

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

In this essay I will discuss and evaluate the relationship between teacher subject knowledge and effective teaching and learning within the primary school classroom. Firstly, I will discuss the literature that surrounds teacher subject knowledge and reflect on whether the knowledge that a teacher has about subject matter is all that is needed for effective teaching and learning to occur. I will then analyse my own teacher subject knowledge for primary teaching, basing my analysis on my first Professional Teaching Experience (PTE) in a placement school. For the purposes of this essay, I have chosen to take ethical considerations by ensuring the anonymity of the school, my class mentor and the class that I was placed in, according to the BERA (2018) guidelines.

School X is a large, urban primary school in the centre of Swansea that accommodates pupils aged three to eleven. Of the 400 plus pupils that attend School X, 35 % of pupils are eligible for free school meals' and 16 % of the pupils have been identified as having additional learning needs. The school also caters to children who speak English as an additional language (around 16%). I was placed in a Year 2 class with 30 students (22 female, 8 male) all aged 6-7 years of age. The class teacher was assisted by one full time teaching assistant, as well as two teaching assistants who came in to help with reading.

Literature review

A teacher has the crucial role of supporting children in their acquisition of knowledge and understanding. However, Ball (1991) argued that teachers cannot help children to learn unless they themselves understand what they are teaching. Moreover, the research conducted by Stronge (2018) on the qualities of effective teachers suggested that in order for effective teaching and learning to take place within the classroom a teacher must possess substantial thinking skills and a solid knowledge base to draw from. In his own words 'Knowledge of subject matter is a prerequisite for effective classroom instruction' (Stronge, 2018; 13). Rowland et al. (2001) supported this in their study of the mathematics subject

knowledge of trainee primary school teachers, finding that those trainees with a secure knowledge of mathematics, including and extending beyond the primary school curriculum, were more likely to exhibit competent teaching of mathematics, whilst poor subject matter knowledge led to less competent teaching of mathematics. From this research the link between subject matter knowledge and effective teaching and learning can clearly be seen.

It has also been suggested that teachers who hold a strong and secure knowledge of subject matter have more confidence in the classroom and are more likely to embrace opportunities for student directed learning and discussion. Goulding et al. (2002) noted that teachers that lack confidence in their subject matter knowledge may be inhibited in responding to students if an unexpected question is asked. Due to their lack of confidence, these teachers may resort to rigid, teacher directed lessons that leave little room for children to interact with and internalise the subject knowledge that is being imparted to them. This is demonstrated in Grossman's (1985) study of trainee teacher Colleen. During Colleen's lesson on literature, a subject that she was highly confident in due to her Master's degree in the subject, Grossman observed how Colleen was highly interactive with her students and adopted a constructivist approach to her teaching, drawing on student ideas from their discussion of the text they were studying. However, weeks later during a unit of grammar, which Colleen admitted to being unsure of, her teaching style altered dramatically because of her lack of confidence in her subject matter knowledge. Gone was the interactive, constructivist teacher of the literature lesson and in her place was a nervous teacher lecturing her students from the front of the class. The dramatic change in Colleen and the way in which she taught her lessons emphasises the importance of having teachers with strong subject matter knowledge in the primary school classroom. It provides students with opportunities to engage directly with their own learning and ask questions/take part in discussions to extend their subject knowledge. This cannot happen if the teacher is not confident in their knowledge of the subject that they are teaching. It is important to note, however, that many of these studies also examined what constitutes a knowledge base for teaching. Is it just the subject matter knowledge of a teacher that is important, or are there other aspects of teaching that are necessary for effective teaching and learning to take place in the primary school classroom? Is effective teaching determined by how much a teacher knows about a subject or does a teacher's pedagogical skills need to be taken into account? Here I will focus on the importance

of teacher subject knowledge and whether good subject knowledge is all that is needed for effective teaching and learning to take place in the primary school classroom.

The discussion of teacher knowledge began with the seminal article by Shulman (1987), in which he proposed an overarching knowledge base for teaching, consisting of seven categories. Three of the categories suggested by Shulman emphasise the importance of secure subject matter knowledge (SMK) in teaching. He defined this knowledge as 'the amount and organisation of the knowledge per se in the mind of the teacher' (Shulman, 1986; 9), consisting of both substantive knowledge (the key facts of a subject) and syntactic knowledge (how new knowledge is introduced and integrated into the existing body of knowledge for a subject). However, in addition to a teacher's SMK and their knowledge of general pedagogical principles, Shulman proposed that there was a special form of knowledge unique to the teaching profession which constituted a major component of the knowledge base for teaching. This special form of knowledge became known as pedagogical content knowledge (PCK) and was based on the way in which expert teachers related their pedagogical knowledge (what they know and understand about teaching) to their subject matter knowledge (their knowledge about what they are teaching) to create a deep and integrated understanding of: the organisation of subject matter and topics and how to sequence this knowledge appropriately when teaching students, the misconceptions that students might face during their learning, as well as the ability to adapt and transform their SMK into something that can benefit student learning. Shulman defined pedagogical content knowledge as

'...the blending of content and pedagogy...[and] the category most likely to distinguish the understanding of the content specialist from that of the pedagogue.' (Shulman, 1987; 8)

This suggests that a teacher's 'subject' knowledge cannot be limited to what they know about a particular subject. Instead, there is a need to acknowledge other aspects of teaching that contribute to effective teaching and learning. Shulman's model of PCK suggests that a teacher's knowledge of subject matter and their general pedagogical skills need to be integrated into one body of knowledge that a teacher can use to facilitate new understanding for their pupils. Without it, effective teaching and learning cannot occur. Additionally, in their

research into what makes good teaching, Coe et al. (2014) found that it was the blending of content and pedagogy that had the biggest impact on student learning. They argued that a teacher must possess a strong level of SMK, as well as an innate understanding of how their students think about the content being taught, for effective teaching and learning to take place. Having a strong understanding of SMK and how students think about content enables teachers to translate their understanding of a topic into student learning and understanding. Grant et al. (2013) suggested that effective teaching does not reside simply in the subject matter knowledge of the teacher, but that the teachers who understand how to transform that SMK into appropriate learning activities based on their students' abilities are able to create the most effective learning environments.

The case study of Lucy by Park & Oliver (2007) demonstrates the importance of integrating SMK and pedagogical knowledge for effective teaching. In this study, it is clear that the integration of Lucy's subject matter knowledge on the topic of zinc, her knowledge of the science curriculum and her understanding of the possible misconceptions her students might have during the lesson, and the resulting PCK she applied to her teaching allowed Lucy to overcome a challenging moment during her lesson, and to help her students understand the topic that was being taught. Van Driel et.al (1998) argued that an adequate knowledge of subject matter is needed for PCK to develop and this is shown in the case of Lucy and her science lesson. Her in-depth knowledge of the subject matter was a necessary and important part of the lesson, enabling Lucy to recognise that the shattering of the zinc would lead to student misconceptions, however, it was the blending of this knowledge and Lucy's pedagogical skills of questioning and discussion with her students that created an effective teaching and learning moment. Weiss and Miller (2006) has also suggested that it is teachers with a strong and deep understanding of their subject that are more likely to take a constructivist approach in the classroom. They noted that teachers secure in their knowledge of subject matter use teaching strategies that allow students to construct and internalise knowledge, leading to higher order learning in the classroom. When the zinc shattered, Lucy was able to apply her SMK and PCK to guide her students thinking away from misconceptions about what happens to zinc when hit, and into an understanding of the topic of zinc itself.

This emphasises how the knowledge base for teaching needs to be broader than simply focusing on subject matter knowledge. Research into this subject by Harris & Sass (2009) and Agathangelou et al. (2016) indicates that SMK is an imperative aspect of the teacher knowledge base, as teachers with strong SMK are able to positively impact student learning. However, from Park & Oliver's research into PCK it can be seen that for effective teaching to occur in the classroom, a teacher must have more at their disposal than SMK. Without her blending of content and pedagogy, Lucy's science lesson could have taken the same direction as trainee teacher Colleen in Grossman's study (1985).

The importance of blending content and pedagogy in teaching is reflected in the research conducted by Rowland et al. (2003), in which they proposed a comprehensive tool through which to observe and analyse teacher subject knowledge. They named this tool the Knowledge Quartet (KQ). The KQ was split into four 'members' or dimensions that Rowland et al. named: foundation, transformation, connection and contingency. The first dimension of the KQ, Foundation, relates to the theoretical background of SMK and PCK in teaching, as well as a teacher's beliefs about teaching. Transformation looks at the way in which teacher's transform their SMK and transmit these ideas to their students by using examples, illustrations, and representations. Connection focuses on the sequencing of subjects and lessons, in addition to associating lessons with previous ones and using student's prior knowledge to help move learning forward. The last member of the Quartet, Contingency, deals with the unexpected aspects of a lesson that can cause a lesson to deviate from what was previously planned. These unexpected aspects can range from the teacher using an unplanned example to a student asking a question that the teacher is unprepared for. The KQ helps teachers to reflect on their own practice and use this knowledge to develop their own content knowledge to further student learning in lessons to come. Turner (2012) noted that the use of KQ in mathematics lessons specifically can help teachers become more reflective and continue their professional development. The KQ helps teachers to focus, not just on what they know and how that can be improved, but how they teach and the impact this has on student learning.

The Knowledge Quartet, therefore, correlates with the first three categories of Shulman's knowledge base for teaching. In a later text, Rowland et al. (2009) clarified that the

development of the Knowledge Quartet emerged from the observation and analysis of mathematics lessons. Indeed, much of the literature centred around the Knowledge Quartet focuses on mathematics and the teacher knowledge that is required to teach mathematics effectively (Weston, 2013; Liston, 2015; Unver, 2018). Despite the clarification put forward by Rowland et al. (2009), it is possible to apply the KQ to other aspects of the curriculum and subject knowledge as the main focus of the KQ is the SMK and PCK of teachers. This is demonstrated by referring to Park & Oliver's (2007) case study of Lucy. The many aspects of teaching that Lucy utilises in her lesson correlate to both Shulman's knowledge base for teaching as well as the Knowledge Quartet. What should be noted here, however, is that the KQ is a tool for reflection in order to help teachers develop their professional knowledge. This has been demonstrated in the observations of mathematics lessons, (Turner, 2012; Livy, 2010), and can be seen in Lucy's analysis of her science lesson. It can be argued, therefore, that while the KQ shares many of the same views as Shulman's knowledge base, primarily it is a tool for teachers to develop and expand their knowledge of teaching and can be used to improve both teaching and learning.

From both of these essential readings and the literature that surrounds them, it is clear that a teacher's 'subject' knowledge cannot be simply limited to what a teacher knows or how they manage a classroom. A broad view of the different aspects of teaching needs to be considered when discussing the knowledge of a teacher. A teacher must have a strong and secure knowledge of subject matter, the understanding of how to evaluate student knowledge and thinking, and the ability to transform this knowledge into something that can benefit student learning. While Shulman's model of PCK, the specialised form of knowledge unique to teaching that has been outlined above, has been widely debated and contested, with researchers expanding and changing what constitutes PCK for teaching (Grossman, 1990; Hattie, 2012), it is acknowledged throughout the research into teaching that effective teaching and learning occurs when a teacher is able to blend content and pedagogy together. Therefore, a teacher's 'subject' knowledge has to be seen as being more than their own understanding of subject matter and must include a range of aspects from the teaching knowledge base in order to be effective.

Analysis and Evaluation of Subject Knowledge

Whilst on my first teaching practice, I noticed that I lacked an area of subject knowledge essential to teaching in Wales. This was my knowledge of the subject Welsh. As noted by Donaldson (2015) in his proposal for the new curriculum, the Welsh Government has designated the teaching and learning of the Welsh language as a key priority moving forward. This has meant that the Welsh language has become a central element of one of the six new Areas of learning and experience set out in Donaldson's report Successful Futures (2015). The lesson that I have chosen to focus on (see Appendix 1) is linked to the Languages, Literacy and Communication area of learning and experience, and this involved the pupils completing a questionnaire, using the new Welsh pattern that they had been taught. For the children working with the teaching assistant, the Welsh pattern was used to ask and answer questions about their favourite colours.

With limited foundation knowledge and no prior experience of teaching Welsh, I suffered from a lack of confidence before I began teaching the lesson. Despite my planning, I felt out of my depth with the subject matter (see Appendix 2) and this had a profound effect on how the children interacted with this new Welsh pattern. As noted in Grossman's study of Colleen, a lack of confidence in one's own SMK can negatively impact the teaching and learning that occurs in the classroom (Goulding, 2002; Ball, 1991). Borko (2014) also argued that it is essential for a teacher to 'understand the central facts and concepts of the discipline, how these ideas are connected, and the processes used to establish new knowledge' (Borko, 2004; 5), whilst Stronge (2018) suggested that a teacher's knowledge of subject matter (facts, principles, methods etc.) determines a teacher's pedagogical thinking and decision making. Despite my understanding of the central concepts, my lack of confidence in my SMK effected my teaching methods, resulting in a didactic, teacher-directed start to the lesson in which I was unable to blend subject knowledge and pedagogical thinking. There was little room for students to interact with the lesson themselves, which left them confused and unsure when it came to them using the Welsh patterns. In this way, my lesson heavily resembled Colleen's lesson from Grossman's (1985) study, with both myself and Colleen controlling the lesson from the front of the classroom and preventing the children from interacting with and

internalising the knowledge that I was trying to impart to them. Following this didactic start to the lesson then, many of the children completing the questionnaire resorted to using English to ask and answer the questions. It was my lack of confidence in my SMK and my consequent poor PCK that led to poor learning occurring during this lesson.

In order to overcome this, I observed my class mentor teaching the introduction of the following Welsh lesson. The difference in the two lessons was drastic. My class mentor was confident in her SMK and this allowed her to successfully transform her knowledge into something that benefitted student learning. I noted the way in which she linked the new Welsh pattern with certain actions, which served as a prompt for the children when they were unsure of the pattern. I used what I had observed and reflected upon in these two lessons in my next attempt at a Welsh lesson (see Appendix 3). My use of reflection and analysis, which is linked to the Knowledge Quartet, enabled me to better my teacher knowledge and my teaching of Welsh for my next lesson. I also improved my SMK (as well as my confidence in teaching this subject) and consequently my PCK (Van Driel et al. 1998), which was reflected in how my style of teaching changed and how I transformed my SMK into activities that were appropriate for the learners in my class, allowing more effective teaching and learning to take place.

Another lesson (see Appendix 4) I have chosen to focus on for the analysis of my teacher subject knowledge is linked to the Mathematics and Numeracy area of learning and experience. This lesson involved the children rolling a dice and then doubling the number that they had rolled. My foundation knowledge for this lesson was much more secure than that of my Welsh lesson. My increased confidence allowed me to plan appropriate and engaging activities for the pupils to complete during the main body of the lesson. However, I took my understanding of the subject matter for granted and subsequently failed to explain the concept in an accessible way for the lower ability learners in my Maths group. The introduction of the lesson comprised of a video introduction of the concept and then working through an example of doubling on the interactive white board with the children. While this was a good start to the lesson, my class mentor noted in her oral feedback (see Appendix 5) that I should have worked through more examples with the children before asking them to complete the tasks. I had dismissed them from the carpet before I had ensured they had a

good grasp of the mathematical concept they would be using throughout the lesson and this was reflected in the confusion of the lower ability learners. My class mentor, who I had asked to work with the lower ability learners, had to work with them as a group to structure their understanding, before they could attempt to complete the main tasks independently.

My limited use of examples during this lesson is linked to the transformation stage of the Knowledge Quartet. This looks at the way a teacher is able to transform their SMK and transmit these ideas to their students through the use of examples, illustrations and representations. This example also links to Shulman's theory (1987) of the knowledge base for teaching, in which he argued that a teacher's knowledge of subject matter, while important, is not the only aspect that should be considered when discussing effective teaching and learning. Ribeiro & Yanez (2012) support this, suggesting that it was teachers with strong pedagogical content knowledge and secure knowledge of the concepts they were teaching, that had a better understanding of how to choose examples and sequence tasks suitable for the lesson. This demonstrates that, during this mathematics lesson, it was my PCK that was lacking and not my SMK. I failed to transform my knowledge of the subject matter and transmit the concept of doubling in an accessible way for all of my students.

In order to improve in my next lesson on doubling, I needed to rethink how I could transform and transmit my SMK to my students. Using the feedback of my class mentor and my own reflection and analysis of the lesson, I altered my lesson plan to include more time to work through examples with the learners. This not only allowed me to address a gap in my own knowledge base for teaching, but to also enabled me to better assess the children's understanding of the concept that was being taught. It enabled me to use more pedagogical strategies, such as questioning, to stretch and challenge the learners and help them to internalise the knowledge that I was teaching. My more effective transformation of subject knowledge allowed the pupils to progress successfully in their work on doubling and this facilitated more effective teaching and learning to take place, due to my subsequent blending of content and pedagogy (Shulman, 1987). Furthermore, McBer (2001) argued in their research into early professional development for teachers that pupil progress only occurs when a teacher is able to successfully apply subject knowledge and subject teaching methods. This is emphasised by the second doubling lesson that I taught, where I used my SMK and

pedagogical skills to help the pupils progress in their knowledge of the mathematical concept of doubling.

Addressing this gap in my PCK for mathematics is significant with the introduction of the new curriculum. In *Successful Futures* (2015), Donaldson proposed three cross curricular responsibilities for teaching; literacy, numeracy and digital competence. Literacy and numeracy have been cross curricular responsibilities for teachers since 2013, which saw the introduction of the Literacy and Numeracy Framework. However, more emphasis has been placed on these responsibilities to help improve these skills and ensure that learners have a solid foundation of knowledge that they can use and apply across the curriculum. As numeracy is a cross curricular responsibility, it is essential for my SMK and PCK to be secure as this will enable me to include and teach mathematical concepts across the curriculum. This is equally as important for the other two cross curricular responsibilities.

It is clear from my evaluation and analysis of my own knowledge base for teaching that a teacher's knowledge base needs to be secure to ensure that pupil progress occurs. Moving forward in my own practice, I need to reflect on and analyse my SMK and subsequent PCK to guarantee that there are no gaps in my knowledge base for teaching, as this will enable me to create an effective teaching and learning environment in the primary classroom. In addition to secure SMK and PCK, Shulman noted that 'a knowledge base for teaching is not fixed and final' (Shulman, 1987; 12). It is important then that while I use Shulman's ideas for the knowledge base and the tool of the Knowledge Quartet to make sure my teacher knowledge is solid and secure, I also recognise that my knowledge base needs to be flexible to accommodate the new curriculum and the effect this will have on my teacher knowledge base.

Conclusion

To conclude, a teacher's subject knowledge is comprised of more than just what they know about the subjects they teach. Whilst it is essential to have a good understanding of subject matter, it is the blending of content and pedagogy that enables effective teaching and learning to take place in the classroom. The literature surrounding subject knowledge for

teaching demonstrates the need for a teacher to have a deep understanding of subject matter, understanding of how their pupils think and interact with new content, and possess the ability to transform their SMK into something that benefits the diverse range of learners that can be found in the primary school classroom. The reflection on my own teacher knowledge illustrates the importance of my blending SMK and pedagogical skills successfully to ensure pupil understanding and progress, as well as the importance of using examples as a tool to structure student understanding. Moving forward I will use examples within my teaching to transmit my SMK in an accessible way for my students, ensuring a cohesive fusion of subject knowledge and pedagogy to create engaging and constructive lessons for my pupils.

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Appendix 1

						Cynllun Ffocws y Cyfnod Sylfaen 2d
Name of Trainee: Angharad Locke Session ref: 281118 Date: 28.11.2018 Class: Year 2						
Targed(au) Hyfforddi Personol Managing behaviour (rewards)/ More ICT/ Welsh Number of learners: 30 Age: 6-7						
Learning objectives/intentions:	*To learn the pattern Beth ydy dy hoff/ Fy hoff ydy...	Success Criteria	*I can ask the question Beth ydy dy hoff... *I can answer the question Beth ydy dy hoff... using the pattern Fy hoff ydy...	Meeting learners' needs:		

Introduction/plenary tasks	Main activities	Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)
Introduction: Discuss what Beth ydy dy hoff means – What is your favourite? Repeat the question and the answer so the children get a feel for asking the question and answering it. Model the worksheets on the board – questionnaire and flower.	Trainee focused task (purpose, outline of trainee's role and children's learning): Questionnaire – children will be practicing the question (Beth ydy dy hoff...) and will be asking their friends the question and their friend must answer in Welsh – will ask what their favourite: colour, hobi, siocled etc are. Additional adult tasks (purpose, outline of additional adults' role and children's learning): Mrs Jenkins – Welsh flower activity – the children will be split into groups and they will be filling in a flower. They answer the question Beth ydy dy hoff liw? (What is your favourite colour?) and write the Welsh colour word in the middle and then colour it in that colour. They then ask the other children in their group Beth ydy dy hoff liw? and fill in the flower until it is completely coloured in and filled in with Welsh colour words. Mrs Galvin – Welsh flower activity	Vocabulary: Beth ydy dy hoff...? Fy hoff ydy... Lliw (colour), coch, glas, gwyrdd, melyn, porffor, du, pinc Hobi (hobby), pel droed, nofio, canu, dawnsio, Ffrwyth – afal, bananas, mefus, oren, grawnwin Brechdanau – ham, selsig, caws, cyw iar Resources: Wordbank on board Welsh questionnaire and Welsh flower	Teacher assessment Self assessment smileys
Plenary	Independent learning opportunities:		
Curriculum coverage (range and skills) * listen and respond simply to what they hear in familiar circumstances, with growing attention and concentration			
Literacy (LNF)		Numeracy (LNF)	
DCF	Thinking	ESDGC	• YCC: *Teaching through the medium of Welsh and using incidental Welsh in the life of the school.

Appendix 2

Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date:

Digwyddiad critigol (Ffocws)/Critical incident (focus): Welsh (Learning the pattern Beth ydy dy hoff... and Fy hoff... ydy)

<u>Profiad/ Experience</u>	
<u>Teimladau/ Feelings</u> Beth os cych teimladau wastidich y profiad? "What are your feelings regarding the experience?"	Disappointed. As this was my first time giving a Welsh lesson I felt quite out of my depth and I feel this effected how the children performed in the rest of the lesson.
<u>Cofio a Deall/ Remember and Understand</u> Dwch chi restru'r agweddau ar y profiad dysgu a oeth yn dda? "Can you list the aspects of the learning experience that went well?" Pa elfennau o'r profiad dysgu oedd yn siomedig? "What were the elements of the learning experience that were disappointing?"	- The children worked hard on the carpet. I could tell that they were a little unsure, but they tried hard all the same. - I kept reminding the children to speak in Welsh as many of them were asking each other what their favourite colour was, for example, in English. I persisted in reminding them to practice the question and answer in Welsh. - The children did not pick up the pattern very well. They were able to recite it back to me and there were some who were willing to try asking and answering the question, but when it came to completing the worksheet many of them struggled. - The way in which I tried to teach them. It was ineffective and left the children confused and unsure. I needed to be more confident and link it to something that they understood e.g. a song or action. - I did not go over the worksheet on the IWB with them. If I had they would have understood what I wanted from them more easily.
<u>Gwerthuso a dadansoddi/ Evaluate and analyse</u> Beth fyddwch chi'n cadw'r un fath i sicrhau dysgu ac addysgu effeithiol yn y dyfodol? "What will you keep the same to ensure effective teaching and learning in the future?" Beth oedd achos yr elfen siomedig bwysicaf? "What was the cause of the most important disappointing element?"	- My persistence in getting the children to ask questions and answer them in Welsh. - Getting the children involved by having them ask the question to their friends and have their friends answer. They were quite engaged during this time on the carpet. - My own inexperience at teaching a Welsh lesson. My lack of confidence meant I found it more difficult to teach them the patterns and how to use them properly.

Casgliadau a chymau gweithredu/ Conclusions and actions Beth w'n eiddi arddio arall? / What are your possible solutions to the disappointing issues identified?" Beth w'n eiddi yn mynd i'w wneud nesaf? "What will you do next?"	• Keep practicing taking Welsh lessons. The more I practice the more confident I will become. This in turn will benefit the children as they will be secure in the knowledge that I know what and how to teach them. • Go through the work with them on the IWB. This has a great impact on their understanding of what I expect them to do. • Practice taking Welsh lessons to gain more experience and confidence. • Model work on the board with the students to ensure their understanding.
Y profiad newydd / Transformed experience	

Appendix 3

Name of Trainee: Angharad Locke Session ref: 101218 (3) Date: 10.12.2018 Class: Year 2 Targed(au) Hyfforddi Personol Number of learners: 30 Age: 6-7						Cynllun Ffocws y Cyfnod Sylfaen 2d
Learning objectives/intentions:	To write about themselves in Welsh, using familiar Welsh patterns	Success Criteria	*I can write about myself in Welsh, using familiar Welsh patterns. *I can understand what familiar Welsh patterns mean e.g. <i>Dw i'n byw yn...</i>	Meeting learners' needs:	Differentiated writing task – less sentences to write for the lower ability learners	

Introduction/plenary tasks	Main activities	Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)
Introduction: Shared read on Sion Corn: where he lives, what he likes to eat and drink, what he likes to wear etc. Each sentence will be discussed with the children – what do you think this means? What is Sion Corn saying? Model worksheets/examples of what the children will be doing on the IWB.	Trainee focused task (purpose, outline of trainee's role and children's learning): Mixed ability group – writing sentences about themselves using familiar sentence patterns – crib sheet provided to help them start their sentences. Additional adult tasks (purpose, outline of additional adults' role and children's learning): Mrs Jenkins: mixed ability group – writing sentences about themselves using familiar sentence patterns – crib sheet provided. Mrs Galvin: Skitch task – labelling Santa in Welsh – crib sheet provided.	Vocabulary: Sion Corn Nadolig Llawen Dw i'n byw... Dw i'n hoffi bwyta/yfed/gwisgo... Dw i'n dwli ar.... Dw i'n casau Fy hoff liw ydy... Coch, glas, gwyrdd, melyn, porffor, pinc, oren Cot, het, trowsus Resources: Shared read on IWB Worksheets and crib sheets Play doh Bee bots and Christmas mat ipads	Teacher assessment Self assessment smiley faces
Plenary	Independent learning opportunities: Colouring in the Christmas tree/Presents – looking at the Welsh colours, working out what they are and then colouring in the corresponding number on the tree/presents. Play doh – using Christmas cookie cutters Welsh letter to Santa – using the pattern <i>Dw i' gis iau</i> – what they would like for Christmas – word mat provided for reference. Bee bots and Christmas out for use on the carpet.		
Curriculum coverage (range and skills): * begin to write in a conventional way, communicating by using words, phrases and short sentences, linked to familiar patterns. * write with increasing confidence, fluency and accuracy * spell simple words correctly and check their spelling by using vocabularies or ICT * develop their ability to spell common and familiar words in a recognisable way * view and listen carefully to a variety of visual and audio-visual stimuli			
Literacy (LNF): * follow and build upon a form modelled by the teacher		Numeracy (LNF)	
DCF: use an online platform to create or edit a file	Thinking	ESDGC	YCC: Teaching through the medium of Welsh and using incidental Welsh in the life of the school.

Appendix 4

Learning objectives/intentions:	To double numbers	Success Criteria	* I can double numbers up to 20 *I understand that doubling a number is adding a number to itself e.g. $2+2 = 4$	Meeting learners' needs:	Assessment lesson
Introduction/plenary tasks		Main activities	Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)	
Introduction: Warm up: Can you double this number? – on whiteboards. Questioning: what do you think doubling means? How might we double this number? Do one together on the interactive whiteboard - have children feedback answers.		<u>Trainee focused task (purpose, outline of trainee's role and children's learning):</u> *Rolling two dice and doubling the number e.g. 3 and 5 is 35 then double 35. Questioning: Introduce the concept of bridging the ten. What would happen if we rolled a 2 and a 9 and made 29? How do you think we would double that number? – we double the tens and then add the units separately - can write down tens and units to help you/ use ten blocks <u>Additional adult tasks (purpose, outline of additional adults' role and children's learning):</u> Mrs Jenkins: Doubles dice game with the children in pairs – roll a dice and they have to double the number. Once they have doubled the number correctly they can cover that number on their game boards –tens blocks/unifix can be used to help them double <u>Independent learning opportunities:</u> *Doubling game on the iPads – Hit the Button on Top Marks – for those children who finish with the dice work	Vocabulary: Doubling Bridging Tens Units Adding Resources: Whiteboards and pens Dice and dice game boards iPads Tens blocks Unifix	Questioning Assessment by teachers working with the different groups.	
Plenary					
Curriculum coverage (range and skills): *recall doubles up to 20 *use mental recall of number facts to 10 to derive other facts e.g. doubling					

Literacy (LNF)		Numeracy (LNF): *use mental recall of number facts to 10 to derive other facts e.g. doubling	
DCF: iPad used for Hit the Button game to practice doubling	Thinking: Use numbers in games	ESDGC	YCC

Appendix 5

Digwyddiad critigol (Ffocws)/Critical incident (focus): Mathematical Development (Doubling)

Profiad/ Experience	
<u>Teimladau/</u> <u>Feelings</u> Beth yw eich teimladau ynghyd y profiad? "What are your feelings regarding the experience?"	The lesson generally went well. Mrs Jenkins and I were able to assess the children's ability when it came to the concept of doubling, ready for tomorrow when they are recording the work in their book. The children also showed a greater understanding of doubling than I first anticipated, which means that I can push them a lot further next lesson.
<u>Cofio a Deall/</u> <u>Remember and Understand</u> Allwch chi restru'r aaweddau ac y profiad, dysau a oeth yn dda? "Can you list the aspects of the learning experience that went well?" Po elfennau o'r profiad dysai oedd yn siomedla? "What were the elements of the learning experience that were disappointing?"	• The children were all engaged with the practical tasks that I had set for them – doubling dice game for the lower and middle ability, and doubling higher numbers rolling two dice for the higher ability. • When they were on the carpet the children were generally focused and were able to explain to me what doubling means. • The children were a little fussy on the carpet which meant I had to be firmer with them than I have had to in the past (with the Maths group) • The introduction to the lesson, while it had its good moments, needed to be extended. Feedback from my mentor suggested that I should have done a few more examples with the children on the IWB before sending them off to do the doubling tasks.
<u>Gwerthuso a dadansoddi/</u> <u>Evaluate and analyse</u> Beth fyddwch chi'n cadw'r un fath i sicrhau dysau ac addysgu effeithiol yn y dyfodol? "What will you keep the same to ensure effective teaching and learning in the future?" Beth oedd achos yr elfen siomedla bwysigaf? "What was the most important disappointing element of the lesson?"	• Managing the disruptive behaviour as soon as it occurs so it does not disrupt the rest of the lesson. • Explaining the trickier numbers when doubling e.g. 15. Many of the children found this to be harder than doubling to 10. I explained on the board how they could draw their <u>tens</u> and units to help them work out what double a number is and they found this to be helpful. • I wasn't as on top of the behaviour as I should have been, so the noise

<i>important disappointing element?"</i>	level rose quite a bit. This resulted in me having to be quite firm with them. • Not going through more examples with the children on the whiteboard meant that a few of the children found it tough when it came to doubling numbers on their own.
<u>Casgliadau a chamau gweithredu/</u> Conclusions and actions ~~Beth yw eich atebion posibl i'r materion siomedig a nodwyd?~~ <i>"What are your possible solutions to the disappointing issues identified?"</i> ~~Beth ydych chi mynd i'w wneud nesaf?~~ <i>"What will you do next?"</i>	• Spend more time on going through examples with the children to ensure they have understood the concept that I am trying to teach them. • Keep on top of behaviour management throughout the entirety of the lesson so the noise level doesn't rise like it did today. • Continue working on finding a better balance for the introduction to Maths lessons (be snappier, but make sure to explain the work thoroughly) • Continue refining my behaviour management.
<u>Y profiad newydd / Transformed experience</u>	