

A critical analysis of the relationship between teacher subject knowledge and effective learning and teaching in the primary school

Word count: 4318

In this essay I will be focusing on various aspects of the relationship between teacher subject knowledge and effective learning and teaching in the primary school. Research shows that teacher subject knowledge plays a large role alongside other important factors (Rowland et al, 2009). Firstly, I will analyse specific literature encompassing factors such as, teacher subject knowledge within the primary sector. Following this, I will discuss and evaluate my first Professional Teaching Experience (PTE) from my school experience. I will ensure to keep the identity of the school confidential and anonymous including names of staff and students. I will refer to the school as School X.

School X is a primary school that educates pupils from age three to eleven. The school is situated in a deprived area of South West Wales consisting of mainly local authority council housing estates and a Gypsy traveller community site with 49% of pupils eligible for free school meals (Estyn. 2016). The school is at the 'heart of the community based on equality, respect and doing your best' (Estyn. 2016). School X accommodates for all abilities with 38% of the pupils having additional learning needs (ALN) (Estyn. 2016). I began my placement in the Year 3 class at School X with 18 pupils (11 boys and 7 girls) all aged from 7-8 years old. Within the class, the class teacher was accompanied by one teaching assistant who focused her time with the lower ability pupils.

A consideration of the literature

It is suggested that having a range of subject knowledge helps to create effective teaching and learning. The Knowledge Quartet is an essential tool to help apply subject knowledge to the classroom. It is a study that focused on the observation of a trainee teacher's mathematics lesson and use of subject knowledge (Rowland et al, 2003). The Knowledge Quartet is grouped into 4 separate units namely foundation, transformation, connection and contingency.

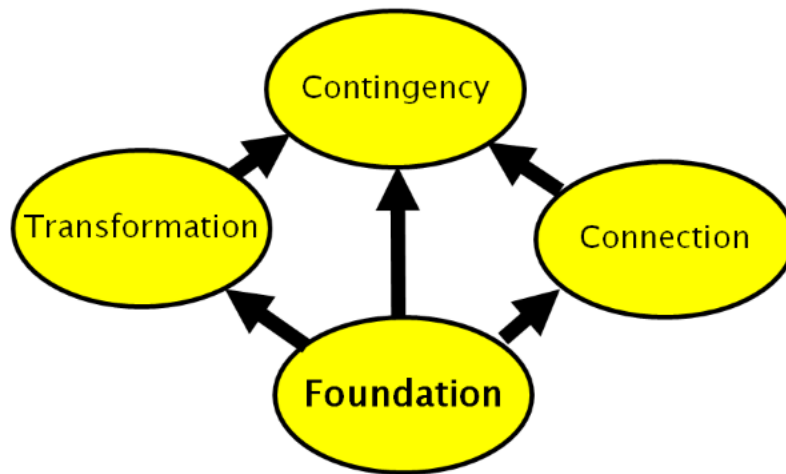


Figure 1: The Knowledge Quartet (Rowland, 2017)

These 4 dimensions can be related and closely linked to the 7 categories proposed by Schulman (1986) on teacher knowledge. Foundation is the first category of the quartet which consists of knowledge, beliefs and understanding that is needed for effective teaching. This consequently prepares a teacher's role in the classroom. The foundation aspect is closely tied to the subject matter knowledge and knowledge of purpose of Schulman's 7 categories (1986). This is related to the notion of teachers' beliefs of mathematics (Rowland et al, 2009). Subject knowledge is to be believed to develop a child's learning and is clear that 'teachers cannot help children learn things they themselves do not understand' (Ball, 1991. p5). Therefore, this highlights that having a strong belief, understanding and interest within any subject will 'help develop and stimulate a high level of learning by a child, to adopt effective learning via the promotion and emphasis of knowledge, understanding and outcomes' (Education Development Trust, 2015. p51).

Hill et al (2005) recognises the Knowledge Quartet by supporting 'the importance of teachers' pedagogical content'. He explains that a teachers' level of understanding corresponds and relates to how effectively pupils learn. Hill et al (2005) found that pupils made a greater progress being taught by teachers with a greater and stronger mathematical knowledge. It is believed by the study carried out by Sadler et al (2013) that there is a positive relationship between teachers' understandings and pupils' outcome. Therefore, the Knowledge Quartet holds a base for teaching beliefs, understanding, subject knowledge and pedagogical content knowledge to create effective teaching.

The relationship between teacher subject knowledge and effective learning and teaching in the primary school can be shown through a teacher's subject knowledge. Teachers' play an important role in engaging children to develop on previous knowledge. This is done through scaffolding subject knowledge and understanding. Schulman identifies in his research that 'teaching requires basic skills, content knowledge, and general pedagogical skills' (1987, p6). Therefore, it is perceived by Schulman that subject knowledge and pedagogical content knowledge is key to building upon learners understanding.

In Schulman's New Reform case study (1987) of an English teacher Nancy, it was evident that the conceptual framework for literature she employed involved a high level of subject content knowledge to aid the scaffolding of pupil's learning. Due to her high level of subject knowledge, Nancy was able to interact with her students, through discussions and questions. Nancy imposed a framework that split reading skills into 4 key levels. This was done to help the pupils to scaffold and organise their own work and literature but also to monitor their own thinking. Due to her method of teaching she was able to 'liberate her students' minds through literacy' (Schulman, 1987, p2). Therefore, Nancy organised her lessons through 'different pedagogical purposes, different levels of difficulty, (and) different kinds of pupils' (1987, p2) which highlighted her subject knowledge understanding and pedagogical skills.

It was evident during Nancy's lesson that one of her main characteristics was having confidence when teaching. Consequently, having a greater subject knowledge leads to greater confidence for effective teaching and learning. It is argued by Johnston and Ahtee that confidence develops alongside knowledge (2006). This can lead to the opportunity of scaffolding through Bloom's Taxonomy of questioning that impacts positively on the learning outcomes and teaching practice where it aids a child's learning further by its 'higher level(s) of intellectual development' (Bob Bates, 2016, p218). However, Begle (1979) suggests that the effectiveness gained by a teacher is not always directly related to the knowledge of the subject. Therefore, this highlights further discussion that effective learning and teaching is more than one factor. Effective learning and teaching consists of a relationship between 3 factors such as, subject-matter knowledge; pedagogical content knowledge and curriculum knowledge (Rowland et al, 2009, pp22-24). Being prepared with a high level of subject knowledge does prove to result in children receiving effective learning and teaching. Curriculum knowledge is a key aspect of effective learning and teaching. No

matter how long you've been in the profession, the curriculum is followed by all. The new proposal of the reformed curriculum by Donaldson will mean that teaching and learning will need to be alerted by all teachers.

On the other hand, not all teachers have a high level of subject knowledge. This impacts on the relationship of effective learning and teaching in a primary school. It can be argued by Hill et al (2005) that without subject knowledge effective teaching and learning cannot take place. In Schulman's New Reforms case study (1987) it is revealed that with a lack of specific subject knowledge pupils couldn't achieve their targets which resulted in their education suffering to an extent. It is evident that due to the trainee teachers' lack of subject knowledge, the pupils' missed important and relevant opportunities in the classroom. These included, to be able to ask questions and contribute to key group discussions which would help to develop their understanding through scaffolding.

It is suggested that creating effective learning and teaching can be impacted by the dynamics, behaviours and qualities of a versatile and excellent teacher (Coe et al, 2014).

Schulman's New Reforms case study (1987) highlights the way that teachers need to be prepared to face any barriers and obstacles that they may come across. It is revealed in the case study that the English teacher Nancy had to change the way she planned her lesson to the classroom. Unfortunately for Nancy she was taken ill which meant her management of the classroom through 'the power of her voice and manner' (Schulman, 1987, p3) was more challenging. It was essential that the subject knowledge was kept at a high standard through different teaching strategies that Nancy employed. Therefore, Nancy had to change her teaching method so that her illness didn't impact on the children's learning. Consequently, her strict lesson plan could only be used as a guide as she had to change the dimensions to suit the situation. This case study focusing on Nancy's ability to teach with a flexible approach will allow for the unexpected (Grigg and Hughes, 2013).

One broad aspect of the Knowledge Quartet (2003) focuses on contingency. This category concerns the classroom events that are almost virtually impossible to plan for. It is the ability to 'think on one's feet' (Rowland et al, 2003). This aspect of the Knowledge Quartet involves all 7 categories of Schulman's teacher knowledge due to it being an anticipated experience involving all areas (1986). Every lesson is different, and things can arise that had not been planned for or anticipated (Rowland et al, 2009). Therefore, it is

important that teachers perform a contingent action on unexpected events. It is suggested by Rowland et al (2009) that the element of contingency of a lesson results in stepping back from agenda to respond to different ideas. This highlights the importance of planning by Russell Grigg and Sioned Hughes (2013) where planning should not prevent teachers from responding to children's ideas and so turn these experiences into opportunities (2013) as 'planning is a process of thinking and developing ideas that serves a guide for teachers' (Grigg and Hughes, 2013, p24). Brown and Wagg (1993) believe that responding to questions are the key opportunities of a lesson. Therefore, it is important that a child's inquisitiveness response should not be prevented by strict and regimented planning (Grigg and Hughes, 2013, p25). However, it is argued by Brown and Wagg that 'our capacity to listen diminishes with anxiety (1993, p20). This means that the sufficiency of a teachers subject knowledge could result in anxiety, although this is just one of the many possible causes needed to be considered.

The contingency element of a lesson or learning aspect will occur more than likely in any teaching professional career. The relationship of effective teaching and learning simultaneously links to the element of subject knowledge. It can be disputed that a greater level of subject knowledge will lead to fewer surprises when teaching because greater knowledge results in teachers being able to respond to pupil's ideas. Therefore, the quality of response is ultimately determined to an extent by the amount of teacher's subject knowledge (Rowland et al, 2009) or the way in which a teacher responds to a situation depending on the knowledge of resources that are available to them.

An important aspect of the Knowledge Quartet is the transformation aspect. Transformation centres its focus around how knowledge is taught to pupils in an effective way. This highlights the term 'knowledge-in-action' (Rowland et al, 2013, p98) that connects planning and teaching itself. It is suggested by Deborah Ball (1988) that the ability of a teacher is to transform subject knowledge through pedagogy. This instigates the need for teachers to present ideas to the learners and find ways representing what they themselves already know. The way in which knowledge is made accessible for children to understand through creating analogies and memorable learning. This is closely linked to Social Constructivism by Lev Vygotsky where teacher methods are used through tools and practices and also the way students can build upon existing relevant and meaningful knowledge (Powell and Kalina,

2009). This theory by Lev Vygotsky supports and assists the fact that teachers need to make subject knowledge accessible for children to learn and experience effective teaching. Therefore, it is supported by Hattie (2012) that effective teaching is influenced by pedagogical knowledge as well as subject knowledge.

Pedagogical content knowledge (PCK) has a close relationship in the emergence of effective learning and teaching. This results in teachers creating 'their own special form of professional understanding' (Schulman, 1987, p8). It is suggested by Schulman that PCK helps to identify distinctive areas of knowledge for teaching and represents the connection of content and pedagogy into an understanding through different parts of the lesson. Coe et al (2014) suggests that the PCK connects understanding of material being taught, understanding the ways that students think about specific content and evaluate the thinking process of students. Therefore, this is closely related to the transformation aspect of the Knowledge Quartet due to the ability to transform knowledge into a way of creating effective teaching and learning and motivate the minds of learners (Schulman, 1987). It is clear that effective learning and teaching in a primary school has a relationship with pedagogical content knowledge alongside subject knowledge.

Analysis and evaluation of your subject knowledge for primary teaching

In this section of the essay, I will be analysing and evaluating the relationship of my own subject knowledge, effective learning and teaching in the primary school. It was important to follow the current curriculum documents that the school follow to help plan my lessons. The school also links to Donaldson's (2015) developing new curriculum in Wales into their teaching through the four core purposes. Research by Schulman (1987) shows that pedagogy is an important aspect of effective learning and teaching alongside subject knowledge as together they help to teach difficult concepts in an understanding that are accessible to develop positive attitudes (Johnston and Ahtee, 2006).

The Knowledge Quartet (2003) highlights the different types of subject knowledge that are needed to teach mathematics. To a certain extent, these ideas can be transferred and used for other subjects. These ideas include, strategies, concepts, ICT resources and knowledge of the curriculum (Rowland et al, 2009, p19). It is suggested by Rowland et al. (2009) that having curriculum knowledge can help plan the main features and learning areas

that children are expected to learn. This will result in the PCK of how teachers will transfer their overall subject knowledge through effective learning and teaching.

The current curriculum is believed to be lacking opportunities and wide-ranging experiences for pupils across primary schools in Wales (Donaldson, 2015). It is Graham Donaldson's aim to change the way subjects and lessons are being taught 'to provide a vision for the future' (Donaldson, 2015, p1). However, this could mean implications to teaching if teachers lack curriculum knowledge. Therefore, this could consequently affect the learning and teaching of pupils in Wales. School X of my PTE believe in the new reforms to create 'ambitious, capable learners'; 'healthy, confident individuals'; 'enterprising, creative contributors' and 'ethic(ally), informed citizens' (Donaldson, 2015, p3). It was important that I connected my teaching, pedagogy and planning to the current curriculum as well as the proposed curriculum by Donaldson.

Subject knowledge

It is evident according to the Education Development Trust (2015) that having greater subject knowledge can create effective learning and teaching.

Whilst on my PTE, I recognised the need for an abundance of subject knowledge in all subjects. The class' topic of the term was focusing on humanities and centring round the Celtic period. The lesson that I chose to emulate on (See Appendix A) was directed and connected to the historical aspect of the current curriculum such as; to 'use a timeline to sequence events, identifying differences between ways of life at different times' (Welsh Assembly Government, 2008, p12) and more. The lesson consisted of clear links to the Curriculum Cymraeg, the LNF and ESDGC. Within the lesson, I incorporated 3 various activities that cover a range of the current curriculum. Therefore, due to this, it was important that I have a high level of subject knowledge. It is revealed by Bob Bates (2016) that greater subject knowledge can build upon previous knowledge which is closely tied to scaffolding. This is because scaffolding advances 'performance, knowledge and skills' (Pea R.D, 2009, p423).

This aim of my introduction was to use key historical questions to reflect the pupils' thoughts through a Pie Corbett strategy of recording ideas. This created spontaneous thoughts and ideas carried out by the children. Due to my high level of subject knowledge, I was able to answer questions that were beyond the lesson learning objectives. This

highlights my further understanding of the Celtic period. This is supported by Roy D. Pea's theory that opportunities with a high-level of subject knowledge can develop and scaffold a pupil to learn further (2009).

However, during my plenary activity of recapping through a class discussion it definitely challenged my subject knowledge of the Celtic period. I was able to answer specific questions on the Celts that the children were interested about. Regarding the curriculum's targets, it was essential that I stuck to the lessons aims, objectives and targets. The current curriculum is a set of subjects, standards and targets that children should be taught (Gov.co.uk).

Therefore, my ability to gain greater subject knowledge produces effective learning and teaching highlights my competence in motivating learners to create new opportunities just as requested by Donaldson (2015). My level of subject knowledge can be seen in Appendix B, which shows the display wall I created on the topic. Finally, a great amount of subject knowledge and pedagogical content knowledge results in effective teaching and learning (Rowland et al, 2009)

Lack of subject knowledge

History is a broad aspect of the humanity family of subjects and requires in-depth subject knowledge for its content of learning and teaching. The first lesson that I produced and planned for, focused on generalised facts and knowledge on the Celtic period (as seen in Appendix C). This was aimed at 3 key aspects of the current curriculum and clear links to the Literacy Numeracy Framework (LNF) incorporating various other developmental skills (Welsh Government, 2014). This was closely linked to creating ethically informed citizens from Donaldson's four core purposes (2015). Therefore, the children were able to be 'knowledgeable about their culture, community, society and the world, now and in the past' (Donaldson, 2015, p3).

Due to this topic being completely new to me, as soon as I started teaching I felt that I lacked a wide-range of subject knowledge even though I researched the Celtic period to what I thought was a good level for the ability of the class. My limited subject knowledge consequently effected my learning and teaching in a negative way especially on my confidence to lead the children. This is closely linked to Hill et al (2005) who suggests that the lack of knowledge can take a knock-on effect on the learning of the children and the

pedagogical performance by the teacher. I experienced this common problem with my lack of subject knowledge.

It is essential that as a training student teacher to learn from these experiences as positives as it helps to reflect on becoming a more effective teacher for children through improving and overcoming occurring incidents. It is essential for any specific subject being taught to research it in depth above and beyond. This will give a positive impact on my own scaffolding of knowledge as well to extend the children's knowledge of the Celtic period. The relationship between subject knowledge and effective learning and teaching coincides with pedagogical content knowledge and curriculum knowledge. This is because it improves sufficient subject knowledge for improvement of effective learning and teaching (Begle, 1979).

Transformation

During my PTE, it is important to reflect on the transformation aspect of the Knowledge Quartet. Mathematics is a broad and wide subject where concepts, strategies and knowledge needs to be taught to pupils in an effective way. This is connected to the PCK. Transformation concentrates on the 'knowledge-in-action' (Rowland et al. 2003) process through planning and the act of teaching itself. School X use the Numicon Framework in alignment with the current curriculum. For the lower ability, Numicon is a big aid. During my teaching it was essential to have subject knowledge and PCK. This was seen through my teaching of money to the Year 3 class. However, I took my understanding of money for granted and struggled to explain the value of coins for the lower ability pupils to understand. Even though I had strong subject knowledge on money from life experience, it was difficult to transfer the concept into simpler form.

There is a clear link of the effect of subject knowledge on effective teaching and learning. To overcome this, it is important you have strong subject knowledge in a topic of experiences and concepts but also the pedagogy to transfer the skills and understanding to the learning during this lesson. The lower ability groups struggled instantly, and I had to use my initiative to find a way for these children to learn. Therefore, I used the Numicon shapes alongside visual money to aid their understanding. This is supported by Kolb's Cycle of Experiential Learning seen in Figure 2 below.

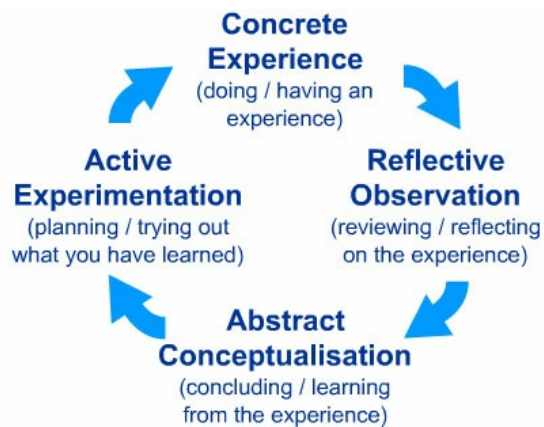


Figure 2: Kolb's Cycle of Experiential Learning. (McLeod, S, 2010)

Figure 2 explains how learning can be used through different methods and certain pupils learn better through different ways. Therefore, it is important to understand how children learn through pedagogy and the use of subject knowledge for effective learning and teaching.

Contingency

The contingency stage of the Knowledge Quartet is to 'think on one's feet' (2003, p98). This was evident in one of my taught mathematics lessons which I focused on the partitioning and ordering of 4-digit numbers. However, Pupil A completed the main activity focusing on the 4-digit numbers (See Appendix D). Pupil A is aiming to scaffold and develop on his knowledge of that lesson by challenging himself to introduce the partitioning and ordering of 5-digit numbers.

As seen in Appendix D, it is evident that my extension task considered the ordering and partitioning of similar 4-digit numbers. I used this task as an extension as I believed that it would be a more challenging approach to all pupils' scaffolding and development in the class.

- 1) 5678, 6785, 5574, 6475
- 2) 1321, 1232, 1132, 2311

Figure 3: This shows an extract of the numbers used for the extension task.

Figure 1 above is an example of the intensity of the extension tasks for the Year 3 pupils. I believed that they needed to expand and develop on their knowledge of similar 4-digit numbers before proceeding to 5-digit numbers.

Due to my planned and prepared activity for the extension, I faced a predicament with Pupil A's request to scaffold his learning and development. It is suggested by Grigg and Hughes that planning a lesson is only a guide for the lessons learning outcomes and not a regimented, strict instructional document (2013). This highlights the contingency aspect of the Knowledge Quartet (2003), that concerns the classrooms events that you are impossible to plan for.

However, subject knowledge can effect confidence on the teacher which can lead to anxiety by changing strategies. This was revealed by Brown and Wagg (1993) that these unplanned situations can cause anxiety. Therefore, due to my preparation of the extension activity that included specific resources, I felt more confident in continuing my plan of the task. Even though my subject knowledge was strong in partitioning numbers my ability to move on to 5-digit numbers may have been successful, but I felt more confident and stable as an effective teacher to continue with my plan. This was due to my uncertainty of subject knowledge to be able to teach the pupils a new skill effectively (Rowland et al, 2003). However, I was aware of Pupil A's inquisitive challenging suggestion to extend his learning. Therefore, it was important that I recognised the learning opportunity to partition 5-digit numbers. I felt that it was required by myself to balance this situation created by Pupil A by incorporating 5-digit numbers into a future lesson (See Appendix D).

Reflecting on this contingent situation, it could have been problematic if my subject knowledge was limited. This is supported by Schulman's New Reforms (1987) researched into the problems that lack of subject knowledge can results in, such as confidence, anxiety and the outcomes of a child's learning development. Therefore, it is evident that the relationship between subject knowledge creates clear positive learning opportunities for children. It is essential that I consider opportunities, as suggested by Russell Grigg and Sioned Hughes (2003) that lesson plans are not essential to stick to. However, it is key that

learning outcomes and objectives are on track, so whether the lesson changes from opportunities arising, it is important to continue with the learning objects and the success criteria. Therefore, subject knowledge creates effective learning and teaching.

Conclusion

Overall, to conclude, this essay has discussed the aspects of the relationship between teacher subject knowledge and effective learning and teaching in the primary school across Wales. I pinpointed specific literature such as the Knowledge Quartet by Rowland et al (2003) and Schulman's New Reforms case study (1987). The Knowledge Quartet was a study observation of a trainee teacher in mathematics. The Knowledge Quartet is split into four dimension that relate and impact on the capacity of subject knowledge alongside the effect of learning and teaching on pupils. Whereas Schulman's New Reforms case study observed teachers lesson is an effective way corresponding to the topic of subject knowledge

Within this essay I also reflected on my PTE where I focused on evaluating the value of learning alongside my subject knowledge which links back to the specific literature discussed previously. It is clear from my experiences that it is about how you represent that subject, to make connections and the way the children respond through their learning outcomes. Therefore, it is evident that subject knowledge is essential for effective learning and teaching in the primary school. However, other factors need to be considered to help create effective learning and teaching such as pedagogical content knowledge and curriculum content.

From my experiences on PTE I will ensure to consider all experiences as opportunities to develop my teaching profession. I feel it's appropriate to focus my target on establishing my subject knowledge further to be able to deliver lessons and not being constricted to a lesson plan. This will help me create experiences from the opportunities that the children create to scaffold their understanding and development further.

Appendices

Appendix A

Canolfan Addysg Athrawon De-Orllewin Cymru  The South West Wales Centre of Teacher Education		1B	
Session Plan – Key Stage 2			
Name of trainee: Lucy Boughton		Session 4.11.18 Topic (8) ref:	
Personal target(s) in relation to QTS:		• S2 – Knowledge and understanding • S3 – Teaching • S3.1 – Planning, expectations and targets • S3.2 – Monitoring and assessment • S3.3 – Teaching and class management	
Year group: 3	No. of learners: 18	ALN: Lower ability will need support from the TA	
Additional Adults:		1	
Learning objective(s): • To be able to understand key dates of the Celtic period and the artefacts that were produced during the era.		Success criteria: • To be able to gain knowledge in a Celtic artefact • To be able to gain knowledge in key dates of the Celtic period • To be able to use ICT to gain information • To be able to highlight key aspects of information • To be able to re-create a Celtic artefact • To be able to create their own Celtic design using key symbols	
Links to previous learning: Previous Topic lessons on the Celts (1,2,3,4,5,6&7)			
Curriculum coverage (range, skills)			
<u>Skills</u> • Use the timeline to sequence events • Identify the ways in which the past is represented and interpreted			
<u>Range</u> • The daily life of people living on the time of the Iron Age Celts • Select, record, and organise historical information • Use a range of sources, including ICT, e.g. artefacts, building sites, adults talking about their own past, visual sources, data and appropriate written sources • Reflect on their findings and the investigative approach used			
<u>Literacy(LNF)</u> • Explain information and ideas using relevant vocabulary • Speak clearly, varying expression to help listeners • Check understanding by asking relevant questions and making relevant comments • Contribute to group discussions, sharing ideas and information • Use visual clues • Identify different purposes of text • Use information from texts in their discussion or writing • Write for different purposes and readers choosing words for variety and interest • Use a basic structure for writing		<u>Numeracy (LNF)</u> • Read and write numbers up to 1000 • Use mental strategies to recall number facts within 20	
<u>DCF</u> • Use identified success criteria as a plan for completion of digital task • Develop strategies for finding information using different keywords and techniques, e.g. follow a step-by-step set of	<u>Thinking</u> • To be able to think back to 2000 years ago to understand the period and the artefacts used in their daily lives	<u>ESDGC</u>	<u>YCC</u> • Welsh history

<i>instructions on how to search effectively for information relevant to a task and select an appropriate website from skimming through a small number of sources.</i>			
Key vocabulary(English/Welsh): - Celtic period, artefacts, material, age, used for, dates - y Celtiaid, dyddiadau, gwybodaeth			
Time	Session activities, organisation and management		Key questions & Assessment for Learning opportunities
10 mins	Introduction The pupils will be sitting at the table where they will see a 1 Celtic artefact and 1 printed on a laminated sheet. As a table they need to think about the artefact. Question strips will be provided for them to think about their object. (Each pair has a question) No clues are given during the introduction to what it is or what they want to know as they will be doing the research in their main activity. As a class we will briefly go over ideas and suggestions. Introduce the activities to the pupils and the activities which they will be partaking in.		Questioning - What is it? - What is it used for? - What is it made from? - How old is it? - Who made it? - What type of people used it?
35 mins	Main activities Activity 1: Archaeologist Activity - The pupils will be working in pairs where they will have a tray containing a picture of a Celtic artefact, the name of the artefact, date and a QR code. - It is their objective to find out information on the artefact. - They will use their iPads to scan the QR code which will lead them to an information sheet. This information sheet will contain all the key information they will need to complete an 'Artefact Fact File'. - The fact file will contain what they need to be researching. Plus, a section where they can add any other interesting key fact on that item. - Each artefact will have a date when the artefact originated where the children need to plot onto a large visual timeline. - It is important to work as a team to work out where to plot the numbers. Extension – scan the other QR codes and read the information. Activity 2: Balloon Timeline Activity - The pupils will be working in pairs for this activity. - They need to pop the balloon which will contain a key date, statement and a QR code. - As a group they need to plot the dates on the timeline where they think appropriate. It is important to work together to communicate effectively. - In their pairs they use their iPads to find out key information to fill out their fact file. Extension – scan the other QR codes and read the information.		Mid-plenary: ensure understanding by checking the pupils are on point according to the success criteria.

	Activity 3: Love Spoon Activity • The pupils will be working independently to recreate their own Celtic love spoon (a Celtic artefact) • As a table they will read the key information of the love spoon. • Using the Celtic symbol information and their prior knowledge, they will design their own Celtic love spoon which will represent them. • Using the cut out they will create their own love spoon which will be part of an Enterprise scheme, where they will be sold at the Christmas Fayre. There will be a paper information sheet available in case the QR codes or iPads don't work.	
15 mins	Plenary Activity 1 and Activity 2 will tell the rest of the class about their findings and any interesting information about the period and the artefacts. Self-assess: on a printed sheet the pupils will assess their work using RAG rating according to their success criteria for each activity.	RAG rating their work.

Appendix B

Celebrating Children's Work

Subject area: Topic - The Celts



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Appendix C

Canolfan Addysg Athrawon De-Orllewin Cymru		 The South West Wales Centre of Teacher Education		1B
Session Plan – Key Stage 2				
Name of trainee: Lucy Boughton		Session ref: 5.11.18 Topic (1)		
Personal target(s) in relation to QTS:		- S2 – Knowledge and understanding - S3 – Teaching - S3.1 – Planning, expectations and targets - S3.2 – Monitoring and assessment - S3.3 – Teaching and class management		
Year group: 3	No. of learners: 17	ALN: Lower ability – TA assisted		
Additional Adults: 1				
Learning objective(s):		Success criteria:		
- To understand basic Welsh Celtic history. - To be able to identify Celtic qualities.		- To be able to write in full sentences. - To be able to use the correct grammar – capital letters and full stops.		
Links to previous learning: N/A				
Curriculum coverage (range, skills)				
Literacy(LNF)		Numeracy (LNF)		
- Explain information and ideas using relevant vocabulary. - Check understanding by asking relevant questions or making relevant comments. - Note down ideas to use in writing. - Use vocabulary related to the topic.		Transfer mathematical skills to a variety of contexts and everyday situations – dates in history.		
DCF Producing – Planning, sourcing and searching.	Thinking To be able to think the way the Celts lived and how our lives vary over the years.	ESDGC To be able to understand the impact of the choices of people depending on their economy and environment.	YCC The Welsh Celtic history.	
Key vocabulary(English/Welsh):				
Time	Session activities, organisation and management		Key questions & Assessment for Learning opportunities	
15-20 mins	Introduction Introduce the topic CELTS with a PowerPoint. Start with a 'Think, Pair, Share' activity with their knowledge of the Celts with just the title: - What they know? - What they want to know? - What they have learnt? Introduce the pupils to a few images of the Celtic history to expand on their 'Think, Pair, Share' task. Group discussion. Introduce a PowerPoint on the Celts – including important facts. Linking it to Wales		Q: WHAT do you know about the Celts? Q: WHAT do you want to know?	
10 mins	Main activities Brainstorm of what they've discussed – word bank.		AFL: verbal marking	
20 mins	Worksheet with images for them to annotate with a sentence about the information given (on the Celts).			

	Colour in the pictures.	
	Plenary All sit down on the carpet in their partners and ask each other questions about they have learnt today. Show the last slide of the trip to Castell Henllys that was mentioned in the PowerPoint. Before going out to afternoon break – all give an interesting fact on the Celts.	AfL: in pairs – questioning. Q: What have you learnt?

Extension

Using the iPads: search the internet about the Celts and find something interesting that they found out.

Resources

PowerPoint

Brainstorm – worksheet

Annotated images worksheet

iPads

Appendix D

Canolfan Addysg Athrawon De-Orllewin Cymru  The South West Wales Centre of Teacher Education			1B
Session Plan – Key Stage 2			
Name of trainee: Lucy Boughton		Session ref: 11.12.18 Maths	
Personal target(s) in relation to QTS:		- S2– Knowledge and understanding - S3 – Teaching - S3.1 – Planning, expectations and targets - S3.2 – Monitoring and assessment - S3.3 – Teaching and class management	
Year group: 3	No. of learners: 18	ALN: Lower ability will need support from the TA	
Additional Adults:		1	
Learning objective(s):		Success criteria:	
To understand place value by ordering numbers up to 4-digits		- To be able to order numbers up to 4-digits from smallest to largest - To be able to understand the value of each digit in numbers up to 4-digits - To be able to understand place value - To be able to know what a digit is	
Links to previous learning: previous lessons on place value (14-20)			
Curriculum coverage (range, skills)			
- Read and write numbers to 1 000 - List numbers that are 'greater than' or 'less than' another number - Read statements about numbers expressed using an inequality sign, e.g. $6 > 4$			
Literacy(LNF)		Numeracy (LNF)	
- Explain information and ideas using relevant vocabulary - Speak clearly, varying expression to help listeners - Check understanding by asking relevant questions or making relevant comments. - Use talk purposefully to complete a task in a group.		N/A	
DCF	Thinking	ESDGC	YCC
Use identified success criteria as a plan for completion of digital task	To be able to understand partitioning numbers using different strategies and activities.		
Key vocabulary(English): order, smallest, largest, digit, value, place value, hundred, tens, units			
Time	Session activities, organisation and management		Key questions & Assessment for Learning opportunities
15 mins	Introduction All pupils being on the carpet where there will be reminded of a digit and place value. A 100 square will appear on the interactive whiteboard. There will be missing numbers that the pupils will need to work out the missing numbers. Need to look at the tens digit, single digits, its value, its position on the 100 square. Show other parts of a number square in various different shapes.		What is a digit? What does place value mean? What numbers are missing? How do we know?

	To answer, the pupils need to interpret the knowledge they have found, of columns and what each digit represents (e.g. we know the digit 5 here is worth...but the value of the digit 5 here is...) All pupils involved for a warm up activity. Pupils will be split into 2 groups where they will have a set of cards that they need to physically sort out. Each set are differentiated on ability, therefore include 2,3 and 4-digit numbers. Important to discuss place value and its importance	What numbers do we look at? The one with the most value to the least value
35 mins	Main activities Pupils will be split up depending on their ability. Activity 1 (MAT) – My Maths activity. Using the iPads and laptops, the pupils will work independently on set tasks focusing on place value by ordering numbers. It is important that they do the practice task before completing the set task. https://www.mymaths.co.uk Extension – set of loop cards that go up to 4-digit numbers. Guides will be given to help them understand the questions. These numbers will be using similar numbers. Activity 2– Each pupil on the table has a set of numbers and an A3 laminated sheet split into 3 columns (Hundreds, Tens and Units). The aim is to make as many different numbers as possible. The pupils need to understand place value and work systemically to find all combinations. It is important to then order the numbers that are made into smallest to largest by laying them out on the table. Extension – using their numbers, they need to introduce ‘greater than’ and ‘less than’ symbols and work through their numbers to make number sentences. Activity 3 (Middle) – Library books. Show the pupils a pile of books in the reading area that need to be sorted. They need to suggest ways they could put them back in their places quickly. Look and listen for children who notice the numbers on the books and ask them to consider how these are useful when people are trying to find books or tidying them away. Discuss how we could use the ‘greater than’ and ‘less than’ could be used to show where to put the books back away. Extension – give them a separate set of books going up to 4-digit numbers. QR code for game on iPad.	Mid-plenary: check against success criteria that all pupils are on task. This will allow children to focus on their task and complete the success criteria successfully.
10 mins	Plenary It is important for the pupils to check their understanding of this lesson. Back on the carpet the pupils will be introduced to a game that will enhance their understanding of the lessons objective. http://ictgames.com/rangeArranger/ Each pupil will assess their understanding by sticking a sticky note onto the traffic light system with their name.	What is a digit? What does place value mean?

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