

# Mobile Museum Schools Project: Final Evaluation Report

Jen DeWitt and Emma Pegram



Commissioned by Royal Holloway, University of London, and the  
Royal Botanic Gardens, Kew

March 2020

This report was commissioned by Royal Holloway, University of London, and the Royal Botanic Gardens, Kew in 2019-20.

### For more information

For more information about the Mobile Museum research project, the schools strand of the project and the learning resources created, consult the websites below

Project Website: [rhul.ac.uk/mobilemuseum](http://rhul.ac.uk/mobilemuseum)

Project Website, Schools Strand: [rhul.ac.uk/mobilemuseum/schools](http://rhul.ac.uk/mobilemuseum/schools)

Kew Gardens School Resources: [kew.org/kew-gardens/school-visits/school-resources/create-plant-museum-lesson-plans](http://kew.org/kew-gardens/school-visits/school-resources/create-plant-museum-lesson-plans)

Cover design: image by Harriet Gendall

**Mobile Museum**  
Economic botany in circulation

Royal  
Botanic  
Gardens **Kew**



Arts and  
Humanities  
Research Council

## Contents

<b>Executive Summary .....</b>	<b>1</b>
<b>1. Introduction .....</b>	<b>4</b>
1.1 Participating schools.....	4
1.2 Project objectives .....	5
1.3 Structure of the report .....	5
<b>2. Mobile Museum project.....</b>	<b>6</b>
2.1 St Monica's .....	6
2.2 Wilberforce.....	13
<b>3. Evaluation methods .....</b>	<b>19</b>
<b>4. Findings related to project outcomes/objectives .....</b>	<b>20</b>
4.1 Knowledge and understanding .....	20
4.2 Developing 21 <sup>st</sup> Century skills.....	26
4.3 Attitudes and values concerning other cultures .....	29
4.4 Taking action .....	32
4.5 Project approach: whole school, cross-curricular, collaborative.....	35
<b>5. Further outcomes for families, pupils and schools .....</b>	<b>41</b>
5.1 Home-school relationships.....	41
5.2 Pupil agency and ownership.....	44
5.3 Learning from objects.....	46
5.4 Teacher-pupil relationships.....	47
<b>6. School Mobile Museums: the direction of travel.....</b>	<b>48</b>
<b>7. Conclusions and implications .....</b>	<b>49</b>
7.1 Framing and promotion .....	50
7.2 Support for schools and teachers.....	50
7.3 The value of working with Kew .....	53
7.4 Final thoughts.....	52
<b>8. Appendices.....</b>	<b>54</b>
8.1 Data collected.....	54
8.2 Data collection instruments (a selection) .....	55
8.3 Teaching aids .....	61
<b>9. About the evaluators .....</b>	<b>63</b>

## Executive Summary

The Mobile Museum project was a three-year AHRC-funded project which ran between January 2017 and December 2019. It represented an innovative collaboration between Royal Botanic Gardens Kew (Kew) and Royal Holloway, University of London (RHUL). The project included an Historical Research Strand and a Schools Strand, the latter of which is the focus of the present evaluation.

The Schools Strand was an outreach project, delivered by the Mobile Museum Project Team, which began in 2018, involving two London primary schools. Both schools are single-form entry schools, with ethnically diverse pupils, at least half of whom were eligible for Pupil Premium.

The Mobile Museum project set out to explore the potential of culturally significant, plant-based objects to support learning in contemporary primary schools. The project adopted a whole school approach, with the intention of involving all pupils and teachers in the school in the process of learning through these objects and creating a school museum. It was also intended that parents and caregivers would be involved, helping to identify relevant objects in their communities.

The schools took different approaches to the project, both culminating in the creation of school-based museums. Both schools were supported by the Mobile Museum Project Team, made up of Learning and Economic Botany staff from Kew and researchers from the Geography Department at RHUL. They provided the schools with guidance, resources and support throughout the project, at school and at Kew during school trips and CPD, as well as developing the *Curating a School Museum: Teachers' Handbook*.

A qualitative approach was undertaken in this evaluation, collecting a range of data related to the project objectives and outcomes. Data from the two schools provided insight into the potential of this kind of project to support a range of learning outcomes, and highlighted the features of the project we found most important in attaining those outcomes.

### Findings

The Mobile Museum project was successful in reaching its intended learning outcomes. In working towards the creation of displays for their school museums, pupils made gains in knowledge and understanding of the importance of plants and of other cultures. They also developed their '21<sup>st</sup> century skills' (Creativity and innovation, Critical thinking and problem solving, Communication and collaboration). The area in which the strongest learning gains were made was in pupils' attitudes towards, and valuing of, other cultures.

### Knowledge and understanding

Through its focus on plant-based cultural objects, the project increased pupils' knowledge and understanding of the importance of plants and fungi, and of the diversity of cultures in the school community. Pupils learned which materials their objects were made from and something about those plants, although increasing their knowledge of plants more substantially and why they matter to people seems to require more direct and explicit emphasis in the teaching. In addition, evidence suggests that learning was different from that gained in typical school science lessons because the project promoted the value of plants in students' daily lives and communities.

Through learning from physical objects and researching the materials they are made from, how they are used and by whom, pupils also increased their knowledge and awareness of the cultures represented in their schools. They recognised similarities and differences between cultures from sharing and discussion

with peers, pupils in other classes, teachers and parents. The school museums increased representation of the range of cultures represented by pupils and their families in both schools.

### **21st century skills**

'21<sup>st</sup> century skills' were strongly aligned with the schools' learning intentions, with teachers looking for opportunities for new ways to support pupils' learning in these areas. The delivery of a museum and the activities involved in processes leading to this utilised these skills in many ways. For example, *creativity and innovation* were necessarily involved in creating artefacts for the museum and designing the exhibition; designing and creating the exhibition and learning from objects required *critical thinking and problem solving*; and *communication and collaboration* skills were developed as pupils wrote texts and captions for the museum, created the museum and participated in rich discussion.

The project provided opportunities to develop '21<sup>st</sup> century skills' within a real-life context – learning from objects and creating a museum. Teachers often noted on how the children enjoyed the project and worked well together on it – this they attributed to the meaningfulness of the project for the pupils, that they were interested in what they were doing and that the activity was strongly led by the pupils.

### **Attitudes and values towards other cultures**

Pupils at both schools were very interested in learning about other cultures, respectful of their peers who were from different cultures and respectful in the way they handled and discussed the objects loaned for the museums. They enjoyed the focus on themselves – on objects from their homes and on cultural practices about which they or their families (and not the teachers) were the experts. In the museums children demonstrated pride and curiosity around the objects, always in the context of the culture or country they had come from. These values were very important to both schools and reinforced through teachers' interactions with pupils, in assemblies and RE lessons.

Teachers reflected that the project gave dedicated time in the curriculum to build understanding and value cultural similarities and differences. This was important as it gave these outcomes a distinct place in the busy school timetable, made them visible to parents and was constantly reinforced over the duration of the project.

### **Project approach: Cross-curricular, 'whole-school' and collaborative**

Both schools involved the whole school in the project and in the creation of their school museums, although they did so in different ways and with one school implementing more cross-age working than the other.

One of the most successful elements of the project was its cross-curricular nature. Not only were multiple subject areas covered during the course of the project: Literacy, Art, Design & Technology, Geography, ICT, RE and Science, but this process occurred in a natural, unforced way that was distinctive. It was both inspirational for teachers and meaningful for pupils.

The project was developed with considerable support from the Mobile Museum Project Team, despite the inevitable challenges of collaborating with busy schools. Communication about what a school museum focused on culturally significant plant-based objects might 'look like' was a challenge for this pilot project. However, these experiences provide insight into potential future resources and supports for schools.

### **Further outcomes for families, pupils and schools**

One of the most significant outcomes of the project was its extraordinary *impact on parents* at both schools. Their reaction to the school museums was one of emotion and pride – the displays represented objects from many countries and parents were proud that objects from their countries (and, for many,

*their* objects) were part of this. Through the museums, the schools demonstrated that they acknowledged and valued the diverse cultures of the families. Parents clearly believed that the museum could make a difference to the schools as it made them feel more involved. Additionally, the schools recognised the parents' expertise and had welcomed it. The project had both succeeded in encouraging (often reluctant) parents into school and in engaging parents with their children's learning.

Another key element of the project for the pupils at both schools was the *ownership and agency* they had over the project. Every aspect of the project – from bringing in objects to deciding what would ultimately go into the museum – was pupil-led and purposeful, being directed towards a definitive, physical outcome (the school museum). This supported a strong sense of ownership of the project.

At both schools, pupils acquired *skills required to learn from objects*. They had been given permission to touch, smell and play with objects some of which were familiar, some not. They had learned to ask questions, reflect and speculate on the use of objects and what they were made of. Reflecting on the long-term impact of this approach, teachers said they noticed how pupils used the same techniques when investigating objects in different lessons.

The project also brought benefits to *relationships between teachers and pupils* which seems to have been underpinned by the opportunities that the project offered for teachers to get to know their pupils better, including about their lives outside of school. This outcome is likely due to the objects being not only culturally significant but brought from pupils' own homes.

## **Conclusions**

The Mobile Museum project delivered on its intended outcomes, and more, and was a rich and meaningful experience for the teachers, pupils and families involved. The experience of managing the project will inform future work on the part of the partners in their efforts to engage with diverse and underserved families, communities and schools.



## 1. Introduction

The Mobile Museum project was a three-year AHRC-funded project which ran between January 2017 and December 2019. It represented an innovative collaboration between Royal Botanic Gardens, Kew (Kew) and Royal Holloway, University of London (RHUL), referred to jointly as the Mobile Museum Project Team in this document. The project had two main strands: 1) an **Historical Research Strand**, which focuses on research around how and why objects from Kew were sent to national and international museums and to 700 schools around the UK during the nineteenth and twentieth centuries; and 2) a **Schools Strand**, an outreach project which began in September 2018 involving two London primary schools, selected due to their size (single form entry), the ethnic diversity of their pupils and the proportion of pupils eligible for Pupil Premium, and which culminated in the creation of two school museums in July 2019.

The Schools Strand also aimed to co-create, with teachers, “cross-curricular, inspiring and engaging educational materials that will be used in the classroom to support learning of Science, Geography, History amongst other topics for Early Years, Key stage 1 & Key stage 2 pupils” (from the Invitation to Tender). This co-creation was intended to be carried out via a series of meetings and workshops at the schools, where teachers and pupils would be supported by the Mobile Museum Project Team, including the Education Project Officer and Kew Learning staff.

The Schools Strand adopted a ‘whole school’ approach, with the intention of involving all pupils and teachers in the school in the process of learning through (not simply *about*) objects and, ultimately, creating a school museum. It was also intended that parents and caregivers would be involved, including helping to identify culturally significant (plant-based) objects in their communities. A whole school approach also fit well with the aim of the project to work with high Pupil Premium schools, as research suggests that such an approach can support resilience and well-being. This approach also was well suited to the project, given the links between many of the project aims and the Personal, Social and Health Education (PSHE) curriculum.

The inclusion of the Schools Strand in the Mobile Museum project is due to the emphasis of the historical research on how and why Kew’s museum objects were donated to schools in the past. This long tradition of particular work with schools led to questions about how such a relationship might be re-imagined in the 21<sup>st</sup> century. That is, the Schools Strand of the project set out to explore the potential of culturally significant, plant-based objects to support learning in contemporary primary schools.

### 1.1 Participating schools

Two London primary schools, St Monica’s Roman Catholic Primary School (Hackney) and Wilberforce Primary (Westminster) were selected to participate in the project.

*St Monica’s* is a single-form entry primary school, with pupils in Reception through Year 6, as well as a nursery. The school is accountable both to Ofsted and the Diocese of Westminster, both of whom carried out inspections during the course of the project (Ofsted at the beginning and the diocese at the end). There were 229 pupils on roll (Nursery through Year 6) at the beginning of the project, 52% of whom were eligible for Pupil Premium. The majority of pupils are Roman Catholic, with most of the remainder being of other Christian faiths. Although there were 28 ethnicities represented in the school, the vast majority of pupils come from Black African backgrounds, particularly Nigeria, with more than 20 pupils each also from Ghanaian or Congolese backgrounds.

*Wilberforce* is also a single form entry primary school. It had 161 pupils on roll (Nursery through Year 6) at the beginning of the project, approximately 50% of whom were eligible for Pupil Premium. There are over 30 ethnicities represented in the school, the biggest single group being Bangladeshi (28 pupils) but

all classes representing a large mix of backgrounds including Lebanese, Kosovan, Egyptian, Somali, Moroccan, Iraqi, Black Caribbean and Afghan. The vast majority (80%) are Muslim. Over 22 languages are spoken by the pupils ranging from Arabic (from Algeria, Iraq, Morocco, Sudan), Somali, Kurdish, English, Bengali (Sylheti), Albanian/Shqip, French, Portuguese, Tamil and Filipino/Tagalog.

## 1.2 Project objectives

The schools strand of the Mobile Museum project had the objective of being cross-curricular by linking to a range of subjects in Key Stages 1 and 2 and involving the whole school in the creation of a school-based museum. It also aimed for this work to be carried out in collaboration with the Mobile Museum Project Team, with the goal of achieving the following pupil learning outcomes:

### **Knowledge and understanding**

1. Increase understanding of why plants and fungi matter and how our lives depend on them
2. Increase understanding of other cultures within the school community and/ or better representation of pupils' cultures in the school

### **Skills**

Develop 21<sup>st</sup> century skills, focusing on:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

### **Attitudes and Values**

1. Take away a sense of enjoyment and fascination in learning about themselves, others and the world around them
2. Show an interest in investigating and offering reasoned views about different moral and ethical issues and ability to understand and appreciate the viewpoints of others on these issues
3. Show an appreciation and understanding of the wide range of cultural influences that have shaped their own heritage and those of others
4. Show an appreciation of the range of national, regional, religious and ethnic identities in the United Kingdom
5. Consider the lives of people living in other places, and people with different values and customs

### **Actions**

Taking action in and out of school, examples of this may be pupils:

- Becoming advocates in their local community
- Creating smaller museums and learning displays
- Evaluating what they can do to support the school
- Teaching others on the importance of plants

## 1.3 Structure of the report

This report begins with the narrative of the project, describing how the project unfolded in each of the two schools. Next, evaluation methods are described, followed by a description of the project impact, structured around the learning outcomes as well as objectives related to the whole-school, cross-curricular approach of the project. Other impacts are then discussed, and the report finishes with conclusions and implications for future work.



## 2. Mobile Museum project

As anticipated by the project team, each school took a different approach to the project, although both culminated in the creation of school-based museums. In addition, both schools adapted and modified their approaches as the project unfolded and these shifts are also included in the descriptions below. In implementing the project, both schools were supported by various members of the Mobile Museum Project Team, in particular by Learning staff from Kew, and RHUL researchers and Kew staff in the Economic Botany team at Kew. They provided the schools with guidance and support both at the school (via workshops, loaning resources, etc) and at Kew during school trips and CPD, as well as producing curriculum resources and the teachers' handbook on *Curating a School Museum*.

### 2.1 St Monica's

The Mobile Museum project was originally envisaged by the school lead (the Year 2 teacher) as having three phases, or 'legs': Research ('Plan'), Organisation & communication ('Make'), and Putting together the museum ('Deliver'). It was intended that pupils from each class would select an object to feature in the Mobile Museum and research that object in Leg 1; work on writing and creating content in Leg 2 (write captions, labels, signs, and advertising for the museum, as well as recounts of museum visits where relevant); and finally create the museum in Leg 3 (create objects and/or activities, decide which captions and labels to use and lay out the museum). The lead teacher on the project planned that each leg would involve two to three days off timetable, in which lessons in the different subject areas of the curriculum would be carried out, all linking to the project. The project would be supported by a whole school visit to the Natural History Museum as well as, crucially, the 'Museum Crew', consisting of two pupils from each class who would visit one or two museums and share their learning with their peers via an assembly, followed by work in the classrooms. There would be a different Museum Crew for each leg, to enable the maximum number of pupils to be part of the Crew.

The Mobile Museum project was led at St Monica's by the Year 2 teacher, who was also the Science Lead and driving force behind the project at the school, supported by the Year 3 and 4 teachers. The school became involved because they were moving more towards topic planning and interweaving topics and subject areas (becoming more cross-curricular). They were also moving towards adopting more of a whole-school way of working, making this project a 'perfect fit' for the direction of the school. A community focused project also appealed, particularly given the diversity of the pupils in the school.

Over the course of the project, the original scope and delivery plans were modified, with the latter two legs being combined and work happening at different times in different year groups, for instance, due to inevitable other pressures on the schools and teachers. Despite the challenges, not only did the project culminate in a museum which was extremely well received, much of the originally envisaged (and very ambitious) project happened.

The project began with a teacher workshop led by a member of the Mobile Museum Project Team, which focused on the notion of culturally significant, plant-based objects. During the first phase of the project (Leg 1: Research), pupils brought in plant-based culturally significant objects from home and each class selected one to research (using a combination of books and online resources, as well as involving class discussion). This research focused on the object itself and its culture/country of origin. In addition, Year 2 and Year 4 made visits to Sutton House and Benjamin Franklin House, respectively, and the entire school visited the Natural History Museum. The Museum Crew went further, with workshops at the Benjamin Franklin House, Sutton House and Hackney Museum, focusing on different aspects of museum curation and interpretation. They also had a visit to Kew Gardens at the end of March, where they visited the Economic Botany team to explore the collection – how objects were made, stored, cared for and labelled, as well as how they were assembled into a collection. In the afternoon, they spent time in the Palm House, to relate their learning about the objects in the collection to how plants

grow and to reinforce their awareness of the importance and uses of plants. While the intention was for the Museum Crew to share their learning with the rest of the school in an assembly at the end of this phase, other scheduling constraints meant that this took place ad hoc in classroom activity instead.

The second and third phases were essentially amalgamated, with the second leg flowing directly and logically into the third. Leg 2 (Organisation and communication) involved laying the groundwork for the museum – essentially developing the interpretation of the objects. Following a ‘What’s Your Story?’ workshop led by a member of the Kew Learning team with pupils in Years 4 and 5 at the end of April, pupils across the year groups pulled together captions and labels, wrote reports and recounts, wrote persuasive letters to encourage people to visit the museum and created posters to advertise it.

The final phase (Leg 3: Putting together the museum) began with a meeting between the school lead and a member of the Mobile Museum Project Team. Then, pupils continued their work to put together the museum. Most crucially, most classes devoted time to making replicas of the focal objects in their museum. Year 1 pupils made zampoñas (Colombian flutes), Year 2, Ethiopian crosses, Year 3, Masai masks, Year 4, mortar and pestle, and Year 5, mesobs (woven baskets). They also determined the layout of their sections, developed interactive activities and decided which labels, captions and posters to use.

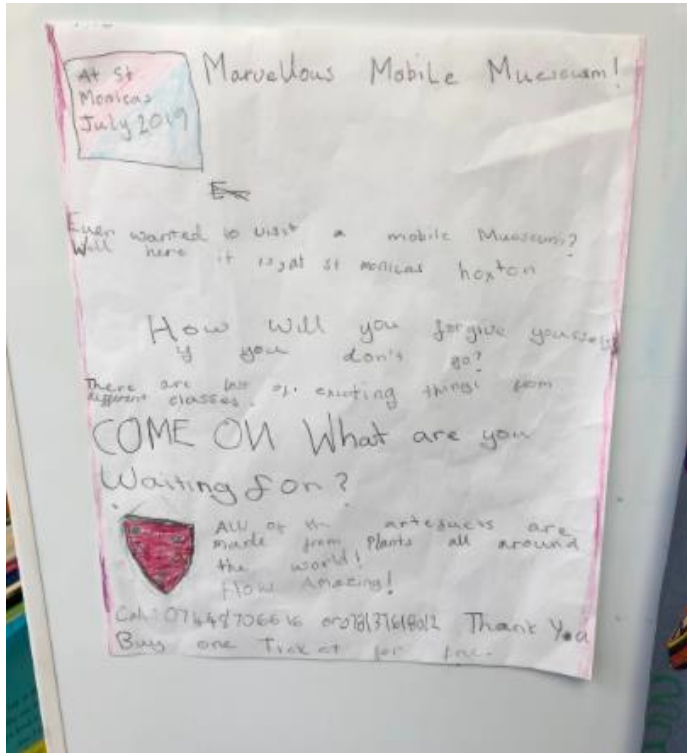
Across all stages of the project, the school lead developed ‘flipcharts’ (digital lesson plans and associated resources used by the school) for each phase, which were modified and utilised by the teachers of other year groups as they saw fit.

The object-rich, multi-sensory museum itself was situated in the school library and opened on 8 July 2019. It remained open until the end of the week and was visited by parents when they came to pick up their children. The opening afternoon was the most well-attended but smaller groups of parents continued to stop by throughout the week.

The pupils decided to call the museum ‘Our Plants, Our People’, and it was introduced by a large poster with the title, accompanied by an introductory text ‘panel’ describing the focus of the museum. Each of the classes from Reception through Year 5 was responsible for a section of the museum (grouped into four overall themes), including a focal object (or objects) generally loaned by pupils’ families, interpretive text, object labels and some other interpretation such as a demonstration of a technique, a hands-on activity or multimedia. The museum finished with the opportunity for visitors to offer feedback (which was placed in a suitcase). The contribution of each year group is summarised in Table 1, below.



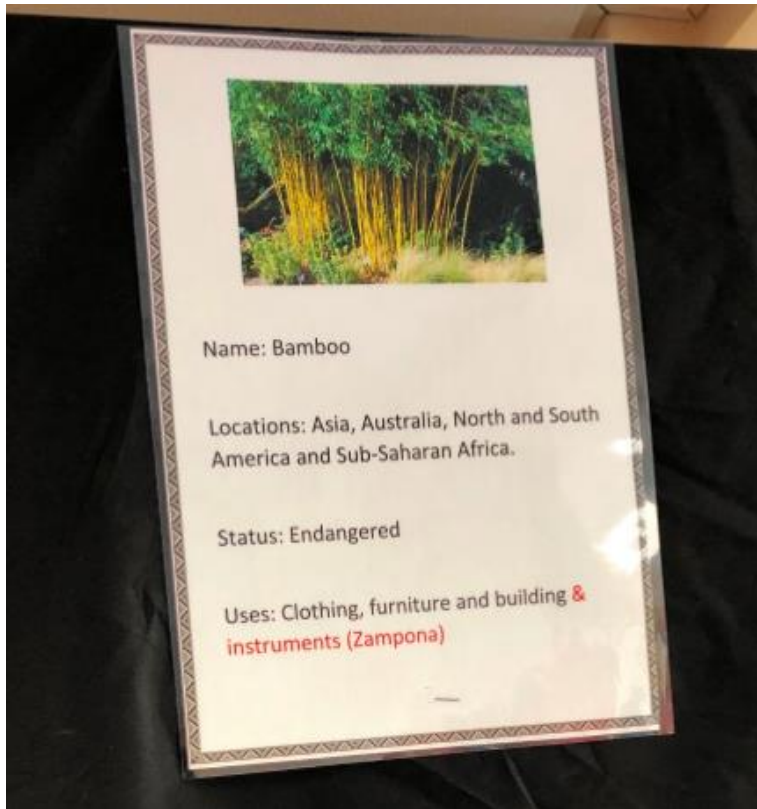
*Entrance to St Monica’s mobile museum: Our Plants, Our People*



St Monica's museum advert



Zampoña display, with objects made by pupils, labels, drawings and photos (Year 1). Note the map at the bottom, showing the location of Colombia, as well as the tablet and headphones, which had a video of the zampoña being played.

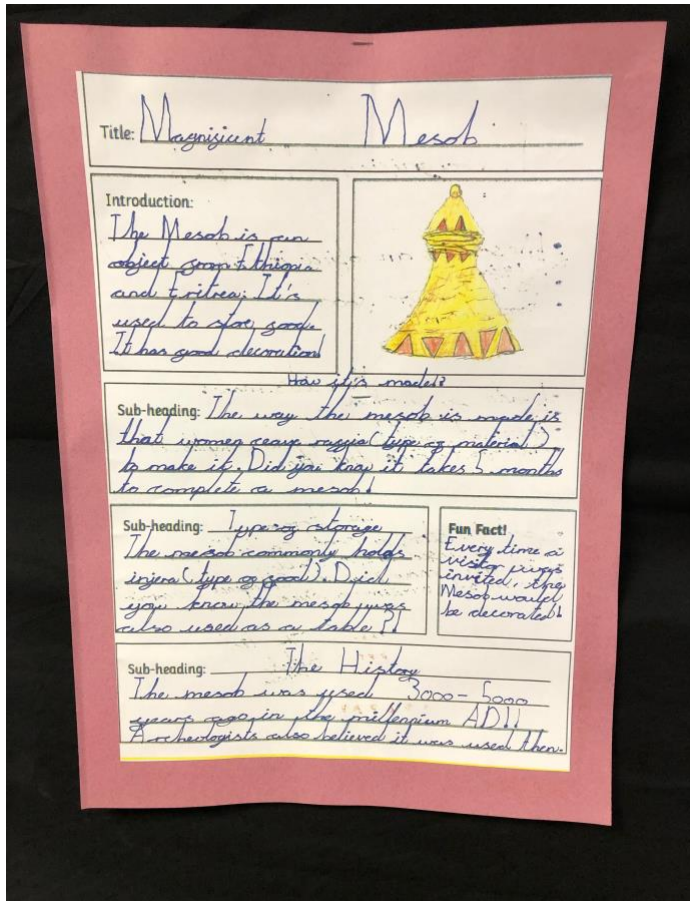


Zampoña display: additional signage



Mesob display, showing loaned objects and a range of labels (Year 5)

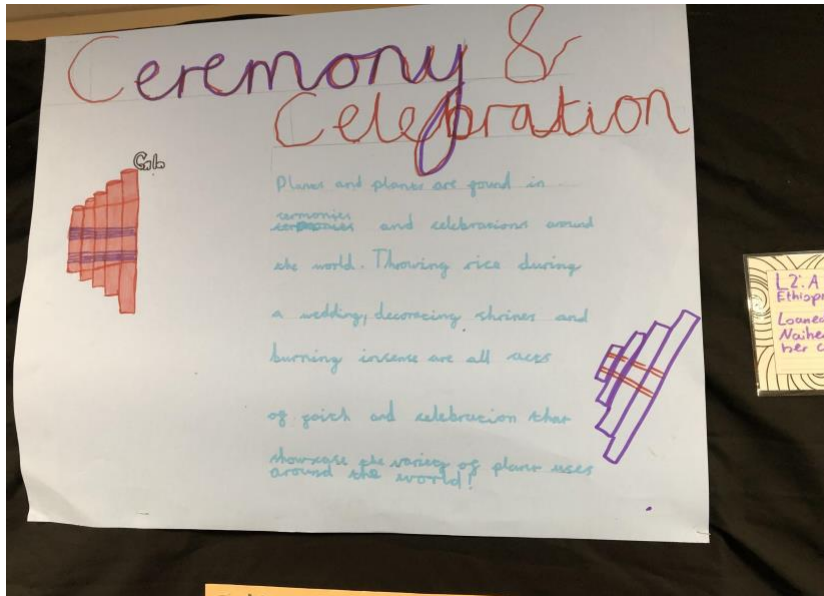




Mesob display: Additional signage



Mesob display: Interpretation (weaving demonstration)



Introductory panel for Ceremony and Celebration (Years 2 & 3)



**Table 1: St Monica's Mobile Museum**

<b>Year group</b>	<b>Section theme</b>	<b>Focal object</b>	<b>Other objects</b>	<b>Additional interpretation*</b>
Reception	Fashion Forward	Bracelets	Handbags (woven)	Lift-the-flap labels, photo collage
Year 1	Culture & Music	Zampoña (Colombian flute; made by children)	(multiple examples of zampoñas)	Tablet showing video of zampoñas being played
Year 2	Ceremony & Celebration	Ethiopian cross	Ethiopian guitar, drum, Eritrean verse (inscribed on wood), crosses made by children	Child in traditional Ethiopian dress playing drum
Year 3	Ceremony & Celebration	Massai warrior mask	Warrior masks made by children	
Year 4	Fantastic Food	Pestle & mortar	Paper maché pestle & mortar (made by children)	Hands-on activity – grinding herbs & spices on replica pestle & mortars
Year 5	Fantastic Food	Mesob	Extra examples; Mesobs made by children; Ethiopian coffee set (donated by parent)	Mesob weaving, guided by children

\* In addition to written text and object labels, most also included a map showing where the objects had come from. In addition, labels for all of the donated objects noted the donor. (All of the focal objects were donated except for the zampoñas.)

## 2.2 Wilberforce

The project at Wilberforce Primary was led by the Year 3 teacher (also the Science Lead) and was planned to take place over a number of “Collapsed Curriculum” (CC) days between February and June (often planned for part of the day), when each class would not follow their normal timetable and instead deliver activities as part of the Mobile Museum Project. Each CC day focused on content that the school felt would develop the knowledge and skills needed to deliver a museum. On each CC day, every class would work on the same theme but at a level appropriate to the year group. A thorough planning document was produced early in the project outlining the themes and curriculum links for each CC day, plus a breakdown of how this would vary between different classes. Dates for the CC days were also set. Sometimes the work was planned to happen in individual classes, sometimes in mixed year groups across the school. It was expected that all work produced on these days would contribute to the school museum. Wilberforce delivered their school museum in early July and, as at St Monica’s, it was extremely well received by teachers, pupils, parents and other adults including governors and staff from the wider Mobile Museum project from Kew and RHUL.

Following the staff launch which included a learning from objects session led by the Mobile Museum Project Manager, Wilberforce took the entire staff (teaching and non-teaching) to a day of CPD at Kew Gardens. They met staff from Kew Learning, the Economic Botany Team and RHUL, finding out about Kew’s work to preserve and reinstate plant-based cultural practice globally, and visited the collections stores. Activities included learning about methods of displaying groups of objects and writing texts for museum displays.

The project followed the original plan quite closely with each CC day happening on or close to the original date and covering the planned themes: CC1 Staff Launch (January), CC2 International Celebration of Cultures (February), CC3 Creating Personal Objects (March), CC4 Learning from Objects (April), CC5 The Importance of Plants (Years 5 & 6 only, May), CC6 Oral Storytelling (June), additional workshop – Interpreting Objects, preparation for the school museum (Year 6, June), Museum Launch (1st July).

On the International Celebration of Cultures Day (CC2) pupils wore national dress and brought food and objects of cultural importance into school. An assembly introduced the day and the Mobile Museum project to parents, and then sessions were held in different classrooms themed by country so that children from those countries regardless of age took part in the activities together (this often involved children from the same family being in class together, which was a novelty) – sharing knowledge of the cultures their families were part of. Creating Personal Objects (CC3) took place one afternoon with the whole school engaged in the same activity at the same time – learning about a plant-based cultural object and creating replicas. The objects and activities differed from class to class but all were a variation on weaving – from prayer mats to God’s eyes and friendship bracelets. Following this, and as the school’s relationship with the Mobile Museum Project Team developed, there were some modifications to the original plan. The Learning from Objects activities (CC4) had originally been conceived as learning from the objects created in CC3. However, inspired by the impactful CPD workshop the staff had experienced on learning from objects, this CC was instead developed and delivered by Kew Learning staff as two workshops (one for KS1 and one for KS2). In fact, many children were out of school on that day leaving about 30 pupils from each key stage to take part in an object-rich hands-on workshop exploring an array of unknown and familiar plant-based cultural objects from Kew’s learning collection or specially bought by the Economic Botany team. The ‘Why are plants important’ session (CC5) was also delivered by Kew Learning staff, this time as separate workshops to Years 5 and 6 rather than involving the whole school or mixed class groups. These workshops built on pupils’ knowledge and understanding of plants gained from their science lessons and engaged them in lively discussion about the importance of plants for the planet and human society, particularly looking at sustainability. The Oral Storytelling session (CC6) changed from the original plan intended to explore the

importance of storytelling in different cultures and sharing this with the local community, to building on stories around plant-based objects from Kew's collection (such as the 'Wardian Case' and 'Tea'), many of which pupils had come across when visiting Kew Gardens. Indeed a self-led visit to Kew was enjoyed by the whole school over 3 days in early June – where children experienced the plants that had provided materials for some of the objects they had encountered in earlier CCs (such as cotton plants and bamboo) as well as providing an opportunity to play outside and experience plants first hand. Finally a workshop led by Kew Learning staff was added in June to help Year 6 pupils prepare for the creation of the museum by considering themes to group objects, what to include on labels and interpretation techniques for engaging visitors with the objects.

All workshops were accompanied by lesson plans and resources either created by Kew Learning staff for the workshops they led or created by the school lead. The latter provided background information for teachers – a PowerPoint served as an introduction to that day's work and/or stimulus material.

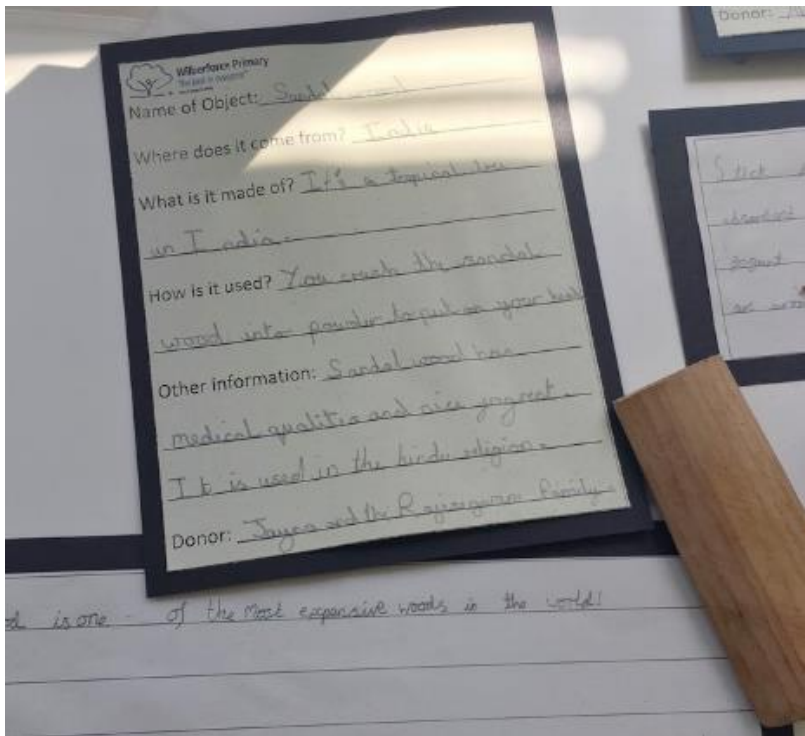
Planning the project dates in February to cover two terms proved challenging to maintain in a busy school timetable and at times not all children in participating classes were able to join in due to other activities and opportunities that had been unknown at the start of the project. For example, few children went on the visit to Kew scheduled for Tuesday 4<sup>th</sup> June because that day was Eid.

Wilberforce officially opened their museum on 1st July 2019. For the following week it occupied an open corridor near to the entrance of the school. It is a space passed daily by children in Key Stage 1 as their classrooms feed off this area and by those en route to the school hall. Parents collecting children from the adjacent Victorian school building would access this space too.

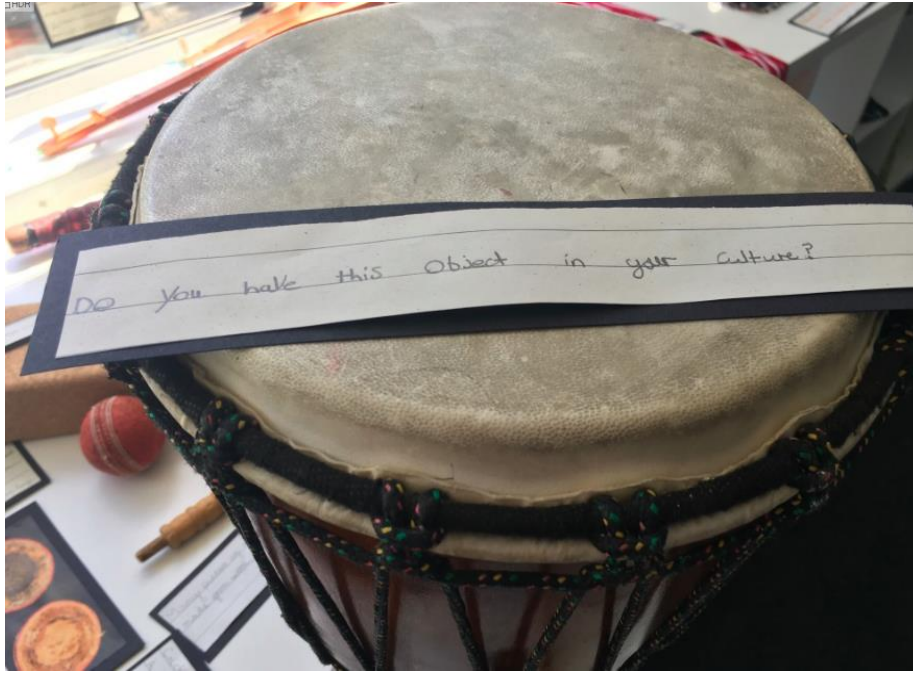
A large number of objects (50+) were displayed on table tops, in glass fronted cabinets and hung from the windows. Many children from across the school had brought in cultural plant-based objects and written a label explaining the name of the object, where it came from, what it was made from and who donated it. Each class was given a theme to collate the objects under (themes had arisen during Year 6's workshops with Kew Learning staff) and the classes produced additional text supporting the themes. These included: background information (e.g. the meaning of 'sustainability'); pictures showing the production process (e.g. how rubber is collected from trees); questions to engage visitors (e.g. "what have you seen before but never used?" "What plant-based material is traditionally used to make the inside of a cricket ball?"); and additional research carried out by pupils at home (e.g. images of the leaves of plants from the Philippines that are used to make the objects donated for display). Some plant specimens were also provided by Kew to show the raw material (e.g. a dried cotton plant, a living coffee plant). Wilberforce's 'Museum of Plants and Culture' was arranged around the following themes: Around the home (curated by Year 1), Food and drink (Year 2), Entertainment (Year 3), Celebrations and culture (Year 4), and Sustainability (Year 6). Additionally the Reception teacher displayed objects created by all pupils in CC2 pulling together a section on 'Our Museum Story'. On the wall opposite the tables was a map highlighting the 30 countries pupils came from and the variety of languages spoken by children at the school.



*Wilberforce Primary School Museum of Plants and Cultures*



*Celebrations and culture display: example object label accompanying a piece of sandalwood brought in by a pupil*

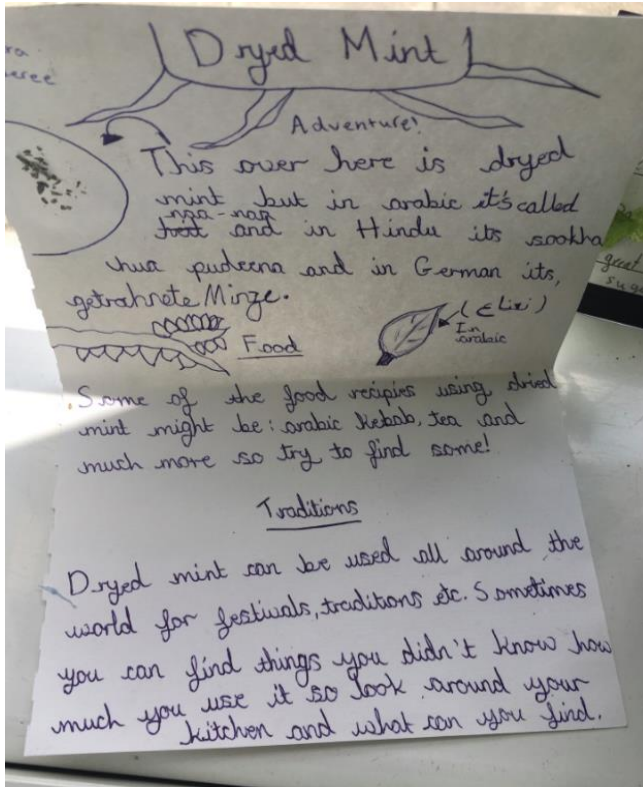


*Entertainment display: example question – encouraging visitors to consider similarities and differences in cultures*



*Entertainment display: interpretation panel showing production of materials*





Food and drink display: example of additional research a pupil has done at home



Map showing the countries where Wilberforce pupils and their families come from. Accompanying text: 'Our Wilberforce family is made up of a wide range of cultures from around the world. We are proud to come from different places but also proud to live here in Britain. We share so many parts of our lives but have numerous differences, including our beliefs, clothing, way of life, food and language. Wilberforce Primary is proud to be an inclusive and diverse community and we should celebrate all that makes us special'





*Our museum story display: Plant-based objects created by the pupils in CC2*

The Mobile Museum project's intended outcomes of celebrating and valuing diversity, as well as the opportunity to enrich children's lives through the relationship with Kew Gardens, were key reasons given for Wilberforce to participate in this project. As well as supporting their pupils academically, Wilberforce staff, led by the new Headteacher, were focussed on building trust and respect between pupils, teachers and parents. Central to this has been the development of the "Wilberforce family" – an ethos that promotes understanding and 'British values' by removing barriers and building community; values teachers believe will stay with children throughout their lives. Wilberforce Primary is part of the United Learning Trust; one of their 6 principles is 'Education with character'. Wilberforce's interpretation is to provide pupils with experiences that not only enrich the curriculum but also enrich children's lives; the Headteacher explained how many pupils know little of the world (or London) beyond their immediate home/school location and are not exposed to the arts, heritage or the natural world.

### 3. Evaluation methods

The evaluation was designed to gather as rich a dataset as possible within the scope of the project and evaluation. As only two schools were involved, a qualitative approach was most suitable to capture data related to a range of outcomes and objectives. The two schools can be considered as case studies, each of which provide insight into the potential of this kind of project to support a range of learning outcomes and to draw attention to the particular features of the project which seem most important in attaining those outcomes.

A combination of interviews (teacher, parent and pupil), document analysis and observations (at a distance) were used at each school. Although the project began in January/February, data collection began in late March, when the evaluators were introduced to the project lead teachers in each school. Teacher interviews were conducted as soon as possible thereafter (in late March/early April), as well as in July. Teacher interviews focused on outcomes for the pupils, as well as particular project characteristics (e.g. whole school approach, cross-curricular, collaboration with the Mobile Museum Project Team). They also aimed to capture any unanticipated outcomes and gather feedback for future activity. More detailed interviews were also conducted with the project leads for each school and follow-up interviews were conducted with teachers in November.

Pupil and parent interviews were conducted in July. Pupil interviews were conducted in pairs or small groups and included pupils giving the interviewer a 'tour' of the museum, and discussion about their experience of the project and creating the museum. These interviews were also conducted to gain insight into the extent to which the learning outcomes might have been achieved. Parent interviews were generally conducted as a group and focused on their impressions of the museum and how their experience of the project compared with their usual experience of their cultures in the schools. Parents were also informally interviewed when visiting the museums in both schools.

As it was not possible within the scope of the evaluation to conduct regular observations at the schools, observation forms were developed in collaboration with the teachers to collect data on project activity, particularly that relevant to the various learning outcomes. That is, at relevant points throughout the project, teachers were asked to fill in forms with evidence related to the learning outcomes. At St Monica's, these were completed corresponding to each leg of the project (with legs 2 and 3 combined) and then used as a focus in the teacher interviews. At Wilberforce they were completed by some, but not all, teachers after each CC day and also used as the focus for teacher interviews.

In addition, for both schools, following any workshops involving Kew Learning staff, interviews were conducted with the relevant individuals to gain their perspectives on what happened and the extent to which various learning outcomes might have been supported.

Finally, other documentation related to the project was collected. At St Monica's, this included the flipcharts (digital resources similar to PowerPoint presentations) used in the classrooms, booklets completed by pupils during the course of the project (related to legs 1 and 2, as well as the various museum visits), and two 'floor books' summarising the project (with photos and examples of student work throughout) – one for the whole school and one focusing on the Museum Crew. At Wilberforce, this included PowerPoint slides used in the classroom, lesson plans, photographs of children's work and reflections by children on some CC activities.

Interpretation of the data collected and the findings was also informed by other contacts the evaluators had with the project leads at each school, via e-mails, telephone conversations and visits to the schools, as well as conversations with and input from the Mobile Museum Project Team. Further details about scope of data collected and a selection of collection instruments is provided in the Appendix.

Data analysis was approached in a holistic, iterative manner, structured by the learning outcomes and other project objectives. All sources of data were reviewed iteratively, checking and re-checking for evidence related to the intended outcomes of the project across the various types of data (observation forms, interviews/discussion groups and other documentation). Evidence was then grouped under the various outcomes, in order to gain a sense of the project's impact in each of these areas.

### 3. Findings related to project outcomes/objectives

At both schools, the Mobile Museum project culminated in the successful opening of well-received school museums. In this section, we examine the specific learning outcomes and objectives of the project in more detail.

#### 4.1 Knowledge and understanding

One objective of the project was to increase pupils' knowledge and understanding, both of plants and why they matter, and of other cultures. Evidence from both schools suggests that the project did indeed increase knowledge in both of these areas, and as would be expected, there were variations between the schools, likely aligned with the different approaches and emphases of their project implementation.

##### 4.1.1 Knowledge and understanding of plants and fungi

While there is evidence of an increase in pupils' understanding of why plants matter, the evaluation data highlights that this is an area that benefits from quite a direct and explicit focus. This is most evident in the difference between the two schools, with Wilberforce placing more of an emphasis on plants than St Monica's, with a corresponding differentiation in what pupils appeared to learn in this area.

Increasing pupils' understanding of why plants and fungi matter and how our lives depend on them was not a main motivation for Wilberforce going into the project. However, knowledge and understanding of plants and fungi were already part of the science curriculum and addressed by every class each year; this even included a visit to Kew Gardens for pupils in Year 3 during their 'Rainforests' project. The school were happy to reinforce learning in this area and recognised it would be important to Kew (and therefore an expected element of the project), but in early discussions with the teachers and the school lead, "plants" seemed only to be referred to as the context for the project – Wilberforce's main motivations were clearly celebrating diversity and enriching the curriculum.

Teachers used the term "plant-based objects" with pupils from the start of the project to build understanding that many objects in our everyday lives are made from plants (and to help pupils to identify plant-based cultural objects to donate to the museum). However, pupils from across the school initially had very little understanding of what the term "plant-based" meant. Pupils in Reception and Year 1 thought of plants only as flowers or potted house plants.

"When I first introduced the task to them [CC2] and asked them what a plant-based object was, they would just say different plants, [...] they said flowers, so explaining to them that trees were plants was something that was new to them. No-one could tell me a plant-based object before we had our first lesson on it, but after [...] the majority could, yes." (Teacher, Wilberforce))

Pupils in Years 2, 3, and 4 identified wooden objects as plant-based and would say plants were important because they provided food, but many children were unaware of processes that created usable materials such as cotton, rubber or paper from plants. Teachers showed films to illustrate this and class discussions resulted in pupils realising that many familiar objects were made from plants.

“from conversations we had [...] it wasn’t something they had considered before [...] when I showed them the cotton, they were like, Wow!, you could just see that they had... something had just clicked. They realised that actually most things around us are plant-based and they just hadn’t considered [that] before.” (Teacher, Wilberforce)

Even pupils in Year 5 and 6 struggled beyond naming wood and food and were unaware of processes that converted raw plant material to manufactured goods.

“they couldn’t decipher the difference between animal and plant-based [...] I think they sort of saw it as man-made and not man-made” (Teacher, Wilberforce)

“[I explained] the dyes will come from different plants as well and [the pupils] were like...How is it even possible?!” (Teacher, Wilberforce)

“Mine were just stunned that [the thread] came from a cotton plant!” (Teacher, Wilberforce)

Pupils’ reflections from CC2 confirm this. In response to ‘What have I learned about plant-based objects...’, the majority reported they learned that objects can be made from plants. Some gave examples:

“that plants give stuff we use every day like a cotton shirt” (KS2 pupil, Wilberforce)

“I have learned that wool comes from sheep and plants dye the wool” (KS2 pupil, Wilberforce)

As the project progressed, learning about the importance of plants began to feature more in teachers’ talk of the project, i.e. not just as context for the cultural objects. The school lead frequently used the term “plant-based objects” rather than cultural objects and teachers reported pupils’ interest in the materials that objects (in school and at home) were made from, where those plants grow, and (particularly in Years 5 and 6) the importance of using plants to create sustainable products. In fact, the importance of plants was reinforced at each subsequent CC partly as a result of pupils’ interest (their surprise and interest in materials that came from plants) and also in making use of expertise from the Kew Learning staff who led the workshops (Learning from Objects and the Importance of Plants) and who brought in to school a wealth of curiosity-piquing plant-based resources. These included both plant specimens and ‘manufactured’ items, for example, a dried cotton plant and a rattan ball from Kew’s handling collection, and familiar and unfamiliar food or household items such as tamarind, turmeric root, dried hibiscus, loofahs.

“We were trying to get them to the idea that as long as people have been on this planet they have been looking at plants to see how they can make use of them in different ways and that could be for food, games, objects, all sorts.” (Kew Learning staff after Learning from Objects workshop)

“We wanted the children to think very carefully about why plants are important to them and to expand their ideas of all the ways in which plants impact on their lives.” (Kew Learning staff after the Importance of Plants workshop)

Concurrent to the project, other factors within school and society more widely, highlighted the value of plants. Youth climate strikes and the Extinction Rebellion events in London happened during the course of the project with much media attention which seemed to increase talk about the climate crisis among children and young people. There were other projects in school on litter and recycling in the Summer term and the whole school visited Kew Gardens, with teachers reporting that pupils enjoyed being outside, playing, and seeing/experiencing the plants they had talked about in school and in previous science topics.

Pupils demonstrated an interest in the importance of plants through their engagement in workshops, their fascination with plant-based objects, and their curiosity and questioning. For example, Year 5 pupils discussing the importance of plants in a workshop noticed the teacher’s cup had a label explain it was made of biodegradable plant starch. This prompted a discussion – led by pupils’ questioning. Also, pupils giving tours of their museum enthusiastically pointed out many objects explaining both what the

object was and what it was made from. Sometimes they talked about the things that had surprised them.

“It’s called a shital pati. It’s from Bangladesh and it’s made of wood and bamboo and it is used to sit on, like when you eat, and it keeps you cool on hot days.” (KS2 pupil, Wilberforce)

“This one is made from pineapple leaves” (KS2 pupil, Wilberforce)

“Did you know before that some shirts could be made out of pineapple leaves?” (Evaluator)

“No, ‘cause this is why – pineapple leaves are usually green so I didn’t know that.” (KS2 pupil, Wilberforce)

Importantly, the learning about plants through the project seemed to differ from learning about plants that happened in typical science lessons in that as well as increasing knowledge and understanding of plants, pupils also *valued* them. Through the Mobile Museum project pupils seemed to express the importance and value of plants in ways that really mattered to them personally and not just by retelling that plants are important to the planet or to humans. This may be due to the fact that the objects were personally owned by them/their families – making a strong connection between the object, the plant it was made from and themselves. Moreover, older pupils, with an interest in sustainability, could talk about the physical plant-based object in their hand and the importance of using plants to make sustainable materials like this. For example, one teacher explained how pupils had seen bamboo growing on their visit to Kew and had found out how quickly it grew. When someone brought in bamboo utensils used at home for the school museum, pupils discussed the value of using this renewable, eco-friendly resource.

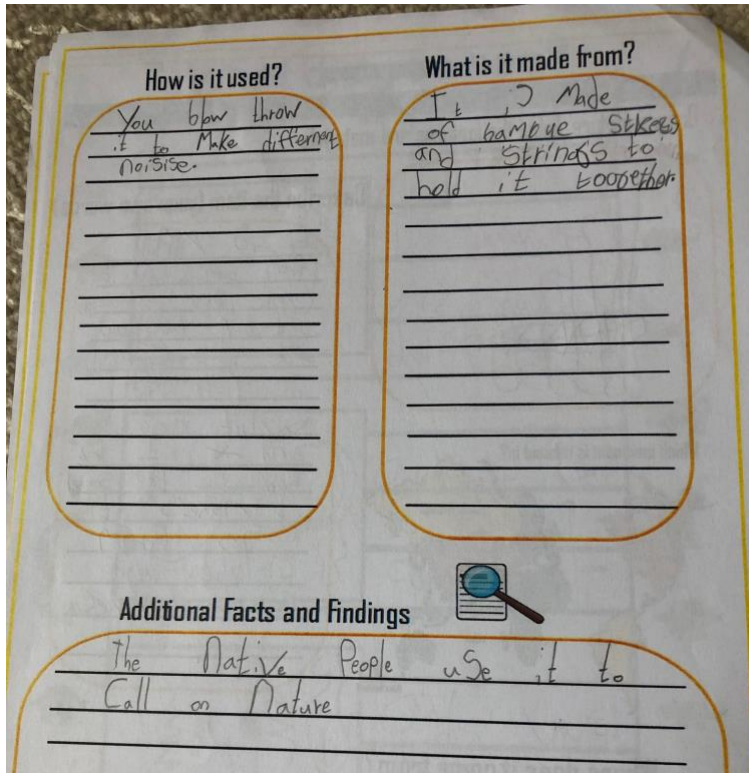
“Valuing [plants] might not come across so deliberately in our usual science teaching.” (Teacher, Wilberforce)

“The children loved going to Kew – experiencing the plants, being outdoors. They are making so many links between cultural objects, plants, why plants are important, their culture, other cultures, their awareness that we’re all different at Wilberforce but we’re one family – this continues to grow.” (Teacher, Wilberforce)

At St Monica’s, the emphasis of the project was also very much on the cultural elements, with plants as sort of a means for understanding culture. That said, the project did provide opportunities for teachers to reinforce children’s knowledge of plants and their uses, such as “parts of a plant... how plants are used... sometimes for eating, sometimes to make materials, and we’ve looked at what plants need” (Teacher, St Monica’s). Other teachers also noted linked activities and topics, such as rainforests and deforestation or a focus on ecology.

Early in the project pupils were asked to bring in plant-based objects and although discussion of these objects seemed to revolve mainly around their cultural significance and uses, teachers did note that their pupils asked *why* objects needed to be plant-based. Even the youngest children engaged with the notion of objects being plant-based, through activities such as collaging and sticking images of plants and trees (in Reception). Additionally, it seems that conversations at home also included whether or not particular objects were “made from plants”. When providing tours of the museum, pupils (particularly in Years 3-5) could often say what plants their museum objects had been made from, and the emphasis of the project on a range of culturally-significant plant-based objects likely increased their appreciation and understanding of the importance of plants.

The younger children (e.g. Years 1 & 2) also had opportunities to increase their understanding of the uses of plants (or ‘plant-based’ objects). For instance, workbooks used by Year 1 pupils for recording their research around an object for the museum (the Colombian zampoña) contained the following:



St Monica's Year 1 research on the Columbian zampoña

Similar prompts were found in the workbooks across the year groups, and responses to these suggest increasing detail of understanding as pupils get older. Likewise, a member of the Kew Learning team reported that during a workshop with years 4 and 5, the majority of the pupils discussed their plant-based objects in considerable depth, focusing on where they came from, how they were made and the parts of plants used in making them, and that all of the children used the term 'plant-based'. During this workshop the Museum Crew also shared what they had found out in their visit to Kew.

In the interviews following the museum tours, when asked about why plants were important, St Monica's pupils often responded with facts that they had learnt outside of the project (e.g. that plants provide oxygen and food, or that paper and pencils are plant-based, understandings that may have been reinforced in the project). Some of the older pupils also mentioned things they had learned about particular plants which reflect the potential of the project to increase understanding of the importance of plants, or of valuing their role in human lives. For example:

"It's [basket] made out of rattan and it's an endangered material right now, because a lot of people use it." (KS2 pupil, St Monica's)

"You can use it [a plant] for culture and pottery." (KS2 pupil, St Monica's)

"I found out that plants can be used in various sources. I didn't know you could make, like, that you can make clothing and stuff out of plants. And you can make instruments and you can also use religion as well. I didn't know that all this stuff can be made out of plants and how, like, plants really affect our lives." (KS2 pupil, St Monica's)

Other pupils responded in more general terms, such as:

"I found out that mostly things that we use are made of plants." (KS2 pupil, St Monica's)

"I learnt that plants are really important – are a really important part of your lives and can actually help create things that you actually need." (KS2 pupil, St Monica's)

Such awareness also represents an opportunity for more explicit scaffolding around the importance of plants and sustainability.



Although teachers at St Monica's observed that they could have done more to increase understanding of plants in this project, most also described some research into the plants that were used in making the objects featured in the museum. For instance, the Year 1 teacher described a discussion in her class about the difference between live (green) bamboo and the (dried, brown) bamboo used in the zampoña:

"Then they did the link about the bamboo being green when we were doing research, but the bamboo we were using was not green. It was dried bamboo, so they made that link: 'Why is that green?' We learned about deciduous and evergreen trees. They were like, 'Is it dead because it's brown? So they made that link as well.'" (Teacher, St Monica's)

In summary, although some pupils from St Monica's (generally younger pupils) claimed they had not learnt anything about plants in the project and teachers seemed to feel that they could have gone further in their teaching related to plants, the project did provide opportunities to increase pupils' understanding of 'plant-based' and why plants matter. The more in-depth understanding achieved by pupils at Wilberforce, combined with the stronger emphasis of that school on plants, also highlights that when this theme is reinforced and supported explicitly, even more learning is possible.

In fact, understanding of the value of plants seems to have strengthened pupils' learning about plants so that it was still evident into the new academic year. In the follow up interviews in November, Wilberforce teachers reported pupils being able to recall and build on knowledge gained during the Mobile Museum project.

"when [I] was talking about things that linked with the plant-based objects and things like that, the children went 'oh yeah, I remember' and then that would kind of get the ball rolling again, so their start point and their understanding was better than what it would have been [for previous year groups]" (Teacher, Wilberforce)

"[In geography] when we looked at societies, developing societies and the role of farming and crops and using crops as part of the economy and a thing which provides people with income [...] the children [this year's Year 4 class] were able to access and apply the understanding from Kew" (Teacher, Wilberforce)

#### 4.1.2 Knowledge and understanding of other cultures

While there is evidence that the Mobile Museum project affected pupils' understanding of 'plant-based' and why plants matter, the project seemed to make an even stronger impact on pupils' knowledge and understanding of other cultures. The project provided pupils with opportunities to learn about cultural objects from their own and other countries – from other pupils, from parents and from online research. They recognised similarities and differences in objects and cultures due to the sharing and discussions around objects which was a key feature of the project in both schools.

The data from both Wilberforce and St Monica's reflects that pupils increased their understanding of other cultures represented in the school. They were aware that many of the families in the school came from other countries and could discuss what was similar and different to their own experience. This was made particularly explicit at Wilberforce through the Celebration of Cultures Day at the start of the project when the whole school was arranged so that pupils spent time with other children from the same countries discussing cultural items, practices and sharing food. The day illustrated the variety of countries represented by children in the school. It also made the pupils aware of who was from the same country.

"I'm sad, but not like 'sad sad', but it's kind of sad for me because [boy's name] is in year six so [when he leaves] I'm going to be the only Eritrean in this school." (KS2 pupil, Wilberforce)

Additionally Wilberforce's museum included a map of the world highlighting the countries children and their families came from. The text panel alongside it pointed out that pupils from all these cultures made the 'Wilberforce Family' and pupils were invited to add a label with the word 'hello' in their home language.

Not surprisingly, older pupils (Years 3-5) were more aware and articulate about the similarities and differences in cultures than younger ones, although even young pupils could often relay information about the cultural objects in the museum:

"I learnt that they're really important to Christians in Ethiopia and Eritrea." (KS1 pupil, St Monica's)

"They use it [zampoña] for music. Zampoñas are a special, special musical instrument because they come from Colombia in South America." (KS1 pupil, St Monica's)

A conversation and similarities and differences between Year 3 pupils at Wilberforce was started when one picked up the henna in the school museum. The children were from Eritrea and Morocco and they discussed who used it:

"Basically girls put it on for, like, celebrations and weddings and stuff"

"And sometimes boys"

"Sometimes boys but... rarely boys do it"

KS1 teachers also noted some of the things their pupils had learned about the cultural objects in the museum: "And the blowing and how the whistle sounds are to call the ancestors and the spirits to come and protect them" (about the zampoña).

Pupils in Years 3, 4 and 5 described how they learnt about "other people's countries" in doing the Mobile Museum project and often pointed out which pupils had brought in which objects:

"It [Ethiopian coffee set] was loaned by [peer's name]'s mum." (KS2 pupil, St Monica's)

"I didn't know [boys name] was from Italy. He brought something in [to the Celebration of Cultures day]... when you smell it, it actually smells sweet, but when you actually have to taste it, it tastes similar to a tomato" (KS2 pupil, Wilberforce)

While they were aware of the range of cultures in the schools prior to the project, the experience of the project, particularly doing research on the objects that had been brought in, seemed to deepen pupils' understanding.

"I found out that there's a thing called pestle and mortar because I didn't know that was a thing but I knew there was like an object that you would use to pound yam but I didn't know it looked like that or it was called that. Also, I didn't know where it was from but I knew it was from Nigeria but I didn't know what part. So, we researched that and it said it was the western part of Nigeria." (KS2 pupil, St Monica's)

"We discovered that it [mesob] wasn't just made of string it was actually made of raffia because most of us, we didn't know how raffia looked but we found out that it was carved with trees and it was really hard to acquire it and it's used in various ways." (KS2 pupil, St Monica's)

The project also gave pupils the opportunity to learn more about their own country or cultures. For instance, one teacher related an anecdote about a pupil bringing in an object whose name she (the pupil) could not recall. Parents explained to their children the uses of unfamiliar cultural objects or discussed the materials objects were made from and why they might have been used.

"The farmers use it [a hat] at home because it's very hot and the leaves are very cool and very light." (Wilberforce parent)

Parents also encouraged children to research their country or the objects online.

“I found out we used to have a war with them...that’s the only reason why I know about that [because his mum suggested he do some research for the project].” (KS2 pupil, Wilberforce)

Often the parents shared their knowledge but sometimes they researched with their children too.

“I was looking on the internet with them too.[...] I said look this is the leaves. Then we got to feel it at home before we got to bring it [to school]. They were very curious. They said is there a leaf like this red mummy? No, they have to colour it, its artificial colour, it’s not how the leaves are formed. They were very curious which is good.” (Parent, Wilberforce)

“The bamboo mat, they were touching it when I opened it. [They said] ‘Oh its made of bamboo.’ ‘How is it made?’” (Parent, Wilberforce)

Increased knowledge and understanding of other cultures is likely due, at least in part, to the opportunity the project afforded to the pupils to engage in extensive discussion about cultures. Teachers described discussions that happened in their classes, for instance, as pupils listened to their peers and enthusiastically shared comparisons to their own cultures. That this project increased awareness of other cultures in St Monica’s was also reflected in a teacher’s comment: “I think as a school, it has definitely opened our eyes to different cultures”. While at Wilberforce where knowledge and awareness of cultures was continually reinforced through the ‘Wilberforce family’, the project provided a vehicle through which this could be celebrated centrally and during curriculum time (i.e. not just in assemblies, form time and behaviours around the school.)

The project also increased teachers’ knowledge of their pupils, with some teachers remarking on their surprise at “the depth of understanding that the children have about their own cultures and their own traditions and their own languages” (Teacher, St Monica’s), while others were surprised at how little pupils knew.

“They’re very proud of where their families come from understandably, but I was surprised at how little many of them knew. I mean some couldn’t tell you where it was on a map, so I think that was one of the most important things for the whole project, was that it was an opportunity for the kids to spend time with their parents looking at their own history...it was a good prompt for that.” (Teacher, Wilberforce)

Moreover, the school museums increased the *representation* of pupils’ cultures in the schools and this was reflected in pupils’ difficulty in thinking of how their friends’ countries (or their own) might have been visible in the school other than in the museum. This physical representation had an additional benefit of increasing parents’ knowledge of cultures in the school.

“You know other countries people are from...it feels more community thing.” (Parent, Wilberforce)

## 4.2 Developing 21<sup>st</sup> century skills

The concept of 21<sup>st</sup> Century Learning and associated frameworks originated in the United States and has since been adopted by educators, business leaders, academics and governmental agencies worldwide. It comprises skills, abilities and learning habits required for success in the 21<sup>st</sup> century, including: creativity and innovation, critical thinking and problem solving, communication and collaboration. Across both schools, there was ample evidence that pupils utilised these ‘21<sup>st</sup> century’ skills, with teachers agreeing strongly that the project supported their pupils’ development in these areas. The process of creating a school museum inherently involved creativity and innovation (e.g. in thinking of innovative ways to display an object), critical thinking and problem solving (e.g. in deciding how to describe an object), and communication and collaboration (e.g. in pupils working with their peers to determine which objects should be featured in their museum and how best to display them). Moreover, many of the activities involved in the process utilised these skills simultaneously.

At St Monica's all three groups of skills aligned with the school's own learning intentions (learning objectives) and the Mobile Museum project provided an excellent opportunity for teachers to reinforce these skills. For example, creativity and innovation were necessarily involved in creating artefacts for the museum (to go alongside objects brought from home) and designing the exhibition; designing and creating the exhibition required critical thinking and problem solving; and communication and collaboration skills were developed as pupils wrote persuasive letters, created advertising and shared knowledge via reports and captions, as well as in the design and creation of the museum and objects to go in it. While it was accepted as given by the teachers that the project was inherently creative overall, they were more explicit about how it called upon pupils' critical thinking and problem-solving skills, for instance, in the process of narrowing down which elements should be included in the museum or what the labels should cover.

"The critical thinking side of it was... what is the most effective way to... we had said we only want one or two things to put in the museum. So, how are you going to get everything you need to say up and there was lots of discussion like 'What is the most important bit of it?'" (Teacher, St Monica's)

Other teachers described how certain challenges encountered in creating objects for the museum, as well as being an inherently creative process, also required critical thinking and problem-solving skills.

"So, we kind of agreed on papier-maché but it was a bit of problem solving – how are we going to make it [mortar & pestle] actually stand? It's going to have a bit of a flat base..." (Teacher, St Monica's)

"When we got to the part when we made our own masks and we were looking at the different materials, how can we make ours look like wood? Because, obviously, we don't have time to sit there and carve ours, and they were like, 'We can't just use paper, we need to use a different, like a rough material maybe and then make it smooth.' So, it was literally them just talking and I've never seen that side of them, so that was really, really positive." (Teacher, St Monica's)

That teacher later went on to describe how pupils worked out what colours to use and how to make the masks wearable (by cutting out eye holes). Moreover, the utilisation of such skills not only developed them but also contributed to a sense of ownership that the pupils had over the activity.

Wilberforce had also planned their CC activities so that all three groups of skills (creativity and innovation, critical thinking and problem solving, and communication and collaboration) could be developed throughout the project. Many CC lessons had a discussion element where pupils were encouraged to ask questions, hypothesize and share ideas. Some teachers noted how pupils who were not forthcoming with their own ideas still listened to others and built on ideas or responded to them. In all lessons pupils were required to work in groups as well as completing activities individually. The CC days devoted to creating personal objects (from weaving mats and willow baskets to creating friendship bracelets and God's eyes – all using plant materials) and retelling stories from Kew's history (such as the Wardian case and the story of tea) for example through newspaper articles, also provided opportunities to develop creative skills as well as critical thinking (particularly in the weaving activities). Wilberforce teachers described 21<sup>st</sup> century skills as "key characteristics of learning" and were pleased to be able to provide opportunities through the project for developing these beyond the usual curriculum.

"They are all really good skills that you can't really get enough of, so any time you have an opportunity to do more of it [21<sup>st</sup> century skills] is really beneficial for the kids." (Teacher, Wilberforce).

"Obviously we try to celebrate creativity across the curriculum but, unfortunately, with the way the Government and Education have gone [...] creativity kind of falls by the wayside." (Teacher, Wilberforce)

As a number of teachers at both schools mentioned, the project allowed more opportunities to practice these skills and they were particularly pleased to provide opportunities to develop them within a real-life context – learning from objects and creating a museum. Wilberforce teachers said that the topic, ‘culturally significant plant-based objects’, provided them with new opportunities for teaching these skills. For instance, one teacher explained how important it was to get children to talk to one another – particularly those with limited English or speech and language delay.

“When we tell them to sit down with a partner and talk about their religion or their family, they have loads to say, but most of the time [we ask them in class to talk, for example, about a number sentence in Maths] the answers are very closed.” (Teacher, Wilberforce)

Teachers not only often commented on children’s communication and collaboration in the project, but were often surprised by just how well they worked together.

“I had not seen them work as well in groups and in pairs like that until they were given this opportunity. Which really surprised me because I was like, this class, some of them don’t really get along so it was really nice to see those children that don’t get along working together, really well. Saying ‘Oh my goodness, we need to put this down, this is really interesting.’ Really excited to feed back, everyone is listening to everyone. It was just a completely different class.” (Teacher, St Monica’s)

Other teachers also noted that this collaboration was supported by the meaningfulness of the project for the pupils – that they were interested in what they were doing and that the activity was strongly led by the pupils.

“I’d shown a video of somebody actually using a weaving loom and then she’s put a little tassel at the end and they [pupils] came up and they said, oh can we make tassels on the end of ours? So they put little paper strips at the end.” (Teacher, Wilberforce)

Additionally, some teachers noted how children who are not high achievers in curriculum subjects did well in the new experiences presented by the project and were able to help others which they had not done before.

“...the children that are struggling more, those children really got to show off their skills in the way that they don’t get to in maths and writing because they don’t achieve as highly. But in this lesson they were able to go and help other children who [...] found it quite challenging, so it’s really lovely that they got a sense of ‘I can do this and I can now go and help my friend whereas usually they’re helping me.’” (Teacher, Wilberforce)

Although many aspects of the project supported various skills, some teachers remarked on the way in which some activities were particularly well aligned with certain skills:

“Research... That’s where that collaboration definitely came in. Because they had to work together and they knew, ‘Okay, you’re better at computers than me.’ And you can see how children already know what the best qualities are of someone else, so they use that to support themselves. ... And then the creativity side came out with leg two/three. Where they’re making something... So they’re using that creative side and their materials ... And not being told to use this so that was definitely supporting the creative side. And I think the problem-solving would be where that group had to sift through [the labels and text] and figure out what they wanted to put there.” (Teacher, St Monica’s)

Pupils also reported enjoying these aspects of the project, particularly mentioning creating objects and posters/displays (“The thing I enjoyed the most was doing the creative part of it and, like, drawing the posters”) and working with their friends, something they do not always get to do as much of as they would like. Indeed, in giving tours of the museum, nearly all pupils referred to working with their peers.

“I think one of the ones there, I did with my friends.” (KS2 pupil, St Monica’s)

“We worked together as a class, so maybe most of this might be, like, all our work.” (KS2 pupil, St Monica’s)

One pupil also described ways in which they used critical thinking and problem-solving skills:

“We had to learn a lot about how being strategic, and thinking about how can we do this in a museum and what will people like?” (KS2 pupil, St Monica’s)

### 4.3 Attitudes and values concerning other cultures

At both schools, learning outcomes around attitudes and values towards other cultures were particularly successful. Data from both schools reflected the impact of the project on pupils’ interest in other cultures, as well as their own, and the opportunities the project offered them to show respect for each others’ cultures.

Data from both schools reflects that pupils were interested in learning about other cultures and respectful of their peers who were from different cultures. Pupils noted how much they enjoyed learning about their peers’ “countries” (the term they often tended to use to refer to cultures):

“I liked working in the museum about something that wasn’t from my country.” (KS1 pupil, St Monica’s)

“Learning how different their lifestyle is and how they live and like what their tradition is, which is kind of like, ‘Wow, that’s cool’, and it’s very interesting.” (KS2 pupil, St Monica’s)

“I liked that we got to bring in something that’s a plant-based object from our house. [...] And I liked the others that brang in here, ‘cause we had to learn new stuff about ordinary objects, about our culture. [...] And maybe when we, like, brought it in, maybe they might, like, learn new stuff from, like our country.” (KS2 pupil, Wilberforce)

At Wilberforce, the Celebration of Cultures Day provided an opportunity to define culture beyond countries. Children wore cultural or religious clothes, brought in objects and shared food. They discussed religion, music and cultural practices helping to shift understanding from simply “my country”, at least among pupils higher up the school. As the project lead described “we focused with that [CC1] about what is a culture and the fact there is so much more than just they’re from a particular place or believe a particular religion – the food, the clothing, music, language. The fact there’s so many aspects to it”. While references to such teaching were not explicit in the data from St Monica’s, the way in which pupils referred to their own and others’ countries – e.g. to their food, music and clothing – suggests that similar learning was achieved. In both museums, pupils grouped objects within different cultural themes such as entertainment, food & drink, in the home (music, food, and celebration at St Monica’s). Such understanding is reflected in a text panel in the Wilberforce museum which defines cultural objects.



Cultural objects are things that are important to specific cultures (Islam, Christianity etc.) Some could be the Christian cross, Bible, turban and Quran. Many are plant-based objects (which means they've been made out of plants). They can be used for praying on, wearing and reading. Many of these subjects are also used for celebrations, like Eid, Ramadan, Christmas etc. and used again for wearing, reading, gifts or praying to their god. You can also discover them in places of worship like church, mosque, temples or gurdwara. Also people long ago made cultural/celebration objects like how the Maya, a society, made masks to put on for festivals, war or death. They each believed one thing for each mask - war masks to camouflage you during battle, festival masks to wear when on event or celebration and death masks to put on a dead person's face so they can fight the gods of the underworld.

*This text panel on defining 'cultural objects' was written by a student for Wilberforce's museum. It states: "Cultural objects are things that are important to specific cultures (Islam, Christianity, etc.). Some could be the Christian cross, Bible, turban and Quran. Many are plant-based objects (which means they've been made out of plants). They can be used for praying on, wearing and reading. Many of these subjects are also used for celebrations, like Eide, Ramadan, Christmas, etc. and used for wearing, reading, gifts or praying to their god. You can also discover them in places of worship like church, mosque, temples or gurdwara. Also people long ago made cultural/celebration objects like how the Maya, a society, made masks to put on for festivals, war or death. They each believed one thing for each mask – war masks to camouflage you during battle, festival masks to wear masks when on event or celebration and death masks to put on a dead person's face so they can fight the gods of the underworld."*

In giving tours of their museums, pupils pointed out objects they or their friends had lent and made connections to objects at home. The children demonstrated pride and curiosity around the objects, always in the context of the culture or country they had come from.

"I have this (mortar & pestle) at my house and I help my mum to mash the food in it to make rice." (KS1 pupil, St Monica's)

"I have this friend called [girl's name]. She brought this in and it's, like, made of wood and it makes a noise and [...] it's like decoration in their country. And it's, like, culturally significant to them." (KS2 pupil, Wilberforce)

Teachers at both schools affirmed how much pupils enjoyed learning about other cultures in the project:

"They definitely do love learning about different countries." (Teacher, St Monica's)

"They liked linking their own experience or identities to something that they could see themselves, that another class had made. Similarly, they also liked learning about the zampoña. So, it was very nice to see that they liked learning, not only about their culture but about another culture." (Teacher, St Monica's)

"They were all fascinated by the museum, absolutely fascinated and spent ages walking along and discussing it. The children would suddenly grab you and sort of, say: look, this is from my home. And pointing to the map. They were very excited by it." (Teacher, Wilberforce)

The project afforded pupils multiple opportunities to consider the lives of people with different – and similar – lives and customs to their own, as evidenced by the rich class discussions related by several of the St Monica’s teachers as well as teachers at Wilberforce, and the similarities and novel objects pupils pointed out in tours of their museums:

“I could say, ‘Okay, we touched on –’, the mortar and pestle that the Year 4’s did, we spoke about it a little bit, and everyone gave a different version of what they do with it. Or what they have seen their parents do with it, and that was a good discussion, too. I told them that from where I come, they use it to pound yam, and normally it’s big, it’s a bigger one. If not that, then they use it to actually grind seeds or spices, you know, and then others say, ‘Oh, yes, Miss, that’s true. We have one at home and mum uses it, and they use it to grind spices’, and then others, you know, that tunes in, and then everyone was giving their own. We discovered that even in Colombia, they actually do use it, you know, and I said, ‘You see?’ so it’s not just in Africa. You can go to another continent, and they actually do use them there.” (Teacher, St Monica’s)

“I think what they’ve been more shocked by is how many similarities there are between cultures [...] someone will say ‘wait, that’s really just like something we do and that’s weird’. When they were looking at the God’s Eye, one of the girls was like ‘oh that’s kind of like [inaudible], then another person was like ‘oh that’s sort of like the Turkish evil eye, and they were like ‘right all these things are actually really similar and they do similar things’ [...] I think potentially you talk more about differences, ‘cause you always say you’ve got to be accepting of everyone’s differences and [...] actually between us all there’s so many similarities, regardless of where you are from” (Teacher, Wilberforce)

A similar discussion was described by a pupil:

“For example, the culture that I found out, as I already showed, western Nigeria and I also learnt about Eritrea and Ethiopia because [boy] and [girl] are from Eritrea and [boy], if you can see there on the table, there was like sugar, all those things and [boy] brought that in because he has a brother in Year 2. So, because [boy] brought all that stuff in, he explained to us what it was about.” (KS2 pupil, St Monica’s)

Broadly, the observation forms filled in by the teachers across the year groups in both schools highlighted their beliefs that most of their pupils had achieved learning outcomes related to valuing other cultures during the project. Teachers thought having dedicated time in the curriculum through the project to build understanding and value cultural similarities and differences was important to achieving these outcomes. These values are reinforced through the schools’ ethos – discussing cultures positively, being inclusive, listening, being respectful – modelled by the teachers’ relationship with pupils and each other, and reinforced in assemblies, form time and RE lessons. But dedicated lesson time that focused on pupils and valuing their cultures was not something pupils would typically experience in school; the project, therefore, gave these outcomes a more distinct place in the busy school timetable, made them visible to parents and was constantly reinforced over the two terms the project covered.

“I mean in school, often they don’t get to talk too much about back home, or their experiences. I think they found that really interesting and they enjoyed that because it was that time for them to share it.” (Teacher, St Monica’s)

“To collaborate with people of a similar culture and to share what they know and to celebrate that – I think they really valued that.” (Teacher, Wilberforce)

“We don’t necessarily learn about food and clothing... If it comes up a teacher wouldn’t shy away from it, we’d talk about it, but it’s not built into the curriculum.” (Teacher, Wilberforce)

Teachers noted in particular how appreciative and respectful pupils were of their classmates when they described objects they had brought in from home and how enthusiastic they were to share what they had learnt.

“They were respectful, and that was good. They learned to respect others as well, and to respect other people’s artefacts.” (Teacher, St Monica’s)

“I think everyone was very respectful, especially when they found out it [mortar & pestle] is used in different places for different things. It just really opened up their horizon a little bit.” (Teacher, St Monica’s)

Respect for the objects and others’ cultures was also evident in the way pupils gave tours of the museums. They handled objects carefully and talked with interest about things from their countries and those from others’. Teachers at Wilberforce suggested that the focus of the project on cultural objects gave pupils permission to be curious about different cultures and feel safe about asking questions. Cultural differences increased the richness of the “Wilberforce family” and were treated by teachers and pupils as something interesting and to celebrate.

“You try not to offend people and say the wrong thing and I think [the project] was quite good to help them. It’s OK to ask someone from a different country what they’re wearing or why they’re doing a certain thing. It’s OK. So I think with some children that’s been quite positive – they feel they can ask questions and it’s absolutely fine. Because they really want to know.” (Teacher, Wilberforce)

Additionally, the school museums themselves demonstrated the importance of culture for the schools and their pupils. In Wilberforce the museum was given pride of place in a main thoroughfare and was a tangible celebration of cultures represented by the school. On the wall opposite the museum was a map of world highlighting the 30 countries pupils came from and the variety of languages spoken by children at the school. In St Monica’s the museum was given importance by being staged in the library. For both parents and pupils these displays of personal objects, not often seen outside of the home or cultural centre, demonstrated to them that the diversity of cultures is valued by the school. The extent to which the project supported pupils’ appreciation of other cultures was even noted by parents.

“They would have learned a lot about different cultures, you know, that’s the fundamental one, learning, diversity, and also how to appreciate one another, so they would have learnt all that.” (Parent, St Monica’s)

“They really enjoyed it, learning about other cultures” (Parent, Wilberforce)

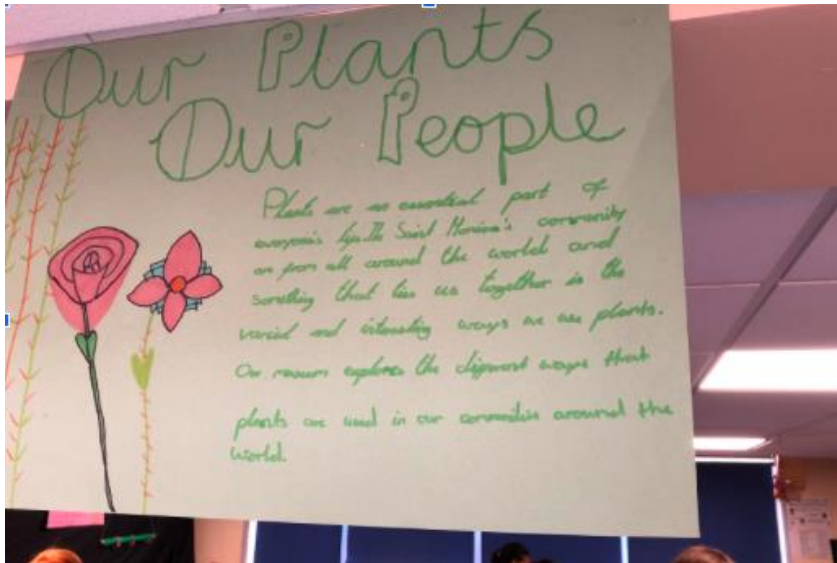
“It makes you proud as well!” (Parent, Wilberforce)

#### 4.4 Taking action

This fourth category of learning outcomes focused on behaviours and activity: whether pupils had taken action in and out of the school evidenced by creating school museums, becoming advocates in their local community, teaching others on the importance of plants and (parents) evaluating what they can do to support the school. Evidence from both schools reflects that the outcome of creating smaller museums and learning displays was most certainly achieved and these museums, to differing extents, helped teach others about the importance of plants, with this being more explicit in the Wilberforce museum and primarily implicit at St Monica’s. Details about the museums created in both schools have been provided elsewhere in the report and are not repeated here, other than to remind the reader of the vibrant and exciting nature of the museums, which revolved around plant-based, culturally significant artefacts.

As noted previously, at St Monica’s a small museum was created in the school library. One class (Reception through Year 5) was responsible for each section, and each section contained a focal object, as well as additional objects (often made by the children) and interpretation. Although the objects were plant-based, most of the communication (akin to teaching – in the form of interpretation and sharing of information) around them focused on their uses and cultural significance. The title of the museum was ‘Our Plants, Our People’, and the interpretation often included mention of the plants that the objects in

the museum were made from (e.g. bamboo, raffia), implying the importance of plants in these culturally significant objects.



Introductory panel to St Monica's museum highlighting plants



Label providing additional information about rattan (Year 5 display)

Wilberforce also created a vibrant school museum. Parents, pupils and visitors to the school were greeted with a mass display of many objects across a number of tables, in display cases and hanging on



windows. Many children from across the school had brought in cultural objects made from plants for the museum and had written a label explaining the name of the object, where it came from, what it was made of, how it was used and other information. Other labels and texts in the museum prompted visitors to look more closely and to consider similarities and differences with other objects, the plant material and cultural uses of the objects were central to the content of the museum. Each class collated objects under a theme: food and drink, entertainment, celebrations and culture, clothing, around the home, and sustainability.



*Wilberforce museum: examples of a coffee plant, coffee beans, ground coffee, coffee drink (Image: Mobile Museum Project Team)*



*Wilberforce museum: a cricket ball and research on the plant-based material inside a cricket ball (Image: Mobile Museum Project Team)*

Parents were involved in the creation of the museums by loaning culturally significant, plant-based objects, which the schools had requested they bring in. About half of the parents interviewed at St Monica's remarked that their children had discussed the project at home, particularly focusing on possible objects to bring in, as well as objects other pupils had contributed:



“He was talking about the crosses. Yes, and then ‘Mama, we did the crosses from... We spoke about African culture, and different culture, and different culture.’” (Parent, St Monica’s)

Parents at Wilberforce also explained that their children had discussed the project with them, and they in turn had talked to friends and family about loaning objects. Again, the discussion had focussed on identifying objects for the museum but children had talked about them being ‘plant-based’ and ‘cultural’. A small number of pupils mentioned sharing their knowledge about the project with others outside of school.

“I’ve told my cousin [...] We’re doing a project of Kew Gardens and she was wondering what it was and it was a project that we had to bring in, like a plant-based object and I had one. She also had some in her house.” (KS2 pupil, Wilberforce)

Such conversations at home could be considered as an opportunity to reflect on or discuss the importance of plants. They also reflect that parents evaluated how to support the school (via the museum), although this is more implicit than explicit. Nevertheless, it does highlight the potential of this approach to support such outcomes.

Parents visited the museum and were very impressed and moved by it. They also hoped the school would repeat the activity the following year, perhaps even expanding it, and that they would be even more involved.

“If they do tell next time, I think I’ll really be able to ask some of the things from back home, that they think will be interesting.” (Parent, St Monica’s)

“I’m sure the second one will be better. Better and bigger! We’ll be more involved.” (Parent, St Monica’s)

“Do you see how they use the pupils to give explanation or whatever, but if they want our involvement as parents, we can explain even more.” (Parent, St Monica’s)

Wilberforce teachers expressed a wish to learn from the experience and instigate future activities explicitly linked to pupils’ cultures that drew on parents’ expertise and encouraged involvement in the school.

“The values and the opportunity to collaborate and to find out about each other and to just share, they’re certainly all things that we want to do more of. We want to be able to celebrate culture, so it might be that that becomes a bit of an annual kind of thing with perhaps a different focus each time.” (Teacher, Wilberforce)

The lead teacher on the project at St Monica’s had hoped to invite the wider community to visit the museum but this proved unfeasible in the time available. At Wilberforce the community, as in the parents, had been invited to take part in the Celebration of Cultures Day. The initial plan for the Oral Storytelling sessions had been to involve the wider community but this was replaced by a focus on telling stories about plant-based objects from Kew’s collection.

#### 4.5 Project approach: whole school, cross-curricular, collaborative

The project had the objective of using a cross-curricular, whole-school approach, and to be further developed in collaboration with the Mobile Museum Project Team. Evidence reflects that this was achieved, in the main, although as expected (and intended) there were variations between the schools in how the project was delivered.

##### 4.5.1 Whole school approach

At St Monica’s, the whole school participated in the project, although the Reception class was less involved in the earlier stages and the Year 6 class had to stop participating part-way through due to pressure over the SATs. The whole school approach was seen most strongly in the Museum Crew, which

consisted of pupils from Years 1-5, who had workshops at two museums and at Kew Gardens together, further supporting collaboration across the year groups. Good practice related to the creation of the museum was also supported by the way in which the lead teacher created 'flip charts' (electronic lesson plans with associated presentations which are similar to PowerPoint presentations but can be easily annotated by teachers on interactive whiteboards) for the different stages of the project. These gave pupils across the school shared starting points for their work, but also were modified by teachers as needed for their particular year groups. However, although the lead teacher noted that pupils from different year groups spoke with each other about the project, he identified a number of ways it could have been even more supportive of working across the school, should the project be repeated in future. For instance, he recommended older pupils working with younger ones on making artefacts for the exhibition or developing interpretation ("possibilities are endless"). He also advocated for whole school assemblies around the project.

The fact that the project would involve the whole school was attractive to Wilberforce – they often apply to be involved in projects and find many specify single year groups. Since the outcomes for the Mobile Museum project closely aligned to Wilberforce's principles, they were eager for the whole school (all children, their parents and staff) to learn and benefit from it. So to deliver the project through a whole school approach they initiated the project at the Celebration of Cultures Day – parents were invited to the assembly or contributed by sending in food and objects, and pupils spent time with other children from the same country independent of age group. On other CCs all classes were involved in similar work at the same time, experienced similar workshops from the Kew Learning Team, and all classes visited Kew (2 year groups together on any one day). And, all children from Reception to Year 6 contributed to making the school museum.

"I sent three children with their baskets to show [teacher] because I knew that his class would also be doing weaving in a different context, and they came back and said, 'Year 3 are also doing it!' I said 'yeah we're all doing it, all the Wilberforce family are doing this today.' [...] they liked knowing that everyone in the school was doing it" (Teacher, Wilberforce)

Additionally, the Headteacher invited all Wilberforce staff – teaching and non-teaching – to the Continuing Professional Development and Learning session (CPDL) led by the Mobile Museum Project Team at Kew. This raised awareness and understanding of economic botany with all staff enabling them to support pupils and encourage parental involvement, as well as being a great learning experience for them.

"Going to Kew and seeing behind the scenes. I've been to Kew hundreds of times but to be able to go in there and see the treasures – that was amazing! [...] I just thought that gave me that enthusiasm [for the project]" (Teacher, Wilberforce)



Wilberforce Primary  
@wilber4sprimary

So exciting to be behind the scenes  
[@kewmobilemuseum](#) #educationwithcharacter



*A Tweet on Wilberforce's Twitter account during staff CPDL*



*Wilberforce CPDL at Kew Gardens (Image: Mobile Museum Project Team)*

There were, however, significant logistical challenges with a whole school approach. While the lead teacher at Wilberforce had the support from his colleagues, he was responsible for creating the project approach and individual lesson plans for each CC – a significant amount of “extra work” on top of other teaching responsibilities. Scheduling the project within the whole school’s timetable was challenging – finding times when the whole school could work on the project at the same time was not simple, and later in the project, ringfencing that time when other opportunities had arisen and needed to be fitted into the timetable proved impossible. Despite this, Wilberforce highly valued the whole school approach and would like to do more in the future.

“Seeing the success of working across phases, it’s something we want to do more of. There’s nothing in concrete yet but we’re very conscious of the success of it [...] I think for it to work it has to be a standalone [project]. I think otherwise it would be just too hard to coordinate”  
(Teacher, Wilberforce)

This teacher went on to suggest it would be easier to manage such a project over a shorter timescale (discussed further on p53).

Despite the challenges, the Wilberforce’s experience highlighted the positive outcomes of a whole school approach. Pupils greatly enjoyed working alongside peers from different classes and of different abilities. Teachers noted how children who struggle in their typical class groupings found the experience positive and explained that often these children would “shine” when in a different group. They also reported seeing older children, including those who sometimes struggle with their class peers, demonstrate supportive and nurturing behaviours towards younger children.

“Opportunities to work across the school in groups that are not just your class [...] I think those are really important for the older ones to develop leadership. For the younger ones just to be with the bigger kids and listen to them and to teach each other – it’s a different dynamic than working with someone in your class [...] [it’s a concept] they love, they’re happy for more of them, they’re really fun.” (Teacher, Wilberforce)

“The children really enjoy it. The older ones look after the younger ones. Some children who find whole class teaching challenging can be caring and nurturing towards younger children. They might struggle with their peers but with a bit of responsibility with younger children they shine.”  
(Teacher, Wilberforce)

Additionally, parents enjoyed the fact that their children in different classes were working on the same topic with some mentioning talking about and supporting their children together and how meaningful this was.

#### 4.5.2 Cross-curricular project

The cross-curricular element of the project was designed in from the beginning, with multiple subject areas covered in both schools. The way the project was delivered at St Monica’s (with the emphasis more on creating a museum and the cultural significance of the objects, rather than the plant-based element) meant that literacy (particularly non-fiction writing), Art/Design & Technology, Geography, ICT and (sometimes) RE were better supported than other subjects. Teachers did highlight that there were links between the science curriculum and the project, but these seemed to be referred to on a more ad hoc basis than supported directly throughout. The teachers had a workshop (delivered by the original project manager from Kew) related to plants at the beginning of the project and felt that having pupils involved in that would have increased the links to science and to plants in particular. Likewise, having the whole school participate in a visit to Kew (as Wilberforce did) would have provided a further opportunity to reinforce science learning and learning about plants in particular.

As with St Monica’s, the CCs at Wilberforce were planned to be cross-curricular. They focussed on Art and Design & Technology (making objects), Geography (location knowledge, human geography) and Science (materials and plants); and English skills (writing, speaking and listening) were practised throughout the project. However, the emphasis on science at Wilberforce was greater than at St Monica’s, supported by having the whole school visit Kew, the Importance of Plants workshops led by Kew Learning staff and discussions (and pupils’ interests) in raw materials and how they are manufactured.

At both schools there were opportunities to revisit learning from previous years or previous lessons (e.g. at Wilberforce referencing learning about plants and their uses from a previous science topic on Rainforests). Teachers also commented on how they could explore ideas and pupils’ interests in greater

depth than if just the curriculum was being followed – importantly, the cross-curricular approach allowed and enabled teachers to extend pupils’ learning beyond the content of the National Curriculum.

“In every year group plants are part of the National Curriculum, so we could recap things for older children and introduce things to younger ones. We could also add more complex things.” (Teacher, Wilberforce)

“The topic of the project being plants, they’re culturally significant and that is something we wouldn’t have explored. So yeah, they’re experimenting. They’ve got opportunities to do new things that they wouldn’t have.” (Teacher, Wilberforce)

All of the teachers at St Monica’s and Wilberforce praised the cross-curricular element of the project, suggesting this is a way of working that could appeal to other schools in future Kew projects.

Importantly, it was not just the cross-curricular element in and of itself that appealed (because both schools are accustomed to topic-based work, which aims to be cross-curricular), but the way in which it supported cross-curricular learning that is natural rather than forced. This was distinctive to this project.

“Literacy, definitely, a lot of what we were doing in literacy just flowed with the project, so that was really good, so they’re using that non-fiction knowledge and then writing persuasively... and art, so it definitely did have links with the rest.” (Teacher, St Monica’s)

“It [culture] was a good platform to launch it all from, a great starting point and then the plant-based understanding came in and then to link that all back to culture. So it was musical instruments made with plants from their culture, it was food or kitchen utensils used within their culture. [...] I think the children found it much easier to see the connections between everything” (Teacher, Wilberforce)

“I think one of the hardest things with cross-curricular teaching is to make it meaningful and I think there were no tenuous links with this.” (Teacher, St Monica’s)

#### 4.5.3 Collaboration

The intent of the project was that it would be a collaboration between the schools and the Mobile Museum Project Team both in the way the projects at each school were planned and how they were delivered. Although collaboration certainly did occur, this was also one of the most challenging aspects of the project for the lead teachers at Wilberforce and St Monica’s.

In retrospect, both school leads would have liked a clearer steer from the Project Team, with examples, of what a school museum could look like and the steps required to create one. The balance between the Project Team scaffolding the schools’ experiences and the freedom to be school-led required for a fully collaborative project remained elusive despite the best efforts of both parties.

“It was a very open brief. It was down to us to piece together what it would look like. That wasn’t clear at the beginning [...] Kew now has a better idea of the sorts of things they can suggest to a school but we had nothing. It was quite a lot of work – but it was worth it. It’s daunting to say to a school ‘we want you to create a museum’ without a previous model to get inspiration from. [...] There were lots of expectations on me [at the start of the project] but I didn’t know how to meet them ‘cause I didn’t know what they wanted.” (Project lead, Wilberforce)

“I think it would be really nice to have, like, a discussion where we just sit down and we say, ‘This is what I want to do, how it will work,’ and decide on a really firm structure initially. Because I think maybe it was just me not understanding but the fact with the assessment side of it – they could’ve made that work without the three legs. I think having that clearly defined would’ve been useful.” (Project lead, St Monica’s)

Additionally, Wilberforce acknowledged some uncertainty about what a ‘mobile museum’ or indeed a ‘school museum’ would entail – they were unsure about what they needed to produce and, hence, the steps needed to get there. St Monica’s lead teacher, however, had a clearer image of a school museum



evidenced by that school's planning that included visiting museums to understand how objects are interpreted and displayed.

“What a museum is – we needed more time at that. We needed to do it at the beginning to give the context to children. If we're producing a museum we need to know what one is, and the parts needed to put one together. The things the children did – learning from objects, making objects – why are we doing these? Making a museum needs to be more explicit so I would do a museum visit at the beginning to focus on displays and labelling. Link it to when classes were going on trips anyway.” (Project lead, Wilberforce)

The Mobile Museum Project Team offered support throughout the projects in both schools in the form of weekly phone calls, delivering workshops, supplying resources for teaching (e.g. plant samples and plant-based stories for Wilberforce), visits to Kew for St Monica's Museum Crew and Wilberforce staff, self-led visits to Kew for Wilberforce pupils and a handbook that collated learning about plant collections and about developing a school museum (consolidating resources that had been developed by the Mobile Museum Project Team for the Museum Crew's visit and Wilberforce's CPDL). The handbook was well received by the teachers, although Wilberforce teachers felt they would have benefitted from this information at the start of the project. The Kew Learning staff on the Project Team had considerable expertise teaching in primary schools and the school leads, felt the resources were appropriate, of good quality and well received by teachers and pupils. Teachers found the Kew Learning staff to be flexible, open and collegial which they appreciated.



*Curating a school museum: Teachers handbook (Image: Mobile Museum Project Team)*

Ongoing support from the Mobile Museum Project Team to the school leads, was often in the form of “tell us what you need” but the novelty of the project and schools' lack of confidence around some of the details meant the lead teachers, especially at St Monica's, were not sure what they might ask for. The lead teachers suggested that in future perhaps a “menu of options” for workshops could be offered, or a list of the kinds of resources the project team could provide – giving them ideas that could be incorporated into their planning.

One workshop at Wilberforce, on the Importance of objects, did demonstrate how the teachers and the Project Team could work together collaboratively. Instead of being delivered by the Project Team 'expert', the class teacher and Kew educator worked together as facilitators responding to children's interests as they emerged from discussion and as a result of prompt material, looking up resources online during the session, referring to content already covered in school and supporting and encouraging pupils' interests. This example reflects the potential for the project to be more collaborative in its approach to planning and teaching.

Across both schools then, there was good, continual support from the Mobile Museum Project Team. However, this collaboration could have been scaffolded further had schools had a clearer picture from the start of the final 'product' – of what a school museum focused on culturally significant plant-based objects might be or look like. The pilot nature meant that some of the resources schools would have found helpful (e.g. images of a school museum based on these objects) did not exist prior to the project. Had they existed, they could have been used to bring schools more 'up to speed' and increase their comfort level around the project which, in turn would have provided a firmer foundation for collaboration with the Mobile Museum Project Team.

## 5. Further outcomes for families, pupils and schools

In addition to the learning outcomes articulated at the initiation of the project (around knowledge and understanding, attitudes and values and so forth), the evaluation aimed to capture additional outcomes, particularly around impact on parents and the schools themselves, as well as any further impacts on pupils and teachers. In particular, across both schools the project made a strong impact on parents and their relationship with the school. Impacts were also found related to pupils' sense of agency and ownership, to teachers' perceptions of their pupils and their capacity for learning from objects.

### 3.4 Home-school relationships

Although the project was clearly designed to involve families, its impact on parents at both schools was extraordinary and as such, was one of the most significant outcomes of the project. At St Monica's, the response to the requests for culturally significant objects was not only far greater than the school had anticipated, it snowballed, with parents encouraging each other to send things in with their children. Teachers at Wilberforce noted that once parents understood what 'plant-based cultural objects' were there were many donations to the museum. As well as identifying objects and visiting the museum, parents at Wilberforce also engaged with the project by being invited to the Celebration of Culture Day assembly when they were introduced to the project and encouraged to "share, celebrate and learn with each other" (Assembly PowerPoint) and they could accompany classes on the school trip to Kew. But perhaps more impressive than the many donations to the school museums was the parents' reaction to the museum itself – one of emotion and pride – this was seen in parents at both schools. The displays represented objects from many countries and parents were proud that objects from their countries were part of this. Responses in the museum included:

["Is it nice seeing things from your country?"] "Yes! I feel emotion." (Parent, St Monica's)

[Pointing out a coffee set] "That's a traditional one! Traditional Eritrean!" (Parent, St Monica's)

"When I walk in, I was so happy". (Parent, St Monica's)

"It makes you so proud! You don't normally see things from the Philippines in school." (Parent, Wilberforce)

"It's so nice!" (Parent, Wilberforce)

Parents identified not only what they had brought in but also what their friends had brought in and even made connections between objects on display and similar objects from their own countries.

“This one (mortar & pestle) we have it for our cassava leaf. Even like, a lot of thing we use to pinch – chili.... And the material, we wear this one. And we have this mask as well, for our country, we have a mask for our culture.” (Parent, St Monica’s)

“We use the hat as well, in Bangladesh I’ve seen that.” (Parent, Wilberforce)

And one Ethiopian parent from St Monica’s, with obvious pride and excitement, pointed out various objects from her country in the Year 2 display, including a guitar (“This is from my country – my village!”), which her grandfather knew how to play. Parents talked about their countries as their homes and valued having personal objects from their homes given recognition in school. The fact the objects were made from plants gave an additional connection (beyond cultural practices) to the land and type of plants that grew there – this was mentioned by some parents at Wilberforce. For example, one parent from the Philippines brought in photographs of the national plant, illustrating the material that objects she had donated were made from.

In addition, as with Wilberforce, parents at St Monica’s also felt that although the school was a welcoming environment, the museum went much further in acknowledging, reflecting and valuing the diverse cultures of the families:

“Well to me, what I saw, I think it reflects the diversity in the school, which is very, very encouraging.” (Parent, St Monica’s)

“This was the first time, can bring something from my culture.” (Parent, St Monica’s)

“We also feel very important because they ask us to come and contribute.” (Parent, Wilberforce)

Although the schools have traditionally held ‘International Day’ in which families bring in food from their countries of origin, the respect that parents felt from the school – from the invitation to bring in objects which were, in turn, displayed in a museum – was clearly significant for parents and should not be underestimated as an outcome from the project. Parents clearly believed that the museum could make a difference to the school – it made them feel “more involved” and this was a good thing.

“I think it’s to bring more sense of embracing different things, different people, different cultures, and in a way brings about togetherness.” (Parent, St Monica’s)

[Does this make a difference to your relationship with the school?] “It does [...] more communicating.” “It’s big [...] We feel more involved.” (Parents, Wilberforce)

Indeed, the teachers at both schools also felt that it had made a difference.

“You could see, even as we set up the museum, parents were still willing to bring in stuff to put in, to showcase, you know, to showcase their cultural background. Showing that they are proud of where they came from, and what it entails.” (Teacher, St Monica’s)

Other teachers noted that some of the parents who were involved – who brought in objects – had previously been reluctant to engage with the school.

“The lady who brought in the big vessel of water, that was not from her class. She’s actually in Year 5 and doesn’t speak very good English... really nice woman and she talks to me but is usually quite hesitant to talk because I think she knows that her English isn’t perfect. But she came to me to tell me that she had it and would like to bring it. Just didn’t really care (about her English), I could see she was just quite excited.” (Teacher, St Monica’s)

“At the cultures day [...] when we mixed the year groups up, there were some parents that we weren’t surprised at, but there were some, even if they only came for 5 or 10 minutes, actually you wouldn’t have expected them necessarily to have come in. And then to go into another classroom with another teacher! Yeah, it was nice.” (Teacher, Wilberforce)

In interviews with parents from both schools, parents talked about sharing their knowledge with their children and learning with them. They explained how they would tell their children about the objects,

often in their home language, and then use the internet to find information in English that would help their children talk about the objects in school. They enjoyed being the experts and being involved with their children's learning. They described learning about objects as "happy learning" where the children were curious and didn't realise they were learning.

"It's nice, we're actually spending time with the children. [...] I've got two in the school right now. [...] Obviously I was telling with my language but then we went in the internet to see if it's in English, probably they will understand. They will say something, I will explain it to them [...] they were learning how people does that with bamboo." (Parent, Wilberforce)

"It was good time, doing it together." (Parent, Wilberforce)

Moreover, although the museum was in a school, the notion of museums as prestigious carried over and seemed to bestow additional valuing on the parents' cultures, which made the experience deeply meaningful to them. One parent remarked:

"We go to Congo in few weeks. For [daughter], it's her first time and I will show her. Like, 'you see in school? We have that.'" (Parent, St Monica's)

"You feel like, 'Oh it's nice', you feel like you are at home, just because you have a chance to represent yourself in the school really." (Parent, St Monica's)

Parents also very much hoped that the school would create another museum the following year and were eager to participate. If anything, they would like for the museum to be bigger, with even more objects.

["Are your kids excited to see things from your country?"] "Yes, yes, because we go there next week – to our country. And I'll bring in other things as well – for next year. Next year, we'll make it bigger! Maybe some art." (Parent, St Monica's)

The museum made the schools' respect for the families tangible – it was highly visible (taking over the library at St Monica's and in the main thoroughfare at Wilberforce) and open for an entire week. In the words of one teacher at St Monica's, "we've never had something on that scale". This culminating 'celebration' made the project more impactful and meaningful, giving it the potential to serve as a means of strengthening school-family relationships. Moreover, follow-up interviews conducted with teachers in November 2019 highlighted that this was indeed the case.

"I think the main thing that kind of stands out to me is community, I think it really brought in almost reluctant parents and reluctant parents that, you know, we do find it hard sometimes to get parents to come in to assemblies or to fairs or whatever, but I think because it had that kind of cultural significance, so it kind of linked to them, they were almost, I don't know, just brought in, you know, it really allowed them to come in and enjoy it, so I think that was really nice, that community coming in, even those reluctant parents that usually we don't get coming in..."

(Teacher, St Monica's)

This teacher confirmed her impression that this impact continued into the following school year, with more parents than ever before being eager to participate in the annual International Evening, even the "reluctant parents".

For the Headteacher at Wilberforce, the fact that parents and not the teachers were the experts in the Mobile Museum project was a significant impact for her. She thought that the project helped to break down barriers between school and parents, showing the school to be open and interested and serious about being one "Wilberforce family". She explained tapping into parents as a resource is a challenge, but the project seemed to make parents aware that school was interested and valued them and what they can contribute. Similar feedback came from the lead teacher on the project at St Monica's:

"They liked that it was kind of, listening to them, celebrating them and they came in there with the experts, they loved that. I think it was really nice to see groups come together, so, like the ladies from (Eritrea?) are a quite a few in my class come in together and they discussed

something outside of school and wanted to bring stuff to show it. So, that was nice because I thought that kind of, is a bit of grouping together.” (Teacher, St Monica’s)

“I think they really appreciated being involved and having that opportunity to share their culture and to have a voice, because usually it’s kind of like separate – parents and school – so to get them in and to give them that opportunity, they did seem to value that.[...] It’s been a real struggle even just to get parents in and sadly, our community, for whatever reason, is a really hard one to engage. Which kind of makes the Kew project, the fact we did have such...actually for us it was high level of engagement.” (Teacher, Wilberforce)

In addition, the Headteacher at Wilberforce explained how the project had highlighted that parental engagement was not just about getting parents into school, which was a challenge, but about supporting parents so they are able to engage with their children’s learning. “Giving parents instructions to make a rocket might be too difficult...” But valuing their expertise on the subject of their own culture was “an easier way in”. The Mobile Museum project had been an example of how this could be successfully implemented.

### 3.4 Pupil agency and ownership

Another key element of the project for the pupils at both schools was the ownership and agency they had over the project. The ownership pupils felt was in evidence as they led tours around the museum. Pupils at each school pointed out which displays their class had been responsible for and which elements they had personally contributed to – whether an object they had made or donated, a label they had written or some other element of interpretation (e.g. “These are my designs”; “This is from my country”; “We’ve got this poster that I made”; “We actually made this ourselves”; “That is writing up there that I wrote”).

One feature of the project that contributed strongly to this sense of ownership was bringing in objects from home, objects (and the cultures they reflect) that the pupils were expert in, often more than the teachers.

“I’m not from Nigeria, so they loved telling me, and being the ones to teach me about it. I said, ‘I don’t really know about this.’” (Teacher, St Monica’s)

“It’s authentic because the kids really are the experts – we don’t know!” (Teacher, Wilberforce)

When giving tours of the museum, pupils spoke with particular pride about objects that they/their families and their friends’ families had contributed.

“I contributed the mortar and pestle. It’s from my home but I lent it...” (KS2 pupil, St Monica’s)

“What I contributed is the masks. Because in my mum and dad’s country, like in the village, they used to have loads of celebrations. They used masks, too.” (KS2 pupil, St Monica’s)

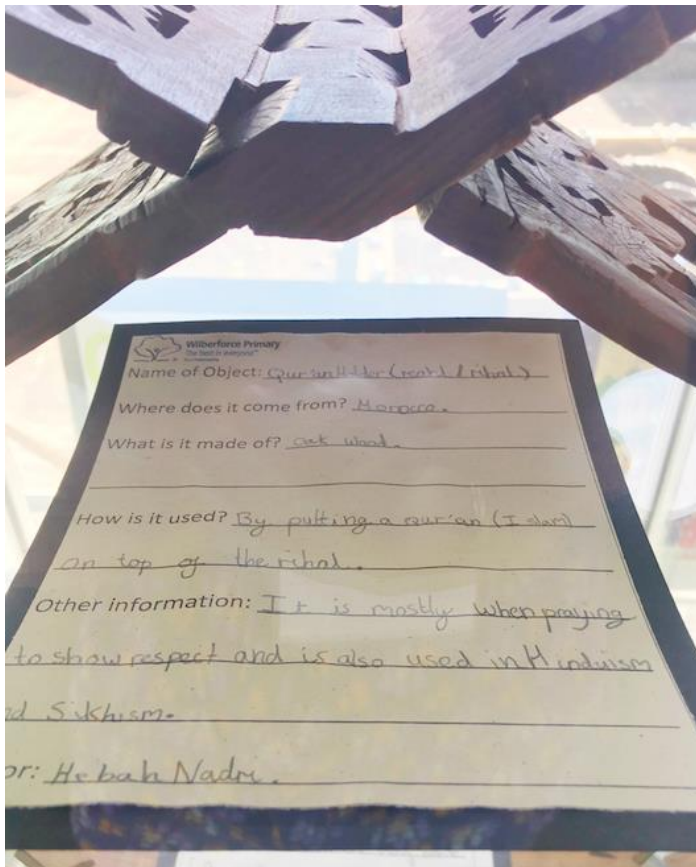
“This was lent by one of the mum’s churches.” (KS2 pupil, St Monica’s)

This sense of ownership was also reflected in the labels for objects in the museum, which noted the lenders:





St Monica's museum: label from pestle and mortar display, noting the makers (Year 4)



Wilberforce museum: label with information on the cultural use and material of donated object and noting the lender.

Pupils' sense of ownership was also enhanced by what they learned during the project (e.g. by researching objects). Teachers also noted the ownership pupils had in the project:

“They knew so much already because they had researched it themselves, it wasn’t just me telling them information, they definitely took ownership with that.” (Teacher, St Monica’s)

Every aspect of the project – from bringing in objects and then selecting the focal object for the class (St Monica’s) or deciding on the museum’s themes and selecting which objects to display under those themes (Wilberforce), to conducting research, to creating labels and ‘marketing materials’ (St Monica’s) and objects, to deciding what would ultimately go into the museum – was pupil-led and purposeful, being directed towards a definitive, physical outcome (the school museum). These features supported the strong sense of ownership of the project and, in turn the agency and ownership experienced by pupils also likely contributed to their ongoing enthusiasm and motivation for the project, which was remarked on by several of the teachers.

“I think the excitement that the project brought really made them easier to do because the children wanted to do it.” (Teacher, St Monica’s)

This feature of agency and being strongly pupil-led, combined with the focus of the museum on culturally significant objects lent by the pupils’ families, not only was key to supporting other learning outcomes but also led to a tremendous sense of pride – pride in themselves and pride in their school.

“[Our weaving focus was] the Bangladeshi reed mats, shital patis, and there was quite a number of Bangladeshi children within the class and they loved it being about their culture. But the other children didn’t mind, they weren’t envious or anything. The Bangladeshi children were particularly proud of it which was really nice to see.” (Teacher, Wilberforce)

“I was proud of my whole class and myself. And we made these to show other people, for like the ‘grand opening’. And then after, I was proud for our whole school because we knew that, like, Kew Gardens, other plant-based people could come and see our display.” (Pupil, St Monica’s)

“We’re even more than proud of ourselves... we have a chance to see what we made as a whole school. And we’re very proud because other people from different companies, like Kew Gardens... they would come to see and it would be very awesome for them because, you don’t know, we could be a very famous school.” (Pupil, St Monica’s)

### 3.4 Learning from objects

Learning from and through objects was central to the project at both schools. At Wilberforce, it was particularly evident in the pupils’ behaviour in the school museum and was the focus of workshops led by Kew educators. Pupils were given permission to touch, smell and play with objects some of which were familiar, some not. They asked many questions about their functions and the materials they were made from. These object rich sessions were a novelty, but they also set a tone for the CCs – that they were fun, that questions and speculation were encouraged, and that objects could be explored but handled carefully. This was reflected in the museum – children picked up and explored the objects confidently and sensitively; they were interested in the variety, difference and familiarity of the objects on display.

“I think the thing I found the best for the little ones was the actual physically touching objects, which you wouldn’t be able to give them. To touch in a museum... you just can’t get all those objects together [...] it was actually brilliant because the children were so fascinated by them.” (Teacher, Wilberforce)

Reflecting potential longer-term impact, Wilberforce teachers quoted the ‘describe, reflect, speculate’ approach to learning from objects that they had been introduced to at the CPDL in Kew at the start of the project. They found this approach useful and thought they could use this in their teaching in many subjects beyond the project (they mentioned History and Geography). They felt pupils had practised this skill both with the handling objects brought to school by the Mobile Museum Project Team and when investigating the cultural objects brought into school by other pupils. This learning was evident four

months on; teachers observed pupils use these skills when investigating objects on a visit to the Natural History Museum and in forest school.

“Learning from objects and being able to pick up something, feel it and ask questions about it and to make inferences from what they’ve seen. They’re much better at that and they do apply that to [...] when we’re talking about stuff and linking it to cultures and to plants.” (Teacher, Wilberforce)

“Learning from objects, the skills in that is something I was really impressed with. Again I can see lots of opportunities to use that and from my own professional development point of view, that was really beneficial. [...] the idea that you don’t have to be right about it. So you might actually not know what it is but you can share your thoughts and evidencing it and that’s what it was about.” (Teacher, Wilberforce)

At St Monica’s, the emphasis on learning from objects revolved more around making objects than handling them, although that featured as well. Teachers at St Monica’s in particular noted the value of using objects to support the learning of younger pupils, whose learning about other cultures, for instance, is at an earlier, more rudimentary, stage compared with older pupils. Across the school, making objects was a central feature of the project, as it provided opportunities not only to learn about other cultures but also for developing 21<sup>st</sup> century skills of collaboration, creativity and critical thinking. For the pupils, making objects was one of the parts of the project they reported enjoying the most.

“My favourite thing was making.” (KS1 pupil, St Monica’s)

“I liked making zampoñas.” (KS1 pupil, St Monica’s)

As noted previously, that the project also revolved around bringing objects from home was key to the success of the project at both schools – doing so created a ‘buzz’ across the school and supported pupil engagement and motivation throughout, as well as underpinning the impact on home-school relationships.

“I think that bringing in stuff from home or bringing in information from home was a huge push because it was something that was, kind of, talked about across the whole school, so, there was a buzz around it and then that made whatever was brought in quite exciting and the children wanted to be the one to bring something exciting – they had all these exciting things and they were really interested in finding out about it.” (Teacher, Wilberforce)

### 3.4 Teacher-pupil relationships

Finally, the project also brought benefits to relationships between teachers and pupils at both schools. This seems to have been underpinned by the opportunities that the project offered for teachers to get to know their pupils better, including about their lives outside of school. Teachers were impressed by the project and what some of their pupils knew, with one teacher at St Monica’s remarking that he was surprised by “the depth of understanding that the children have about their own cultures and their own traditions and their own languages”. Another teacher commented on an object that a pupil had brought in, “They knew a lot more about it than I did, so they were teaching me about it.” This opportunity that the project provided for children to show their knowledge about things – things that were unfamiliar to the teachers – also surely contributed to the ownership and agency that they were able to display in the project.

“For us not to be there experts, none of us were. It was nice to have the children know more than us about a particular thing, or even the parents having to share information and put us in the kind of learning.” (Teacher, Wilberforce)

Likewise, teachers were also impressed by how engaged their pupils were in the project – by their critical thinking and problem solving, as well as by their degree of collaboration. It is clear that the use of objects elicited deep engagement and high-quality discussion/conversation among pupils. Teachers at St

Monica's were very impressed with how well-behaved and engaged even some of their more 'challenging' classes were.

"It was like [teacher] had said to me, the class that she's got, really interesting, really wild class and she said that she was really surprised by how well they worked." (Teacher, St Monica's)

It is important to note that this outcome is likely due to the objects being not only culturally significant but brought from pupils' own homes. That is, object handling was an important tool for supporting learning in the project, but it was the particular nature of the objects themselves that made them so powerful for learning.

## 6. School Mobile Museums: the direction of travel

The idea of the school museum as an active resource for object-based learning played an important if neglected part in programmes of educational reform during the closing decades of the nineteenth century and the opening decades of the twentieth. Of particular relevance to the Mobile Museum project, the Kew Museum of Economic Botany followed this tradition in supplying schools with botanical specimens and artefacts for their own museums during this period to support a broad variety of curricular agendas, from nature study to geography and beyond. The evidence suggests that this scheme was remarkably popular, with demand amongst teachers for museum objects outstripping supply. Seen from the perspective of Kew, the distribution of specimens, artefacts and visual materials to schools was a way of extending the ethos of economic botany into the classroom. For the teachers who requested specimens in large numbers, and the pupils who studied and handled them, however, such objects may have had other meanings and uses (Newman & Driver, 2019).

For all the evident differences, there are some parallels between this historical tradition and the Mobile Museum project. In particular, both historically and currently, schools were/are likely to co-opt the museum's objectives in order to meet their own aims for pupils' learning. Indeed, this way of working is consistent with good practice in museum-school partnerships and increases the likelihood of supporting learning, as well as of schools engaging with museums in the first place. In the current project, both schools adapted the plans to their own circumstances and implemented the creation of a school museum in distinctive ways. And evidence gathered during the evaluation highlights how both approaches supported pupils' learning.

Overall, then, the Mobile Museum project could be considered as an investigation into the possibilities of the school museum in the 21<sup>st</sup> century. Crucially, in this museum, objects are loaned by pupils' families and/or the community, rather than provided by the institution (in this case, Kew). While this arrangement means that the institution necessarily has less control over which objects are featured, working collaboratively with communities is a significant direction of travel for museums in the 21<sup>st</sup> century, with school museums as an instantiation of this movement. The evaluation of this project highlights that the value of having objects lent by families, who are the experts on their own cultures, was critical to the success of the museum, and of the project as a whole. It gave agency and purpose to pupils' learning, leading to deep engagement with the objects and associated activities around them, which in turn, supported other learning outcomes. It also increased the impact of the museum on parents and, likely, their relationship with the school.

Whilst the Mobile Museum project demonstrated the significance of having objects in a 21<sup>st</sup> century school museum come from the pupils' homes and communities, it also highlighted the importance of the way in which Kew, RHUL (or any other institution) interacts with and supports the school. The level of interaction would seem to be key for making the institution's involvement worthwhile and supporting particular learning outcomes around plants (Kew's USP, in contrast to other organisations). That is, at

Wilberforce, where there were a number of touchpoints between the staff, pupils and Kew, the importance of plants and their value in our lives was a key outcome. Wilberforce benefitted from all staff participating in CPDL with the Economic Botany team and others from the Mobile Museum Project Team; the whole school also visited Kew Gardens, and Kew staff delivered three different workshops (repeated to different classes/key stages), some of which included object-rich sessions with a number of plant-based objects purchased for this purpose or brought in from the Economic Botany collection. The Mobile Museum Project Team also donated plant material such as a dried cotton plant specimen to accompany cotton clothes and fabrics, to support learning in Wilberforce's museum.

At St Monica's, interaction with the Mobile Museum Project Team took a different form. Only the Museum Crew visited Kew Gardens, rather than the whole school, but this visit focused on the Economic Botany collection. The visit gave pupils a rich opportunity to interact with members of the project team, including learning about collections and developing curatorial skills, particularly relevant to creating the school museum. A workshop focusing on plants/plant-based objects was delivered only to teachers and, upon reflection towards the end of the project, the lead teacher realised that involving pupils in such a workshop would have enhanced this aspect of the project. That said, Years 4 and 5 participated in a workshop delivered by the Kew Learning staff later in the project which focused on interpretation and telling stories about objects, which also included substantial discussion about plants (their origins and uses).

Put succinctly, whilst institutional support for school museums in the 21<sup>st</sup> century will – and should – take a different form from that provided by the loan boxes and donated sets of the 19<sup>th</sup> and 20<sup>th</sup>, it still needs to be provided and, indeed, is particularly key in ensuring that schools are able to, in their own way, make the most of the unique resources that an institution is able to provide. This support is also necessary to ensure that the experience is – to the extent possible – aligned with the mission of organisations providing these resources.

## 7. Conclusions and implications

The evaluation findings reflect that although the Mobile Museum project faced some challenges, it was impressively successful in achieving its intended outcomes. The evaluation findings demonstrate the project had the following impacts (among others) on pupils and schools: 1) increased awareness/celebration of cultural diversity in the school community; 2) building understanding of other cultures as well as of the uses of plants and valuing their importance as sustainable resources in the climate crisis; 3) valuing the expertise of parents and involving them in their children's learning; and 4) improving home-school relations. It also supported the development of 21<sup>st</sup> century skills (creativity and innovation, critical thinking and problem solving; communication and collaboration). These outcomes were supported by the cross-curricular nature of the project, and the whole-school approach that it took and their strength was also likely influenced by the extended nature of the project. In addition, the outcomes achieved were particularly supported by the focus on culturally significant plant-based objects, many of which were donated to the museums by pupils' families, and, relatedly, to positioning pupils (and their parents) as experts, who had valuable knowledge and experience to contribute to the project. The project was also deeply pupil-led, culminating in a meaningful – and vibrant – celebration of their work creating the museum (making objects, labels, displays) and in cultures represented in the schools. While the project was resource-intensive, it provides substantial insight, and the success of the project suggests that building on its implications would be a good starting point for future efforts of Kew and RHUL.



### 3.4 Framing and promotion

The evaluation demonstrated that the Mobile Museum project was particularly impactful in the four areas listed above so when framing new projects/future Mobile Museum projects these outcomes could be used to promote the project. However, consideration should be made as to which of the outcomes are most relevant to Kew's or RHUL's strategic objectives and to schools generally.

The relationship between the Schools Strand of the Mobile Museum project, which they were a part of, and the wider research project was not fully evident to staff at Wilberforce or St Monica's. Wilberforce's staff met researchers from Kew and RHUL on their CPDL day at Kew, and through their continued close involvement with Kew's educators came to understand more about the work of the Economic Botany team. Likewise, St Monica's Museum Crew (and accompanying teachers) met members of the Economic Botany team during their visit and pupils referred to "plant-based people" who came to visit their school's museum. However, the wider research project was not referenced to the evaluators. If in future projects, it is felt to be important that participants (whether schools, community groups or others) are aware of a wider context, then this would need to be communicated explicitly. That said, lack of awareness in this project did not detract from the success in reaching the intended outcomes and more, so future project teams could consider whether the value of participant awareness would merit the resources required.

### 3.4 Support for schools and teachers

The evaluation highlighted areas where teachers would have preferred additional support, with much similarity between the needs of both schools. Overall, teachers needed help to reduce the burden of additional work created by the project and flexibility to work around the individual character and logistics of the school. What support teachers want going forward will vary, depending on the school, the teacher and the project itself, but the experiences of St Monica's and Wilberforce might help shape future activity to better meet the needs of schools.

In developing a project of this scope, schools struggled to understand what the 'end product' or output might look like. While this is not surprising given the novelty of the project, it reinforces that in developing future work with schools – whether in the form of resources (print or online), collaborative projects, or other activity – careful attention must be paid to communicating clearly around possible outputs. Of course, it is a delicate balance between providing adequate support and ideas for inspiration, and appearing to be overly prescriptive (leading schools to believe they cannot adapt the project to their pupils and circumstances). However, here consultation with teachers during project or resource development is likely to prove valuable.

Throughout the project, lead teachers from both schools expressed concern about whether they were 'getting it right' and meeting the Mobile Museum Project Team's expectations and vision. The findings suggest that when developing projects that are pilots and are novel for organisations (whether Kew or RHUL) and schools alike, it is important to present the project as a learning journey for both and to reinforce throughout the project that it is a pilot.

Planning the project felt onerous on top of teachers' day-to-day work. More planning time at the beginning of the project – before schools began engaging pupils in the project – may have alleviated this by allowing sufficient time for identifying common ground in the schools' and project's aims, objectives, and outcomes prior to the start; discussing how the project could fit into the school's planning cycles/approach; working together to initiate and build ideas; sharing the planning load; developing more and identifying specific resources and teaching support rather than asking what was needed; finding a time scale that fitted with the school's scheduling and varied commitments. That schools felt the need for further support despite the Team's efforts to engage in the activities mentioned above highlights the amount of resource needed to collaborate with schools on a project of this scope.

Both schools said the two-term timescale had been difficult to manage. The project began in January and they were to deliver the museums by July. This had its advantages – it kept the subject of cultural diversity and plant-based objects (especially for Wilberforce) in focus for an extended period, which likely contributed to the strength of the learning impacts found. However, in reality it was difficult to maintain momentum, for Wilberforce, between launching the project at the Celebration of Cultures assembly in February to asking parents for objects for the museum in June. Likewise at St Monica's, while the length allowed some teachers the flexibility to shift delivery of project activities by a few days when needed, stretching the activity over such a long period of time was a challenge. Also, the enormous pressures on the school timetable with events and opportunities presenting themselves weekly made it very difficult to ringfence the time that had been set aside for the project. Teachers and the Mobile Museum Project Team reflected that the project could have been delivered over a shorter period such as a half term; this would have been easier to manage and would mean planning the project into topic work within the compressed timescale (one or two lessons a week as part of the history, geography, science or art curriculum) rather than planning it separately from day to day school.

The CPDL delivered by the Mobile Museum Project Team to both schools was well received, although the two schools requested, and received, different forms of support. Both schools also received ongoing support for the lead teacher and meetings at the key points in the project. Similarly, the schools asked for and received different amounts of support for work with pupils during the project. Where the Mobile Museum Project Team supported the schools perhaps indicates the areas teachers were less confident in delivering: namely learning about plants, learning from objects and practical tips for distilling work done elsewhere in the project into a school museum (i.e. how to create a school museum).

Particular consideration should be given to the support – in person, lesson plans, background information and physical resources – that Kew and RHUL can provide in these areas. Indeed, this recommendation is aligned with suggestions made by teachers from both schools for the types of resources that organisations could provide to support this kind of work. Whether online (interactive or downloadable) or in person (e.g. via CPDL), teachers expressed an interest in background information on plants (the plants, raw materials and processes for collecting/creating plant-based materials) that are used in the culturally-significant objects brought in to school – teachers valued the expertise that Kew can provide on these. More specifically, this could include information relevant to the Economic Botany collection, which would, in turn, also have the benefit of highlighting this aspect of Kew's work. Teachers also appreciated support in helping their pupils learn from objects with the 'describe, reflect, speculate' approach being particularly valued. Additionally, teachers valued access to plant-based objects and thought photographs were poor substitutes ("it's not anything like the same as when actually you've got hold of [it]"; Teacher, Wilberforce). In the absence of loan collections perhaps the Project Team can highlight easily available objects/materials and where to source them. Teachers requested any online versions of the workshops/lesson plans used in this project to be linked to National Curriculum objectives and common topics (e.g. Mountains, Earthquakes, Rainforests) because this is what teachers search for (rather than how to create a school museum).

As noted previously, both schools would have liked some examples of school museums to inspire ideas for making their own. In March, they received the *Curating a School Museum: Teachers' Handbook* produced by the project team. The lead teachers at both schools found this helpful, with the lead at Wilberforce remarking particularly on the background information on Economic Botany collections and uses of plants and fungi, and on the steps on how to create a collection and make a museum. This resource is currently available online on Kew's Learning pages as well as on the Mobile Museum project website at RHUL. Future iterations could incorporate additional interpretation techniques such as narrative and storytelling, design, animations and video, using 'actors' and collaboration with parents or the wider community. The use of such techniques by St Monica's, building on things the Museum Crew

had learnt, contributed to the success of the museum. Expanding the suggestions for interpretation techniques would also create rich stimulus material for cross-curricular lessons, enhancing the project for in supporting such work.

### 3.4 The value of working with Kew

As well as delivering CPDL, running workshops and providing resources, working with Kew added kudos to the project. Teachers thought being involved with Kew “added value” to the project – they thought of Kew as a place of distinction, that brought gravitas and quality to the project.

As discussed above the experiences of the two schools working with the Project Team varied. Wilberforce benefitted from Kew-led workshops which gave pupils rich hands-on experiences with a variety of objects and opportunities to learn from the expertise of the Kew educators. Staff felt they had been privileged to have behind the scenes experiences when they visited Kew for their CPDL and met staff they would not usually have access to. These experiences changed their perceptions of Kew. They found out about the work of the Economic Botany team and now thought of Kew as doing important work globally. They came to see Kew as a place of expertise and not just a “garden with glasshouses”. They were aware that Kew ran education workshops and had taken part in these on previous school trips. Wilberforce’s lead teacher viewed Kew as a place of experts – in learning from the natural world and in economic botany – and thought he could contact Kew for advice/resources should he need to in the future. He thought this expertise was not evident from Kew’s website, but his experience of Kew staff was that they were approachable, knowledgeable, and willing to help.

Although St Monica’s also felt the project benefited from the association with Kew, this was primarily via the association with the prestige of the organisation. Teachers felt that the support Kew had provided had been of high quality and that the visit to Kew by the Museum Crew had been significant and impactful. However, the main way in which their perceptions of Kew changed had to do with increased recognition of Kew as a learning resource, rather than “just a garden”. Kew’s scientific expertise was not mentioned.

### 3.4 Final thoughts

Reflection on the evaluation as a whole raises further implications, particularly for future development of this line of work. For instance, while the impact of this project on the schools involved – on the teachers, pupils and parents – was impressive, the resources required in terms of the Mobile Museum Project Team were so extensive that replicating the project in this format on a larger scale would be challenging without significant additional resource. Fortunately, as described above, there are lessons from this project that can inform future work with similar audiences (schools and/or community groups) who might not traditionally have engaged with Kew or RHUL.

Although creating a school museum is a large project, with a more compressed time frame and examples from this pilot, it feels more achievable for schools. Two of the key features that should be emphasised to schools (that maximised impact in this project) were (1) focusing the museum on objects donated by families (which could be extended to the wider community) and (2) encouraging pupils to make objects as part of their displays.

The possibility of this approach for supporting cross-curricular working should also be highlighted in activities or resources targeted at primary schools. This is not only a priority for many schools but also a practice that schools often struggle to deliver in a meaningful way. That is, cross-curricular links are often ‘forced’ or superficial, while in the Mobile Museum project, they flowed naturally. This easy fit also meant that pupils were motivated and engaged in the activity.

While a whole school approach did offer benefits in this project, this would be trickier to manage in larger schools. Nonetheless, whole school working could be encouraged with suggestions for ways to achieve this, drawing on project experiences. These include: a whole school assembly to launch or celebrate aspects of the project, mixed class teaching according to country of origin, cross-class/year 'Museum Crew', project lessons timetabled at the same time for some classes with pupils sharing their work with other classes, newsletters explaining how all classes are involved in the project, inviting parents to loan objects, support lessons or the museum itself as the expert, or whole school visits to Kew.

It is clear that visits to Kew in the Mobile Museum project were enjoyable for those teachers and pupils involved and enhanced their experience of the project. Moreover, it seems that what was most impactful about the visits was the special behind-the-scenes access, seeing the collections and interacting with staff experts. Such experiences added to the memorability of the visits and enhanced the learning of teachers and pupils alike. Moving forward, Kew might consider whether it is possible to open such experiences to more schools and other groups (although it would not be feasible to do so for all) and to think about how new resources (e.g. online) might be created to provide similar access (experience behind the scenes, collections and staff experts). Likewise, in the context of Widening Participation or other offers, RHUL could consider what sorts of experiences it could offer that might be comparable.

In sum, although the Mobile Museum project was resource-intensive for Kew, RHUL and the schools alike, the strength of the outcomes highlights that it was worthwhile. This value is increased by the implications of this work for new initiatives and activities that Kew and/or RHUL may look to pursue in the future, as they move towards new directions and strategies to support engagement with diverse and underserved families, communities and schools.

## 8. Appendices

### 8.1 Data collected

<b>School</b>	<i>St Monica's</i>	<i>Wilberforce</i>
<b>From teachers</b>	6 teachers in 3 initial interviews (2 teachers/ interview – Years 1 & 2; 3 & 4; 5 & 6; 1 April) 6 individual teacher interviews (Reception – Year 5; 10 and 12 July) 1 teacher follow-up interview (November; all other teachers had left school)	8 teachers in 5 initial interviews (R, Years 1 & 2, 3&4, 5&6, plus the Head teacher; 25 Mar) 1 individual interview (Year 3 also the project lead, 4 July) Informal interviews with Headteacher and a school governor (1 July) 3 teachers in 1 interview (Year 1,3 & 4; November)
<b>From pupils</b>	Interviews (11 & 12 July) 17 pupils in 7 interviews (in 2s or 3s): 9 girls & 8 boys; 2 Reception, and 3 each from Years 1-5. 173 pupil booklets (Years 1-5; each child had one for Leg 1 and one for Legs 2/3)	Interviews (1&4 July) 9 pupils in 3 interviews with tours of the museum (Years 3,4 & 5): 5 girls & 4 boys. Informal interviews/tours of the museum: 3 pupils (Years 4 & 5) Photographs of pupils' work from CC2, pupils' reflections of Making Plant-based objects (81) and Visit to Kew (23)
<b>From parents</b>	9 parents: 2 individual interviews (8 July) and one discussion group (10 July)	5 parents: 1 group interview and 2 informal interviews in the museum
<b>Other</b>	Notes from initial meeting with teachers (26 Mar) Notes from phone conversation with school project lead (1 April) Notes from phone conversation with Kew Learning staff (1 April) Notes from phone conversation with Kew Learning staff (29 April) Notes from meeting with school project lead (3 June) Notes from phone conversation with Kew Learning staff (11 June) Observation notes and photos from museum set-up (4 July) Observation notes and photos from museum opening (8 July) 12 forms (2 legs x 6 year groups) 12 flip charts (2 legs x 6 year groups) Floor book: Museum crew Floor book: Project at St Monica's	Notes from initial meeting with teachers (18 Mar) Notes from phone/email conversations with school project lead Notes from phone conversation with Kew Learning staff (5 April) Notes from phone conversation with Kew Learning staff (29 May) Notes from phone conversation with Kew Learning staff (17 June) Notes from phone conversation with Economic Botany staff (18 Nov) Observation notes and photos from museum launch (1 July) Observation notes and photos from museum opening (4 July) 9 Teacher observation forms 2 Teacher WALT lesson resources 3 Kew lesson plans plus pupil resources Staff INSET at Kew – PPT presentations Wilberforce Twitter posts



## 8.2 Data collection instruments (a selection)

Note: similar instruments were used with both schools.

### Teacher observation pro-forma (St Monica's Leg 1)

Note to teachers: Some things are marked as 'MAYBE' (They MIGHT have been covered by the activities in this leg but perhaps not... But please do note if they have!)

[Please tick to indicate about how many of your students displayed behaviours consistent with the listed outcomes in the table]

Teacher:

Class:

Date:

#### Frequency

	<i>Few</i>	<i>Some</i>	<i>Most</i>	<i>All</i>
<b><i>Knowledge and understanding</i></b> <i>Increase understanding of 'plant-based' and why plants matter and how our lives depend on them (MAYBE)</i>				
Increase understanding of other cultures within the school community				
OLI: Use sources to learn about a topic				
OLI: Use shared research to create a project plan				
<i>Example(s) [related to Knowledge and Understanding – any of the above learning outcomes and OLIs]</i>				
<b><i>Skills</i></b> <i>Critical thinking and problem solving (MAYBE)</i>	<i>Few</i>	<i>Some</i>	<i>Most</i>	<i>All</i>
Communication and collaboration				
Communication and collaboration OLI: Learn to write a recount				
<i>Example(s) [related to Skills]</i>				
<b><i>Attitudes and Values</i></b> Sense of enjoyment and fascination in learning about themselves, others and the world around them	<i>Few</i>	<i>Some</i>	<i>Most</i>	<i>All</i>
Show an interest in moral and ethical issues and appreciation of others' viewpoints				
Show an appreciation and understanding of wide range of cultural influences that have shaped their own and others' heritage				
Show an appreciation of range of national, regional, religious and ethnic identities in the UK				

Consider lives of people living in other places and people with different values and customs				
<i>Example(s) [related to Attitudes and Values – any of the above learning outcomes]</i>				
<b>Also worth noting....</b> (What went well/what didn't; Ideas for improvement; Other outcomes)				

### Teacher interview schedule – early project, March/April (St Monica's)

- What are pupils' current levels of knowledge of:
  - 'plant-based'
  - How lives depend on plants and fungi (what science topics already covered)
- What awareness is there among pupils of other cultures in school community?
  - Awareness of what culture is
  - Of national, regional, religious, ethnic identities?
  - Positive/negative
  - Interest in others – same/different values and customs
  - Representation of pupils' cultures in school? In curriculum?
  - How does it come up in class/ non-lesson time? Anything specifically taught?
- How do you expect the project to develop the following skills? What can they do already? What might they have the opportunity to develop through their experiences of the project i.e. specific to MM?
  - Creativity and innovation
  - Critical thinking and problem solving
  - Communication and collaboration
- Thoughts about observations proforma
  - What captured?
  - What needs to change? [do we need to add OLI or is that covered in flipcharts?]
  - Value of indicators document

### Teacher interview schedule – end of project, July (St Monica's)

#### Outcomes

- Go through the observation pro-formas/flip charts for each of the three legs. Which of the activities seemed to be most impactful for which outcomes?
- Review against student starting points – what is the extent to which the various outcomes seem to have been achieved?
  - Were there any aspects of the project in particular that really seemed to support these outcomes?
  - How familiar/comfortable were you about teaching related to these outcomes? Where did you look to support from Kew or the wider project team?

### *Project characteristics*

- This project was intended to utilise a ‘whole school’ approach.
  - How did that play out in the school? [How does this compare with other whole school projects the school has done?]
  - What were the strengths or benefits to the students of taking that approach?
  - What were the challenges?
  - What were the successes and challenges of involving parents and the wider community? Have parents who don’t usually get involved with the school contributed to this project? Has the kind of involvement differed? [Has the project built relationships between parents and school?]
- The project was also intended to be cross-curricular.
  - To what extent did that happen, or not? (How did that pan out in the school?) Is that similar to or different from how cross-curricular working tends to happen in the school?
  - How did the two knowledge outcomes influence the cross-curricular approach (positively /negatively): learning about the importance of plants and cultural diversity? Did one become the main focus? Was it at the expense of the other?
  - How did the project relate to other curriculum requirements over the past 2 terms? An added extra or related to other areas/able to reinforce or add to learning?
- The project was also intended to be a collaborative project between the school and the Mobile Museum team, in which teachers and team educators would work together to develop plans, resources, etc to support learning.
  - How did that pan out from your perspective? What did you do/what did they do? [probe: design, content, timescale of project/sessions, how project was initiated, who made decisions, what they thought they would achieve, how different was this from what actually happened]
  - Are there ways this could’ve been more collaborative? What were your expectations of a collaborative approach?
  - Tell us more about the support you received from Kew – lesson plans, workshop sessions, objects, Kew visit, other resources. Did these meet expectations? What were good, what could have been better? What other support/resources would you have liked?
  - How has project morphed or changed in focus since the beginning?
- The mobile museum
  - Was having a museum at the end part of the attraction or was that just the end product and the end product could’ve been something else?
  - Would there have been other ways to reach same learning outcomes that would’ve been more straightforward to implement/involve less work/fit better with what the school is doing anyway?

### *Unanticipated outcomes*

What surprised you most about the project?

Were there any outcomes (in terms of learning, social/emotional outcomes, benefits to the school, etc?) that you didn’t expect?

### *Lessons for the future*

What could’ve gone better? If you were to do this again, what would you do differently?

How was having Kew and the wider project team involved with this different from just doing this on your own?

Kew are considering turning this project into downloadable resource for teachers. What would you expect? What resources would you like to see? In what circumstance would you use this?

Has this project changed how you see or think about Kew? In what ways? [Probe: somewhere they might visit – school trip or on own? Would they approach in other ways – e.g. look for resources on website?]

### Pupil interviews (July)

1. Are there things in your school that come from other places, outside London? Things that are from the countries that some of your friends come from? Have these always been in the school or is this more recent?
2. Do any of your friends come from different countries? (Not England, not yours, if relevant). Do you know anything about their country/the place they come from? How did you find this out? (in the project?)
3. Is there anything in your school that comes from your country? Has this always been in the school or is this more recent? Did you bring it into school? If you did, how did you choose what to bring? What were you looking for? Why did you choose this over something else? Did anyone help you?
4. Is it interesting to learn about other countries? (About people who live somewhere else and about their lives?) What's interesting about it?
5. How is your family similar to or different from your friends' families? (Trying to get at cultural traditions – e.g. food...) Is it interesting to find out about your friends' families? Is it interesting to find out about their countries?
6. Why are plants important? What's the most important thing about them?
  - a. What have you found out about plants from working on the museum? Did you know this already or find out about it from other lessons?
7. How did you contribute to the museum?
  - a. What have you learned about: the object, about other cultures, about the importance of plants?
  - b. What did you do by yourselves? What did they do with other people? [looking for collaborative work]
8. Which parts of this work/project did you most enjoy? [If possible – look at their booklets] Why is that so?
9. Have you talked to people outside of school about this project – family, friends, people from a club? What did you tell them about?
10. Have you started to notice objects made from plants at home/when they are out and about? How has this made you think differently about plants/what do you know now that you didn't know before?

### Parent focus group questions (July)

What do you think about the museum?

Has the school done other projects like this? How does this compare?

Did you contribute in any way? Have you done something like this with the school before? Do you think you would contribute if asked again in the future?

Did your children talk about the project at home, or not so much? (If so, what did they have to say about it?)

What do you think your kids got out of the project?

Do you think there were any benefits to you or to the school? That is, did it seem to make any sort of difference to your relationship with the school?

Are there objects from your own culture here? How does that make you feel?  
How well do you feel like your own cultures are reflected and respected by the school? Did the museum project make any sort of difference to that?

Did you know the project happened in collaboration with Kew? What do you know of Kew? Have you visited (onsite/online)? For what purpose/why not? Might you do so now?

### Follow-up teacher interviews – November (Wilberforce)

1. Thinking about the pupil outcomes for this project, please let us know if and how the project overall contributed to these outcomes for your pupils (please think back to each of the Collapsed Curriculum days, workshops, Kew visit and making the museum). Please consider:
  - What is the extent to which the various outcomes seem to have been achieved?
  - Were there any aspects of the project in particular that really seemed to support these outcomes?
  - Any evidence of ongoing changes that might be result of this project?

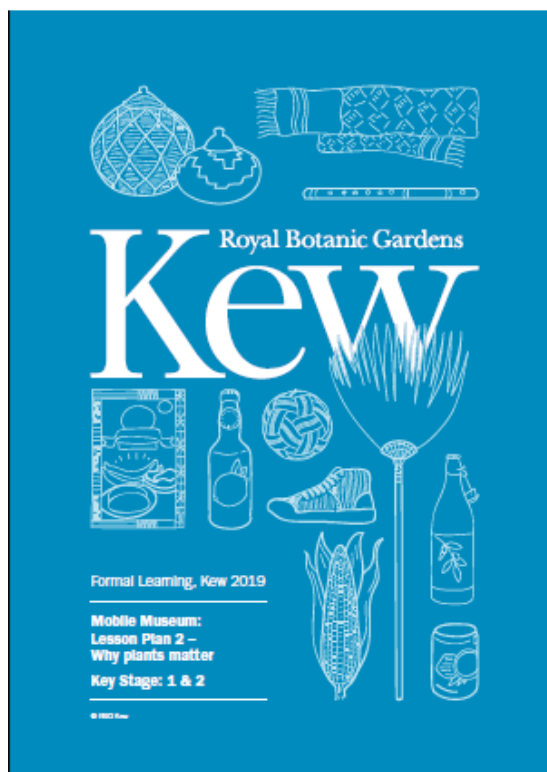
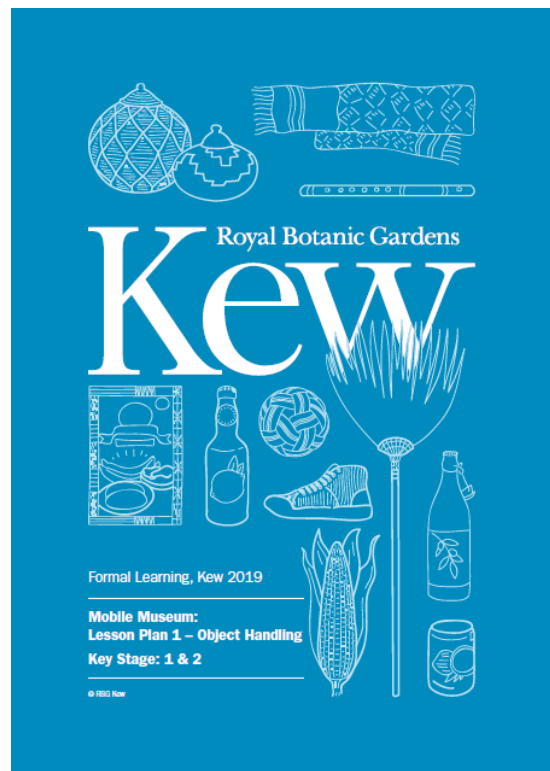
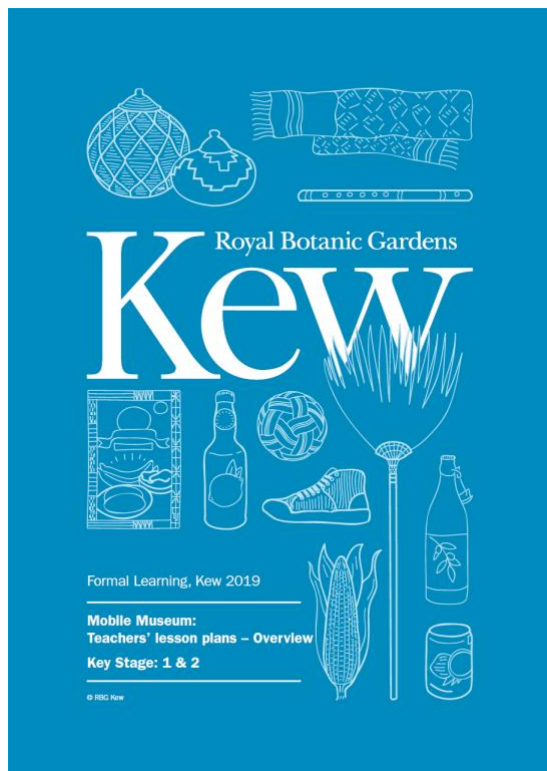
<b><i>Knowledge and understanding</i></b>
a) Increase understanding of why plants matter and how our lives depend on them;
b) Increase understanding of other cultures within the school community;
c) Better representation of pupils' cultures within the school)
<b><i>Skills</i></b>
d) Creativity and innovation
e) Critical thinking and problem solving
f) Communication and collaboration
<b><i>Attitudes and values</i></b>
g) Sense of enjoyment and fascination in learning about themselves, others and the world around them;
h) Interest in moral and ethical issues and appreciation of others' viewpoints;
i) Appreciation and understanding of wide range of cultural influences that have shaped their own and others' heritage; Appreciation of range of national, regional, religious and ethnic identities in the UK; Consider lives of people living in other places and people with different values and customs



2. How familiar or comfortable were you about teaching related to these outcomes? What aspects did you need support from? Where did you get support (project lead, Kew Educators, resources from Project Team, other)?
3. Kew are considering turning this project into downloadable resources for teachers. What would you expect? What resources would you like to see? In what circumstance would you use this?
4. Are you aware of Kew's school learning programme (Kew's online learning platform – Endeavour, bookable onsite teaching for all KS, CPD, Pupils can visit with families for free)?
5. If you haven't mentioned this already, please tell me about how the parents of the children in your class responded to the project. Did parents who don't usually get involved contribute in some way? Have there been any changes in how parents have interacted with school/ children's work that have continued into this year?
6. What could have gone better? If you were to do this again, what would you do differently?
7. Are there other collaborations you've engaged in with other organisations? How did this project compare?
8. How was having Kew/RHUL involved with the project different from just doing this on your own?
9. Has this project changed how you see or think about Kew? In what ways?
10. Project legacy in school – evidence of any of the following?
  - Learning from objects/using objects in classroom
  - Incorporating plants into planning/teaching
  - Whole school approach to projects
  - More cross-curricular work
  - More representation or appreciation of pupils culture
  - Any elements of training or workshops (or project generally) you might use again?  
Anything incorporated into mid- or long-term planning?

## 8.3 Teaching aids

### Lesson plans



Available at <https://www.kew.org/kew-gardens/school-visits/school-resources/create-plant-museum-lesson-plans>



# Curating a school museum

---

Teachers' handbook

Available at <https://www.kew.org/sites/default/files/2020-03/curating-a-school-museum-handbook.pdf>

## 9. About the evaluators

**Jen DeWitt** has worked in education – both inside and outside the classroom – for over 20 years, including research, evaluation and content development. She completed her PhD at King’s College London, focusing on school trips to informal science settings. Since then, she has worked as a researcher on large scale research and research and development projects related to attitudes and aspirations in science, as well as engagement with science in formal and informal settings. Jen is also a member of the core team (based at UCL) working on developing and applying the concept of science capital. In her work Jen brings a particular focus on bridging academic theory and research with practice and works closely with practitioners in science communication and informal learning to support applications to their work. In addition to her academic role, Jen also works as an independent consultant, specialising in research, evaluation and evaluation strategy, and training, using client needs as a starting point for developing projects.

[jennifer.dewitt@alumni.brown.edu](mailto:jennifer.dewitt@alumni.brown.edu)

**Emma Pegram** has worked in education in schools and out-of-school contexts for the past 20 years. Much of her expertise was developed at the Natural History Museum, London, where she was the Learning Research and Evaluation Manager responsible for the evaluation of visitors’ learning in the museum’s programmes, events and exhibitions. Now as a freelancer, Emma uses her experience to help museum Learning and Science Communication professionals learn from evaluation to create better learning experiences for their audiences.

[emma@emmapeggram.co.uk](mailto:emma@emmapeggram.co.uk)