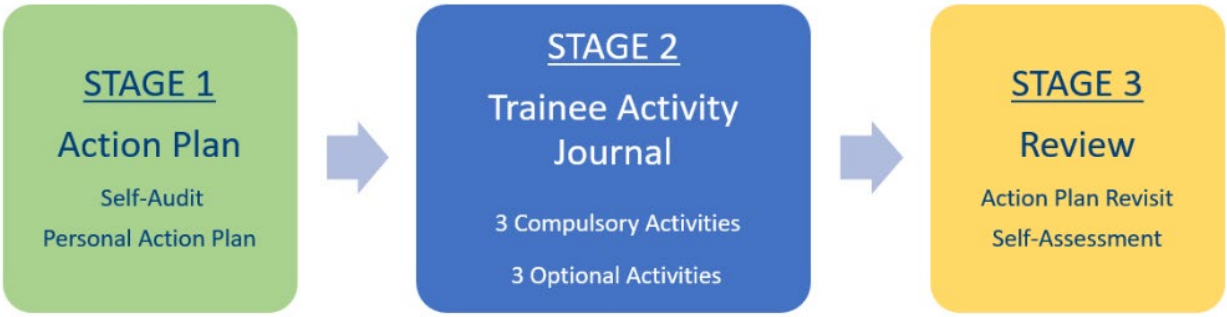
The PSTT Primary Science Enhancement Award for Initial Teacher Education

Student Portfolio Exemplar Z

Please note:

- The purpose of the exemplar portfolio is to give trainees taking part in the PSEA scheme a clear idea of the expectations for their own portfolio.
- The exemplar portfolio has been assessed as meeting the standard for the PSEA.
- The exemplar has been annotated. The comments are there to support trainees to develop their own reflective writing and to construct a portfolio that demonstrates how their knowledge, skills, practice and attitudes have changed over the course of the PSEA scheme.



N.B. This exemplar uses extracts from previous portfolio submissions. Errors of syntax, punctuation, grammar etc. in the trainees' entries may not have been corrected.

STAGE 1: ACTION PLAN

STAGE 1
Action Plan
Self-Audit
Personal Action Plan

STAGE 1: Self-Audit

ACTION PLAN – STAGE 1
Trainee Self Audit

EDIT

Personal aims for taking part in the scheme – rationale statement	I have always enjoyed learning about scientific concepts throughout my education, however I want to develop my knowledge and understanding further, specifically within rocks and electricity. Through this I would be able to develop my future pupils'understanding and overall engagement within these topics. I believe making science enjoyable and engaging for children encourages their ability to focus and remember the learning taking place. I want to develop my teaching skills of making science engaging for children, especially through an enquiry-based approach. I feel that by completing the PSEA scheme, I will be able to develop my knowledge and skills within this and understand what teaching approaches work better than others in specific science topics to ensure engagement and sufficient learning is taking place. I understand within science there can be some challenging topics which are abstract for children to learn, however within the PSEA scheme I want to develop my knowledge and skills of teaching to best support children to understand these abstract ideas. I am really interested in learning science through the outdoors and want to develop my teaching ability and understanding of how to best use this approach with my future pupils. PSEA scheme will help me develop this understanding as this will be my main focus within the activities being completed. From my previous placements within schools, I recognise that many teachers do not have the knowledge and confidence to teach effective engaging science to their pupils and so are not as confident in lessons. Through the PSEA scheme, I would like to develop my understanding and confidence for my future practice, especially for all abilities and SEND using the low threshold, high ceiling approach.

PSEA Guidance:

These aims clearly demonstrate the trainee's different areas of interest.

STAGE 1

Action Plan

Self-Audit

Personal Action Plan

Current strengths in teaching and learning in primary science	Through teaching on placements within my university course, I have been able to complete a science audit to show my strengths and weaknesses within science topic areas. My strengths are within Earth and space, and evolution and inheritance. My interest in Earth and space has been inspired through a class speaker coming into my primary school when I was in year 4. We completed an Earth and space activity which I found very interesting and have been inspired to create engaging learning, especially in the Earth and space topic of science, since. Within my placement last year, I was able to complete a whole sequenced topic within forces in year 3. I was able to engage the pupils in enquiry learning and open experiments within a framework provided by myself. I was able to teach about safety with magnets and allowed for initial investigations. I also ensured the children made links to real-world situations through science capital. I understand the different types of science enquiry specifically pattern seeking and observation over time. I have completed different science lessons including these two enquiry types and have found them to be most engaging within my teaching. When thinking of new ideas for teaching science I am able to look at primary science at UH, Explorify, STEM Learning, CLEAPSS, PLAN assessment, Primary STEM Education Consultancy. I am also becoming involved in attending the ASE annual conference to enhance my knowledge and teaching within science further.

PSEA Guidance:
The trainee has shared their subject knowledge strengths and their previous experience of teaching science on placement. Their understanding of scientific enquiry is a useful addition.

Areas for development in teaching and learning in primary science. These will be your personal targets (Maximum 5). Please number your personal targets: i, ii, iii, iv and v	i. Rocks and electricity science subject knowledge. I will focus my activities around these areas to help develop my knowledge and thus improve my future practice with the pupils in my class as I will be able to provide a more in depth and engaging lesson. ii. I would like to improve my confidence to teach for all abilities through an open-ended task in which children can experiment within a set criteria I have created. Within some topics I am able to provide this teaching approach, such as year 3 forces, however I am not confident in all primary science areas and need to broaden my ideas for a resource bank of ideas which could be used to support this experimental approach. iii. I would also like to improve my understanding of how to teach abstract ideas to children in an engaging way. iv. I also need to improve my knowledge of possible misconceptions that children may have in different topics and areas of science. v. I feel my weakness within the enquiry types within science is research and so when completing the PSEA scheme, I will need to be mindful of this weakness and focus within this type of enquiry.

PSEA Guidance:
The targets chosen are clear, achievable within the time frame, and are science focused.

STAGE 1: Personal Action Plan

STAGE 1

Action Plan

Self-Audit

Personal Action Plan

Compulsory Activity A – Action Plan – STAGE 1

Compulsory Activity A: ASE article chosen	Primary Science 117 Inclusive Practice by Tara Mawby, published March 2011.
Compulsory Activity A: PSEA Criteria Met	1, 2, 3, 4, 5
Compulsory Activity A: Personal Targets Met	ii

Complusory Activity B – Action Plan – STAGE 1

Compulsory Activity B: PSTT Resource	Science for One – Jumping Fish, ages 9–11.
Compulsory Activity B: PSEA Criteria Met	1, 2, 3, 4
Compulsory Activity B: Personal Targets Met	i, v

Complusory Activity C – Action Plan – STAGE 1

Compulsory Activity C: PSQM subject leader interview	PSQM subject leader interview
Compulsory Activity C: PSEA Criteria Met	1, 5, 6
Compulsory Activity C: Personal Targets Met	iii, iv

First Optional Activity – Action Plan – STAGE 1

First Optional Activity	d: Development of subject knowledge in one or more relevant areas
First Optional Activity: PSEA Criteria Met	4, 6
First Optional Activity: Personal Targets Met	i

Second Optional Activity – Action Plan – STAGE 1

Second Optional Activity	e: Observation of a science specialist teaching a science lesson/learning opportunity
Second Optional Activity: PSEA Criteria Met	1, 2, 3, 4, 5
Second Optional Activity: Personal Targets Met	ii, iii, iv

Third Optional Activity – Action Plan – STAGE 1

Third Optional Activity	I: Engagement in other pedagogical development or action research activity – activity and key areas for reflection to be agreed with ITE tutor
Third Optional Activity: PSEA Criteria Met	1, 2, 3, 4, 5, 6
Third Optional Activity: Personal Targets Met	ii, iii, iv, v

PSEA Guidance:

The chosen activities have been well selected to fulfil all the PSEA criteria whilst also meeting the personal targets.

STAGE 2: TRAINEE ACTIVITY JOURNAL

STAGE 2: Compulsory Activities

TRAINEE ACTIVITY JOURNAL – STAGE 2
Compulsory Activity A – Trainee Activity Journal – STAGE 2

Compulsory Activity A Reflection: Details of activity	Primary Science 117 Inclusive Practice by Tara Mawby, published March 2011. This article was written to promote inclusivity across the classroom within science to ensure all children with or without SEND can access the learning to their full potential. Within the classroom, teachers must ensure they are actively involving all children in the learning, through planning for each child's needs for each science lesson. Teachers should consider making the learning relevant to each child, think about each previous experience, and consider what each child's strength is. All children have the right to have the same learning objectives, including different abilities or SEND groups. Teachers should use questioning to develop children's enquiry and assess learning to be able to strengthen it in children, ensuring they are confident learners in science. It is also recommended that teachers use cross-curricular learning to engage children in science learning to make it more relevant to them. The children were completing fair testing, ensuring that they only had one variable per group and were using the same person to drop their parachute.
Compulsory Activity A Reflection: Outcome for children	The children were able to understand how to fair test through only having one variable, testing the same parachute 3 times and finding the mean, and why they had to use the same person to drop the parachute. The children were able to see in a relevant and engaging method how air resistance impacts the world around. They were able to explain and reason why some parachutes took longer to fall than others. They were able to explain air resistance more confidently and understood why this science topic was important to them. I feel the children benefited from picking what they wanted to experiment in, so it was more engaging and relevant to them. I felt the children enjoyed being able to work in their groups without needing much adult support and were able to develop their ideas on air resistance on their own. However, I did need to walk around the groups to ensure there were no misconceptions forming and ensure they all enquired and addressed them if they did. I feel that addressing their own misconceptions was very beneficial as they were able to experiment with their ideas and create a more relevance to them. Next time, I will ensure I create more class discussions and have more mini plenaries. This would have been helpful to show each other's results as it could have been beneficial to compare results and deepen their ideas through this in air resistance topic.
Compulsory Activity A Reflection: Reflections on practice	I feel this lesson was highly inclusive to all children as they were all supportive of each other in their groups. All children had their own scientific roles to play and used their own science specific strengths in this. I feel all children were engaged in science learning and if needed, took turns. I feel I planned the lesson effectively to each child's prior knowledge in science and knowing what children would be in which group so the TA and teacher could support where it was needed most. All children had the same learning objective and were able to complete it. I used questions to deepen children's understanding of air resistance when going around the groups, such as asking

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

PSEA Guidance:
This is a clear summary of the article. It is a synopsis which demonstrates a sound understanding of this approach to learning.

PSEA Guidance:

Useful comment about checking understanding, which allowed children to share their scientific learning. It is also interesting to reflect on the opportunities to build science capital.

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

why some parachutes had lower times than others and what that meant. The children were able to reason and explain this to me using the data they had collected. Within the article, it mentioned using cross-curricular lessons, however I feel this lesson produced sufficient scientific learning, where all children were engaged. I feel this is because the lesson focused on the real-world setting making it relevant to the children to boost their science capital. It showed children how air resistance works for parachutes in a hands-on experiment to enhance their scientific understanding.

Compulsory Activity B – Trainee Activity Journal – STAGE 2

Compulsory Activity B Reflection: Details of activity

Science for One – Jumping Fish, ages 9–11.

Children used foil fish cut outs and tried to make them 'jump' to a ruler. They needed to wear a jumper, which they rubbed on the ruler and hovered the ruler over the foil fish. The fish then 'jumped' to the ruler. The children then explored if this works with different materials for the fish (tissue paper, paper etc), different size fish, if the fish 'jumped' to other materials, how long the fish stuck to the ruler for etc. I asked the children what they thought was happening, why some materials worked and others did not, predictions of what they thought might happen etc.

This activity encouraged children to pattern seek as they were experimenting which materials conduct electricity best and observe the patterns of this through their experimenting.

I chose this activity as one of my areas of improvement in science is the topic electricity. This activity focuses on static electricity and the properties of materials in relation to electricity. I felt the children of my class would enjoy this activity as they enjoy experimenting and enquiring in their science learning.

PSEA Guidance:
This section gives an articulate summary of the activity and shares a clear rationale for choosing this resource.

Compulsory Activity B Reflection: Outcome for children

The children were able to identify the patterns of the activity, showing the materials that were conductors of electricity. They were able to lead their experimentation with what they were interested in such as different materials or sizes of fish etc.

The children developed their understanding of conductors and how electricity works. They developed their thinking on properties of materials such as why the tin foil jumped but the cardboard didn't. There were some misconceptions identified, such as the ruler being a conductor and so we addressed this by experimenting with plastic fish and why they wouldn't jump. This led to a teacher-led discussion on insulators vs conductors. After this activity, I observed the children enquiring more in their learning. I felt this enhanced their science capital as they felt in control of their own learning, becoming more enthusiastic and increasing their levels of enquiry.

I will encourage the children to lead their own experiments more and direct their own learning to what interests them, to encourage enquiry and enthusiasm to build on their science capital. I do feel it is the teacher's role to continue to identify misconceptions, however once identified teachers should encourage the children to address it themselves.

I feel children should always predict their learning before completing the activity to build their scientific thinking and encourage problem solving skills to make stronger connections.

PSEA Guidance:
This is a good reflection. It includes: 1) specific observations from the learning opportunity 2) the potential to address misconceptions 3) the effect on children's learning and their science capital

Compulsory Activity B – Trainee Activity Journal – STAGE 2

Compulsory Activity B Reflection: Reflections on practice	I felt this resource was easy to follow, as it was short but detailed in how to complete the activity. It showed an age group as well as what topic of science is being explored. It provided a resource list, however I was able to add my own resources to this list such as materials for the fish and other materials for the ruler. It gave a clear explanation for how to complete the activity, as well as the learning the children were going to be developing on. Then it provided ideas of what children could experiment and enquire further to enhance their understanding and develop on their pattern seeking enquiry skills. I felt this activity encouraged enthusiasm for learning electricity and supported their science capital development by allowing the children the freedom to lead their own learning and show in a hands-on approach how electricity can be conducted through materials. After this activity, the children became more aware of electricity and understood more real world contexts of when static electricity occurs. I think this activity provides the right amount of child led learning, so they can focus on what they are interested in as well as having enough teacher support to identify misconceptions and prompt children to address them.

Compulsory Activity C – Trainee Activity Journal – STAGE 2

Compulsory Activity C Reflection: Details of activity	Why PSQM?: PSQM has helped these science leaders identify what level of science the school is working at and where they need to improve on. This can be specific to the year groups and classes as well as broadly to the whole school. By identifying these improvements, it encourages high-quality science throughout the school, including nursery. Supporting colleagues: It is the role of the PSQM leader to enhance the teaching skills of their staff. This can be through providing CPDs and bespoke training sessions. It is a priority that all staff members' own science capital is enhanced to encourage enthusiasm for the children and think of innovative ideas to develop their children's science capitals too. The PSQM leaders also shared their ideas for teachers to use in their lessons to support this. Monitoring in science: To ensure consistent science improvement across the school, PSQM leaders need to constantly reassess school strengths and class strengths within science. This can be used to enhance policies, science improvement plans and show major development areas. Keeping this record can show progression and evidence for improvement. It can be used for reflection on what works best.
Compulsory Activity C Reflection: Outcome for children	Raising the profile of science in the school: Using the PSQM, science leads can boost science capital across the schools to ensure all children are able to become involved in science and enjoy learning. It is recommended to have more science-based learning such as science weeks where there are more workshops, scientists to come in, varied hands-on science learning and more focus on sharing successes within science. Teachers should encourage children to enquire and investigate science ideas as well as experiment with the connections between what they are learning to real world settings. Having these science weeks can boost this.

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

PSEA Guidance:

Well-chosen areas to reflect upon.

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

Assessment in science:

One way to improve science is to improve the assessment within science. This could be using only formative assessments, rather than having a summative at the end of each unit as this may not show a secure representation of how much children have learnt. Instead, using starter slides to recall and embed prior learning. This can be created using formative assessment in lessons. Formative assessments help to support more evidence-based judgments.

Compulsory Activity C Reflection: Reflections on practice

One consistent theme between the three science subject leaders was the importance of getting staff across the school on board with driving progression in science investigations. This meant making staff more confident in providing investigations by ensuring the school had sufficient, up-to-date, functional stock in materials required and that teachers had opportunities to observe more experienced teachers delivering investigations to build confidence, as well as ensuring suitable CLEAPPS risk assessments and measures were in place for all investigations. It also meant ensuring that plans for each year group selected a good range of investigations of each type across they year so different skills could be developed for the children throughout their time at the school.

Another consistent theme was raising the profile of science across the school to engage and enthuse pupils and staff about their science learning. Cross-curricular links were really important - I was struck by the example of creating a whole story about a bird who had lost an egg when it dropped out of the nest for the egg protection investigation. This was also used as the basis of some writing in literacy, some DT, and some numeracy, embedding the science learning and making connections to the other subjects. Reading with science themes was also deemed really important and this is something I would like to speak to the science lead in my school about.

PSEA Guidance:

This section effectively summarises what has been learnt about the role of the science subject lead.

STAGE 2: Optional Activities

First Optional Activity – Trainee Activity Journal – STAGE 2

First Optional Activity Reflection: Activity identification	d: Development of subject knowledge in one or more relevant areas
First Optional Activity Reflection: Details of activity	I attended an electricity webinar to develop my knowledge of electricity and ways in which I can teach it. I also completed a reach out CPD to further enhance my understanding of electricity. I have chosen to develop my knowledge of electricity as I feel it is one of my weaker areas within science, especially as it is very specific to year 4 and 6, which I have little to no experience in. I completed a self-assessment RAG rating sheet, which identified areas I may need improvements in, as well as strengths. Due to this lack of experience, I also have limited ideas of how to teach electricity, especially with the intention of raising science capital and enquiry in children. I feel I would benefit from extra CPD sessions to enhance my understanding and future children I teach.
First Optional Activity Reflection: Outcome for children	I developed my understanding of how electricity works within a circuit, using a bulb, a switch and a battery. I understood the key words within electricity as well as the dangers of electricity. I also learnt about materials used within electricity and why some are more commonly used. I understand the key words to use with children, some KS3 knowledge, which can support me when teaching, and the conceptual idea of an electrical circuit. I developed my understanding of what children in year 4 and 6 must be able to understand as well as innovative ideas of how to promote enquiry, investigation and a hands-on learning approach, to increase science capital in children. I also developed my understanding of common misconceptions, dangers of electricity and was provided with some helpful resources to support my teaching in electricity. I made notes on the key ideas and useful support websites to help my teaching. I completed quizzes on these websites to show my progression of learning. The main misconceptions within electricity: "only metals are conductors of electricity", "materials that are electrical insulators never conduct electricity" and "plastic conducts electricity due to the connecting wires in circuits are made of plastic". I think the main cause for these misconceptions is the teacher's subject knowledge and own science capital in electricity. When this is higher, the teacher will become more informed in electricity and be able to plan appropriate learning activities, answer children's questions effectively and address misconceptions.
First Optional Activity Reflection: Reflections on practice	Developing my knowledge of electricity has significantly enhanced my ability to teach the subject more effectively, particularly through hands-on, inquiry-based learning approaches that boost students' science capital. This deeper understanding has increased my enthusiasm for teaching electricity and improved my own science knowledge, enabling me to use experimental methods that connect electricity to real-world contexts, thereby increasing students' engagement and understanding.

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

PSEA Guidance:

This section focuses on the likely impact the new subject knowledge will have on the children who are taught by the trainee. It is useful to consider possible misconceptions here.

By expanding my knowledge of KS3 topics, I can better prepare Year 6 students for future learning and address misconceptions that could hinder their progress. Correcting these misconceptions early ensures that students build a strong foundation for continued learning in electricity. My enhanced understanding of concepts like atoms and electrons allows me to guide students towards more advanced topics with confidence.

I have also developed practical teaching strategies, such as using a rope to demonstrate the flow of electricity and circuits, making these concepts more tangible for students. Additionally, I've learned how to make electricity relevant by discussing its dangers in the home and everyday applications like light switches and power sockets. I've also gained new resources, such as an energy stick, to demonstrate how conductors work and what materials can conduct electricity. These tools and strategies help me make electricity both engaging and relevant to students, fostering a deeper interest and understanding of the subject.

PSEA Guidance:

This section is thorough and demonstrates the impact of the scientific learning.

Second Optional Activity – Trainee Activity Journal – STAGE 2

Second Optional Activity Reflection: Activity identification	e: Observation of a science specialist teaching a science lesson/learning opportunity
Second Optional Activity Reflection: Details of activity	LO: To understand how to classify The children learnt about what classifying means and what normally gets classified (animals) and examples of how. They then had a go at classifying with dolly mixture sweets as they are varied in pairs. Then tried with a wider variety of animals on their tables. Plenary to understand that taxonomists classify using the same groups.
Second Optional Activity Reflection: Outcome for children	It was the first lesson of a new topic so they all started to understand how to classify and use these skills and knowledge in a variety of different ways to deepen understanding. The learning was relatable and engaging by using sweets to motivate children and show that it is for real world uses. They were able to manipulate their learning and enhance their understanding of how to classify. The teacher also used modelling and scaffolding to identify and overcome misconceptions. She let the children experiment with how to classify before being taught actual classification. This made the learning more relevant and motivating for children as they had more control. "How would you classify these sweets?" This used key language that children were learning about to help them use it themselves and understand the meaning more. It also helped children's motivation and independence to learn as they were asked for their ideas and were able to participate more. "Why can't we use 'Is it scary' as a classification?" This helped children's misconceptions and developed their thinking of what classification is and how to use it effectively. The teacher asked lots of open questions where children could give their own ideas and answer. She walked around and ensured all children were involved in the tasks. She motivated them to be involved by using sweets to make it relevant to the children. She also used questioning when walking around and in class learning/discussions to enhance learning, check understanding and hear from children she may not have heard from or want to check on learning.

PSEA Guidance:

A little more detail about the lesson would have been helpful here.

PSEA Guidance:

Useful reflection - children adopting a keen interest in the science topic inspired by hands-on learning with links to real-world experiences.

Second Optional Activity Reflection: Reflections on practice	I think the teacher supported learning very well. The lesson had a clear progression and encouraged children to be more independent in their learning. Children were able to experiment with the new knowledge of how to classify early in the lesson before knowing factual 'real world' classification. Children were able to make the learning relevant to them which the teacher supported by classifying sweets first in a manipulative way before using animals. The teacher ensured to walk around and redirect children to the task where needed. This also gave her time to identify misconceptions and stop the class if most children had the same misconception, for example correctly creating the classification tree. The teacher was then able to model and scaffold learning to overcome this and overcame future misconceptions when needed. The teacher ensured to check learning throughout the activities and used questions when walking around and in the whole class learning to develop on ideas, show misconceptions and show learning. The teacher showed good clear subject knowledge which supported her in identifying and overcoming misconceptions. For ideas or questions she did not know, such as do tarantulas swim, she looked it up on Google to help support children's independence to learning. I feel this lesson was successful and all children understood how to classify, even if they needed prompting to further classify or help identify what they are sorting.

PSEA Guidance:

Valuable observation about the importance of the teacher's subject knowledge in addressing misconceptions.

Third Optional Activity – Trainee Activity Journal – STAGE 2

Third Optional Activity Reflection: Activity identification	I: Engagement in other pedagogical development or action research activity – activity and key areas for reflection to be agreed with ITE tutor
Third Optional Activity Reflection: Details of activity	Attending the ASE annual conference. Focused on outdoor learning and attending Helen spring's session on 'Teaching Science Outdoors'. I participated in a talk from Helen as well as a practical outdoor session on how blood travels through our bodies.
Third Optional Activity Reflection: Outcomes for children	I was able to make notes on the session about how to structure outdoor learning and how it is different from learning inside the classroom. For example, knowing the 5 characteristics created by Hoath, 2015 which includes transitions, frequency and preparation. I was able to understand more about what I need to plan for when preparing an outdoor lesson as well as finding links and resources that can help me plan for health and safety, lesson ideas and tips on how to create an effective plan and lesson. Some of these resources included CLEAPSS, Be Safe booklet and Spring website as well as specifically noting down risks for every plan such as behaviour and medical information to take out with you. I was able to see how an expert in outdoor learning taught a lesson outside and the impact it can have on children's learning in science. This definitely developed the children's science capital as it was engaging through the use of a hands-on approach as well as encouraging enquiry and a development in abstract ideas. Within the session, we suggested ideas for outdoor lessons within science and their effectiveness. I was able to gain new ideas for science activities outside the classroom as well as influencing a more creative approach.

PSEA Guidance:

More information would be helpful here to establish the context.

STAGE 2

Trainee Activity Journal

3 Compulsory Activities

3 Optional Activities

Third Optional Activity Reflection: Reflections on practice	I feel this activity was very valuable to my knowledge and confidence when teaching science specifically outside. It has encouraged me to become more aware of the benefits of teaching science outside the classroom, such as boosting science capital through the use of real-world hands-on learning that engages enquiry in the learners. I gained more science lesson plan ideas, resources and helpful websites that support teachers in outdoor science teaching. I have gained a better understanding of planning for science outdoors from science professionals specifying in teaching outdoors, to ensure the lesson is effective and benefits all children. For example, ensuring safety measures are completed first as well as a walk through of how the teacher wants the lesson to go. A lesson plan is always vital for this. It was also recommended that consistent use of the outdoors can support behaviour management and encourage a more successful outdoors science lesson. I was able to complete an activity for children outside in science, focusing on how blood flows through the body, which helped me understand the benefit of this learning approach more and how children might think in these situations. We drew organs on the floor with chalk and we as the students acted as the blood flow to the organs of the body, changing from oxygenated blood to deoxygenated blood when passing the heart. I was able to achieve what I had planned within my action plan and developed my overall understanding of teaching science outdoors.

PSEA Guidance:

The strength of this reflection comes with the reference to the specific examples.

STAGE 3: REVIEW

STAGE 3
Review
Action Plan Revisit
Self-Assessment

STAGE 3: Action Plan Revisit

REVIEW – STAGE 3
Action Plan Revisit

Personal aims for taking part: Trainee Reflection	I feel I have met my aims for the enhancement award. I have developed my knowledge in electricity, which was one of my subject areas to improve upon. I was able to attend a webinar and complete CPD training, which helped me gather resources to support children's learning. I have gained lesson ideas across the science curriculum to encourage engagement and enquiry in children. This can also support the teaching of abstract ideas within science, such as air resistance, and I was able to inclusive teach all the children in my class in an engaging and hands-on approach. I attended the ASE annual conference where I was able to gain knowledge of how to teach science outdoors. This has also helped me to gain confidence to teach children in an engaging approach through an enquiry-based learning environment. This enhances their relevance to learning and can deepen their science capital. Overall, I feel I am more confident to support children in their understanding of the science topics being taught.
Strengths in teaching and learning: Reflections	I have progressed in my ability to make science lessons engaging through an enquiry-based learning. I enhanced this further by ensuring it was inclusive to all children and was relevant to them by allowing them to pick their own experiment variable. I have completed different science enquiry skills within my lesson activities in science (CA1 and CA2) to further my strength in pattern seeking and develop confidence in fair testing. I have shown to further develop my skills and ideas by researching science topics, this is included in attending webinars, conferences and CPD learning. I feel I am a lot more confident in engaging all learners in the class, specially those with SEND and being able to support every child's needs. I am more confident in tailoring the learning to each child's strengths and interests, ensuring it is relevant to them, using real-world settings. I feel I am more confident in finding new and innovative resources that will support me in my teaching to use to enhance children's science capital within lessons.
Areas for Development in Teaching: Reflection	I have addressed my weakness of electricity subject knowledge and have completed a webinar and CPD to develop my own subject knowledge, which I can engage children in active hands-on learning. I have not been able to develop my subject knowledge of rocks and so this will be my next area of development. I have been able to teach for all learners in an inclusive environment using the article in compulsory task 1. This focused on inclusivity, and I have gained more confidence in deepening all children's understanding of a science topic. Throughout this award, I have gained knowledge of numerous resources that I can use in my teaching to help with my planning as well as support children in their learning. These resources create a more relevant and engaging learning environment to boost science capital. I feel I have gained knowledge of common misconceptions in some areas of science however, I feel I would benefit from gaining more knowledge on this. I also feel I would like to observe more science lessons from other teachers, especially PSQM leaders, and attend more science conferences to gain new innovative ideas which I can use in my teaching to support children's learning.

PSEA Guidance:

These reflections revisit the original aims, summarising how these have been met.

PSEA Guidance:

The original targets have been effectively reviewed here and it is clear that there has been a great deal of learning for the trainee.

It would be good to list the targets as i, ii, iii, iv and v so that they can be clearly identified in this section.

STAGE 3

Review

Action Plan Revisit

Self-Assessment

Overall Reflections about PSEA	I feel this enhancement scheme has greatly developed my knowledge and teaching within science. I have enhanced my confidence in being able to teach whole class science lessons in an inclusive way to develop engagement, science capital and my own personal sureness towards primary science. I have been able to identify my areas of weaknesses and areas of strengths to support my teaching in primary science. I have been able to work on my areas of weakness and create new aims of what I can work towards. This means I am constantly improving my skills in science and how I am able to teach science to children to ensure it is engaging and relevant to them. I have gained more knowledge on how to become a confident science lead and how I can support my future school in developing their science abilities across the school. I was able to reflect on every activity I had completed which meant I was able to identify what worked well and what I should continue for next time, as well as what could have gone better and what I had learnt. This helps my teaching and confidence in primary science as well as my own science capital. I feel more confident to reach out to develop my own subject knowledge in science topics, especially areas of improvement, and get involved in more science development sessions. I feel I was able to address all my aims sufficiently, however as previously mentioned I do have further areas which I will be able to develop upon now that they have become identified.

STAGE 3: Self-Assessment

STAGE 3

Review

Action Plan Revisit

Self-Assessment

Self-Assessment

PSEA Criteria 1: An understanding of the importance of teaching and learning science and its impact for children.	A, B, C
PSEA Criteria 1: Explanation	A: ASE Primary Science article. This article encouraged me to develop my science teaching practice to become inclusive to all learners in the class, to develop a higher standard of science and encourage enquiry with every child. I was able to develop science capital across my classroom by creating a more engaging and relevant lesson. B: PSTT resource. I was able to use a practical hands-on science activity to develop understanding of the abstract idea of static electricity. It was engaging and relevant to real-world settings, which developed upon the children's science capital. C: PSQM subject leader interview. I was able to understand how PSQM leaders are able to develop children's science capital across the school, as well as support teacher development and personal science capital to ensure high quality science teaching.
PSEA Criteria 2: An awareness of effective strategies for teaching and learning for all children.	A, B, e
PSEA Criteria 2: Explanation	A: ASE Primary Science article. Having an inclusive learning environment promotes a higher quality teaching strategy within science that can boost children's engagement as the learning is tailored to them. They will develop upon their science capital as it will be more relevant and based on a real-world setting. B: PSTT resource. This resource was engaging and encouraged enquiry in the children. This activity was effective in developing an understanding of how static electricity works. e: Observation of a science specialist teaching a science lesson. I was able to observe useful teaching strategies such as addressing misconceptions as a class when needed to develop a better scientific understanding. I also gained ideas of how to make a lesson engaging such as using sweets to make the science learning relevant and manipulative, especially if the science learning is abstract.

PSEA Guidance:

Succinct and relevant explanations, well-linked to the criteria.

STAGE 3

Review

Action Plan Revisit

Self-Assessment

PSEA Criteria 3: An understanding of the types and skills of science enquiry and the value of these for learning science	A, B, e
PSEA Criteria 3: Explanation	A: ASE Primary Science article. This article showed how vital it is to tailor science learning to each child, focusing on their prior experiences, interests and strengths/weaknesses. Making this lesson engaging, encouraged a focus on the enquiry skills of fair testing - each child had their own role in timing each parachute to find the most effective. B: PSTT resource. This activity encouraged pattern seeking, which the children found engaging and enjoyed enquiring in the learning. They were able to lead their own learning through using pattern seeking skills. e: Observation of a science specialist teaching a science lesson. This teacher showed how important it was for children to enquire and experiment with ideas, specifically classification, before being taught how scientists do it. It promoted excitement and open ended scientific problem solving.
PSEA Criteria 4: An understanding of common misconceptions in science teaching and learning	A, D, e
PSEA Criteria 4: Explanation	A: ASE Primary Science article. Lack of engagement and support can lead to misconceptions. This article prompted inclusivity in science so all children gained a secure understanding of the science learning. I feel this was met in the lesson as all children were enquiring and had their own role when timing the parachute drops. d: Development of subject knowledge in one or more relevant areas. The main misconceptions of electricity are "only metals are conductors of electricity", "materials that are electrical insulators never conduct electricity" and "plastic conducts electricity due to the connecting wires in circuits being made of plastic". Teachers should develop their subject knowledge and science capital in electricity to be able to effectively address these misconceptions. e: Observation of a science specialist teaching a science lesson. The misconception of how to classify was addressed quickly as a class to enhance all children's scientific learning and skills.

PSEA Guidance:

Succinct and relevant explanations, well-linked to the criteria.

STAGE 3

Review

Action Plan Revisit

Self-Assessment

PSEA Criteria 5: An understanding of science assessment strategies that are valid, reliable, and meaningful	A, C, e
PSEA Criteria 5: Explanation	A: ASE Primary Science article. This article encouraged teachers to use their observations, formative and summative, to enhance the science learning of every child and make it relevant to them. C: PSQM subject leader interview. The PSQM I interviewed recommended using formative observations through questioning to develop ideas of children and understand their scientific knowledge. It is also recommended to use starter slides for recall and develop upon scientific skills. It was also mentioned that PSQM leaders must have an ongoing assessment of teachers in science teaching to ensure consistent high quality science teaching. e: Observation of a science specialist teaching a science lesson. The teacher used her formative observations during the lessons to know what to focus on for the next lesson and what common misconceptions she still had to address. I have also found this to be effective in my lessons.
PSEA Criteria 6: An awareness of the role of an effective science subject leader (including progression of science concepts, the value of enrichment activities, and professional monitoring processes).	C, d, l
PSEA Criteria 6: Explanation	C: PSQM subject leader interview. This interview highlighted the importance of being an effective science leader, such as promoting a science capital in staff to effectively engage children in science and develop the child's science capital. PSQM leads should assess and monitor the whole school to gain high quality science teaching and plan activities such as science week, to excite enquiry in children. d: Development of subject knowledge in one or more relevant areas. I identified my weakest science topic (electricity) so I could become more confident in promoting children's science capital across the science curriculum. Having more confidence across the science curriculum can support me in becoming a science subject leader in the future. l: Engagement in other pedagogical development or action research activity. Having an understanding in outdoor learning will support my confidence to promote other teachers to do the same, to have a higher pupil engagement.

PSEA Guidance:

Succinct and relevant explanations, well-linked to the criteria.