# Evaluation report for Terri and the Time Machine 2023-24

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## Summary

At the end of the second year, Terri and the Time Machine continues to be a very positively received project with children, teachers, science subject leaders and parents. In 2023-24, the project expanded from 3 to 6 schools (see KPI data in Appendix 1). Teachers who have taught the lessons before enjoyed teaching them again, knowing where the story was going, and staff who were new to the project noticed that children were more engaged during science this year compared to the previous year. Teachers appreciated the flexibility provided by an increase in pre-recorded content.

Teachers reported that children's engagement and attainment have increased as a consequence of taking part in Terri and the Time Machine. In the interviews with Year 4 children, they recalled many of the activities and key learning from Year 3 science lessons. They also reflected on how the project had changed their views on science and scientists (see Appendix 2), for example:

> *Year 4 child: I used to think that scientists just have white clothes and have crazy hair.*
> *Zoe: Oh yeah, and they don't?*
> *Year 4 child: No, they look different.*
> *Zoe: Can you think of a scientist you met last year that looked different that surprised you?*
> *Year 4 child: Terri.*

Teachers spoke about how their subject knowledge and confidence to teach science has improved, as well as their enjoyment of teaching in a more creative way. Teachers consider the project as inclusive in its design, since children have opportunities to express their learning through a variety of different creative arts, rather than relying on written work (which can be a barrier for some children). Quiet children or children with special educational needs/disabilities are more likely to contribute to a lesson that is a Zoom call with Terri, compared to other lessons - the project gives purpose to their learning and an audience to communicate with. Parents fed back that their children are more likely to talk to them about what they have done during science lessons in school (in an online survey, 90% of project school parents agree or strongly agree that their child told them about what they had done in science, compared to 66% of parents from schools not doing the project).

The project team have been responsive to the suggestions for improvements contained in last year's report, for example, they have incorporated activities for retrieval practice into lesson plans. They have also made within year changes – two of the new schools have a focus across the school on teaching new vocabulary, so the project team have included information about scientific vocabulary (prior learning and new words) into lesson planning. These additions have been well received.

Dr Zoe Crompton, science consultant, August 2024

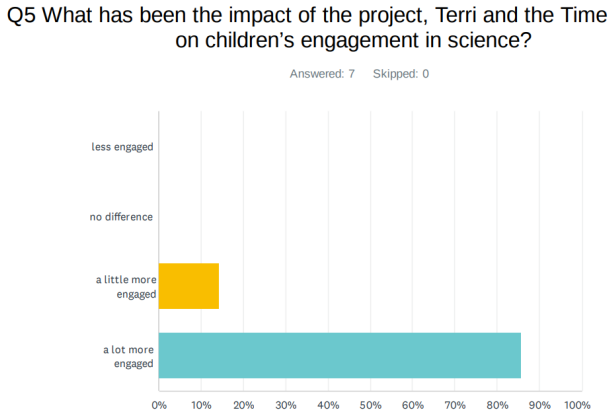
## Evaluation data collected during 2023-24

In September 2023, I visited each of three original pilot schools and collected data from Year 3 and Year 4 children (see Appendix 2). In April 2024, I interviewed three science subject leaders (see Appendix 3). In July 2024, I spoke to a focus group of four teachers about their professional view on the impact of the project on children (see Appendix 4) and seven teachers completed an online survey (see Appendix 7). Children in four of the project schools completed a paper-based questionnaire in March 2024 and this data was compared to questionnaires completed by children in two schools not involved in the project (see Appendix 6). Parents completed an online survey, so that comparisons between project schools and non-project (control) schools could be made (see Appendix 7). During 2023-24, I also visited 2 of the schools new to the project and spent time talking to the teachers and the children in their classes.

## Impact on children

### Engagement and motivation

100% (9 teachers) who responded to a survey in March 2024 agreed or strongly agreed that the year 3 science curriculum is engaging and interesting for children and they are eager to speak, ask questions and share their ideas. They also 100% agreed that the project has improved children's engagement in science:




Children are engaged by the story thread that runs through the project, by the links to art and music, and motivated by being the 'experts' to tell Terri and Gideon what they have investigated. Parents describe children talking about the project at home:

> *My daughter enjoys science and participating in Terri and the Time Machine. She was really excited when telling me about each her interactions with Terri and the investigations she has done and is currently doing. (Parents online survey)*

A teacher described the difference the project has made this year:

> *Children have been far more engaged and excited to have their science lessons. Some children who said they did not enjoy science*

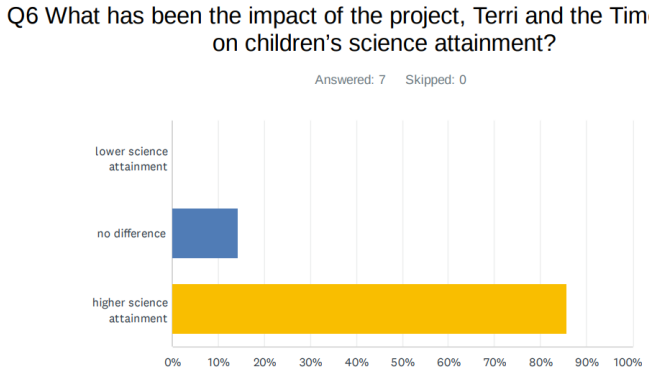
*last year are those who look forward to it most now, because they look forward to speaking to Terri and catching up with her adventures. (Teachers online survey)*

(see Appendix 7 for further details)

A teacher new to the programme this year carried out her own pupil voice activity (see Appendix 5) – their feedback is very positive. What is interesting to note is *why* the children enjoyed their science with Terri and the Time Machine so much. The children said that they enjoyed "being given jobs and then share what we have learnt". The project gives purpose to their learning and an audience to communicate with.

### Science attainment

100% (9 teachers) who responded to a survey in March agreed or strongly agreed that the ability to recall the concepts and investigations that they have learnt during science. Teachers reported that there was an increase in science attainment as a consequence of taking part in the project:



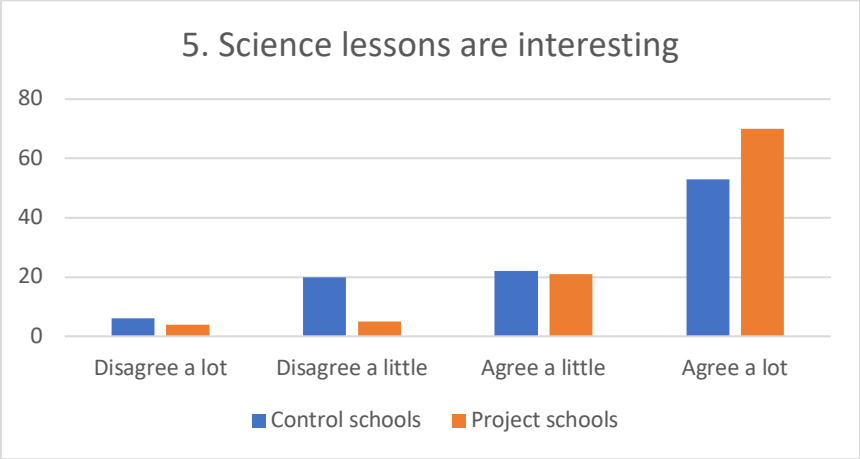

Teachers also noticed an increase in children's working scientifically skills because of a focus in the project on specific learning outcomes relating to different parts of an investigation.

*I found that within our school, in year 3, we have done way more investigations, way more opportunities for the children to plan and evaluate investigations and I think that their working scientifically skills because of that have improved massively this year. (Danielle Atkins, Bowker Vale Primary School)*

### Children's aspirations

In terms of Science Capital, children were asked questions adapted from the student survey of the Primary Science Capital Teaching Approach (Nag Chowdhuri et al., 2021). Instead of a baseline and end of year questionnaire, this year we asked children at two 'control' schools, who have not been involved in the project, the same questions as we asked four of the project schools. The question about finding science lessons interesting showed a marked difference between the two groups of children. 91% of children

who have been involved in the project feel science lessons are interesting, compared to 75% of children in the control group:




However, other questions, such as whether children feel 'sciencey' or would consider future careers involving science, showed only small differences and is something for the project team to develop further (see Appendix 6).

Teachers fed back that they value the range of different scientists and engineers children met during the project:

> *I think it's nice seeing different roles come through. Men and women in the different roles. As well, the female archaeologist and the female engineer and things like that. (Becky Bell, Crumpsall Primary School)*

They also discussed the gap between the people they met and seeing themselves doing those sorts of jobs:

> *I feel like I have to say, "You could do that job", because I don't think my children see it. Even though they're seeing someone doing that job, they're not seeing themselves. They're not thinking "Yeah, I could do that". So, I'm trying to make it really explicit. Like, saying, "You can do that job, you know?" I feel like I have to make it really explicit, otherwise it's almost too far away from their own world. They enjoy meeting these people, but I'm not sure that they see themselves as being able to do it. (Liz Humphreys, Crumpsall Primary School)*

In contrast, Hannah reported that, "*One little boy is the opposite of what you're saying. His aim in life is to get a Nobel Prize for physics, and I say to him, "Yes, you can do that*"."

In lesson plans, teachers need clear guidance on how to explicitly teach about science attributes and encourage children to see that they can do the sorts of jobs of the people they meet on screen – engineers and scientists.

## Impact on teachers

In the pilot schools, three teachers remained in year 3 to follow Terri on her adventures in the Time Machine for a second year. One spoke about how she felt about teaching the material for a second year:

> *I've done it twice, well I've been able to adapt my delivery of it, especially that first lesson where you get the Matter Transporter and you're asking all those questions, and then who's Terri? And I knew where they might go with it, so I could push it further this year than the first year. (Hannah Phelan, Webster Primary School)*

Several project schools had new staff teaching year 3 this year, but this has not dampened the enthusiasm for the project. One science subject leader commented on the change of staff at her school:

> *It's really suited Kat. She's been really enthusiastic about it both years and then it's been a really nice project for her to work on with James, [who is new this year], and I know, he's straight away, come in and he's really enjoyed it. So I think it gives you that bit of energy and that bit of excitement. Definitely, even as a teacher. For the children, it's a special thing about year 3. (Eleanor Davies, science subject leader at Divine Mercy RC Primary School)*

In July, I asked a focus group of four teachers about the impact of the project on them and teachers spoke about improved confidence in their subject knowledge:

> *I think subject knowledge for me has been massive, like everything you need is there, the planning that has been sent through and it helps massively with my understanding and what I need to teach the children. (Becky Bell, Crumpsall Primary School)*

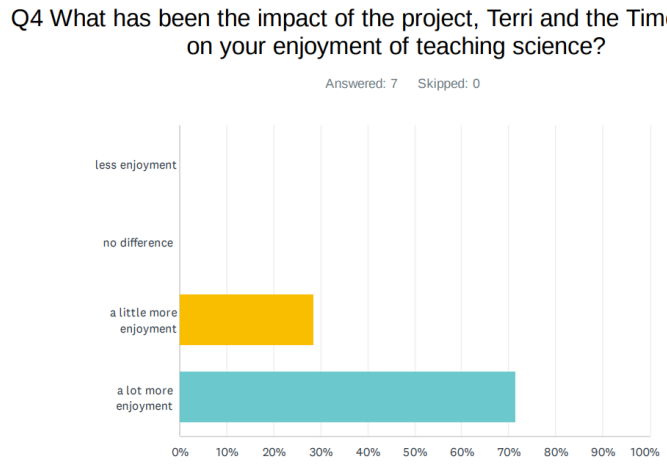
The teachers feel confident about:

- their subject knowledge when teaching Year 3 science topics.
- teaching science using arts-based approaches.
- making links between the science we do in school and everyday life.

Only 3 teachers from the comparison schools completed the survey, and their responses were far less positive. They did not strongly agree with any of the statements and none of them were confident to teach science using arts-based approaches or make links between the science we do in school and everyday life.

## Enjoyment and creativity

Teachers reported that they had enjoyed teaching science more this year, compared to last year:




Teachers explained about the impact the project has had on them:

> *I like the creativity of it, and over recent years in teaching, with the curriculum being very knowledge based now, I feel like it's much less creative than when I first started teaching and this has allowed us that, because otherwise we'd be doing the school science scheme and it would be "This is how you're going to do it", and I don't know, I like the creativity, through the arts. I enjoy it more. (Liz Humphreys, Crumpsall Primary School)*

> *This year, the children have found things out more for themselves, and it's definitely changed my way of thinking as well, that we can be way more creative in the way that we think about our lessons and letting our children discover things. (Danielle Atkins, Bowker Vale Primary School)*

## Inclusion

Teachers reported on how inclusive the project is. Children can access the story element of the science lessons and verbalise their learning through creative medium e.g. a video, rather than traditional written exercises:

> *I think that it's naturally inclusive of all the children without having sort of one task and having to modify it for children. I mean, there's still obviously a little bit of that, but the creative element allows for accessibility. (Liz Humphreys, Crumpsall Primary School)*

> *I think my children are much more involved, even the children that are not giving you much out of other lessons, especially the lessons with Terri and Gideon, and I've got my children who are like, really low English or really low ability, wanting to be the scientist that come up and explain to Terri and Gideon what it is that they've learned, or what we've been doing. (Becky Bell, Crumpsall Primary School)*

## Review of actions following recommendations 2022-23

Below are the recommendations from last year's evaluation report and how the project team have responded:

1. Continue to recap key science concepts as part of the script/story to give children the opportunity for retrieval practice.
   *Actioned – retrieval practice activities are included with every lesson plan, and this has been well received by teachers so far (next year, I will find out more about how teachers are using these activities and if any further development is needed).*
2. Continue to develop children's enquiry skills alongside conceptual knowledge. Highlight the type of investigation clearly in the lesson plan – e.g. use a symbol to represent each type.
   *Actioned – learning outcomes relating to specific enquiry skills are clearly indicated on an overview and each lesson plan including the symbols produced by PSTT. Some of the new schools are familiar with these symbols, whilst others are using the SEERIH symbols which are slightly different – they should be straightforward to adapt (next year, I will evaluate how teachers are using this additional information).*
3. Continue to expose children to a range of different scientists and engineers and explicitly address the stereotype of the lone scientist who mixes dangerous potions.
   *Ongoing – children continued to mention 'potions' in the 2023-24 focus groups and questionnaires, this needs to be fed back to science subject leaders, as it could be KS1 teachers who are using the language of potions when talking about science. Children often drew a scientist in a lab coat in the end of year questionnaire 2023 (one child even labelling their drawing as being of Gideon) and the delivery team realised that dressing Gideon in a white lab coat plays into the scientist stereotype. Therefore, they have redesigned his costume for next year's live and recorded sessions. In lesson plans, when the children are introduced to various scientists and engineers, teachers should be encouraging children to think, "I could be someone like that in the future" (it is not beyond their reach) – see recommendations 2023-24 below.*


4. Develop additional guidance to support children with SEND – for example, alternative explanations/activities and guidance on adaptive teaching for lessons when it is anticipated that the science concepts are abstract/conceptually challenging e.g. visual aids to help children grasp the geological timescale.
   *Actioned – The project team have created a SEND support pack for teachers to use to support children if needed (next year, I will evaluate*

*how teachers are using these resources and if any additional materials are required).*

## Recommendations 2023-24

The science subject leaders I spoke to did not feel they receive much information about the project and would like to know more. The creative and engaging science teaching and learning taking place in Year 3 because of Terri and the Time Machine is not having as much impact across the school as it could have (see Appendix 3). Therefore, I recommend the team:

1. Actively communicate with headteachers/senior leadership team/science subject leaders e.g. with a termly newsletter/bulletin – what's happened that term and what's coming up. *I will be speaking to SLT as part of the 2024-25 evaluation.*
2. Deliver a CPD event in the Autumn term for the science subject leaders of every project school (this could be a twilight Teams meeting if funding for supply cover is not available, which also means it could be recorded, for anyone unable to attend). *This suggestion came from my interviews with science subject leaders:*

   > *At first, I was very sceptical, I was suspicious, and I felt like we've ended up on this project because our previous science lead just wanted to make science artsy. And then I went through it, and I thought, "Oh now I get it". I think it does help, being there at the meetings, emails might be good, but I think actually being there is better. (Eleanor Davies, science subject leader at Divine Mercy)*
3. Further strengthen the Science Capital element of the project – by making science attributes or jobs/roles explicit in lesson plans, narrowing the gap between the scientists that children meet on screen and their perceptions of what they are capable of doing in the future.
4. Suggestions for improvements to lesson plans, guidance and resources from end of year teachers survey:
   a. It would be really useful if you attached PowerPoints for each lesson that matched the teacher notes. It is hard to interpret the teacher notes and create PowerPoints from them.
   b. Ensuring planning is delivered ahead of time (2 weeks, so teachers can use PPA to plan ahead).
   c. Less information on the lesson plans. Bullet points, clear and concise.

## Planned evaluation activities for 2024-25

In the third and final year of the project, evaluation will focus on long-term impact:

1. Evaluating the difference between live and pre-recorded delivery.
2. Collecting 'headline' data about the project's impact through surveys.
3. Speaking to Year 5 children from pilot schools to look for lasting impact of the project.

4. Speaking to senior leaders about the impact of the project across their school.
5. Generating case studies of impact on specific children – collecting data from the child, their parents and teacher (it is likely this child will be in Year 4 or Year 5).
6. Generating case studies of impact on specific teachers – how their views about science, subject knowledge and teacher identity have developed as a consequence of being involved in the project.
   (Case studies to be written up for publication in a journal – Journal of Emergent Science or the Impact journal.)

## Appendix 1 KPI Data 2022-24

| | | |
|---|---|---|
| | **Year 1 2022-23** | **Year 2 2023-24** |
| Unique Pupils Engaged | (168) 188 | (336) 363 |
| Pupils x sessions | (3360) 3768 | (6720) 11979 |
| Live sessions | 16 | 12 |
| Teacher Led sessions | 10 | 10 |
| Pre-recorded delivery (made to seem live) | 10 | 11 |
| **Total number of sessions** | **36** | **33** |
| STEM engagements | 10 | 10 |
| School Trips | 6 classes / 188 pupils | 13 classes / 363 pupils |
| Made Satellite projects | 120 pupils/ 1-3 sessions | 13 teachers/ 2 sessions |
| MADE Satellite projects pupils x sessions | 180 | (336) 363 |
| | (target figure) | (target figure) |

## Appendix 2 Extracts of focus group transcripts with Year 3 and Year 4 children

In September 2023, I interviewed a total of 14 groups of four children from year 3 and year 4 classes in the three pilot schools. Each focus group conversation lasted 10-15 minutes, so the full transcripts are too long to include in this report, instead, here are some brief extracts that characterise responses from the different age children.

**Year 3 children**

**Example 1 Divine Mercy**

Zoe: Why do you want to carry on learning science?
Child: Because it's fun.
Zoe: Yes, and what is it that makes science fun?
Child: The stuff we learn and the experiments.
Child: It's fun because you get to do stuff, like put stuff inside of things and see if they explode.
Child: I like experiments and it's fun and it keeps me busy at home.
Zoe: Yes, absolutely, so tell me, because you were talking about the experiments you've done at home, so why is that fun?
Child: Because it's fun to make things and see if they explode and make robots.

**Example 2 St Marys**

Zoe: What do you like about science and what don't you like about science? Have a little think. Anybody want to go first?
Child: So, what I like about science is when we learn about different types of animals, but what I don't like learning about in science is when we learn about vegetables.
Zoe: Right, thank you very much.
Child: I have nothing about science that I don't like.
Zoe: There's nothing you don't like, thank you. What is it that you like?
Child: I like doing science experiments.
Zoe: Yeah, what sort of experiments do you like?
Child: I like it when it's messy.
Zoe: Can you think of an example, what have you done in science that was messy?
Child: When I put Mentos in coke.
Zoe: Yeah, great thank you. How about you, do you want to carry on learning science when you leave school?
Child: Yes, I just I want to get like some bottles of coke, and I want to see what happens if I put coke and mentos in a cup, if it is explosive.
Zoe: So, I'm wondering if there's anything else about science that anyone wanted to learn about rather than just about coke and mentos? Is science anything else more than that?
Child: Making potions.

**Example 3 Webster**

Zoe: And is that what you do in science? Is that what science is about?

Child: Yes, I don't like science because there is so much writing and we don't get to have a break.
Zoe: OK thank you. How about you, anything you don't like?
Child: Nothing.
Zoe: Right, thank you very much, OK and then the next question is about wanting to learn more science.
Child: I want learn to do chemicals.
Child: I want to learn how to explode stuff and make things gold.
Child: And make potions.
Child: I want to learn about plants.
Child: I want to be a scientist.
Zoe: Great, so you want to learn more about explosions and when you grow up you want to be a scientist, so why do you want to be a scientist?
Child: I want to discover how big the ocean is and how big the animals are under the sea.

**Year 4 children**
**Example 1 Divine Mercy**
Zoe: Now I want you to think of everything that you did in the Terri and the Time Machine project last year, the whole of year 3, OK, have a think about that. Has being involved in that project changed your ideas about science and scientists?
Child: Yes, like when I was in year 2, we liked doing science and when we were in year 3, we liked doing science, but now we're in year 4 we have kind of just got over it.
Zoe: OK, right, how about you, has it change ideas about science and scientists?
Child: So, I just joined in year 2, so I didn't do any science here in year 2, so then when I was in year 3, I learnt about the day when Terri had the lights all black, so we learnt about looking into a little toilet tube to see it's all black, but when we cut it, it had light in it.
Zoe: Yes, that's right, it did didn't it. So, anything that you've learned about scientists, so has it changed your ideas about what scientist are?
Child: Well, a little bit, we couldn't do any more science in year 4, we only practised a little bit about molecules in year 4, no not molecules, I mean particles.
Zoe: You've been learning about particles in year 4.
Child: So, we didn't do any science, so that's why it's changed a little bit for me.
Zoe: So, last question is, what about the people that you met last year as part of the project, so are there any of the people that you met that stood out to you?
Child: Yes, there was Terri and Gideon and some other people that were on Zoom on the big screen, and they were helping us to learn about things.
Zoe: That's right, so who stood out for you?
Child: It was the doctors in the Zooms, they taught us about how to work things out.

Zoe: Do you remember Hannah?
Hannah: There were doctors to help Terri, she was poorly because she was only eating apples, and we met a nutritionist to help Terri work out what she should eat.
Child: There was a boy and a girl.
Zoe: And what was it about the doctors, why do they stand out for you?
Child: Doctors help people, and I really wanted to be a doctor to help people.

**Example 2 St Marys**
Zoe: Now have a think about all of the things that you did in the project last year, all the different people that you met. Has being involved in the project, everything that you did in Year 3, changed your ideas about science or scientists, so did you used to think something different and now you think something new?
Child: I used to think that scientists just have white clothes and have crazy hair.
Zoe: Oh yeah, and they don't?
Child: No, they look different.
Zoe: Can you think of a scientist you met last year that looked different that surprised you?
Child: Terri.

**Example 3 Webster**
Zoe: So, last year's science project was with Terri in The Time Machine, so did last year's science project change your ideas about science and scientists?
Child: Yes, a lot. Before coming to this country, I used to think science was just about like Coca-Cola and foam and some things exploding, and now I've had a lot of fun and I know that it's more than that.
Zoe: Great, so what is it that it's more than that?
Child: Finding out new things and learning about things that I never even knew. I've learnt that science is more than just explosions.
Zoe: Yeah, ok so Terri and The Time Machine project has changed your ideas about science, that it's more than just explosions, yeah.
Child: I used to think that science is serious, but Terri and the Time Machine was a lot of fun.
Zoe: Yeah, great, how about you?
Child: I used to think that science was all about tubes.
Zoe: And what do you know now, is it more than that?
Child: Yes, like plants.
Zoe: Great, how about you, has Terri and the Time Machine changed your ideas?
Child: Yes, when I was little, I used to think that science was only about practically making things change, but Terri and the Time Machine, firstly it was more fun, then it was like a play, teaching me things.

Zoe: Fantastic, thank you. Last question then, so, do you remember a particular person from the project and what is it about them that makes them stand out?
Child: Gideon.
Zoe: So, why do you remember Gideon and what is it about him that makes him stand out?
Child: Because he was so funny.
Zoe: Yeah, what do you think?
Child: The RHS.
Zoe: Yeah, and what was it about them that stood out?
Child: Plants and discovering all about them.
Zoe: Thank you, yeah, how about you.
Child: Gideon, he is really curious and making more experiments and he's really fun. He is always making things into experiments.
Child: Tariq, because he is a very interesting type of animal and the thing that I like most about him is that he came from the past.

## Appendix 3 Interviews with science subject leaders April 2024

**Key**

| **Theme** | |
|---|---|
| Engagement/enjoyment/motivation | |
| Recall/remember scientific knowledge/develop scientific enquiry skills | |
| Suggestions for improvements | |
| Ideas for disseminating beyond year 3 | |

1. **Simon Tomlins, Webster Primary School (in post since Sept. 2017) 16/4/24**

Zoe: So, for these questions, you just have to agree or disagree OK? Do you think that the Key Stage 3 science curriculum is engaging and interesting?
Simon: Agree.
Zoe: In science lessons do you think children are eager to speak, ask questions and share their ideas?
Simon: Yes, agree.
Zoe: The project Terri and the Time Machine, do you think that's improved children's engagement in science? So, if you think actually it's the same, then you would neither disagree or agree, but if you think it's improved the engagement then agree.
Simon: Yes, agree, definitely.
Zoe: So, what are your overall thoughts about the project?
Simon: I think is a great project, I think it's really helped with the children's motivation in science lessons, they've really enjoyed the science lessons. Some of the topics in year 3 could be really dull such as rocks, but I found that Terri and The Time Machine has made it really enjoyable, really practical.
Zoe: So, you've actually seen some of the lessons?
Simon: I have yes, I've also seen the floor book, the photos of the children, and heard the children talking about it and things like that. They've come and told me, so you can tell that they really enjoyed it. I have been in a lesson covering one time and it was near the beginning of the year, I can't remember which topic, and there was a bit of a hook and I had to walk around then sneakily press the button to make the Matter Transporter work and the children loved it. They knew more about it than me, and I said, "What's going on here?" and then they were so engaged, it was really good.
Zoe: Great thank you, so in what ways has the project had an impact across the school?
Simon: Well, we only use it in year 3 at the moment. I think in year 3 obviously it will have the biggest impact and that's with the direct impact on the children, with the lessons and the motivation and enjoyment and things,

and it is made me think as a subject leader because I've looked to the things you've done and I've thought "Hang on, that's really good, how can we use this?" Maybe in year 5 where there are some similar activities about animals including humans topics and things like that.
Zoe: So, when you say similar ideas, what is it from the project that you think you could use – is it the class have a floor book or the hooks?
Simon: Yes, it's more the hooks, I've seen the impact and the enjoyment the children get out with some of these practical ideas that they then use to get a good piece of writing done in their science books, showing their understanding and explaining it really articulately, and I was thinking, how can I give feedback to a year 4 or a year 5 lesson planning, so when I'm looking at the planning, how can I suggest something similar to enhance the learning?
Zoe: So, to encourage the other year group teachers to put the hooks in to engage the children, rather than just cover the curriculum.
Simon: Yes, so for example I was doing some feedback this morning before we met for the year 4 topic sound and they're explaining how objects vibrate and then the sound travels through the air to the ear and so on, and before they got into the writing, I thought, hang on, we could do a nice practical lesson here with a guitar and we could let the children play and we could discuss how we how we how see the vibrations and how the sound wave travels and they could do some drama, showing their understanding and showing the vibrations travelling from one part of the room across to the listener, and then that's going to hopefully feed into the next lesson to then have a good piece of writing.
Zoe: Yes, that's a really a clear example. So, in terms of year 3 children's ability to recall and understand, are you saying that those things, because of the hooks and the drama and modelling, those things would help with recall.
Simon: Yes, I think so.
Zoe: So, do you have any suggestions for improvements on how the project is delivered?
Simon: If I'm completely honest, I'm always getting it second hand in a way, because I've not been there for the majority of the time. My understanding, my exposure comes from discussions with the class teachers, looking at the books that have been created, looking at the work the children have done, speaking to the children and the little videos and things that are done during the hooks, so I couldn't really comment in all honesty.
Zoe: That's absolutely fine. So, this is the last question, so anything else you'd like to tell us about the children's attitude to science or the project more generally and if you could give any examples of how a particular child has reacted or how a particular member of staff has reacted?
Simon: So, with staff, we've had a complete change in year 3. Hannah, when she was in year 3, she absolutely loved Terri and the Time Machine, it really motivated her, she came to speak to me and show me pictures about told me how good it was. I've spoken to children and seen what they've done, and Kielan has recently showed me what his class has done on the topic animals including humans where the children had made their own food

pyramid with all these different foods. Yeah, you can just tell that they really enjoy it.
Zoe: So, the final thing is thinking for the future, do you think that as a school you could do more with the project, so whether the drama approaches or enquiry investigations, the structure of it?
Simon: So, there is there is one thing and I suppose this could be an improvement, from my point of view, as a subject lead, I look at their planning, and we do two science lessons a week, so in year 3 they're doing their own lesson and a Terri and the Time Machine lesson every week, so I'm looking at 7 lessons that they've planned and giving them feedback, and then they go away with the planning and work round what goes on in the Terri and the Time Machine lesson, so it would be a bit easier if I could know more about what the plans are. I'm going through their plans and making sure they hit all the objectives in half the time that other year groups have and I'm taking it on good faith that Terri and the Time Machine will do their part. All the things I've seen have been great, but I'd like to know what each Terri and the Time Machine lesson, learning outcomes and activities were, then I can weave in the other school lessons so that it has a nice flow and I know what is building up to this activity, which will lead to this piece of writing, if you see what I mean.
Zoe: Yes, that's very clear. I think most schools only do one science lesson, so when you said two, I'm like oh, that says a lot about your school, that you found the time in the timetable, because some schools do even less than one a week.
Simon: Yes, well it is a Core subject.
Zoe: Yes, of course, well, thank you very much.

2. **Lauren Alfrey Crab Lane Primary School (in post since Sept. 2023) 19/4/24**

Zoe: What's your opinion on the Key Stage 3 science curriculum, do you think it is engaging and interesting for children?
Lauren: From the conversations I've had with Gemma and Kate, the project is going well, and it is really hands on and children are enjoying it. I've not witnessed any of it yet, I'm visiting science this afternoon, but that's what I've heard from Gemma and Kate.
Zoe: In science lessons do you think children are eager to speak, ask questions and share their ideas?
Lauren: Well, I have done some pupils' voice. We have science ambassadors and they'll always really keen. They have lab coats which they write their key learning down on, so yes, they are keen to talk about it.
Zoe: Do you this the project has improved children's engagement? Is it better than previous years.
Lauren: Only Gemma has taught Year 3 before, so you would be best to ask her that question.
Zoe: Does the project help children to recall science knowledge? I guess you will need to talk to the children this afternoon and then let me know via email.

Zoe: So, overall, what are your thoughts about the project?
Lauren: From what I've heard, and from what the teachers have told me, and speaking with the science ambassador children are really enjoying it. I have asked if they would like to be involved again next year, and they said yes.
Zoe: In what ways has the project had an impact across the school? Does anybody else across the school know what they are doing?
Lauren: So from a KS1 perpective, no, but I'm sure it will be built into year 4 for next year and can be revisited by year 4 teachers.
Zoe: Do you have any suggestions for how the project could be improved? Do you receive any communications from the project team?
Lauren: No.

3. **Eleanor Davies Divine Mercy RC Primary School (in post since Sept. 2022) 29/4/04**

Zoe: So, I'm asking you questions really as the science subject lead, but of course you also know the project very well. So, this is very much with your science subject lead hat on. How long have you been science subject lead for the school?
Eleanor: Only two years actually.
Zoe: So, are you carrying on with it now? Are you still the lead now?
Eleanor: Yes.
Zoe: Great. OK. So, these questions are whether you agree or disagree. So do you agree or disagree? Is the year 3 science curriculum engaging and interesting for children?
Eleanor: Yes. Agree.
Zoe: In science lessons, children are eager to speak, ask questions and share their ideas.
Eleanor: Agree.
Zoe: The project, Terri and The Time Machine has improved children's engagement in science. So now if you thought they already were very well engaged, then that would be neither agree or disagree. But if you thought that the project has improved the engagement, then it would be agreed.
Eleanor: So, it's improved engagement. Yeah, agree.
Zoe: Have you had chance to observe year 3 since you've been out of year 3?
Eleanor: No, I haven't observed them since I've been out.
Zoe: Have you heard how it's going from the new people?
Eleanor: Yes, I've been aware of how it's going.
Zoe: That's fine. OK.
Eleanor: And obviously because I did it. I know what they're talking about. Kat is on PPA at the same time as me. So, when she's talking about it, I know.
Zoe: That's fine. So, has the project Terri and The Time Machine improved children's ability to recall the concepts and investigations they have learnt during science this academic year? So that is going to be hard for you to say

because it's not your class. But, in terms of what the teachers have told you, or you could just say I don't have that information.
Eleanor: I mean, I feel fairly confident that, like as a you know, as a team of the people that were involved in it, we've all felt that, so for this academic year, I'd say yes as well. I know from the people teaching it how they think it's going. So yeah.
Zoe: Great. Thank you. So overall, what are your thoughts about the project?
Eleanor: Oh, I think it's a really good project. So, I think it was very good I think to be subject lead and actually in year 3 doing the project because there's a lot of things from it that I think are useful for us to know across the whole school. So, I kind of think it's nice that there's been a bit of movement in and out of year 3 because then other people get a chance to be part of the project.
I feel like being part of the project itself is almost like a bit of science CPD for the teachers who are on it. And I think there's a lot of good ways things are done on the project that can be applied across the school. So I definitely think the approach to working scientifically and some of the ideas about making the experiments like pointful. It's like giving an audience almost. You know, when you give an audience for your writing, it's like giving a purpose for the experiment, but also be very specific about what working scientifically you're teaching experiments. I think the project showed us some different ways of doing that. Like when you plan experiments that you're not going to do, but there's still a good motivation for planning them so that you can really focus on the planning skills, right? So a lot of those kind of ideas. And like I remember when we did them, the lesson where we separated out different types of investigation. So that's something it's not solidly come out with the rest of the school yet, but it was something I want to bring out more with the rest of the school is splitting it out into those types and that those activities where the children get to actually think about which one was which. So yeah, I think it's really good for the year 3s and I think it's good as a project for the school to be involved in that can help us kind of improve our science across the school.
Zoe: Right. Which leads perfectly to my next question. In what ways has the project had an impact across the school? Has it had any impact yet or you think you've got plans for it to have impact?
Eleanor: I'd say I've got plans for it to have impact. I think it's a bit more of a gradual process. But it did have an impact on some of the things I did when we were sorting out the curriculum. But I think in terms of what the children actually experienced in the classroom. We've got plans rather than actually had an impact yet, yeah.
Zoe: So those children who did the project last year with you, they're now in year 4. Do you think your year 4 teachers have been able to continue anything in terms of the sorts of different ways that you were doing things in year 3?
Eleanor: I mean, I suppose it's given those children… like, that's their science experience so far that they've taken part in. Probably, not really specifically affecting year 4s, if I'm honest. But I just think in general some of the ways we talk about science in school have changed and so one of the

differences that is has made is every year group does have a floor book now and that was actually a big thing. I pushed for a bit less work in their actual science books and more recording in different ways. But I wouldn't say it's been picked up by year four as opposed to other year groups just because they did it last. Just if you know what I mean.
Zoe: Yes
Eleanor: Yes, so there's been mixed success, because some people find it easier to just keep doing what they know, even though, I know that if you put the effort into it, it's easier. So, I feel like change takes a bit longer, doesn't it?
Zoe: Well, I think that's an example of quite a big change for some teachers, to not be using the science books so much, and to actually use a floor book for science. Just the whole concept of a floor book will be something that some of the teachers have not used in their practise. So yes, that's an example of quite a big change.
Eleanor: Yeah. I wouldn't say it's been successful yet.
Zoe: Yes, these things to take time to bed in, don't they?
Eleanor: Yeah, they do.
Zoe: Great. Thank you. OK, do you have any suggestions for improvements on how the project is delivered?
Eleanor: I mean, not in particular, because I feel like we've managed to make it work quite well in our school. I know there were some issues about the timings and stuff, but as it's going be more pre-recorded as it rolls out, that will be less of an issue, as the live sessions are logistically harder.
Zoe: Yes, there has been more flexibility this year, hasn't there with the pre-records. There's not been as much live this year as when you did it.
Eleanor: So, I think that's one of the things we'll see.
Zoe: So Eleanor, the two science subject leads I've already spoken to, they have never been year 3 teachers, so the only thing they know about the project is having watched part of a lesson, not even a whole lesson. And they said that they felt that the project team could maybe give them some more direct communication and kind of involve the science subject lead a little bit more.
Eleanor: Well, actually, I do think that would be really good because this year, I know about it because I speak to Kat, and she did it the same year as me. So, I feel like I fully understand it. I don't know whether I would have done if I hadn't done it last year, because I haven't really been directly involved in anyway. And I think that would be good as well, like I say, because some of the things I'm talking about, that I'm trying to get in science for the whole school, that's only going to come about because I happen to be science lead and have done it. Those two things together. So I think that because there's whole school things you can learn from it and you can only do that learning if you've got someone involved in changing science in some way. Who's had that strong experience of it? So, I think that would be very positive. And I think that might be especially important when you're thinking about who will be in your year 3 team. If it's the science lead, who's really behind this year 3 project, then that consistency will stay a bit more, won't it? If you know what I mean.

Zoe: Yes, because you could lose the commitment, especially if it was a pre-record and somebody just ends up just skipping it that week.
Eleanor: Yeah. So, I think it'd be very worth the school having the science lead be one of the key people who's really behind, who really understands it, and then knows how they can bring out those things for the rest of the school as well.
Zoe: Yes, and would it help if there was a termly e-mail with key messages or is it actually getting the science subject leads of the project schools together for either a face-to-face or a Teams meeting with the with the project team to actually meet Sarah and Hannah?
Eleanor: I think actually meeting people would be good. I think you get a lot out of that, because I don't know if you remember, but at the very first meeting, I was very sceptical, you know, when I started, I was. It only took the first meeting for me to see, you know, like what was behind the project and think, “Oh actually, I like it, I think this could be really good”. But at first, I was very sceptical, I was suspicious, and I felt like we've ended up on this project because our previous science lead doesn't know science and they just wanted to make it artsy. And then I went through it and I thought, “Oh no, I get it”. So, I think it does help being there at the meetings to get it. So, I think emails might be good, but I think actually being there is better. I don't know how much it's within the project’s scope to do that, but I do think some of the really solid, good things that came out of doing it this way that can be expanded into other year groups regardless of being part of Terri and the Time Machine, like some of the attitudes to do working scientifically and in fairness, that's because working scientifically was particularly weak at our school. It would be good to have that conversation and to know how other schools have brought out ideas from Terri and the Time Machine to the rest of the school. It might give other’s ideas.
Zoe: Yes, I don't think they could do that in the first year, but now it's in its second year and they're getting ready for the third year, I think there's something where they've got a bit more of a track record to understand what the training, the CPD for the science subject leads might look like.
Eleanor: Yes, I think that could be really good.
Zoe: Because, I think what you said about feeling sceptical as a science lead, because as you know, we're both science graduates, and we that science as a core subject can sometimes be kind of undermined, and so, you felt it was going to be kind of hijacked by this creative arts story.
Eleanor: That's it, yes.
Zoe: And therefore, when you ask children, what do they recall about year 3, do they recall Terri, rather than the science. And of course, that's not what's happened. But you could easily feel sceptical that that's what was going to happen.
Eleanor: Definitely. Yes. So, I think again, having the people on board who are really caring about science in the school, I think could be very beneficial. It was just coincidental in our school, obviously, with me being year 3 and science lead.
Zoe: But that’s what makes you unique, because there's no other school that has that. So, it really relies on the teachers talking to each other. And the

science lead being given the time to have the chance to observe. But if they're full-time class teachers themselves. That's not necessarily easy to do.
Eleanor: Yes, definitely, I feel like being part of the project is like science CPD, you know, it really is really beneficial for you. So I think it can really be sold as that for the science leads. I think there's a lot we could get out of it for the science lead role to be part of this beyond just the project.
Zoe: Great. This is the last question now. Is there anything else that you'd like to tell us about the children's attitude to school science or the project in general, or if you have an example of a particular child or a member of staff and how they've reacted to the project, so it's really, have you got an anecdote about a particular child, TA or teacher. Any stories around Terri and The Time Machine?
Eleanor: I mean. It's really suited Kat. She's been really enthusiastic about it both years and I enjoyed working on it with her and then it's been a really nice project for her to work on with James and I know he's straight away, come in and he's really enjoyed it. So I think it gives you that bit of energy and that bit of excitement. Definitely, even as a teacher. For the children, it's a special thing about year 3 that they might talk about, so year 2s know about what we're going to do. So, I think it creates a buzz about the project.
Eleanor: And you know, the kids do really enjoy it. And I think the more you can remember Terri and use some of those ideas, it'll keep that momentum going a little bit across the school, yeah.
Zoe: Yes, that's absolutely fantastic. Thank you. I'm going to stop the recording.

## Appendix 4 Transcript of teacher focus group July 2024

**Focus group of four teachers who taught Terri and the Time Machine in 2023-24**

Zoe: So, the impact on you. Did anybody have a thought straight away when I said that. Has it made any difference to you being in this project? Hannah can't go first because she's had two years to think about it.

Liz: So, I like the creativity of it, and over recent years in teaching, with the curriculum being very knowledge based now, I feel like it's much less creative than when I first started teaching and this has allowed us that, because otherwise we'd be doing the school science scheme and it would be "This is how you're going to do it", and I don't know, I like the creativity, through the arts.

Zoe: So how has the opportunity for creativity made a difference for you then, what's been the impact of being allowed to be more creative?

Liz: I think... I enjoy it more. I think that it's naturally inclusive of all the children without having sort of one task and having to modify it for children. I mean, there's still obviously a little bit of that, but the creative element allows… what's the word I'm looking for?

Zoe: The accessibility of it?

Liz: Yes.

Becky: I think my children are much more involved, even like the children that, you know, are not giving you much out of other lessons, especially the lessons with Terri and Gideon, and I've got my children who are like, really low English, or really low ability, wanting to be the scientist that come up and explain to Terri and Gideon what it is that they've learned, or what we've been doing. Getting those kids excited and involved and they're really wanting to learn because they know, "Oh, I might get asked by Terri or I might get asked by Gideon about what I've been doing. So, I want to be the one that tells them about it, I want to be the one on the camera being the scientist that has to explain what we've done". So, I think even little things like that.

Liz: I agree with that, and we have a lot of very passive children, very passive, who sort of will sit back and wait to be spoon fed things, but they haven't been really in this, they've come out of themselves a bit more.

Zoe: Why do you think they want to tell Terri and Gideon more than they would have told you?

Becky: Because they're so invested in it, aren't they, as well, because it has a purpose.

Danielle: It's not like, let's get this task done because it's our science task, right, we need you to do this now guys, because Terri and Gideon and waiting to hear from you. The children feel responsible for their task and their group's feedback.

Liz: Also, they've seen my face all day. Yeah, it's refreshing.

Zoe: So, it's like it's a new audience?

Hannah: Yes, they're hearing the same voice and thinking "I'm bored of that". So, you know, I've done it twice, well I've been able to adapt my delivery of it, especially that first lesson where you get the Matter

Transporter and you're asking all those questions, and then who's Terri? And I knew where they might go with it, so I could push it further this year than the first year.
Zoe: Because you know where the storyline is going.
Danielle: So, at our school, the scientific knowledge, it can just get very easy to share the knowledge with the children then do a worksheet based on that knowledge. Whereas I found that within our school, in year 3 we have done way more investigations, way more opportunities for the children to plan and evaluate investigations and I think that their working scientifically skills because of that have improved massively this year.
Zoe: They've done more investigating by following Terri and the Time Machine than they would have done on your school scheme.
Danielle: Yes, because I've taught year 3 science before, not with Terri and the Time Machine, we would have taken a much more straight up knowledge approach.
Zoe: So, you can make a direct comparison.
Danielle: Yes, this year the children have found things out more for themselves, and it's definitely changed my way of thinking as well, that we can be way more creative in the way that we think about our lessons and letting our children discover things.
Zoe: So, you think that they'll take those science skills into year 4?
Danielle: Yes.
Liz: With us, in our science scheme, there is sort of an investigation every single lesson, but there's like extensive 2 sheets of A4 planning sheets for them, which are just not accessible to even you know, the brightest children, you know. Which is interesting because at our school we use floor books a lot, so we don't record written things, you know, we use voice recordings. So, the fact that in science we've got these two pages of planning sheets is a bit odd compared to everything else. So yeah, we have a lot of investigations in our science scheme, but then also that planning sheet and they can use their skills without having to writing about it.
Zoe: So, you haven't used the planning sheet with Terri?
Liz: No.
Zoe: And has that made a difference to the children's investigation skills, as Danielle said?
Liz: Yes, because they don't have to be able to write it to take part. They can just verbalise it. Which is what we do in other lessons.
Zoe: Yes, so was the impact on you, any other thoughts about the impact on you?
Becky: I think subject knowledge for me has been massive, like everything you need is there, the planning that has been sent through and it helps massively with my understanding and what I need to teach the children.
Zoe: About the science curriculum itself?
Becky: Yes.
Liz: I think it will be easier when we do another year like you said and we've got more of an idea, sometimes this year the planning has come through a bit late, which has been quite stressful because we have PPA on a Monday, and then sometimes it has come in on Wednesday or Thursday. Sometime

resources have been delivered on Friday lunchtime, when we're teaching the session Friday afternoon, and as someone who likes to be organised, so that's one thing that I found a little bit tricky.
Zoe: Yes, so that's an improvement for next year isn't it. As teachers, we need to be able to plan ahead. I know at Webster, the children have two science lessons a week. So, you've got to know if you've got your Terri lesson, you've got to know then what you're going to do in the other lesson you've got. So, know all of them in advance.
Hannah: Yes, it has helped, knowing from the first year what's coming up, so knowing how's it going to complement it. The medium-term plan and think about what they're going to need to know before this lesson, that extra bit of input that when they get to the Terri lesson that they can really apply that knowledge and share that knowledge.
Zoe: Yes, absolutely the resources, the planning, you need to have in advance. Any other thoughts for improvements? Anything else they could do? So, they've added in the retrieval practice, because that was the feedback from the March meeting.
Liz: Yes, that's been really good, and the vocabulary.
Danielle: So, for me. I don't know if you guys were the same, but you know you've got a call at 10:30 and then we've been back, I think, at 11:40, just it feels a like not quite enough time. Not quite long enough.
Zoe: So, I think that there will be more prerecorded so that you can play them when you're ready. Although, you won't get the opportunity for the children to speak to say this is what we found.
Danielle: Yes, I think it's just this year we've had a difficult time slot. So, we have to rush back. Another thing I wanted to mention, it's a personal thing, maybe because this is our first year, sometimes behaviour management can be an issue.
Hannah: Yes, getting the balance between exploring and working, sometimes there's too much energy.
Danielle: Yes, my class are very passionate about it.
Zoe: Does anyone else think that? Is it sometimes too exciting?
Liz: No, I'm alright with it.
Becky: I assume it's just the children you have, isn't it? Like I've just got some that you have to daggers at when it's a live session.
Liz: That's the only thing, when it's live and one of them is being silly, I'm thinking "I can't pause this".
Zoe: So Hannah, after two years you seen two classes.
Hannah: Last year's class were livelier, so…
Zoe: How did you manage it then, having gone through it once, can you anticipate?
Hannah: Yes, things like breaking it down into smaller steps. They don't have quite so much freedom to get themselves to that level of over excitement. We can think "What is the most exciting moment?" when it could potentially be hard for the children to contain themselves.
Danielle: It's so different to other lessons that we do, and they do get a lot of opportunity to be creative and discover things. So I think it's just that as well. And they do love it. They do.

Zoe: Any other improvements?
Liz: My matter transporter has stopped working. I'll pressing be pressing it at lunchtime and it will work, and I think I'm fine and then I'll press it again and it doesn't work. And I'm like, oh, my God. But it must be just the like, I don't know what's going. Because then it works again. I think there's a loose wire somewhere. It's working. Sometimes it's not.
Zoe: Yes, you need to report a fault. So have a think. Do you have any stories about individual children. So you've said about the quiet ones, that they want to get to the front and they want to speak to Terri. So not so much about them loving Terri, but anything else that they are doing? - maybe some science at home, talking about science, bringing that creativity and that science back and saying we've been doing some more problem solving. So not the arts bit of it, not the performance and the characters, but something about the science, if you can separate the two?
Danielle: I've got a little boy in my class. Who is low ability English wise, in terms of his written communication that has just absolutely excelled this year in science. We use floor books as well and I think just the whole *having a purpose* is being very verbally driven rather than written. Here we are, we work collaboratively as part of the team. He says it's his favourite lesson too. He knows he's been good; he loves science and he is proud of what he has achieved.
Hannah: I've got a boy who became obsessed with bringing in rocks, different types of rocks. He dragged his parents round Manchester Museum around the corner from school to look at the fossils and all the rocks, and he just would come in after the weekend with so many stories about the things he's found.
Liz: Yes, in my class it was the rocks. The boys would come to school with their pockets full of rocks and some of them are clearly decorative stone from someone's front garden on their way in, but then they're trading them and sometimes they are lumps of tarmac. Yeah, the boys have got quite into rocks.
Becky: And the girls, talking about rocks and crystals. And the last lesson we just did, we were talking about working for Watte Co. in 30 years' time, when they're older, and it's the activity of designing themselves as somebody who works at Watte Co and everything that they need, like attributes and stuff. And I did say to them, "Put your hands up if you want a job like this" and more than half did. They're interested in becoming something to do with science and then we talk about things like archaeologists, because we did the Stone Age as well. That was one of their first units, and they still remember things. And I think, yeah, they're just more interested, career wise, because usually they say, "I want to get a shop or work at a kiosk", that's the aspiration for some of our children.
Zoe: And that's going to be my next question. Do you think, this stereotype of the scientist, has Terri and the Time Machine broken that? Do children realise that you can have a job that involves science or be a scientist? And that people do lots of different jobs that involve science. Different types of engineers and scientists - nutritionist, archaeologist, engineer. Do you think that that has come through?

Becky: Yes, I think so. I think it's nice seeing like different roles come through. Men and women in the different roles. As well, and like the female archaeologist and the female engineer and things like that.
Liz: I feel I feel like I have to say, would you like to do that job? You could do that job because I don't think my children see it. That even though they're seeing someone doing that job, they're not seeing themselves. They're not thinking "Yeah, it could do that". So, I'm trying to make it really explicit. Like, saying, "You can do that job, you know?" I feel like I have to make it really explicit, otherwise it's almost too far away from their own world. They enjoy meeting these people. I'm not sure that they see themselves as being able to do it.
Hannah: One little boy who is the opposite of what you were saying. His aim in life is to get a Nobel Prize for physics. And I say to him "Yes, you can do that".
Liz: I've got one child who wants to be an entomologist, which is the study of insects. And when Sarah's come in, he's been telling her about his praying mantis and things, and he's obsessed. But that's a rarity. The rest of them, I'm not sure. So yes, I think that's something I can do to make it more explicit, to ask "Would you like to do that job?"

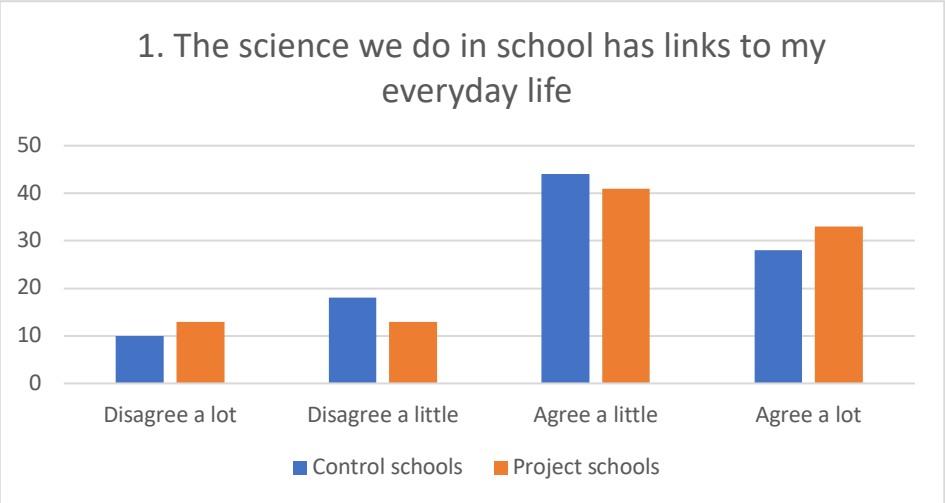
## Appendix 5 Pupil feedback collected by Danielle Atkins, Bowkervale Primary School

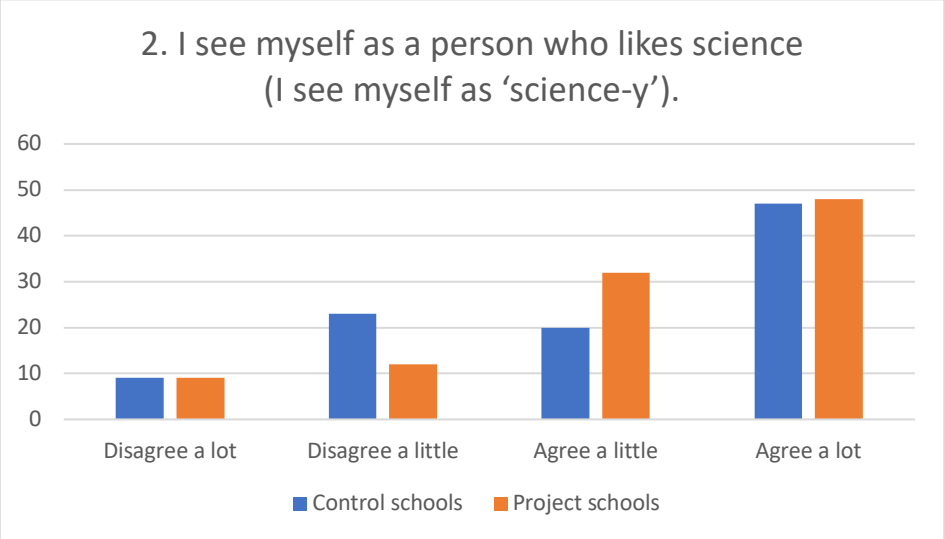
Terri and the Time Machine pupil feedback

| |
|---|
| Do you enjoy your science lessons? Why?<br>YES!<br>Our science lessons are fun because we do new things.<br>I learn something new every science lesson.<br>We have learned about bones and how our body works.<br>We met a time traveller called Terri and we met Gideon. We have also met geologists and archaeologis |
| Do you enjoy learning and exploring with Terri and her time machine? Why?<br>It is exciting because Terri sends us stuff in the matter transporter.<br>We get to meet scientists and archaeologists.<br>Terri or Gideon call us and give us a job to do!<br>It is fun to listen to the call and also we get given jobs and then share what we have learnt.<br>We helped Terri to fix her time machine, so she could get to our time, but she has travelled too far bac and is now in the Stone Age.<br>Terri's muscle are cramped so we learned all about muscles and created a very fun exercise routine for her.<br>We sent her an apple and then investigated soils to see which were the best for apples. |
| If Terri were to visit another school/ year group, how would you describe Terri and the time school in one word?<br>Fantastic! Cool! Incredible!<br>Fun! Amazing! Super!<br>Joyful! Interesting! Smart!<br>Brilliant! Exciting!<br>The best! Funny!<br>Fascinating! |

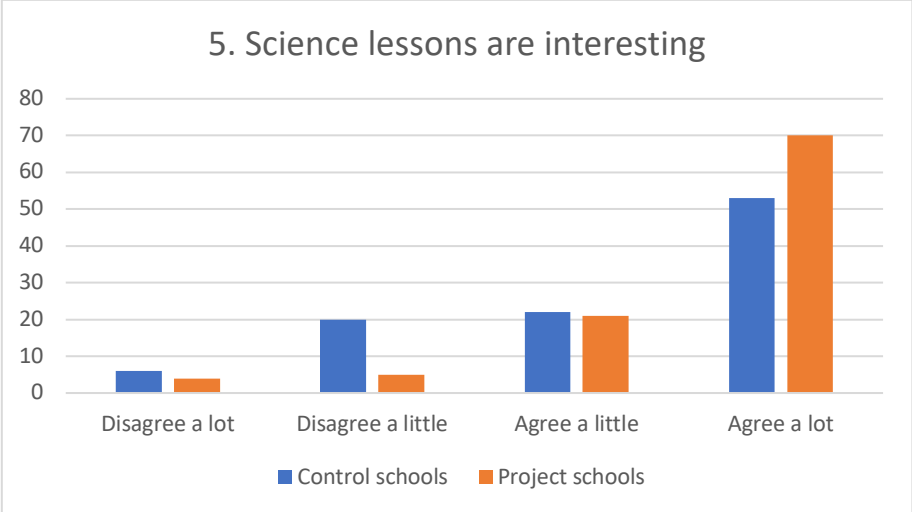
## Appendix 6 Summary of children's questionnaires

We collected data at two control schools (not involved in the project) = 115 children and five project school (who taught Terri and the Time Machine this year) = 256 children. Data provided as percentages to allow for a direct comparison. Questions based on pupil survey in: Nag Chowdhuri, M., King, H. and Archer, L. (2021) *The Primary Science Capital Teaching Approach: teacher handbook*. London: University College London

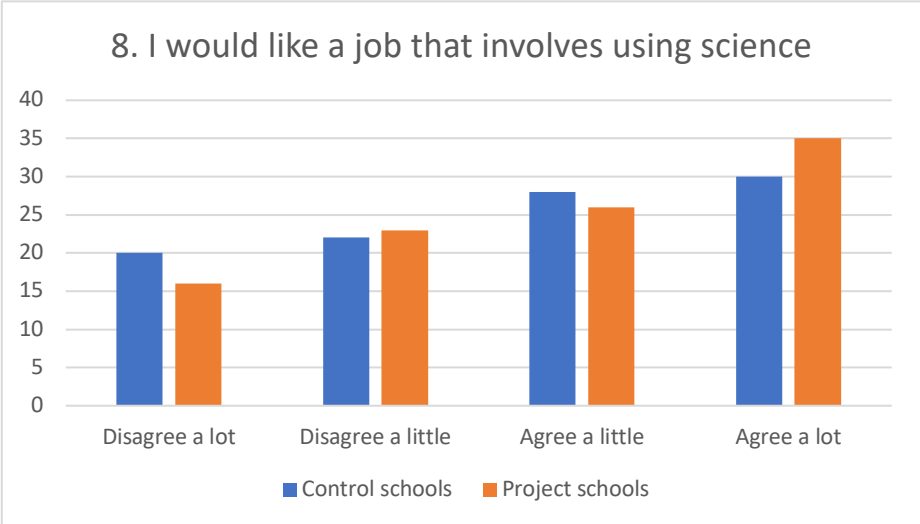



Notice that there is only a small difference between the control schools and project schools for these two questions – this suggests that links to everyday life and science attributes could be taught more explicitly.




For this question, there is a big difference between the control group and project schools. 91% of children who have been involved in the project feel science lessons are interesting, compared to 75% of children in the control group.




Children in project schools are more likely to aspire to a job that involves using science than children who have not taken part in the project, although the difference is only quite small, with 5% fewer children disagreeing a lot and 5% more children agreeing a lot.

## Appendix 7 Evaluation survey additional responses

**From parents:**

- My child enjoyed this subject very much.
- It is very nice that my child is able to attend the science lesson and learn about science.
- My child likes science.
- My child really enjoys Terri and the Time Machine in school! He has spoken about Gideon and all the activities they have taken part in. 😊
- My child always excited to talk about science and looking forward to being in a laboratory environment with lab coat etc in future. She loves experimenting like mixing up colours and ingredients to see reactions. So, I bought science kits from Amazon, encyclopaedia and science dictionary for her to wonder. P/s: I never helped her with science homework because she had none.
- My daughter really loves school and learning. She enjoys science and participating in Terri and the time machine. She was really excited when telling me about each her interactions with Terri and the investigations she has done and is currently doing.
- He loves school and science a lot.

**From teachers:**

**What has been the impact of the project, Terri and the Time Machine, on your confidence to make links between the science we do in school and the work of scientists/engineers?**

- There has been a big impact as I feel the engineers/ scientists are introduced in the context of what we are learning and therefore it is easy to make links between what the children are doing and what the experts are doing!
- Great to make real-world connections.
- The links with STEM jobs has been excellent and valuable for children to get involved with.
- Great links made to a range of contemporary scientists and engineers which has shown me connections that I can make between school science and career science. Helps me to make links explicit for the children.
- It has been easier to draw link to school science to the wide range of science based professions.
- Really clear but I have to make it explicit for the children as I'm not sure they are themselves in those roles yet

**Do you have any suggestions for improvements in how the project is delivered?**

March survey:

- I think that it would be really useful if you attached PowerPoints for each lesson that matched the teacher notes. It is hard to interpret the teacher notes and create PowerPoints from them.

- Some more opportunities for consolidation/recall of learning at a later time to see if children have retained the information. For example, I created a fact file for the different types of rock for the children to fill in with information we learnt in the sessions to help consolidate the learning.
- Has already been discussed - live ones restrict flexibility of the timetable I like being able to teach Science earlier in the week when they are more engaged (and I have more energy!)
- If switching to pre recorded videos, maybe have more video responses from classes to keep ownership of that link of communication with Terri.
- I like the idea of pre-recorded sessions for flexibility.

July survey:

- Ensuring planning is delivered ahead of time (2 weeks, so teachers can use PPA to plan ahead).
- Less information on the lesson plans. Bullet points, clear and concise.
- Some of the timings and activities didn't always lend itself very well for doing our journals and sometimes we would need to do a catch up journal. It has been better to have pre recorded zooms to give us more flexibility The retrieval is a good.
- Nothing to comment at this time.

**Is there anything else you'd like to tell us about the impact of the project on children's attitude to science and school? Examples of how particular children have reacted are useful.**

March survey:

- The children all absolutely love their science lessons and look forward to them weekly.
- Some children speak about Terri a lot at home and discuss the learning with their families. Some parents have asked about it and shown interest in the project.
- Children have always enjoyed science and how practical it is, however this year it has been even more engaging and the children have also loved the added arts/music level provided by z-arts.
- Children always ask when we are seeing Terri and look forward to the videos/live sessions. Even quiet children engage and the whole class gets involved and found it unnecessary to adapt anything for all learners.
- Children have been far more engaged and excited to have their science lessons. Some children who said they did not enjoy science last year are those who look forward to it most now, because they look forward to speaking to Terri and catching up with her adventures. Some children with sensory issues struggled with the noise of the matter transporter.

- Children are very invested in the project and everytime we approach a Thursday they are asking me if I've had any messages from Terri. They are fully in the belief that it is all real and are motivated to learn and engage.
- The children adore Terri and the Time Machine and always have so much fun engaging with the content.

July survey:

- The children in my class have adored being part of the Terri and the time machine project! It has increased their curiosity, motivation and love for science! One boy in my class (who struggles with reading and writing) has flourished in Science since being part of this project. As this project requires a more verbal approach to sharing ideas, planning investigations and exploring knowledge, his confidence has grown significantly.
- The children ADORE Terri and they love science because of TTM! Thank you!
- Children have responded well to Terri and the Time Machine and it has been useful to have a theme running all the way through the science lessons. They have really enjoyed it, the connections they have made with specialists in their field has been invaluable for our children who may have had a stereotypical view of what a scientist is.
- Children have been massively engaged in science and love the sessions. Helping Terri and Gideon has helped them to become the 'experts' investigating a question or topic instead of being passive receptors of information. SEN children in my class this year have been excited to learn and have been able to retain and relay information they wouldn't have otherwise been able to. The range of activities/experiments and use of art and drama to explore and explain concepts has helped all children understand new information.
- More children that are not as academically able have been able to enjoy the creative side and make sense of the learning through being creative.