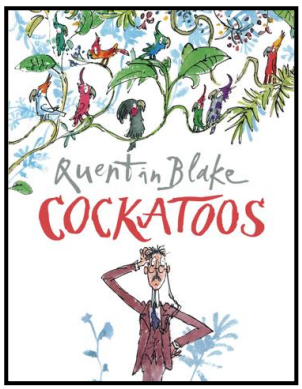

Story: Cockatoos
Author: Quentin Blake
Illustrator: Quentin Blake

Teacher: Hannah Rodrigues (@playfulstories)
Context: A large urban primary school in Cambridgeshire, UK
Age group: 4-5 years old (Reception)
Number of children in the class: 30

Learning intention: To use the language of addition to solve number problems
Key mathematical vocabularies: addition, commutative, more, less, total
Resources needed: paper, pens, cage (hanging basket turned upside down), house (piece of paper put into the shape of a tent), birds, Unifix cubes

Synopsis by the publisher
The eccentric and absent-minded Professor Dupont is the proud but worried owner of ten cockatoos. The birds play tricks on the Professor and hide from him. He can't see them anywhere ... but maybe you can.

Starter / Teaching input (15 mins):
I started the lesson by reading the children the story of *Cockatoos*. The final page of the story has an image of a hole in the bird's cage and suggests that the birds will chose to escape again. This final page of the text gave a fantastic opening into the following mathematics activity. After reading the story, I explained to the children that Professor Dupont wanted our help because his birds kept escaping. Over the course of the week, the children worked with different numbers of birds. On Monday, we discussed 7 birds, building to 10 by the end of the week. Each day I showed the children a PowerPoint slide (see Figure 1) and asked them to discuss how many birds they could see in total. I used the key questions: "How many are there?" and "How do you know?". The aim of the image and questions was to develop the children's ability to subitise and then discuss the different parts within numbers. The children responded with language, such as: "I can see 2, 2, 2 and 1 so there are 7", "I can see 3 on the top and 4 on the bottom which I think makes 7" and "There is 4 on the side and then 3…7".

Following this slide, I showed the children another PowerPoint slide (see Figure 2). On this slide, the children needed to help Professor Dupont work out how many birds were hiding in the house. The children worked with their talk partner to decide how many birds were in the house and how they could explain their answer. The children knew to use their fingers to support their thinking, if needed. The children were reasoning and using their knowledge of addition to solve the problems. For example, one child said: "We can tell the professor that there are 4 in the house because 3 and 4 makes 7 in total." The main activity then followed each of these daily whole class inputs.

Main activity (15 mins):
Within the Reception setting that I work in, one group of children works with the teacher each day so that all of the children undertake an adult-led mathematics activity every week. (While one group works with a teacher, the rest of the children are able to choose from a range of learning activities within the classroom and outdoor learning space) The groups were mixed ability and there were 6 children in each group. Each group did the following activity with me using the birds and cage in Figure 3. First, I showed the children 7 birds inside the cage and explained that Professor Dupont needed our help. Then, I asked the children to close their eyes, while I hid some of the birds inside the house. I subsequently asked the children to explain how many birds were hiding in the house and to explain how they knew. Each child had a set of 7 Unifix cubes that they could use to support their thinking. The children then explained how many birds were hiding in the house and how they knew this. After playing the game for several rounds, the children recorded what had happened. The children were able to record their thinking in a diverse range of ways. Some chose to use formal number sentences while others used pictorial representations (see Figure 4).

Plenary (5 mins):
To conclude the activity, the children explained their finished images to their partner in the small group. We also reflected on the different ways of representing the problems that we had been solving. The children began to make links between the more formal mathematical symbols and their own drawings. The children also discussed how they

could be systematic and record all of the different combinations and ways of making 7. Figure 4 show some of the different ways that the children chose to record their thinking.

Reflection:

Using stories in mathematics has transformed the way that I plan my mathematics activities, and has supported all children in engaging with problem solving. As I have begun to use the Maths Through Stories approach more regularly, I have started to read the mathematical story to the children in advance of the mathematics input. I have then just read a few pages to the children as the initial 'hook' for the mathematics session, which has enabled the sessions to maintain their pace. In addition, reading the story in advance has enabled bilingual children in my class to engage more actively in their mathematics learning, because they are more familiar with the key vocabulary from the story.

Figures:

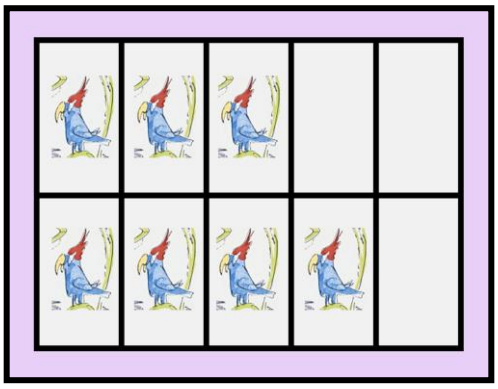

Figure 1: Slide showing tens frame to scaffold children's thinking

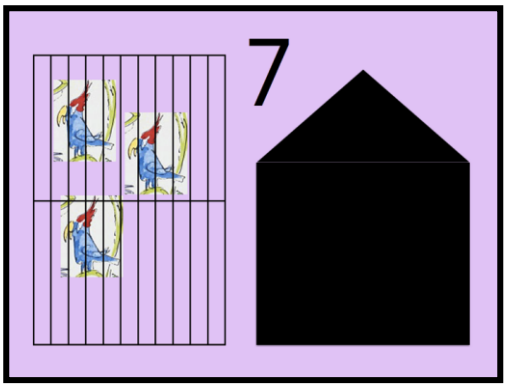

Figure 2: Following discussion the house was removed to reveal the number of birds in the house

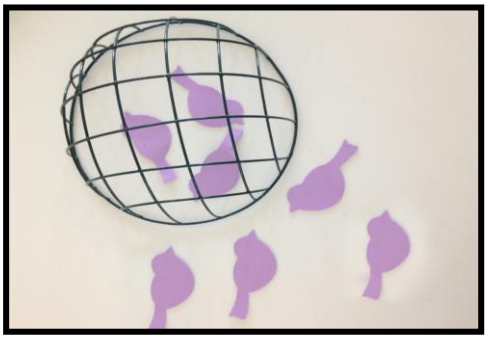

Figure 3: Birds and the cage (inverted garden hanging basket) used during the small group session

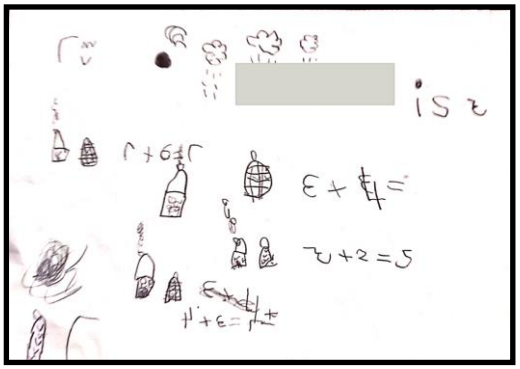

Figure 4: Examples of the children's recording from the small group activity, exploring the commutative nature of addition and the part whole relationships between numbers