



## Counting Collections

Further Appendices

July 2025

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- **Finding new evidence**—funding independent evaluations of programmes and approaches that aim to raise the attainment of children and young people from socioeconomically disadvantaged backgrounds; and
- **Putting evidence to use**—supporting education practitioners, as well as policymakers and other organisations, to use evidence in ways that improve teaching and learning.

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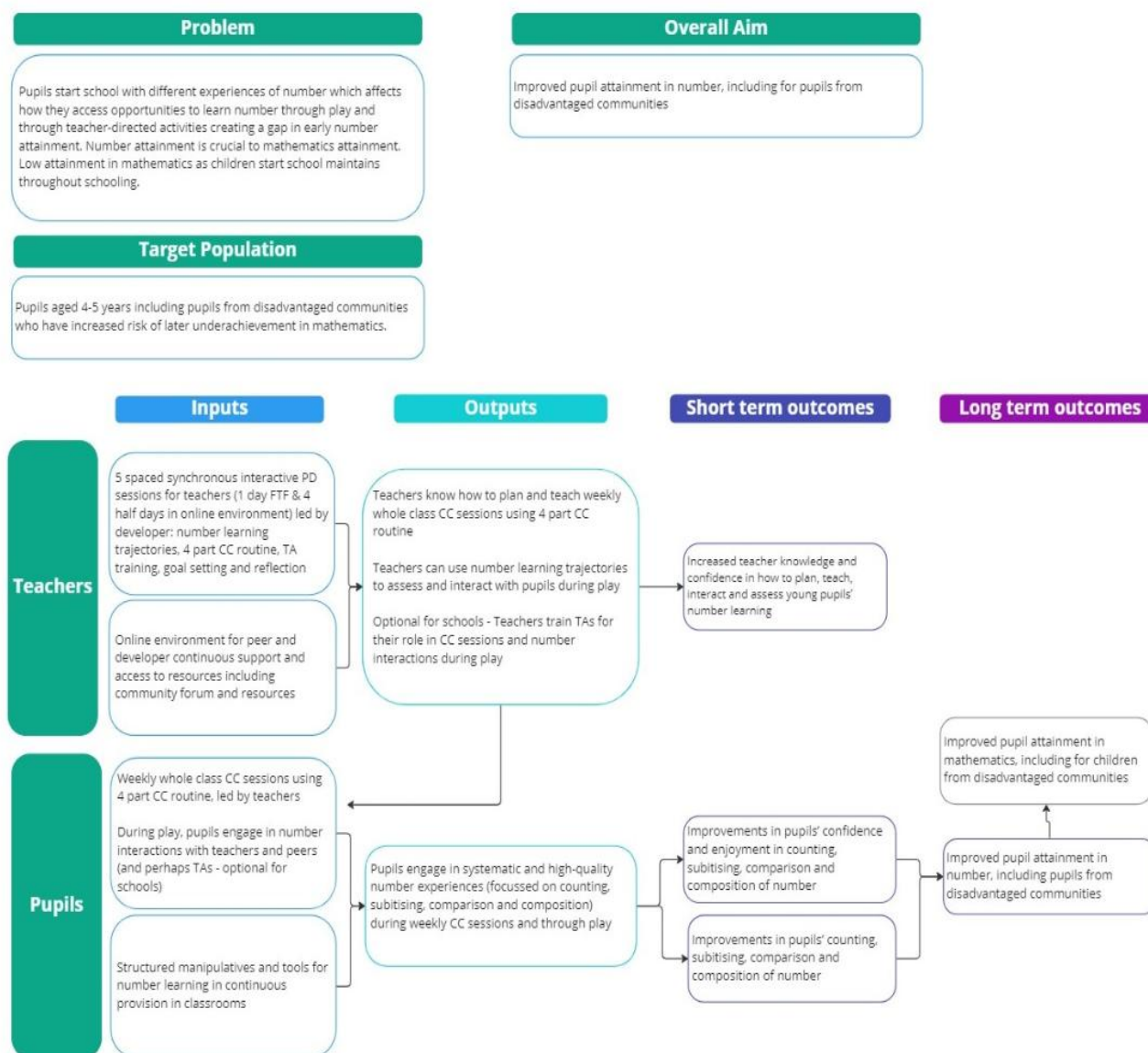
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## Appendix D: Logic model and causal mechanisms



## Appendix E: Recruitment documents



### Memorandum of Understanding:

### Counting Collections

School name:

Date:

**Counting Collections** investigates the impact of using Counting Collections to teach number in Reception classes. This project is conducted by the University of Nottingham. This study is funded by the Education Endowment Foundation (EEF) and the EEF has appointed Sheffield Hallam University to be independent evaluators of the project. This EEF project is part of a wider DfE funded programme called the 'Accelerator Fund' which aims to increase access to evidence-informed education programmes.

This document sets out the relationship between the University of Nottingham (UoN), Sheffield Hallam University (SHU) and schools participating in the Counting Collections project between September 2023 and July 2024. All schools taking part in this project are asked to confirm their agreement to this relationship by signing their copy of this document. An appropriate senior leader should sign this document to confirm that the school will fulfil the requirements of their participation in the project as identified in this document.

#### A. All schools agree to

- Identify a Reception class teacher and a Reception class (with a minimum of 20 Reception aged pupils) to participate in the project
- Securely provide SHU and UoN with required information about the school including contact details (name, role and work email address) for the Reception teacher and school data administrator
- Give out the information letter (which includes a withdrawal form) to parents/guardians of pupils in the designated Reception class (using your standard way of sharing letters with parents/carers, e.g. apps, paper copies, email)
- By 22nd September 2023, share the pupil information data of the reception class including Unique Pupil Number, Name and Date of Birth with SHU, ensuring to withhold all information pertaining to pupils for whom parents/carers have completed a withdrawal form
- Provide SHU with updates to pupil and teacher information if any pupils or teachers join or leave the class
- Liaise with SHU to allow trained researchers to visit the school to conduct number assessments with pupils and facilitate these assessments being conducted in school

#### B. If schools are allocated to the Counting Collections 'Programme' group,

##### 1) schools will:

- Ensure the Reception teacher is able to attend the 5 professional development sessions (1 full day in person and 4 half days online).
- Enable the Reception teacher to include one 30-minute whole class Counting Collections session per week in their mathematics teaching
- Ensure the Reception teacher completes all questionnaires about their experiences of teaching using Counting Collections and mathematics teaching more generally
- Ensure that Reception teachers are able to create an area in the Reception classroom for the Counting Collections resources so that they are continually available in the learning environment.
- If requested, liaise with SHU to allow researchers to visit the school to observe the Counting Collections resources being used and to talk with staff in the Reception class

- Receive £200 on completion of agreed tasks.

**2) UoN will:**

- Provide 5 professional development sessions for Reception teachers (1 full day in the same geographic area as the school and 4 half days online).
- Provide Counting Collections resources and deliver these to schools.
- Provide information letters and consent forms for Reception class teachers.
- Pay £200 to schools on completion of all school tasks

Payment	Amount	Expected payment date	Agreed task
1	£100	November 2023	On receipt of information about the school, the pupil information data, and facilitation of visits by researchers to complete first number assessment with pupils
2	£100	July 2024	Facilitation of visits by researchers to complete second number assessment with pupils and completion of teacher questionnaires

**3) SHU will:**

- Provide information letters (including a withdrawal form) for parents/carers of pupils in the Reception class.
- Liaise with the Reception teacher about questionnaires on their experiences of teaching using Counting Collections and mathematics teaching more generally
- Liaise with schools if they will be visiting to observe the Counting Collections resources being used and to talk with staff in the Reception class
- Allocate researchers and make arrangements with schools for them to visit the Reception class to conduct number assessments with pupils
- Ensure that the whole project is run to strict ethical guidelines, including approval by SHU's research ethics committee
- Collect, store and use data securely and responsibly, removing pupils from data processing when parents/carers request this

**C. If schools are allocated to the Counting Collections 'Business-as-usual' group,**

**1) schools will:**

- Ensure the Reception teacher completes all questionnaires about their experiences of teaching mathematics
- Receive £500 on completion of agreed tasks.

**2) UoN will:**

- Provide information sheets and consent forms for Reception teachers.
- Pay £500 to the school on completion of all school tasks

Payment	Amount	Expected payment date	Agreed task
1	£250	November 2023	On receipt of information about the school, the pupil information data, and facilitation of visits by researchers to complete first number assessment with pupils
2	£250	July 2024	Facilitation of visits by researchers to complete second number assessment with pupils and completion of teacher questionnaires

### 3) SHU will:

- Provide information letters (including a withdrawal form) for parents/carers of pupils in the Reception class
- Liaise with the Reception teacher about questionnaires on their experiences of teaching mathematics
- Allocate researchers and make arrangements with schools for them to visit the Reception class to conduct number assessments with pupils
- Ensure that the whole project is run to strict ethical guidelines, including approval by SHU's research ethics committee
- Collect, store and use data securely and responsibly, removing pupils from data processing when parents/carers request this

### Data protection

#### Legal basis for processing your personal data under UK GDPR

The UK General Data Protection Regulation (GDPR) requires us to establish a lawful basis for using personal data: The lawful basis for use of personal data on this occasion is found under Article 6(1e) of the UK GDPR - processing necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller. The privacy notice for the project is available:

<https://www.nottingham.ac.uk/education/documents/research/counting-collections-privacy.pdf>

#### How we use your data

The project involves data collection procedures as outlined in this MoU. Data will be collected by SHU and UoN (joint data controllers throughout the evaluation period). For the purpose of research, pupil number assessment data may be linked with information about the pupil from the National Pupil Database (NPD) and will be shared with the Education Endowment Foundation (EEF). EEF will be the data controller after the evaluation has concluded and data is archived. Data will be treated with the strictest confidence and only transferred between parties using secure, password-protected, encrypted means. In line with UoN standards the university may store your data for up to 25 years and for a period of no less than 7 years after the research project finishes. Data will be securely stored in a secure online drive space which is accessible to authorised persons only. In line with the UK GDPR mentioned above we will not use a child's name or the name of the school in any report arising from the research.

The parties shall comply with data protection law (i.e. the UK GDPR) and any legislation implemented in the UK in connection with the UK GDPR and any replacement legislation coming into effect from time to time.

All parties agree to provide such reasonable assistance as is necessary to enable parties to comply with any request under Articles 15, 16, 17, 18, 20, 21 and/or 22 of the UK GDPR and to respond to any other queries or complaints from Data Subjects (as defined in the UK GDPR).

All parties shall notify any potential or actual losses of a Personal Data Breach (as defined in the UK GDPR) to the other parties as soon as possible and, in any event, within one working day of identification of any potential or actual loss to enable the parties to consider what action is required in order to resolve the issues in accordance with data protection law.

#### **AGREEMENT TO PARTICIPATE AND WITHDRAWAL OF PARTICIPATION**

Participation in the project by your school is voluntary. By completing, signing and returning this form you confirm your understanding of the project and agree to all aspects of taking part in it.

If you would like to find out more about the Counting Collections programme, or have any questions about the professional development sessions then email [countingcollections.nottingham.ac.uk](mailto:countingcollections.nottingham.ac.uk). If, at a later date, you would like to withdraw from the study please email [CountingCollections@SHU.ac.uk](mailto:CountingCollections@SHU.ac.uk).

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**Signature of a School Senior Leader** (with authority to commit human resources)

Name:

Position in school:

Signed:

Date:



## Parent and Guardian Information Sheet:

### Counting Collections

We are inviting all children in your child's class to take part in research into an early mathematics programme called Counting Collections. The study will help schools know if Counting Collections is a good way to help children learn about numbers. This sheet tells you about the study. Please read it carefully and discuss it with others, if you wish.

#### Why are we doing the study?

Learning about numbers is important for all children. It helps them do well in maths at school. Teachers in a small number of schools have used Counting Collections to help their classes learn about numbers. Now, we want to see if Counting Collections can help all teachers and children by seeing if it works in a larger number of schools.

#### How does the study work?

Around 180 Reception classes in primary schools in the North East, East Midlands/South Yorkshire and South West regions of England are taking part. Your child's teacher will use Counting Collections resources as part of their normal maths teaching. We will check the children's understanding of numbers after 20 weeks to see whether using Counting Collections in maths has helped the children to learn.

Your child's understanding of numbers will be checked twice (in Sept/Oct and in May/June). This takes up to 15 minutes where they will be asked to do a few number tasks such as counting objects and recognising numbers. Trained researchers will ensure this is done with care for your child's needs.

## What information is being collected about my child?

We will collect the information about your child's understanding of numbers from the two checks (in Sept/Oct and in May/June). This will require us to know your child's name, date of birth and pupil number (from their school record). These will all be stored securely and never published.

You may withdraw your child from the study at any time and no further information will be collected about them. You may withdraw your child from the study at any time and no further information will be collected about them. However, we need to manage information in specific ways for the research to be reliable and accurate so if your child is withdrawn from the study, we will keep the anonymised information that we have already obtained but delete all personal data such as their name and pupil number.

## What happens to the information collected for the study?

Data protection regulation requires that we state the legal basis for processing the information we collect. Sheffield Hallam University are the data controllers for the study information and are responsible for looking after the data and using it properly. To safeguard your rights, we will use the minimum personally identifiable information possible. The study team may use your child's name, date of birth and unique pupil number so they know which children have been in the Counting Collections lessons and how they did on the two number tasks. This data will be stored securely at Sheffield Hallam University and shared with the University of Nottingham, when needed for the study. It will be treated in the strictest confidence. For further details please see: <https://www.shu.ac.uk/-/media/home/research/sioe-rke/privacy-notice/eef-counting-collections-privacy-notice.docx>

At the end of the project, study data will be submitted to the EEF's Data Archive. At this point, EEF and DfE will be data controllers and contractors appointed to manage the Data Archive will be data processors. The evaluation data will also be linked with information about the students from the National Pupil Database (NPD), Department for Education, the EEF's archive manager and, in an anonymised form, with the Office for National Statistics, the UK Data Archive, and potentially other approved researchers. As is standard for research studies, Sheffield Hallam University will store the data for up to 25 years and for a period of no less than 7 years after the research project finishes. Data will be securely stored in a password-protected folder which is accessible to authorised persons only. For a full copy of the University privacy notice please visit: <https://www.shu.ac.uk/about-this-website/privacy-policy/privacy-notice/privacy-notice-for-research>

We will not use a child, teacher or school name in any report about this research.

## Who is evaluating the study?

Dr Martin Culliney and a team of researchers at Sheffield Hallam University. A randomized controlled trial (RCT) will be conducted to estimate the impact of Counting Collections on children's understanding of numbers.



## Who is running the Counting Collections programme?

Dr Catherine Gripton and a team of researchers at the University of Nottingham. They will train the teachers in how to use Counting Collections in maths teaching and provide the resources.

## Who is funding the study?

The Education Endowment Foundation (EEF). All schools will be compensated for helping with the study with a small financial payment.

## Where will the research be published?

The research will be published in a report on the Education Endowment Foundation website. It will also be reported on the Counting Collections website and in academic journals and presentations. No child, teacher or school names will be published.

## Where can I find out more information?

Project website: [Home – Counting Collections](#)  
Project email: [countingcollections@nottingham.ac.uk](mailto:countingcollections@nottingham.ac.uk)

## Who can I contact if I have a question?

About how information is collected: [Counting-Collections@SHU.ac.uk](mailto:Counting-Collections@SHU.ac.uk)

## What do I need to do?



If you are comfortable with your child's data being used for this evaluation, you **do not need to return this form**.



If you **do not** want your child's data to be used for this evaluation then complete the form on the next page and **return it to your child's teacher by 18 September 2023**. If you would like to withdraw your child's data from the evaluation after this, then email: [CountingCollections@SHU.ac.uk](mailto:CountingCollections@SHU.ac.uk)



## Withdrawal from data processing for parents/guardians

You only need to complete this form if you DO NOT wish your child's data to be shared, stored and used for this evaluation.

I DO NOT give permission for Sheffield Hallam University to collect data my child. I DO NOT want it to be collected, stored or used for research purposes.

Your child's name.....

Child's class.....

Your name.....

Your signature.....

Date.....

## Appendix F: Sample analysis code

```
mixed SENT_Outcome Allocation centred_school_mean_Baseline centred_Baseline  
b1.region Mastering_Number || URN:  
estat icc
```

## Appendix G: Post-intervention teacher questionnaire

### Counting Collections teacher survey

Your school has been taking part in the Counting Collections trial, funded by the Education Endowment Foundation. This survey is for the reception teacher who has been taking part in the study this year. It asks questions about your experience of teaching early maths and number over the past year, and your experience of delivering Counting Collections.

Please complete the survey by 28 June 2024.

If you have any questions please contact the evaluation team: [Counting-collections@shu.ac.uk](mailto:Counting-collections@shu.ac.uk)

#### About you, your school and mathematics teaching

##### Q2.1 School name

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##### Q2.2 School postcode

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##### Q2.3 What is your role in the school? Please tick all that apply:

Deputy or Assistant Head

Early Years Lead

Maths lead

Teacher

##### Q2.4 How many years have you been teaching early number?

##### Q2.5 Before this year, had you undertaken any training in number sense?

Yes

No

**Q2.6 Which of the following approaches to mathematics do you use with your reception class? Please tick all that apply**

Following a mathematics scheme

Planning own mathematics lessons/activities

Adult led input sessions

Daily mathematics session

Small group work

One-to-one work

Embedding maths in continuous provision

Play activities

Other (please specify) \_\_\_\_\_

**Q2.7 If you follow a mathematics scheme, please name the scheme here:**

**Q2.8 How do you use the maths scheme?**

Adapt the content to enhance practice

Use the content to inform your planning ideas

Follow the scheme as it is

Other (please specify) \_\_\_\_\_

**Q2.9 How many early years maths sessions (adult-led large group or class) do your reception pupils receive on average per week?**

1

2

3

4

5

Implementation of Counting Collections using the four-part routine

**Q3.1 How does the Counting Collections four-part routine sit within the weekly maths that you deliver?**

Embedded in existing maths session

A standalone session

Used as an introductory session prior to main maths learning

Other (please specify) \_\_\_\_\_

**Q3.2 How many Counting Collections sessions using the four-part routine do you teach in a typical week?**

Fewer than one

One

Two or more

**Q3.3 Where is the Counting Collections library situated in the classroom?**

**Q3.4 How do you manage the Counting Collections boxes in the library? Please tick all that apply**

Put out all of the 68 boxes

Gradually introduce collections to line up with the children's progress and confidence

Introduce the bigger collections as the children became more confident

Other (please state) \_\_\_\_\_

**Q3.5 How frequently is the Counting Collections library used by children in continuous provision?**

Used frequently - a popular choice for children

Used sometimes - of some interest to children

Not often used

**Q3.6 What are the regular key features of the four-part routine in your school? Please select all that apply**

Children work in pairs to plan, count, strategize and record their shared counting of collections of objects

Sometimes the teacher introduces a counting focus to the class to begin with

Sessions are typified by the teacher observing and interacting with the children as they engage in paired discussion, counting, strategizing, and representing the structure of their count on paper

The teacher draws the class together at the end, choosing selected examples of children's counting strategies to share with the class

Teacher modelling of a specific approach, or extends children's thinking

**Q3.7 Please state any practical issues with the implementation of the programme (such as fitting with existing practices, barriers to implementation)**

**Q3.8 Do you have suggestions of how the Counting Collections programme might be developed further?**

The impact of Counting Collections on pupils

**Q4.1 Which part/parts of the four-part routine do you think have impacted positively on the children's mathematical understanding of number sense? Please tick all that apply**

Choose

Strategize

Count

Record

**Q4.2 Please explain why you think that part (or parts) of the four-part routine have had the greatest impact**

---

**Q4.3 Please indicate the level of impact Counting Collections has had on the following:**

	Significant impact	Some impact	No impact	Hard to say
Pupil ability to concentrate for longer on maths learning/task				
Working Collaboratively				
Problem solving skills				
Mathematical talk				
Metacognitive talk (thinking out loud)				
Exploratory talk (open ended communication)				
Number confidence				
Working strategically				
Recording mathematical thinking/ideas (representing the structure of their count on paper)				
Enjoyment of mathematics				
Learner confidence/positive attitude towards maths				

About the impact of training and delivery of Counting Collections on you

**Q5.1 Please rate the quality of the Counting Collections training events you attended**

	Excellent	Very good	Good	Satisfactory	Poor	Did not attend
Whole day face-to-face training						
Online training sessions						
Virtual learning environment						

**Q5.2 Please rate the quality of the Counting Collections training materials**

	Excellent	Very good	Good	Satisfactory	Poor	Don't know
Learning trajectory documents						
Online training materials						
Session log						
Action plans						
Shared galleries						
Pupil resources (counting collections boxes)						
Pupil resources (tools)						

**Q5.3 Please add any comments you have about the Counting Collections training, support or materials**

\_\_\_\_\_

**Q5.4 Overall, how confident do you feel about teaching the following compared to before the Counting Collections training?**

	Less confident	About the same as before the training	A little more confident	Confident	Very confident
Number sense					
Early counting					

**Q5.5 How have you used learning trajectories in your teaching?**

\_\_\_\_\_

**Q5.6 Have your number interactions with pupils changed as a result of the programme?**

No

Yes (if so, please explain) \_\_\_\_\_

**Q5.7 How many other school staff have been involved in the delivery of the Counting Collections programme in your class on a regular basis? Please explain.**

Teacher confidence

**Q6.1 Please state how you think your confidence in teaching and supporting children with the following aspects of counting has changed over the past year**

	No improvement-Still lacking confidence	Some improvement	Major improvement	No improvement- Was already fully confident
Verbal counting				
One to one Correspondence Principle				
Stable order Principle				
Cardinal Principle				
Abstract Counting Principle				
Order Irrelevance Principle				
Counting in 2s Verbally and Counting Objects				
Counting in 5s Verbally and Counting Objects				
Counting in 10s Verbally and Counting Objects				
Counting on (Forwards or backwards from a given number)				
Counting using place value (counting in units including multiples of 100)				
Counting beyond 100 (verbally and with objects) using place value				

**Q6.2 Please state how you think your confidence in teaching and supporting children with the following aspects of subitising has changed over the past year**

	No improvement - Still lacking confidence	Some improvement	Major improvement	No improvement - Was already fully confident
Early numerosity, to be able to distinguish between quantities				
Perceptual Subitising				
Conceptual Subitising				

**Q6.3 Please state how you think your confidence in teaching and supporting children with the following aspects of number has changed over the past year**

	No improvement - Still lacking confidence	Some improvement	Major improvement	No improvement - Was already fully confident
Different ways to partition a whole number. Identifying pairs of numbers that make a total, exploring the idea that whole numbers can be split into two groups or more				
Decomposing 10, to begin to develop number facts and known number bonds that will build the foundations of understanding number				
More than and less than				
Patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally				

**Q6.4 Please state how you think your confidence in teaching and supporting children with the following aspects of numerosity/comparison has changed over the past year**

	No improvement - Still lacking confidence	Some improvement	Major improvement	No improvement - Was already fully confident
Sensing sameness (May use one-to-one or many-to-one correspondence in certain situations)				
Sensitive to the relation of “more than” and “less than” involving very small numbers.				
Matching and sharing				
Comparing using one-to-one correspondence				
Perceiving differences				
The numerosity of the comparison, i.e. the number of things not the size of them				
Small ordinal numbers				
Comparing similar items				
Estimating numbers to 5 on a number line				
Estimating using space and number				

**Q6.5 To what extent do you agree with the following statements?**

**Most children come into my class...**

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
With little maths knowledge					
Have the cognitive abilities to learn maths					
With fixed mindset/ negative attitude towards maths					
Are confident learners in math					
Have continued support from home in learning maths					
Are able to make mathematical connections					
Have the potential to become a confident and capable learner in maths					

**Q6.6 To what extent do you agree with the following statements?**

**I am confident in my ability to...**

	Strongly disagree	Somewhat disagree	Neither agree nor	Somewhat agree	Strongly agree
Observe maths learning in continuous provision and identify next steps					
Support maths learning as it unfolds through high quality number interactions					
Promote mathematical thinking around number sense when they make spontaneous math comments/discoveries					
Support children with any (number-sense) misconceptions					
Support children with their mathematical paired discussion and learning					
Plan successful activities through the continuous provision to promote number-sense					
Translate findings from assessment into curriculum plans					
Map out the progressive steps of progress in number sense					
Challenge and extend children's mathematical thinking in number sense					
Support children with early number/counting and its link to early calculation					
Use effective modelling, scaffolding and appropriate resources to support children's understanding of the key concepts in number sense					
Draw out children's mathematical understanding from their jottings and recordings					

## Appendix H: Fieldwork interview and observation schedules

### Teacher/ practitioner semi-structured interview schedule

#### Questions about your experience and practice prior to Counting Collections.

1. How long have you been teaching?
2. What is your current role in school?  
<class teacher, early years / early years KS1 leader, mathematics co-ordinator, Counting Collections leader>
3. How many years have you been teaching early mathematics?
4. Prior to the Counting Collections training, what training had you received in early mathematics (including initial teacher training, any mathematics CPD)
5. Prior to delivering Counting Collections, what was your usual practice in early mathematics teaching? For example:  
<teacher led maths session>  
<adult supported opportunities in continuous provision>  
<mathematics area in continuous provision>  
<mathematics opportunities across provision>
6. Prior to delivering Counting Collections, did you use any early maths schemes?
7. Typically, how many mathematics lessons did you teach each week, prior to Counting Collections?
8. How much time per week did you spend teaching mathematics prior to Counting Collections?

#### Questions about your preparation/ training to deliver Counting Collections and your experience of delivery.

9. At the start of the programme, how well equipped did you feel to begin delivering the programme? How has this changed throughout the programme?
10. Tell me what you think about the quality of training. Which aspects were of most use to you and which built your confidence and knowledge in teaching early number?  
  
< understandings of learning trajectories, facilitating progress, increases in subject knowledge and in which areas of early number and counting>
11. Are there any aspects of the Counting Collections programme where you would like more training and support?
12. Tell me about your experiences of implementing the programme, and its impact on you and your practice.  
  
<fitting within existing practices, any barriers to implementation, how did you overcome any barriers, how did your practice change as a result of the programmes implementation, what are you now doing differently, changes in your own confidence, knowledge and expertise in teaching early number>
13. What was your understanding of learning trajectories prior to the programme? How as this changed as a result of the training and delivering the children?
14. How do you organise the delivery of Counting Collections within your provision.  
<Counting Collections lesson, resources, continuous provision>

15. Do you include any mathematics learning opportunities outside the Counting Collections Programme?

**Questions about impact on pupils and recommendations for the programme**

16. What impacts on pupils have you noticed since implementing Counting Collections?  
<changes in attitude towards early number, engagement and/or confidence in early number, impact on skills such as number sense, transference of skills into provision and other areas of learning.
17. Which components of the Counting Collections are having the most/ least impact on your pupils' progress in early number?
18. Do you have suggestions of how the programme might be developed further?
19. Will you continue to deliver Counting Collections beyond the trial? Why? What factors might influence this?  
<materials>, <further staff training> <impacts on children>
20. Do you have any further comments about the Counting Collections programme?

End of teacher/ practitioner interview.

**School leader/ Counting Collections lead semi-structured interview schedule**

**Questions about you and your school's practice prior to Counting Collections.**

1. What is your current role in school?
2. How many years have you been at this school/ in role?
3. Why did you decide that Counting Collections would be a beneficial programme for your school? (What were your school's motivations for implementing the programme?)  
<concerns about standards, focus for school development, staff CPD opportunity, EYFS development>
4. Prior to Counting Collections, did your school employ any early maths schemes/ approaches? Have you continued to implement these alongside Counting Collections?  
<are these region wide/ MAT/ approaches?>
5. Prior to Counting Collections, what was your usual approach to teaching early number? For example:  
<teacher led maths session>  
<adult supported opportunities in continuous provision>  
<mathematics area in continuous provision>  
<mathematics opportunities across provision>
6. Typically, how many mathematics lessons did the EYFS/ R teach each week, prior to Counting Collections? Has/ how has this changed?
7. How much time per week of mathematics did your EYFS/R deliver prior to Counting Collections? Has/ how has this changed?

**Questions about preparation/ training to deliver Counting Collections and its implementation.**

8. How well-equipped do you feel the training has prepared staff to deliver the programme effectively?
9. Which aspects have been the most beneficial to staff delivering the programme?
10. Have there been any barriers to the implementation of Counting Collections? Have these/ how have these been overcome?
11. What changes in practice in teaching early number have taken place since the implementation of Counting Collections?
12. Have you noticed any impact on staff confidence, subject knowledge, expertise, teaching skills since the implementation of the programme?

**Questions about impact on pupils and recommendations for the programme**

13. Have you noticed or have staff reported any impacts since implementing Counting Collections?  
<changes in attitude towards early number, engagement and/or confidence in early number, impact on skills such as number sense, transference of skills into provision and other areas of learning>
14. Which components of the Counting Collections are having the most/ least impact on your pupils' progress in early number?
15. Do you have suggestions of how the programme might be developed further?
16. Will your school continue to deliver Counting Collections beyond the trial? Why? What factors might influence this?
17. Do you have any further comments about the Counting Collections programme?

End of school leader interview.

*Research questions (Key focuses)*

- a) **How effectively does the training equip teachers to deliver the intervention and improve their understanding of key number concepts?**
- b) **Is the intervention associated with improvements in teacher knowledge of learning trajectories?**
- c) Do teachers believe that the intervention is associated with short-term improvements in pupil confidence, enjoyment, and attainment in number?
- d) What level of fidelity is observed during the trial and what influences fidelity?
- e) What do the trial findings indicate about scalability?

Counting is crucial part of Numbersense, both are part of Early Number.

For the purpose of this observation, we will be using the following definition of number sense: **Early Number Sense (maths.org)**

Please add text to record your observations under each heading.

If during the course of your visit you did not see anything that relates to a particular heading, please make a note of this on the form.

Fieldworker name:

School visited:

Date of visit:

Research Question a) How effectively does the training equip teachers to deliver the intervention and improve their understanding of key number concepts?

## Summary

1. Examining the Counting Collections Library
2. Observing the weekly session involving the four-part routine, where pupils work in pairs. (The structured routine for counting: choose, strategize, count, record)

**CHOOSE** - children choose a collection to count

**STRATEGIZE** - children plan how to they will count their collections

**COUNT** - children count their collection

**RECORD** - children represent their collection

### 1. Examine the resources available in the 'maths area' of the classroom

*Please record your observations under each subheading for this section*

#### The Learning Environment – Continuous Provision

1. Where is the Counting Collections Library?
2. Is there access to the complete CC set of 68 boxes or does the teacher keep some boxes separate for the 4-part routine? Or perhaps rotate the boxes?
3. Do the children have easy access to the CC library throughout the day?
4. Do the children keep it tidy? Do all the boxes have a complete set?
5. Are the tools and the resources for recording alongside the CC boxes?
6. Is there an area alongside the CC library for them to use ?
7. Does the organisation of the CC library promote independent access to the resources throughout the day?

## 2. Observation of the structured Four- Part Routine -teacher-led, carefully sequenced structure (30 minutes per week)

*Please record your observations under each of the five subheadings for this section*

### 2a. Organisation of the session- practicalities:

#### 1. Structure of the Session

What did this look like/involve? (Delivered as a whole class, two large groups, smaller groups, are the children working with a partner, how are the partners chosen, ability, mixed, friendship?)

#### 2. Timings

How long did the session take in total? How was the time divided up across the four parts? (Choose, strategise, count, record)

### 2b. Initial Observations – Children’s engagement with the four- part routine

Choose: Prompt: Did the children choose their own counting collection or was it chosen for them by the teacher?

If it was the teacher did, they give a reason for the choice? If the children chose their own collection what informed their choice? Was it a joint decision? Did their choice promote challenge, or was it too easy? (See guidance)

Strategize: (*how are you going to count?*) *into a pot, in a line, in a five frame, groups, number tracks*

Prompt: Was there a good range of resources/tools and approaches used by the children? Did the resource/tool promote a range of counting behaviours and opportunities to extend their understanding of early number? (See guidance) What did you observe? Did the children verbalise their strategy? Did the practitioner encourage the children to talk about their chosen strategy?

#### Count:

Prompt: What range of counting behaviour and counting skills were evident? (See guidance) How did working in pairs influence the learning outcomes? What did the learning conversation between the children look like? How did the strategy challenge their mathematical thinking and extend their counting skills? Was the counting accurate, if not did the practitioner intervene at the point of learning? Where the learners encouraged to recount and check? Did the practitioner use the opportunity to draw out further understanding of numbersense?

Record: (*making meaning of the jottings and mark making*)

Prompt: Were the children encouraged to share and talk about their recording with each other or the Practitioner? Were the children skilled/confident in sharing their mathematical thinking? Did the children’s understanding and mathematical vocabulary reflect the developmental progression set down in the learning trajectories? Were the learners encouraged to check and recount? Did the practitioner use the opportunity to draw out further understanding of number- sense?

- What was the range of jottings? (idiosyncratic pictographic, iconic, symbolic)
- Were the children encouraged to move more towards iconic jottings?
- Did the Practitioner read and interpret children’s jottings as an assessment tool to impact on progress? (Use the jotting to identify next steps/misconceptions or to clarify or challenge the learner)

Research Question a) How effectively does the training equip teachers to deliver the intervention *and improve their understanding of key number concepts?*

## Summary

1. Examining the Counting Collections Library
2. Observing the weekly session involving the four-part routine, where pupils work in pairs. (The structured routine for counting: choose, strategize, count, record)

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### 3. Examine the resources available in the 'maths area' of the classroom

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#### The Learning Environment – Continuous Provision

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2. Is there access to the complete CC set of 68 boxes or does the teacher keep some boxes separate for the 4-part routine? Or perhaps rotate the boxes?
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5. Are the tools and the resources for recording alongside the CC boxes?
6. Is there an area alongside the CC library for them to use ?
7. Does the organisation of the CC library promote independent access to the resources throughout the day?

#### 4. Observation of the structured Four- Part Routine -teacher-led, carefully sequenced structure (30 minutes per week)

*Please record your observations under each of the five subheadings for this section*

##### 2a. Organisation of the session- practicalities:

###### 1. Structure of the Session

What did this look like/involve? (Delivered as a whole class, two large groups, smaller groups, are the children working with a partner, how are the partners chosen, ability, mixed, friendship?)

###### 2. Timings

How long did the session take in total? How was the time divided up across the four parts? (Choose, strategise, count, record)

##### 2b. Initial Observations – Children’s engagement with the four- part routine

Choose: Prompt: Did the children choose their own counting collection or was it chosen for them by the teacher?

If it was the teacher did, they give a reason for the choice? If the children chose their own collection what informed their choice? Was it a joint decision? Did their choice promote challenge, or was it too easy? (See guidance)

Strategize: (*how are you going to count?*) *into a pot, in a line, in a five frame, groups, number tracks*

Prompt: Was there a good range of resources/tools and approaches used by the children? Did the resource/tool promote a range of counting behaviours and opportunities to extend their understanding of early number? (See guidance) What did you observe? Did the children verbalise their strategy? Did the practitioner encourage the children to talk about their chosen strategy?

Count:

Prompt: What range of counting behaviour and counting skills were evident? (See guidance) How did working in pairs influence the learning outcomes? What did the learning conversation between the children look like? How did the strategy challenge their mathematical thinking and extend their counting skills? Was the counting accurate, if not did the practitioner intervene at the point of learning? Where the learners encouraged to recount and check? Did the practitioner use the opportunity to draw out further understanding of numbersense?

Record: (*making meaning of the jottings and mark making*)

Prompt: Were the children encouraged to share and talk about their recording with each other or the Practitioner? Were the children skilled/confident in sharing their mathematical thinking? Did the children’s understanding and mathematical vocabulary reflect the developmental progression set down in the learning trajectories? Were the learners encouraged to check and recount? Did the practitioner use the opportunity to draw out further understanding of number- sense?

- What was the range of jottings? (idiosyncratic pictographic, iconic, symbolic)
- Were the children encouraged to move more towards iconic jottings?
- Did the Practitioner read and interpret children’s jottings as an assessment tool to impact on progress? (Use the jotting to identify next steps/misconceptions or to clarify or challenge the learner)

## 2c. Role of the Practitioner - (teacher-led, carefully sequenced structure)

Please record your observations under each of the five subheadings for this section

- What did the role of the Practitioner look like at the different stages of the four-part routine? (*Explicit teaching, guidance, instruction, intervention at the point of learning, facilitator, intentional interactions, guided participation, working alongside the children, reflective commentary, modelling, scaffolding, questioning to clarify, challenge*)

1.Choose

2.Strategize

3.Count

4.Record

- What specific teaching strategies were used by the practitioner to support children's progress and understanding of counting and early number? (*Explicit teaching, guidance, instruction, intervention at the point of learning, facilitator purposeful, intentional interactions, guided participation, working alongside the children, reflective commentary, modelling, scaffolding, , questioning to clarify, challenge*)
- Did the practitioner's interactions with the children, as they engaged in paired discussion, move the learning on during all the four parts of the session? Purposeful back and forth conversations? (Give example)
- Did the practitioner make effective use of subject knowledge to deal with any misconceptions? (example)
- Was there evidence of the Practitioners implementation of subject knowledge in early number at each stage of the four-part routine? (Please note down an example)
- Did the interactions that drew out key learning points to support numbersense?
- Did this reflect confident early number subject knowledge?
- How did the Practitioner use their subject knowledge to impact on progress?
- What impact did this have on children's skills and knowledge/understanding of counting and early number? How did it impact on the children's engagement and attitude to learning?
- Was there appropriate challenge for all learners?
- Did the Practitioner use strategies to impact positively on learner confidence and attitude to maths through interactions that supported the children's understanding of counting and early number throughout all four parts?
- During the session did the practitioner draw the class together, to choose selected examples of children's counting strategies to share with the class?
- What did this look like?
- Did this involve some explicit teaching/ modelling of a specific approach or early number skill/concept?
- Prompts: What impact did it have on the learners? Were they engaged? Was there appropriate challenge? Did it build on prior learning and extend the children's thinking about the next session and potential learning possibilities? Did it reflect good subject knowledge about counting and early number learning trajectories?

**Research Question b) Is the intervention associated with improvements in teacher knowledge of learning trajectories?**

*Please record your observations under each of the five subheadings for this section*

- Did the practitioner show a good understanding of the learners and their learning journey and provide challenging but achievable learning experiences that impacted on progress and understanding?
- Was there evidence of the practitioners' knowledge of the learning trajectories to support developmental progression in counting and early number throughout the different stages of the four- part routine and the whole class input?
- Prompt: Did the practitioner use the learning trajectories to support their formative assessments or as a prompt to help identify next steps of learning or to bring appropriate challenge through their interactions at the point of learning?
- Was there evidence of intentional interactions that supported the learners with their progression in numbersense?
- Did the Practitioner use questions to promote deeper mathematical thinking? Was this more evident in one particular stage of the routine or throughout?
- Did the Practitioner appear to have clear learning goals for each learner as they worked alongside them?

*Research questions (Key focuses)*

- a) How effectively does the training equip teachers to deliver the intervention and improve their understanding of key number concepts?**
- b) Is the intervention associated with improvements in teacher knowledge of learning trajectories?**

Any other Notes:

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