

Overview

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A Critical Reflection of Progress Made on the Planning and Implementation of Three Pedagogical Principles

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Good teaching and learning means employing assessment for learning principles

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And now,



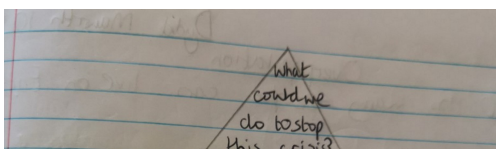
Think, pair share!

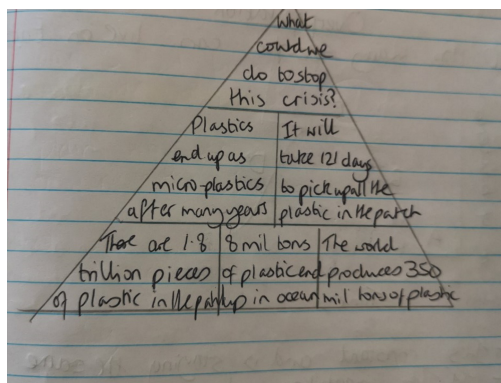
What effect do you think these images have got to do with the environment?

Think, pair, share! Activities were really enjoyed by my mid ability year 8 class. I then use lollipop sticks to select students to hear from. This questioning technique has worked really well as a tool to maintain engagement. I allow the pupils who answer the question to pick another lollipop stick to select the pupil to answer the next question and pupils enjoy this so much that even those who would normally shy away from speaking, are desperate to answer the next question.



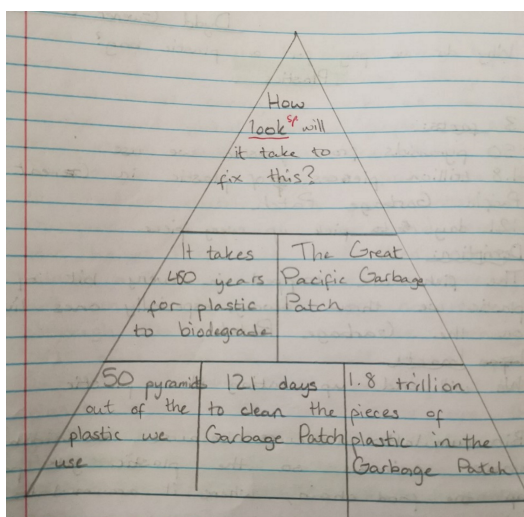
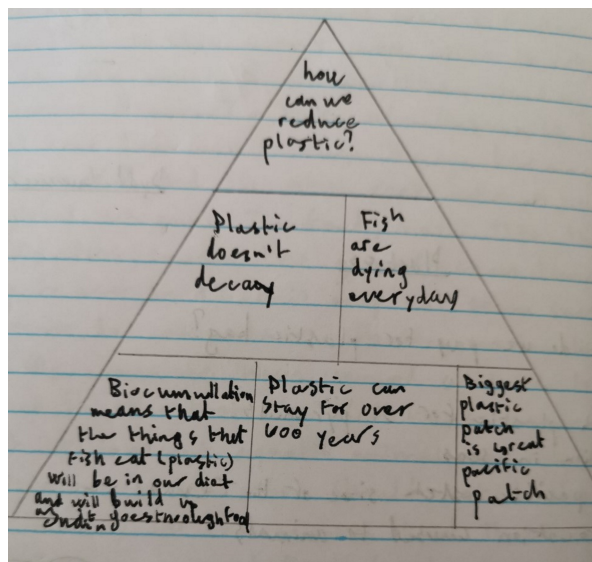
I have used these cards with a variety of classes, spanning a range of abilities in key stage 3. Pupils engage well with a quiz, and pupils enjoy giving the cards out to the class (this helps with behaviour management, especially towards the end of a lesson). These cards engage the pupils, and allow me to instantly see if pupils have understood the content. Occasionally pupils will delay showing their answer and try to check someone else's but I always remain at the front of the class to observe this, and can then see if a pupil is unsure. This also allows me to see if any aspect of the content needs reteaching and if there is one area of the room who have not grasped something.





Plenary pyramids from a high ability year 8 class.

Pupils engaged really well with this, as a high ability class this task really required them to think and reflect upon the lesson and engage with a plenary. I was able to view the completed pyramids from a wide selection of the class, across a variety of abilities, and could have viewed all of them in much less time than it would take to do a complete class mark. Pupils enjoyed creating their own questions, and this provided a nice challenge for them.



Good teaching and learning regularly reinforces cross-curriculum responsibilities, including literacy, numeracy and digital competence and provides opportunities to practice them

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Starter

Round these numbers to the nearest whole number;

- 1) 2.3
- 2) 5.6
- 3) 8.7
- 4) 6.2
- 5) 9.1

Calculate these multiplications;

- 1) 10×8
- 2) 10×40
- 3) 10×30
- 4) 10×20
- 5) 10×70

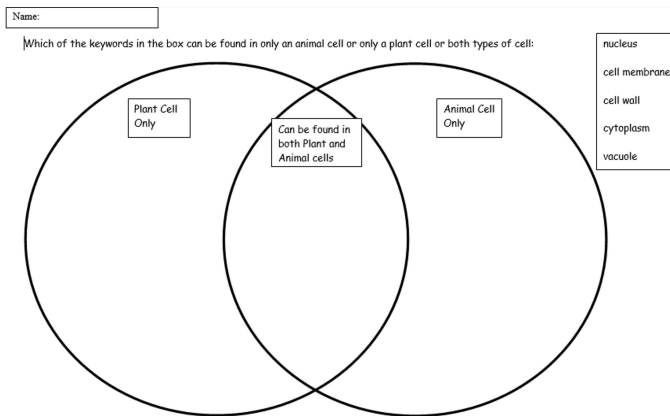
This starter activity is split into two parts. The first part, the rounding questions were inspired by a significant struggle the previous lesson whereby none of the pupils were able to successfully round numbers. This was a vital part of the lesson, and consequently the students were unable to access some of the content.

The second part of this starter is a warm up for the current lesson. I was teaching a lesson on microscopes and wanted to ensure that all pupils would be able to calculate Magnification.

This class is a very low ability year 7 group, with almost entirely pupils with English as an additional language.

Whereas I was initially concerned that this might be differentiated down too much, it was the right level to be achievable yet challenging for most pupils.

It felt slightly alien, preparing numeracy questions, but it was Necessary for pupils to access the science content of the lesson.



This Venn diagram was used as to incorporate numeracy into a year 7 lesson on plant cells. Pupils initially began working independently but were then able to work in a pair if they were struggling.

This activity had high student engagement, I have had much more success in pupils in low ability classes completing Venn diagrams compared to a traditional table. The size of the diagram also ensured there was plenty of space if pupils had made a mistake to cross it out but continue with the activity without concern.

How we Spell	How we say it
Vacuole	Vac- you- ole
nucleus	new- cle- us
Cytoplasm	site- oh- plasm
Chloroplast	Claw- oh- plast
mitochondria	my- toe- can- dree- a

I compiled this table with a bottom set year 7 class.

The students had struggled over several lessons with the vocabulary and were no closer to a correct pronunciation.

This activity took less than 10 minutes, and by the end all pupils were able to pronounce all of the words correctly, and when tested in the following weeks retained this ability. It was touching to see the confidence in the pupils grow as they succeeding in pronouncing the words correctly. I regret not having done this activity sooner, and in the future will be More willing to do it earlier on in topics, as required.

The big problem with all this is something called

bioaccumulation.



What does accumulate mean?

When something has been collected together over a period of time;
The number/amount of something has increased

This slide was used with a low ability year 8 class. There are several students within the class who have English as an additional language and I wanted to ensure that all pupils had a solid understanding of what bioaccumulation meant. By breaking the word down, all of the pupils within that class have added accumulation to their vocabulary which they are now able to use within any content. None of the pupils were initially able to state the definition of accumulate, which surprised me and consequently I intend to continue this practice wherever possible.



accumulate mean?

or time;
The number/amount of
something has increased



What does
bioaccumulate
mean?

Bioaccumulation is the
gradual accumulation of
substances in an animal.

they are now able to use within any content.

None of the pupils were initially able to state the definition of accumulate, which surprised me and consequently I intend to continue this practice wherever possible.

I also encouraged the pupils to say the words aloud together. By saying them together everyone could practice without drawing attention to themselves specifically.

9 Sargassum overpopulation



10 What is happening to sargassum?

- Sargassum is a sea weed which is currently growing exponentially with no natural predators
- As a result it is washing up onto the beaches and causing lots of problems



11



Click to add notes



Year 8's environment topic was a perfect opportunity to Include some cross-curricular Geography and Citizenship study. First, we looked at overpopulation using the example of sargassum in the Caribbean. This gave the pupils opportunity to look at photos and see the effects of this for themselves, the higher ability classes were able to explore the reason for this and Look deeper into the impacts of deforestation of the South American Rainforest, and this ignited a class discussion of human impacts upon the environment. We talked about the potential of human overpopulation, what problems this might cause and ways at which we could overcome this.

We also looked at the bioaccumulation of plastics in the Pacific Ocean (screenshots from a video shown in class). During this lesson we looked at what it might be like to live around such a place, the impacts upon local Wildlife and during a discussion the pupils voiced their opinions and concerns about plastic use and accidental human consumption of plastics.

These lessons went well, student engagement was extremely high throughout. I remain unsure if this is due to the inclusion of cross-curricular content such as the Geography of the world, the moral obligations to look after the planet and population Control, or if it was so engaging as it was a current topic and made relatable to them and their lives in an authentic context.



Good teaching and learning means employing a blend of approaches including direct teaching

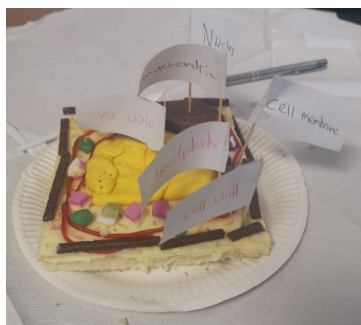
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Pupils cake model of a plant cell.

Pupils in year 7 made models of plant cells using cakes. This was an extremely engaging activity for pupils who can often demonstrate difficult behaviour management. While the pupils were making their models in teams, I was able to circulate (there were 2 teams), asking pupils questions about what the organelles are, and their functions.

Pupils then paired up with a member of the other team, and each pupil completed a peer assessment of the other teams model.



Time	Activities/Methodology/Key Concepts (Teacher's Role – including key teaching points, differentiation strategies and key questions)	Pupil Tasks (Pupils' role –including differentiation, engagement in formative assessment and homework)	Resources (Including Health and Safety requirement)
Opening phase (with links to prior learning)	What are cells? Will bounce answers around the room for expansion.	Students to answer this question	Powerpoint
Teaching & Core Learning	Direct teaching- powerpoint Which is odd one out? What are cells/how big are they/ two types (plant and animal) Then introduce concept of organelles, and discuss each organelle- ask students about previously discussed organelles while waiting for others to finish writing. Discuss labeling of diagram to enable students to label plant and animal cell. Recap organelles before students complete Venn diagram.	Students to discuss which they think is odd one out- and then vote. Students to record definitions/descriptions of each organelle in their tables throughout. Students are then to label diagram of plant and animal cells Students to fill in Venn diagram with organelles Extension: Include phrases into Venn diagram (description of cells)	Powerpoint Student Books Table Diagram Venn diagram
Plenary	Exit ticket- "tell me about one part of the cell"	Students to write a fact onto their exit tickets, and then hand them in as their ticket to lunch break.	Post it notes

This lesson plan is for a very low ability year 7 class. The pupils are very engaged with science, and often complete tasks quickly and love to be challenged but often struggle to recall information. Using a variety of tasks within a single lesson provides the pupils with the chance to independently use their previous worksheets or activity to independently find the answers to the next activity.

Pupils were instructed to "pair up" after attempting the Venn diagram activity, in order for the pupils who had successfully completed it to assist others, and to work on the extension activity as a pair.

Enw/Name _____ Dyddiad/ Date _____

Particles

Instructions

- Fill in the boxes to show how the particles are arranged in a solid, liquid and a gas (you may draw or use stickers)
- Use the lines next to the boxes to tell me your favourite fact about each

Solid

Liquid

Gas

Following an activity whereby pupils in a year 7 class were to act as particles, to show the differences in particle arrangement in solids, liquids and gases they were to complete this worksheet. They completed the diagrams using coloured circular stickers and write one fact about each.

To assist with writing one fact, each pupil was given a fact about one of the states of matter, and as a class we displayed these facts on the board in either solid, liquid or gas column.

The stickers provided a sense of interest and engaged the pupils, whereas the table that the class has created remained on the board and allowed lower ability pupils to choose their own without the need to copy from a partner.

These were stuck in the pupils books and in future lessons I observed pupils look back at the diagrams to remind themselves.

Diffusion of perfume

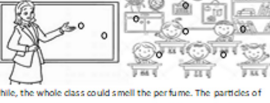
Complete the sentences, using the words in the brackets (), you will have to choose your own word for the last sentence!



When Miss Thomas sprayed the perfume, none of the class could smell it. This is because the particles were in a _____ (high/low) concentration. This means that there were _____ (lots/not many) of them within a space.



After a while, some of the class could smell the perfume but not everyone. This is because the particles had started to _____ (come together/ spread out). The particles were in a _____ (high/medium/low) concentration.



After a while, the whole class could smell the perfume. The particles of perfume had changed from a _____ (high/medium/low) concentration to a _____ (high/medium/low) concentration.

This is called _____.

After teaching about particles within the different states of matter, one of my low ability year 7 classes struggled a lot with this concept and were not able to all produce diagrams of diffusion occurring.

In order to provide a more authentic content for the concept of diffusion, I created a worksheet showing a classroom with a teacher spraying perfume. After I demonstrated diffusion with a perfumed spray in the class pupils were then instructed to colour in the particles, and to complete the sentences using the words provided.

I have occasionally struggled to find activities that provide the right challenge for the pupils in this class (due to the extreme low ability) but this worksheet was successful when combined with the demonstration. Pupils really engaged with the design of the worksheet and inclusion of my name at the start.

Teaching & Core Learning	Students into groups of 4; groups 1-4 will work on producing a mind map (20 minutes) and	Pupils to construct mind map using their books, text books and revision guides.	Word search, Venn diagram activity, Punnett square worksheet, DNA Dominoes game,
	Groups 5-8 will rotate around four revision stations (5 minutes per station). Groups will then swap.	Pupils to complete the activities on each station for 5 minutes, working together to help each other as required. Once time is up, pupils to move to next station.	Paper and coloured pens/pencils (for mind maps)
		After 20 minutes, pupils to swap (groups 1-4 move to activities, groups 5-8 move to mind maps).	

For a high ability year 8 class, with an upcoming end of topic test I devised a revision circus. Here the pupils rotated around several different activity stations. As the group is quite large the class was split into two groups, with one group doing the activity stations and one group compiling a mind map.

This session worked really well. There was a buzz in the room as pupils worked together in small groups to complete each activity and were provided with time to use text books to revise any topics they were struggling with. Being such a high ability class, some of the pupils put themselves under a lot of pressure wanted to be very successful in such tests. I found that these short, sharp activities, keeping the students moving around the room provided a distraction from the upcoming test while maintained focus on the subject content.

Teaching & Core Learning	Students to watch a video on great pacific garbage patch, and make notes Direct teaching (powerpoint) Demonstration of bioaccumulation using 8 students to act as fish <i>Give instructions of radio advert task</i>	Students to make notes on video (red, amber, green instructions for this) Students to write key definitions in their books Students to engage with bioaccumulation demo Students to write their own definition of bioaccumulation
Plenary	Students to one sentence, with information they have learnt from the session; students will be picked at random (lollipop sticks) to read theirs aloud [numbers time depending]	Students will answer the starter question again, giving reasons

Critical reflection

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Introduction

The school curriculum has been statutory in England and Wales since 1988 (Donaldson, 2016). Curriculum has historically been a narrow definition of strict subjects and topics which pupils are to learn however, a modern hidden curriculum is emerging, where a focus on relationships, well-being and morality is emerging (Barnes, 2015). This change is imperative as modern society is rapidly changing with increasing globalisation and schools hold the responsibility for preparing children to cope with this (Barnes, 2015).

Although still following the national curriculum even after devolution of education to the Welsh Assembly Government in 1999, there has always been noticeable differences between the countries' educational policies (Lemke & Zhu, 2018). However, these differences are on the cusp of increasing drastically. Professor Donaldson (2015) performed an independent and full review of the national curriculum in Wales, and the report entitled 'Successful Futures' has been accepted in its entirety by the Welsh Assembly Government (Donaldson, 2016; Jones & Whitehouse, 2017). Wales has enthusiastically placed high emphasis on child rights and the United Nations Convention on the Rights of the Child (1989), this is also reflected continually with the extensive curricular and assessment changes suggested within the Successful Futures report (Donaldson, 2015; Lemke & Zhu, 2018). However, the Assembly Government's vision for Wales has also been described within the literature as idealistic (Daugherty, 2007) and there is an argument that the extent of the 'crisis' within Welsh education has been largely used for political gain (Power 2016).

Within the report entitled 'Successful Futures' Donaldson (2015) suggested twelve pedagogical principles. This reflection will focus mainly on these of these; good teaching and learning means employing assessment for learning principles, good teaching and learning regularly enforces cross-curricular responsibilities and good teaching and learning means employing a blend of approaches.

Learning is driven by the actions and behaviours of both pupils and teachers within the classroom and therefore placements during teacher training are imperative (Black & William, 2006). The placement undertaken by the student teacher is within a large (1800 pupils) secondary school (ages 11-18). The school is situated in a culturally diverse, inner city area of extensive socio-economic deprivation. Over 60 languages spoken within the school; approximately 70% of pupils speaking English as a second language (School Inspection Report, 2017).

Literature Review on Effective Teaching and Learning

Good teaching and learning is a complex, multifaceted phenomena, however there are certain aspects widely accepted as a requirement for a good lesson. There is a high importance of setting a learning goal (Furtak, 2009). Providing meaningful learning experiences, which engage pupils in an emotional or motivational manner, are an important aspect of teaching as a means of attracting pupils attention and inspire the desire to further their learning (Barnes, 2015). Pupil voice is an important aspect of school, and should be taken seriously, particularly when discussing social issues (Frost & Turner, 2005). Pupil learning is most effective when they are in a state of 'relaxed alertness', therefore the atmosphere within a classroom is also an important factor in teaching and learning (Fleming 2005).

The well-being of school aged pupils has been increasingly visible on political agendas, likely due to the increasing and deeply concerning statistics around mental illness, including depression, amongst young people (Barnes, 2015). Pupils who view themselves as less or unable to learn as well as their peers have been consequently associated with not taking school as seriously, potentially resulting in the engagement of disruptive behaviours and low attendance/truancy (Black & William, 2006). Although this is not explicitly discussed within Donaldson's pedagogical principles it is important to

create a safe classroom environment for effective learning to occur.

At the heart of effective teaching is regular and accurate formative assessments (Black & William, 2006; Absolum, 2010). It is important to distinguish between assessment for learning and assessment as learning; assessment for learning will provide a information/data to inform the teacher, whereas assessment as learning promotes the role of the pupils within the formative assessment process and increases engagement with the learning (Levauld & Allal, 2016). Assessment is an integral part of the learning process, and ongoing learning is not possible without assessment by the learner (Absolum, 2010).

Effective assessment for learning (AfL) has been linked with significant learning gains, potentially even the most impactful intervention, but will likely require adaptations in pedagogical models and teaching strategies (Black & William, 2006; Hattie, 2012). This could explain why its mandatory implementation has been linked with varying levels of success in the classroom (Laveault & Allal, 2016). The central purpose of AfL is to allow teachers the opportunity and provide the information necessary to adapt the teaching and learning activities to ensure pupils are on track to achieve the learning outcomes (Laveault & Allal, 2016). AfL also allows the targeting of the teaching to specific topics or areas of the learning, as required by the pupils, but must be timely (Fautley & Savage, 2008; Absolum, 2010). Formative assessment has been found to be particularly helpful to lower attaining children within a class (Black & William, 2006). There are a plethora of assessment techniques and methods available to teachers, however it is important to critically examine the reliability of these methods; this applies to formative assessment, AfL, and formal or summative assessment, to avoid misinterpretation of pupil progress (Wragg, 1997).

The changing nature of society, globalisation of politics, economics and technological advancements are no longer a new phenomenon and there have been concerns to have the curriculum adapted for their inclusion for some time now (Yus, 1996, 1997; Mayer, 2002). The teaching of cross curricular learning is a powerful way to enable pupils to engage with an increasingly authentic experience, often providing the opportunity to highlight to pupils the reasons why they are learning the information (Hopkins et al, 2019).

Donaldson (2015) has suggested the removal of subject in place of 'areas of learning and experience', this means that teachers are faced with the challenge of incorporating content which may have traditionally fallen upon another department. Literacy is a shared responsibility among all teachers of all subjects (Tyrer, 2018). Improving literacy skills across the curriculum has been shown to not only improve pupils' literacy levels but also improves their achievement in other subjects as the pupils are more easily able to access the content required for the learning to be successful (Wexler et al, 2016). Studying science is associated with significant literacy expectations, which presents many challenges for teachers. Science textbooks are notorious alienating for pupils struggling with literacy; often organised in a way which is challenging for pupils to comprehend and containing difficult language vocabulary (Fang, 2006; Singa et al, 2017). Therefore, proficient literacy skills are essential for pupils to achieve a degree of scientific literacy (Norris & Phillips, 2003).

International comparison tests have been a significant driver for change within education policy, in Wales given the perceived poor performance over recent decades (Davies, 2016). Improvements in literacy skills have been linked with improved performance in the Programme for International Student Achievement (PISA) tests (Singa et al, 2017).

Science is a subject which huge opportunity for cross curricular exploration, particularly with literacy, numeracy and digital competency but also with citizenship, morality and health and well-being (Mayer, 2002; Frost & Turner, 2005; Barnes, 2015). Geography is another subject where there are easy and numerous links to the science curriculum, which when combined can produce a powerful learning experience (Kelly & Stead, 2013). Geography encompasses topics such as space, environment (natural and human), weather and climate, as well as the impact and consequences of human behaviours on the natural world (Matthews & Herbert, 2008; Catling, 2010; Kelly & Stead, 2013). The increasingly vast cross-curricular responsibilities are leading to changes to the traditional role of the teacher, as delivering topics outside of a teachers' subject specialism alters the role from "walking dictionary" to a more facilitator role-enabling the pupils to solve problems and access the learning themselves (Savage,

2011).

It has been widely accepted for some time that pupils think and learn in different ways, known as learning styles, for example some prefer to work on an inquiry or problem solving task whereas others may prefer to listen to direct teaching (Larson & Keiper, 2013). Pupils' expectations of schooling have changed to expect flexible learning experiences that are increasingly technology rich and that the more active children are in a lesson the more they will remember (Fleming, 2005; Allan, 2007). A 'blended learning' holistic approach, required to engage fully with the changes suggested by Donaldson in *Successful Futures*, will need to involve varied strategies in order to meet the changing needs and expectations of pupils (Allan, 2007; Donaldson, 2015). Therefore, it is necessary to include a range of teaching techniques when lesson planning to allow for there to be 'something for everyone' within the classroom (Fleming, 2005). However, it is critical that this must include elements or activities which may not be the natural choice of the teacher themselves (Fleming, 2005). It is also important, as science is content heavy subject, that direct teaching remains an efficient way to deliver this content and may be the preference of some pupils (Larson & Keiper, 2013).

Conclusions on Progress

Initially during my professional teaching experience, due to my lack of experience within the classroom environment, I was concerned if the level at which I was pitching the lesson and the pace at which I was teaching. Given that good formative assessment practice is central to good teaching and learning, I made this one of my early targets (Fautley & Savage, 2008). Effective AfL has allowed me planned opportunities to check the understanding of pupils, and consequently check that the pace of the teaching is suitable for the pupils' present. This also has improved the pupils' trust in me as their teacher as I have been able to identify misunderstandings and reteach as appropriate, preventing the alienation of any pupils from the teaching.

I have attempted throughout this placement, to practice different AfL techniques, in a bid to maintain pupils' interest with both the topic and the formative assessment process (see OneNote portfolio). I have done this by creating quizzes with colour coded answers and cards which pupils hold up, true or false quizzes with green (true) and red (false) cards or thumbs up thumbs down quizzes. I have also split the class into teams to do a 'first hand up' quiz, but I have found that this is quite exciting for pupils so in order to maintain classroom management, I have kept this activity as a plenary and am cautious of its use. I have also tried to vary the plenaries used; my current preference has been the plenary pyramid (see OneNote portfolio). This is because it has enabled me to see what the pupils feel they have learnt and requires them to write a question; this encourages pupils to think and reflect at the end of the lesson. I have also then been able to use these questions to adapt the next lesson if required.

Good AfL should be embedded within the lesson plan and the planning process, regularly involve the pupils (self/peer assessments) and aim to encourage pupils' reflection of their own learning (Bloom et al, 1971; Laveault & Allal, 2016). For these reasons I have taken considerable time during the lesson planning process to focus on AfL techniques. The use of peer and self-assessment during lessons has also helped my lessening my marking workload. Effective marking is a target which I take with me into the second half of my teaching placement. Whilst I have spent significant time during this placement focusing on AfL techniques, it is likely that I have been spending an unsustainable amount of time working on this. I hope that once I return to placement, already with the required resources made, that this will lighten the workload while allowing me to continue developing these skills. An area of AfL which I will focus on during the next part of the placement is using AfL to adapt slightly longer-term planning, as opposed to thus far within the placement, where I have focused only on adapting my teaching within the lesson or the next lesson.

At the heart of Assembly Government policy has been for schools to instill and encourage a sense of 'welshness' through content, pedagogical approaches and within school policies (Jones & Whitehouse, 2017). This, although an additional responsibility to burden during lesson planning, encourages the inclusion of the local area within lessons. This has been particularly applicable during the lessons which I have taught throughout the year 8 topic of the environment. One activity, with a low ability class, was for pupils to

design their own invasive species, including the characteristics which would help it to survive in the local area. This provided both a cross-curricular opportunity for pupils to revise invasive species through a group discussion, and then promoted pupils to really think about what the local environment is like and what a species would need to survive there. This also provided an opportunity for relationship building with the pupils; the class is small (n=11) and contains many pupils with pastoral, behavioural or learning difficulties, and building their trust has been a challenge.

Whilst I would have tried to refrain from planning lessons which include a poster activity (as was the case for this invasive species lesson) for the fear of appearing lazy in my planning, this lesson provided such a useful opportunity to engage with each of the pupils and has since classroom management has improved and consequently lessons have become more efficient and the learning has improved. Engaging in classroom discussions allows the cross curricular links between science and geography to be explored. Answering questions about what a place may be like, as completed by pupils following a video about the great pacific garbage patch, is an ideal link between science and geography (Catling, 2010).

I have made efforts to include numeracy within my lesson plans, in accordance with the literacy numeracy framework (LNF), but unless the lesson focus includes a specific scientific and numerical aspect, such as drawing a graph, table or calculations, I have struggled to do this without it feeling forced. On occasion, with a very low ability class, I have come across lower numeracy levels than I expected, therefore I had devised starter activities to address these so that pupils are able to access the content of the upcoming lesson. Going forward into the next part of the placement I hope to make it a more frequent and natural addition to lessons. Literacy has been easier to include within my lessons, teaching very low ability classes in a school with a high percentage of children with English as an additional language it has often been a necessity. The most effective literacy I have delivered was to compile a table of "how we spell it, how we say it". This has provided the class with the ability to pronounce key words for the topic, and when asked to recall the words in the following weeks the class were able to. This was highly rewarding as it hugely impacted the pupils' confidence and made the content less alienating and took minimal time to complete.

Citizenship is easily incorporated into science lessons when learning about global or local issues or the application of scientific technologies (Frost & Turner, 2005). This provides the chance for pupil to air their views and ideas. The pupils within the year 8 classes, across all abilities, have been deeply concerned about environmental impacts of human behaviour and have engaged well with classroom discussions and different activities within this topic, including to compose their own radio advert. This resulted in some pupils surprising me with extremely high levels of engagement and others challenging themselves when faced with the prospect of having to present to their peers.

I have incorporated many different teaching styles within the lessons that I have planned and delivered, in order to maintain pupil engagement and with the knowledge that all pupils learn best in different way (Larson & Keiper, 2013). One technique which I have observed and used within the classroom is pairing pupils up with more able students within the class. I have observed the pupils appearing much more able to ask their peer a question on something they do not understand, and higher ability pupils receive the benefit of cementing their own knowledge through helping a peer. This is known as class pairing (Tyrer, 2018). I intend to continue to use this technique, and as my placement progresses, I will know the pupils' personalities better and this will enable me to improve my ability to successfully pair pupils.

Larson & Keiper (2013) state that the challenge is to deliver lessons suitable for a variety of learning styles, and not simply the one most like the teacher's style. I have tried to do this over my placement, but I feel that the tasks which would not suit me as a pupil I have not delivered as confidently, and therefore, will continue to work on this. I have occasionally played videos within the classroom, as an introduction to a topic or to provide additional information prior to setting a task. This has proved a useful reward for positive engagement with and behaviour throughout the lesson. Video use in the classroom allow debriefing as a group (Larson & Keiper, 2013), and I have found that pupils engage well with short, appropriate videos and following discussion. Allowing pupils to explore and explain their personal views, ideas and questions promotes engagement and esteem (Frost & Turner, 2005). This is something I have observed with

my classes, engagement with discussions has been a high and able to facilitate higher thinking. I shied away from this technique initially, for wanting to include such a variety of tasks, but have found direct teaching and class discussions an effective way to deliver content and engage pupils, with higher ability classes. I therefore intend to include this more than I have, and therefore improve my abilities in asking higher thinking questions to challenge the most able pupils within the class.

Teaching science is unique due to its practical element, I have undertaken several practical lessons, and some lessons where I demonstrate an effect. These lessons have been challenging to manage the learning, whilst continually managing the behaviour, and safety of all pupils within the class and this is a target for the next part of my placement. However, the lesson which I have taught have resulted in meaningful learning experiences for the pupils, and as my confidence increases so will these experiences for my pupils.

Conclusion & Recommendations

To conclude, I have thoroughly enjoyed my experience on placement and believe my practice, skill and confidence has changed enormously during that time. As I return to practice, I will endeavour to continue building trusting, learning relationships with the pupils to ensure that my classroom is a welcoming and safe place to learn. Some classes that I teach are very large ($n=34$) and I have found it challenging to get to know each of the pupils in these classes but I believe that this is vital and hope I will return to school with the increased confidence needed to do this.

It is important for teachers to understand the progress pupils are making, the difficulties and the learning which is happening in order to be responsive; adapting their work to meet the pupils' needs effectively (Black & William, 2006). Therefore, I continue to explore different teaching strategies and AfL techniques, with different classes to find what is most effective for my pupils and hope to build my confidence for trying new techniques. This will include increasing the role of assessment as learning within my lessons, to encourage independent thinking, reflection and build pupils confidence with the content.

There are aspects of practice which I believe I had performed well in, the use of varied learning strategies, such as making model cakes for low ability year 7 classes to understand the structure of plant cells or providing real world examples of the effects of over-population of seaweed within the Caribbean from my own personal experiences have been both personally rewarding and effective teaching sessions and I look forward to continue my journey to becoming a qualified teacher.

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Monday, December 9, 2019 9:17 AM

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