contexts.
- Allows for many subject disciplines to be taught in a meaningful way through the use of one theme that is relatable to the children and allows for accessible learning and deeper understanding of curriculum skills.
- Promotes the use of pupil voice and child led-learning, allowing children to learning through first hand experiences and discover independence (Piaget and Bruner, cited in Barnes, 2015).
- The use of a theme can motivate both teachers and children to develop their creativity and encourage creative thinking skills (Barnes, 2007).
- Generate 'deep learning' through meaningful topics, enables skills within Literacy, Numeracy and Digital Competence to be broadened (Barnes, 2007).
- Build on prior knowledge and understanding of skills already achieved and build upon these, whilst building understanding of a range of skills in a different, more applicable context (Grigg, 2015).
- An authentic theme allows for relevant skills to be developed effectively over a term, creating deeper understanding of how those skills can be used in later life.
- Can allow for children to be assessed on their knowledge and understanding of a range of curriculum skills at one time and provide teachers with the knowledge of how to make the learning more effective, so that they may progress (Barnes, 2015).

Limitations

- This model can sometimes cause confusion in childrens' learning as lesson aims and objectives become unclear.
- The use of too many subject disciplines can cause the lesson to become a 'bland broth' and the learning is no longer meaningful to the children (Barnes, 2015).
- Sometimes, it may be unclear as to how certain skills are being developed, which may result in a regressed understanding.
- It is important to ensure that the subject disciplines chosen are ones that will allow for skills within both subject disciplines to be developed further. If the skills in one subject are seen as more important then the other, the children's understanding may not be progressed (Barnes, 2015).
- It is important that the theme is well planned for, as a lack in planning may hinder learning as outcomes may not be achieved and a greater understanding of skills may not be gained by the children (Barnes, 2015).

Model Two – Inter-disciplinary

Lesson one: Session aims

- KWL chart about what they already know about folly farm and what they would like to find out. Discuss the different activities that they would like to do during the trip, in order to find out this information.
- During the trip, the children will visit the different areas in groups (with an adult) and will complete one of the activities discussed in class. Activities can include: tally chart of different animals, map of the different areas, information about different animals etc.

Skills: Literacy and KUW

Lesson Two: Session aims

- Share their findings with their peers. They may choose to present in different ways, such as, poster, video, presentation, leaflet etc.
- Opportunity to 'magpie' from their friends, and collect information in order to create an individual review of folly farm, using Microsoft word of powerpoint.

Skills: Literacy and Digital Competence.

Continuous and enhanced provision – Folly Farm

Lesson Three: Session aims

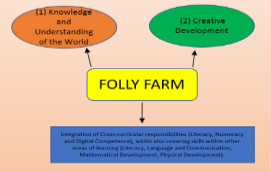
- Create a timeline of Folly Farm, looking at when each animal arrived. They will be able to order the events (animals arriving) in chronological order.
- Use ipads and computers to research information to further support them during this task.
- Discuss matters such as, where the different animals have arrived from and why they have been brought to Folly' Farm. This will give them the opportunity to discuss terms such as 'endangered species and extinction'.

Skills: Literacy, Digital Competence and KUW

Lesson Four: Session aims

- Listen to the music piece 'The Carnival of the Animals' by Camille Saint Saëns. Discuss the instruments that are being used and what animals they may represent.
- In groups, choose a part of the piece of music.
- In groups, create a string of movements (using prior knowledge of movements from PE lessons) to represent the animals in their chosen piece of music.
- Perform their dance to their peers.

Skills: Numeracy, PD, CD and KUW



'aim to use a single experience or theme to develop higher levels of knowledge and performance of two or more disciplines' (Barnes, 2015 p72).

Benefits

- This model is often used to aid in solving a problem. Therefore it may be useful when develop understanding of mathematical/ numeracy skills, across the curriculum as it can provide children was a deeper understanding of numerical reasoning and how these skills can be developed for later life (Barnes, 2015).
- Allows for literacy, numeracy and digital competence skills to be taught within a meaningful and relevant context as these kills can be developed further and supported through knowledge and skills within another discipline.
- Treats all subject disciplines as of equal importance as each other.
- Allows for children to take an active role in their learning, promoting pupil voice and develop their knowledge and understanding of different skills through growing curiosity, allowing for the learning to be engaging and interesting (Barnes, 2015).
- Allows for greater motivation to learn which is 'key to efficient, satisfying and lifelong learning' (Barnes, 2007 p.232). Using such an approach enables Maslow's hierarchy of needs to be met and increase children's motivation to learn (Maslow, 1943, cited in Barnes, 2007).
- Enhances the development of creative thinking skills, through a theme/hook that is relevant and meaningful to the child, allowing them to use 'memories, links and associations' with the topic and deepen their understanding of the skills being developed (Barnes, 2007).
- This model allows for the most creativity to be developed, through allowing skills within the more creative areas of learning to support one another (Pope, 2005).
- Develops children's prior understanding of the shared experience, whilst also creating new knowledge and insights into using skills within other areas of the curriculum (Barnes, 2015).

Limitations

- Requires high levels of planning and teacher subject knowledge, especially when crossing subject disciplines (Alexander et al, 1992 p.25)
- May sometimes be used incorrectly, meaning that one of the chosen subject disciplines is not be developed in a meaningful way and is being used just to 'tick curriculum boxes'. This may be due to a lack of teacher subject knowledge or confidence in teaching one of the subjects and therefore they may use the other subject to support (Barnes, 2015).
- Can be more challenging than other models as it requires great teacher subject knowledge and confidence in both disciplines, in order to teach them effectively and help the children to develop in their understanding (Barnes, 2015).
- Similarly to a theme-based approach, if too many subject disciplines are being taught at one time, it may produce a 'bland broth' and the learning may become confusing and non-accessible for the children (Barnes, 2015 p.74).

Skills (within both models): Children will be given the opportunity to:

LNF: Literacy: express opinions, giving reasons, and provide appropriate answers to questions, contribute to discussion, keeping a focus on the topic and taking turns to speak, identify and use text features, e.g. titles, headings and pictures, to locate and understand specific information, draw upon relevant personal experience and prior knowledge to support understanding, write text which makes sense to another reader, which may include details and pictures, experiment with different formats and layouts on-screen, using the facility to move text and pictures around easily.

Numeracy: select appropriate mathematics and techniques to use, select and use relevant number facts and mental strategies, present work orally, pictorially and in written form, and use a variety of ways to represent collected data, use checking strategies to decide if answers are reasonable, count sets of objects by grouping in 2s, 5s or 10s, read and write numbers to 100, gather and record data from: lists and tables, diagrams, block graphs, pictograms where the symbol represents one unit, extract and interpret information from lists, tables, diagrams and graphs, use different combinations of money to pay for items up to £1, use standard units to measure: length, height (cm, m), weight (g, kg).

DCF: add their name and the date to work they have created and give reasons why this is important, use an online collaborative platform to create or edit a file, save work using an appropriate name, collect and organise data into groups, i.e. by voting or sorting and represent in pictures, objects or drawings, extract information from simple tables or graphs, record data collected in a variety of suitable formats, i.e. lists, tables, block graphs or pictograms, use keywords to search for specific information to solve a problem.

PSE: Become confident explorers of their indoor and outdoor environments, experiment with new learning opportunities, including ICT, communicate about what is good, bad, right, wrong, fair or unfair, demonstrate care and affection for others and their environment.

KUW: observe differences between animals and plants, different animals, and different plants in order to group them, learn about the senses that humans and other animals have and use to enable them to be aware of the world around them, identify some animals and plants that live in the outdoor environment, sequence events, routines and changes.

PD: Develop coordination and gross motor skills, control body movements develop balance and sensory awareness, link basic actions in a sequence, move safely with increasing control and coordination.

CD: explore a range of sound sources and create their own musical ideas, recognise and describe sounds, and listen and respond to music, reflect on their own and others' music, explore and express a range of moods and feelings through a variety of movements, develop their control by linking movements to create a series of changing body shapes and pathways,