Department for Education

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Enhancing Mathematical Learning through Talk

Enriching interactions: creating talk habits

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SUPPORTED BY

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Exploring new approaches to interacting with children: creating talk habits

'… *be genuinely interested not only in what learners are thinking but in how they are thinking, in what connections they are making and not making. Genuine interest in the learners produces a positive effect on learners, for in addition to feeling that they are receiving genuine attention, you can escape the use of questions to control and disturb negatively.'*

'*To notice an opportunity requires two things. I have to be awake to the situation at the moment, and I have to have alternative actions prepared which will also come to mind in the moment.'*

Mason, (2002, 2010)

Creating talk habits: extending the teaching repertoire

“ …We can work on listening to and building on answers and getting children to do the same. We can reflect on the feedback we provide. We can re-assess the balance of drawing out (questioning) and putting in (exposition). We can consider how ideas can not merely be ***exchanged*** *in an encouraging and supportive climate but also* ***built upon****.”*

Alexander, R (2005)

Approach 1: Pose, pause, pounce and bounce (Ross Morrison McGill blog)

'I find the 'pause' the hardest as the children and I are all keen to share straight away. We discussed the need to 'think' before we share and what we could say if we were pounced on and weren't sure. Phrases such as

ask a friend

can I have some help please

can you come back to me

allowed children to feel part of the group and not to feel a 'failure' because they didn't have a response. This has worked very well and I will continue this with my next class.'

Project teacher, Anna D

Approach 2: adopt a phrase…
… fewer questions more invitations?

- Adopt a phrase to encourage children to think and think in different ways
  - **tell me more…**
  - is there another way of saying that?
  - teach me how to do that…
  - I'm wondering why…

- Adopt a phrase to use questions that invite more than simple recall
  - **how do you know?** (prove it to me / to your partner/trio)
  - what's a different way of thinking about that?
  - what happens if…? does it always work like that?

Adopt a phrase continued…

- Adopt a phrase that builds upon children's responses

- that idea seems to link with what we were saying about… and so now we can think (can you think) about….
- that's good thinking because… and now… we can look for….
- You've made those numbers / this problem really manageable because… and so, could you think about this now…
- Yes, those two examples are the same/different… and so…

Adopt a phrase continued – the tricky one?

- Adopt a phrase to give feedback that informs and prompts children to take the next steps (and also encourages!)

- great! I can see where your idea / thinking has come from because… and now….
- brilliant examples… can you think of an example that doesn't work/fit?
- that's a great connection that you've made with… can anyone else make a connection…?
- that's a very clear/helpful explanation and so what's the next thing we could try / question we could ask?

Approach 3 : ‘reproposal’ for extending thinking and explanations

- Capturing something a child has said and re-stating it word for word either there and then (in the moment) or the next most appropriate occasion to take the learning forward.
- Keep a neutral tone as you repropose – if possible!

Reproposals can also be:

- written down for a classroom reproposal ‘maths thinking wall’
- role played between two adults in the classroom

Reproposal can also work amongst colleagues for CPD

“ the children seem to find it harder with real examples”

Reproposal worked example:
Project teacher, Katie W

The class watched as Katie placed bundles of straws and then single straws into a box. The task was for the children to find the total number (without saying anything out loud)

Ch*: It's 52*

K: 52?

Ch: *Yes, because I think you did 5 ten bundles and then 2 straws by themselves and 50 = 2 = 52, see.*

Katie comments: "*previously, I might have been tempted just to say 'well done' when given the [correct] answer '52'. When children got the answer correct, reproposing helped them to extend their reasoning. When they had got it wrong it helped them to check and question themselves."*

Reproposal: Project teacher, Phoebe N

① Pick a number of apples

② Can you share them between...

5 people

2 people

10 people

Olivia

shared equally between 2

shared equally between 5

shared equally between 10

20

What do you notice? How do you know?

Reproposal: going with the flow?

Project teacher, Phoebe N

Ph to G: *What have you noticed?*

G: You can share a number by its last number

Next day reproposal to whole class:

Ph: G said you can only share a number by its last digit. Do we agree?

Class investigated with talk partners 13, 12 or 11

G: Oh well, but wouldn't it be great if it did! That would mean I could do all my sums so easily!

In-built adopt a phrase!

Tell me more…

- 8 is a number which only has curved lines
- 2+1=3
- I don't like 7 because there are no patterns in the 7 times table
- 75 is ¾ of my number
- If I arrive at 9.05, I'll be on time
- This shape will roll

Convince me…

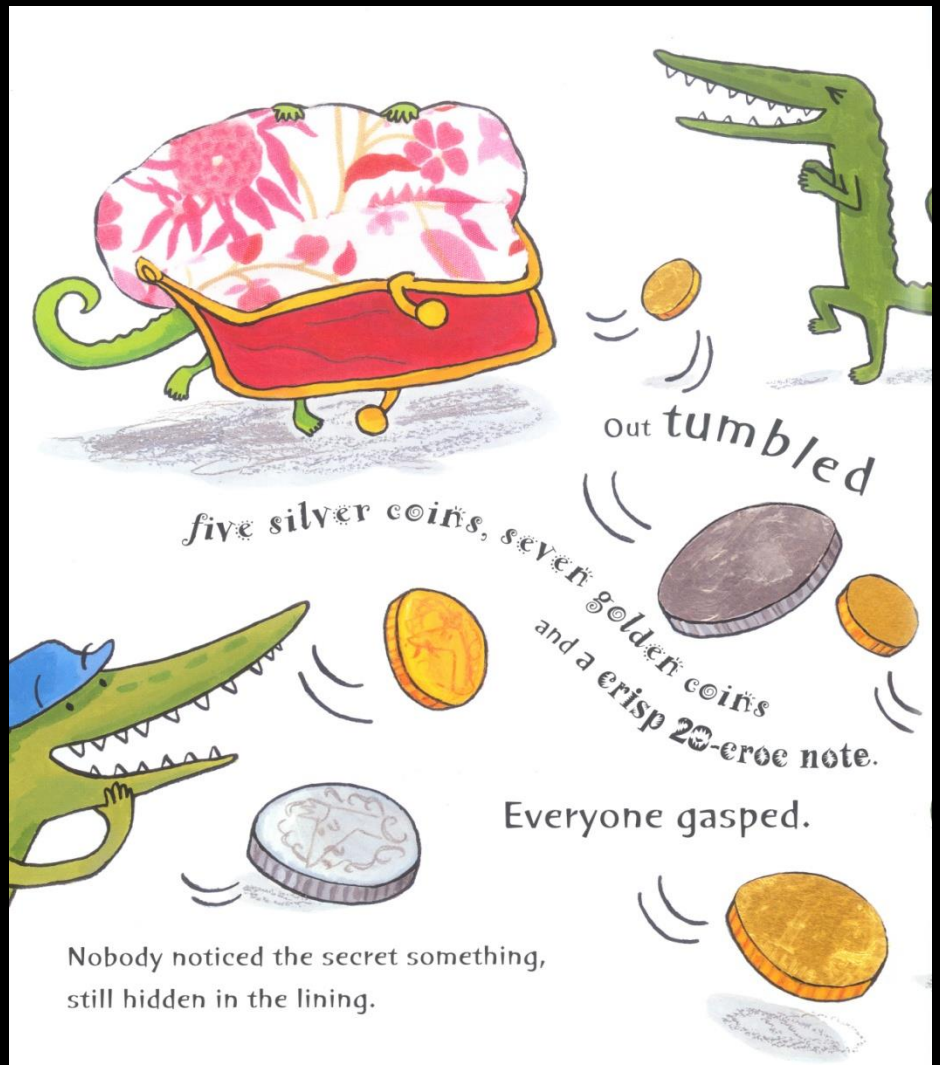
Cards available from TTS –

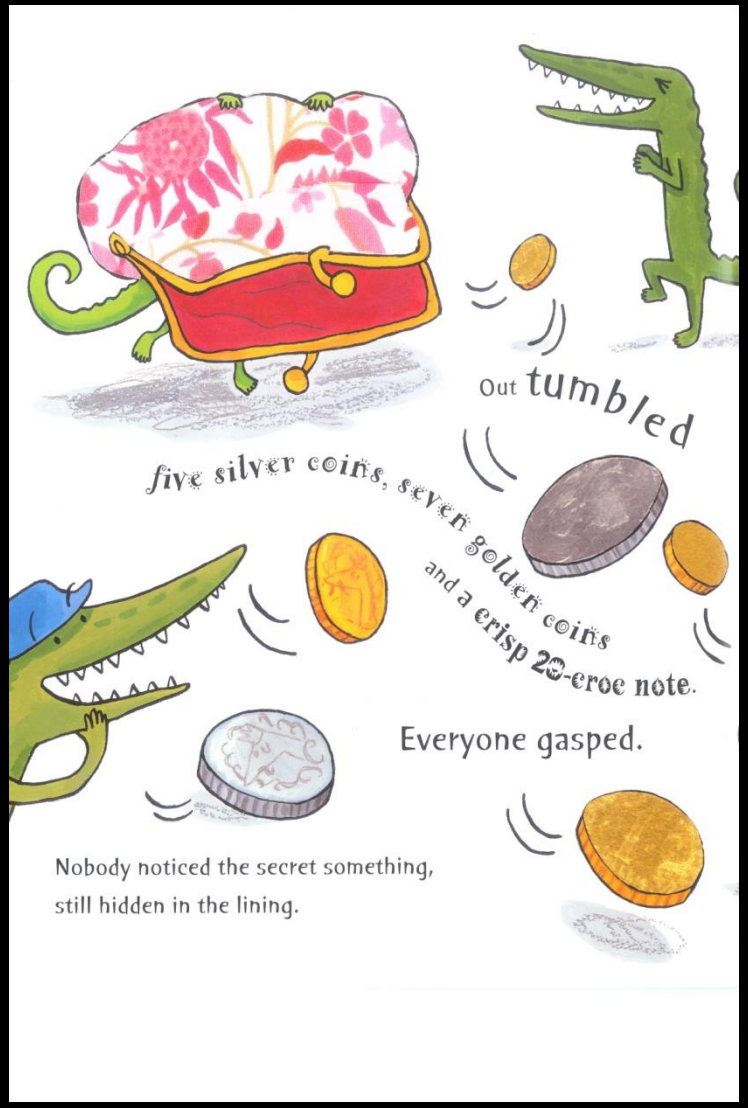
researched by Project teacher, Sue H.

Once upon a time… maths thinking and talking from stories and other props

Worked examples from Project teachers

Jenny L	Think- Talk -Maths Box
	Little Croc's Purse
Alex C, Karen L and Anna D	Little Croc's Purse


Out tumbled
five silver coins, seven golden coins
and a crisp 20-croc note.
Everyone gasped.
Nobody noticed the secret something,
still hidden in the lining.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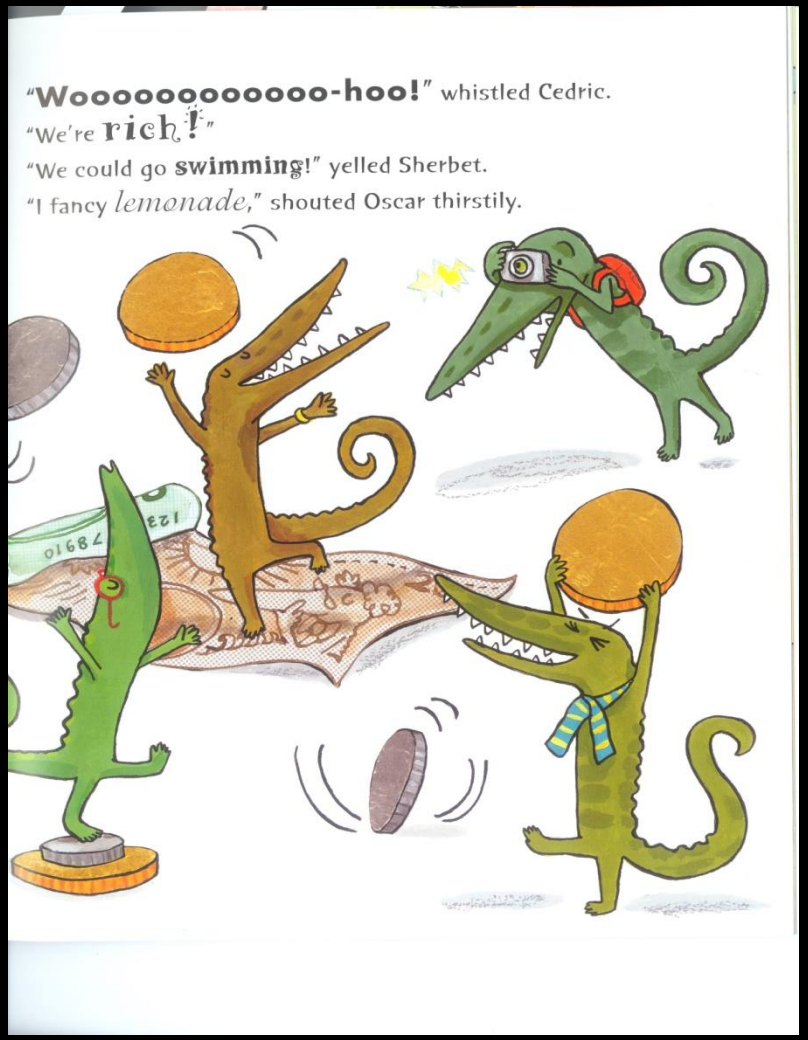
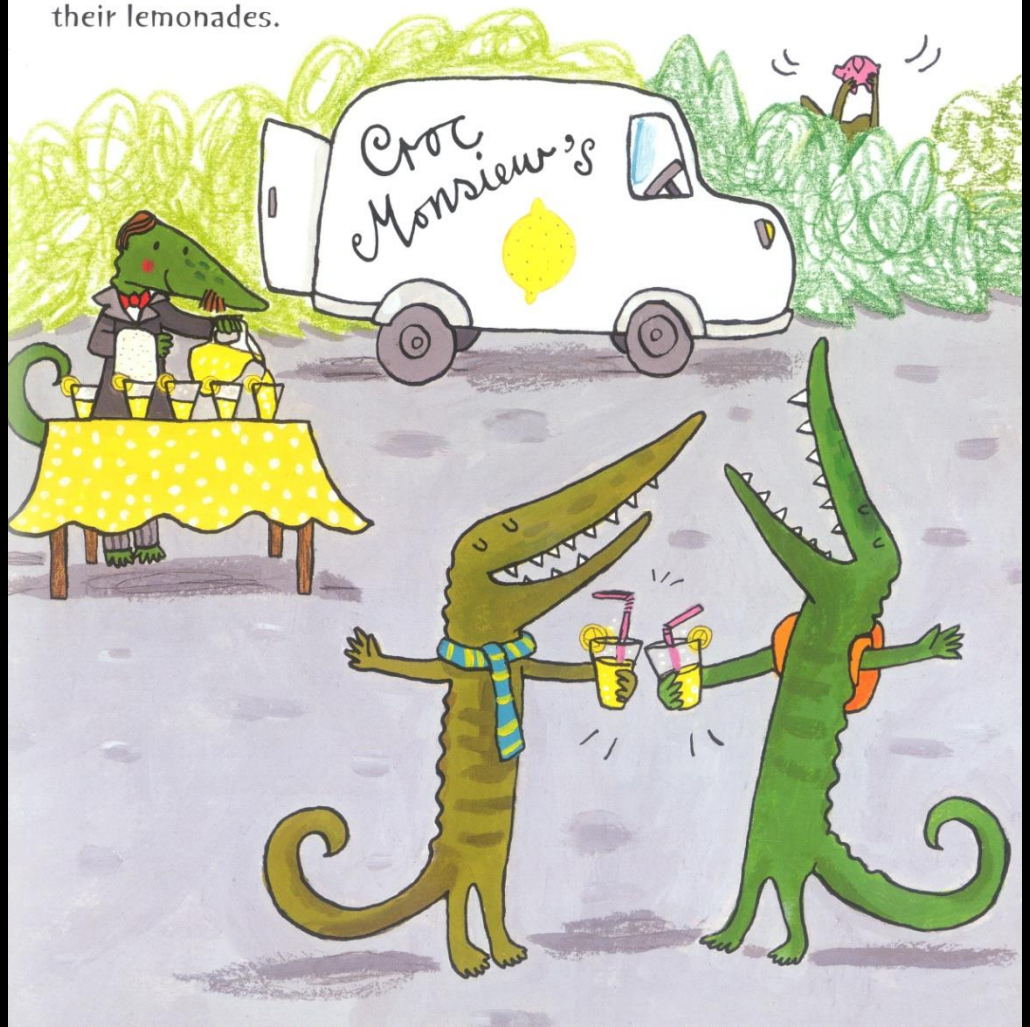

"Wooooooooooo-hoo!" whistled Cedric.
"We're rich!"
"We could go swimming!" yelled Sherbet.
"I fancy lemonade," shouted Oscar thirstily.

I bought myself these boots and a treat for **everyone!**" he said, as the **Croc Monsieur's** delivery van arrived. "**No Way?!**" cried the crocs, rushing up to get their lemonades.



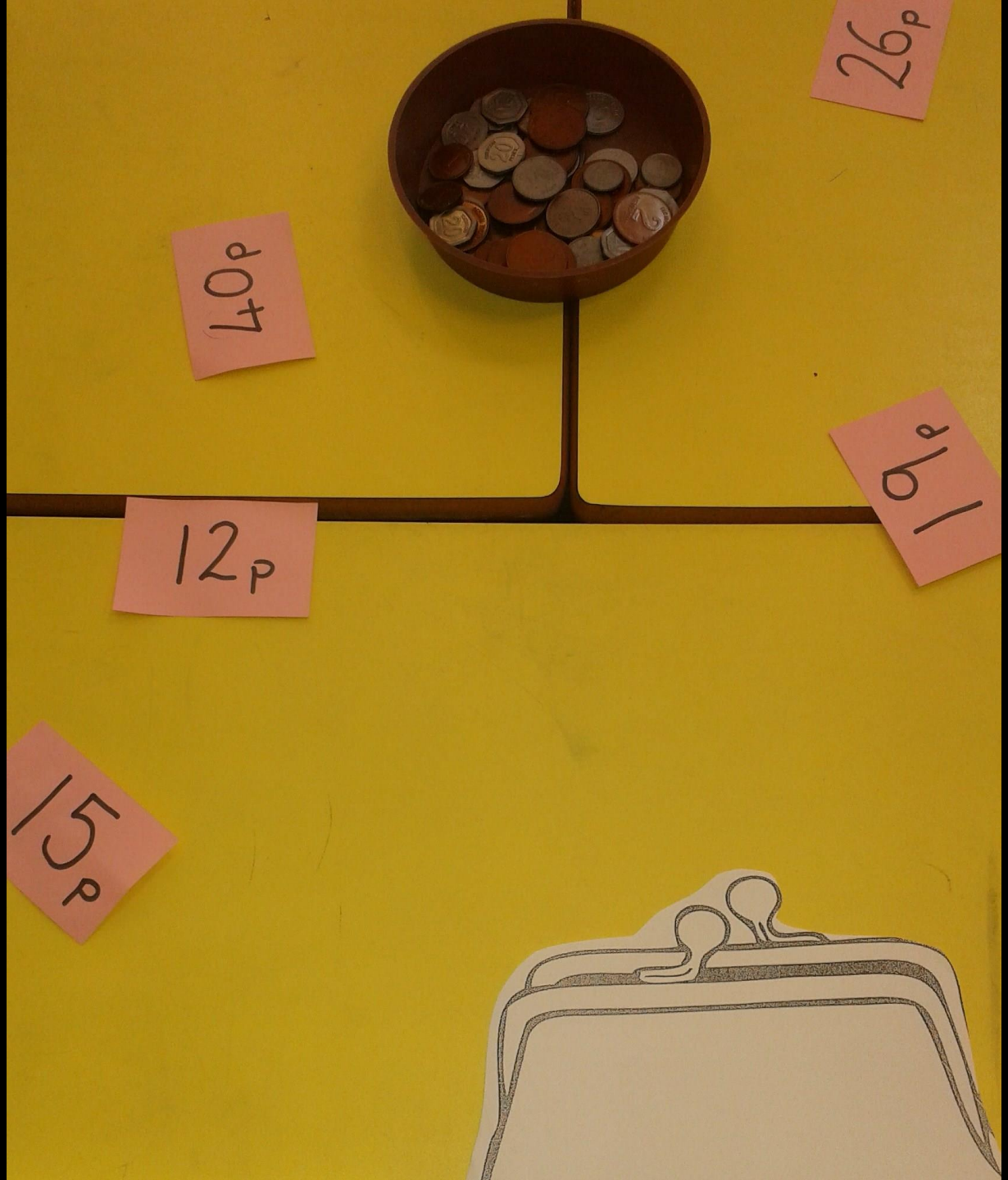
Croc Monsieur's was the perfect place to celebrate.
"A freshly squeezed *lemonade*, three **envelopes**
and a **pencil** please," Little Croc ordered.
The lemonade tasted better than he'd ever imagined.

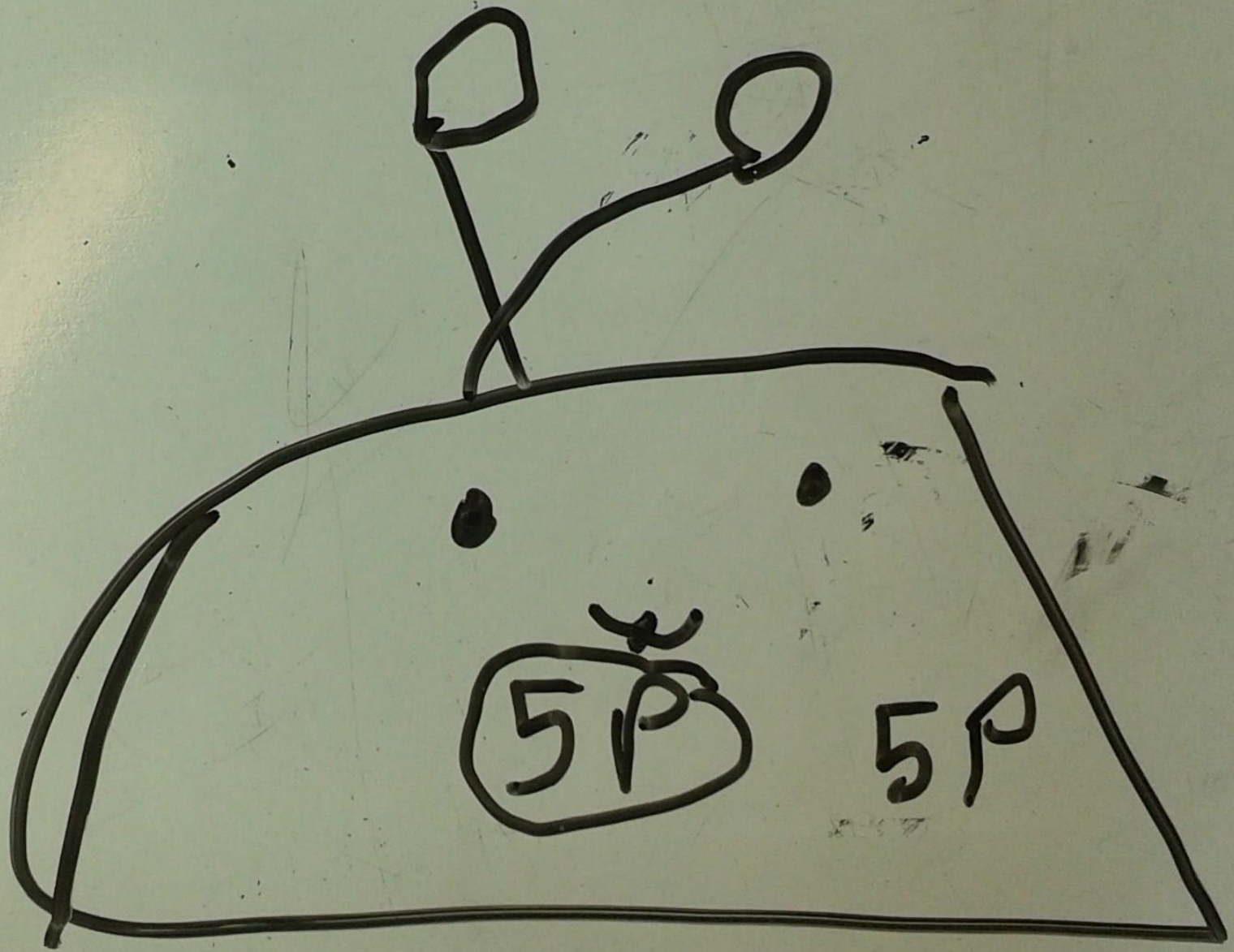
15.06.15

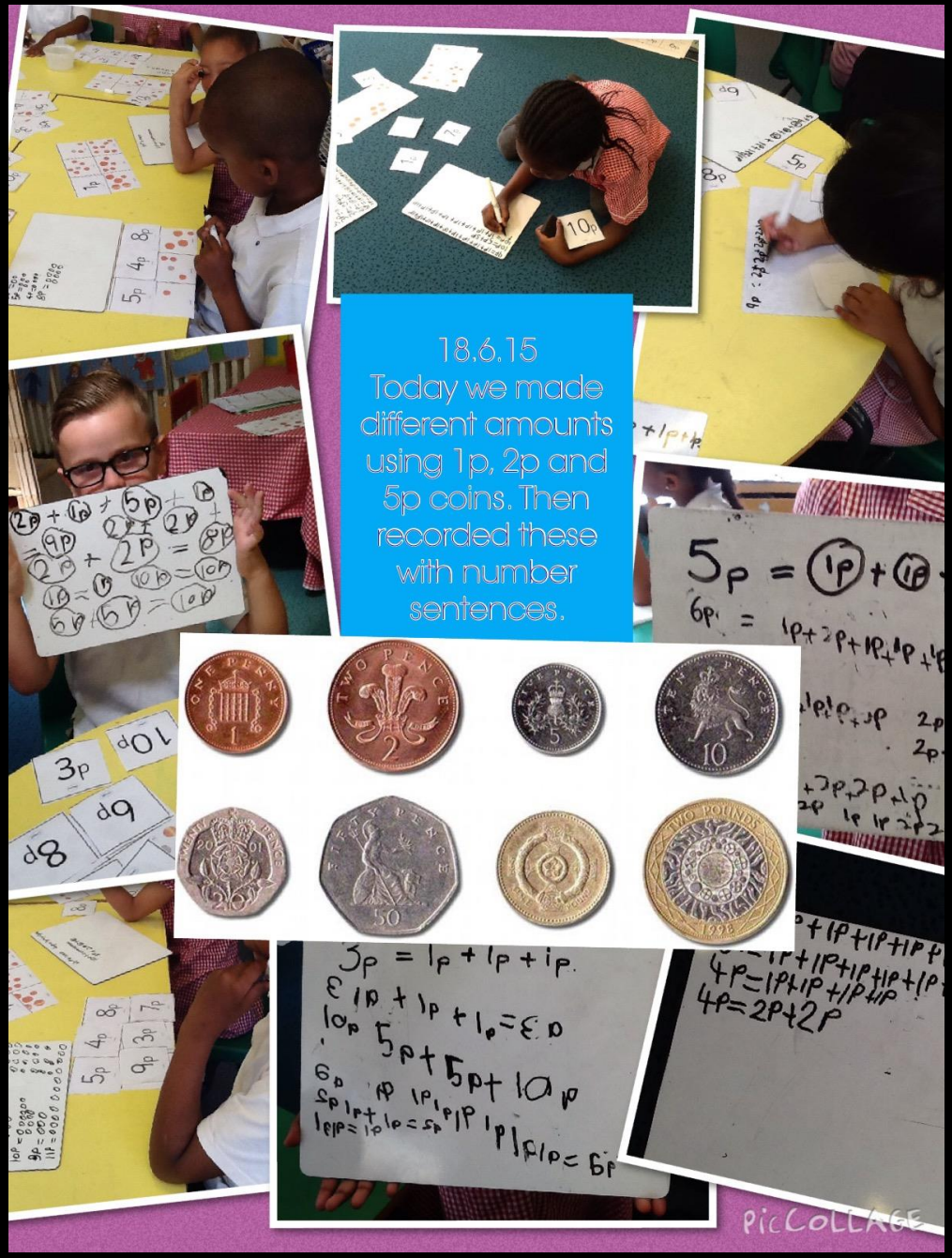
LO: I can begin to identify different coins.

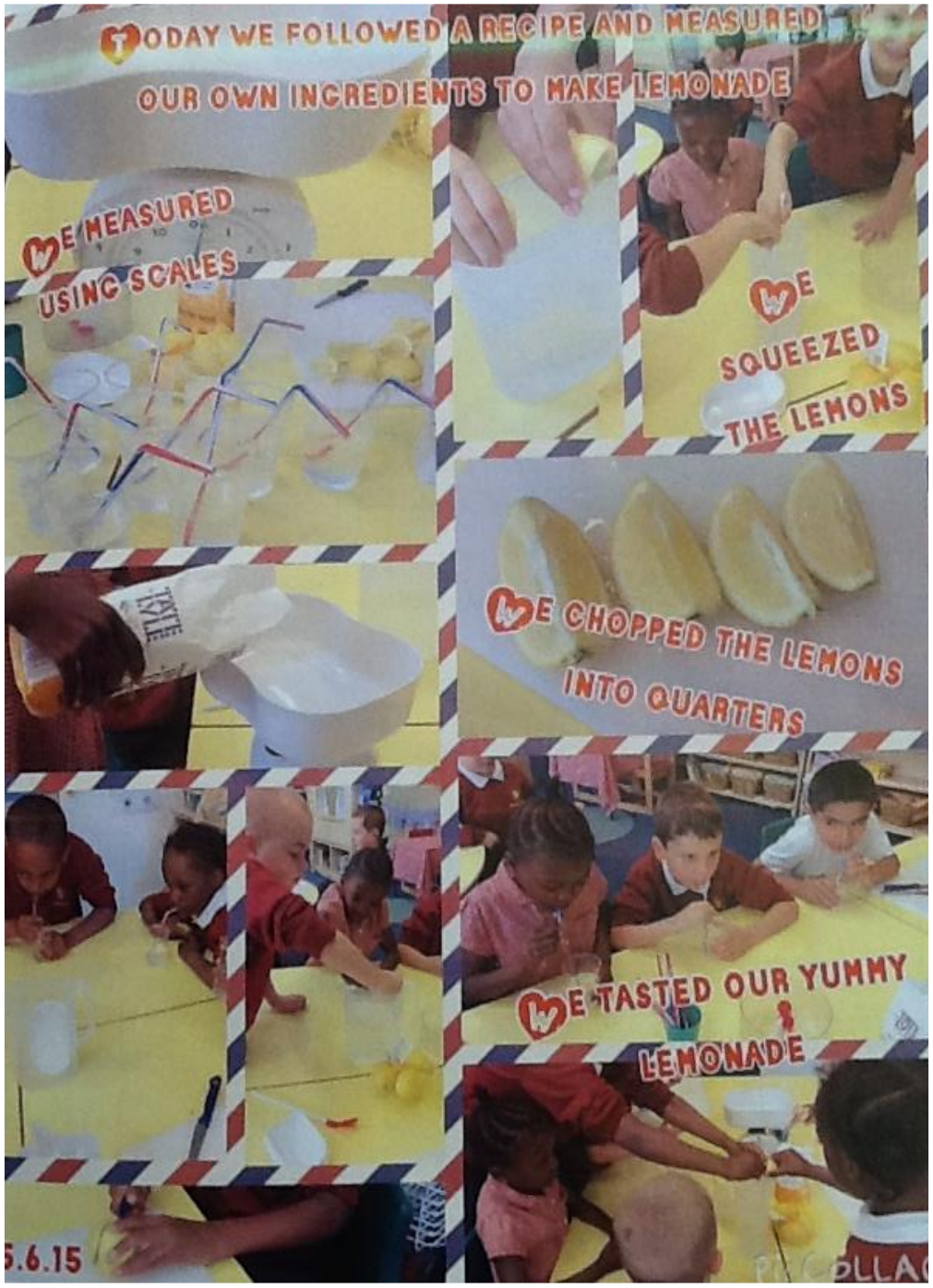
LO: I can sort coins according to different criteria.

Joshua
"I am sorting them into all 1ps and all 2ps"
"we need more 1ps"


26p
40p
1p
12p
15p


5P
5P


18.6.15
Today we made different amounts using 1p, 2p and 5p coins. Then recorded these with number sentences.
PicCollage


TODAY WE FOLLOWED A RECIPE AND MEASURED
OUR OWN INGREDIENTS TO MAKE LEMONADE
WE MEASURED
USING SCALES
WE
SQUEEZED
THE LEMONS
WE CHOPPED THE LEMONS
INTO QUARTERS
WE TASTED OUR YUMMY
LEMONADE
5.6.15

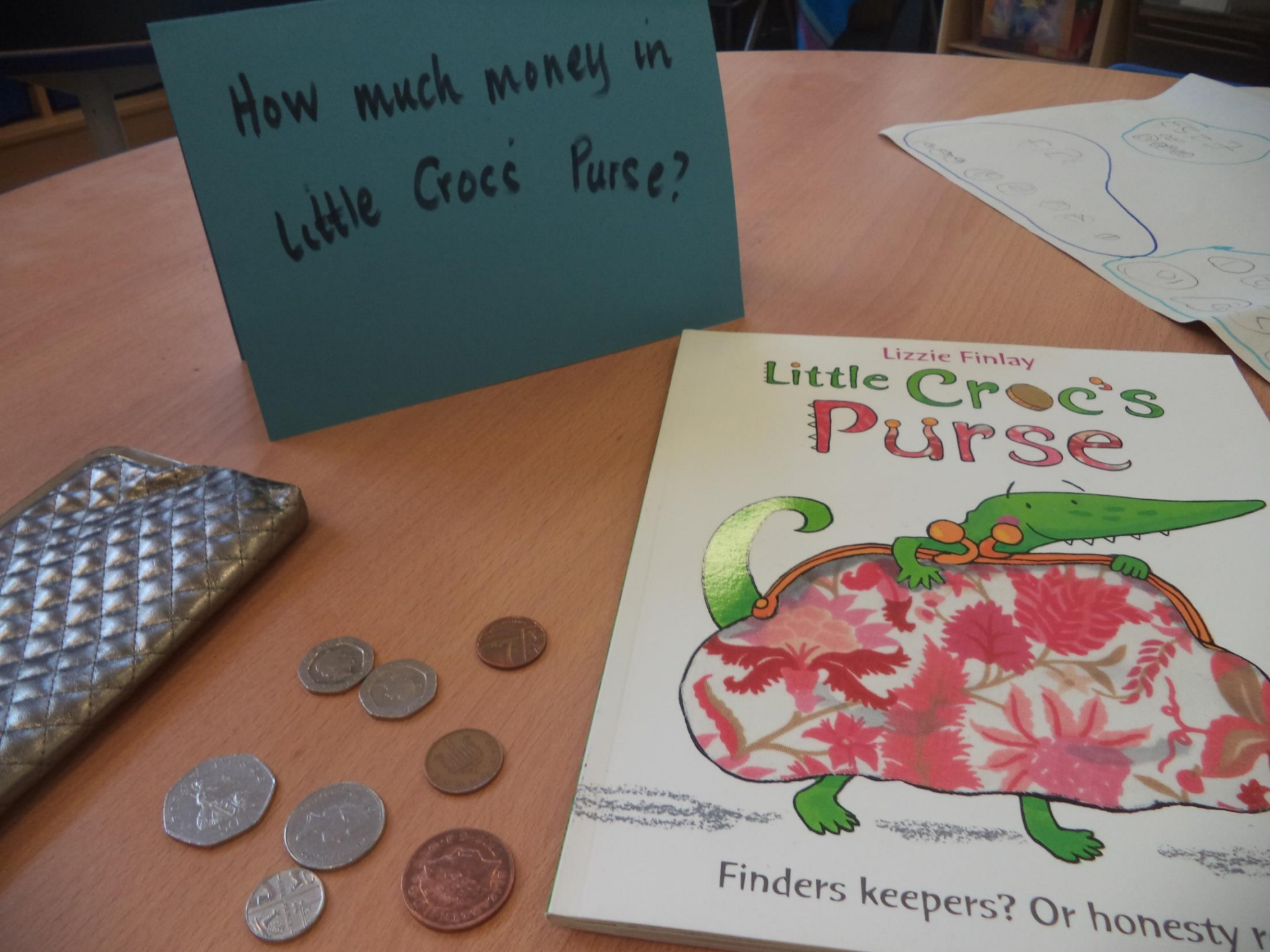
25.06.15

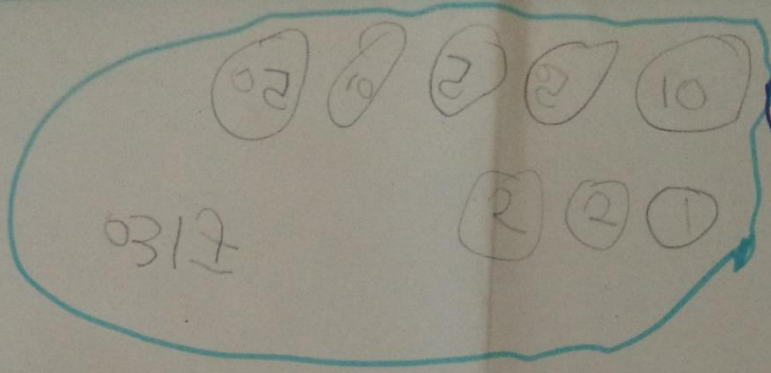
This week in maths we have been making lemonade, learning about measure and how we use different equipment to measure different things. We have focused on measuring capacity using ml and litres and weight using kg and g. I wonder if you could measure and make your own lemonade at home and draw a diagram below of how you did this?

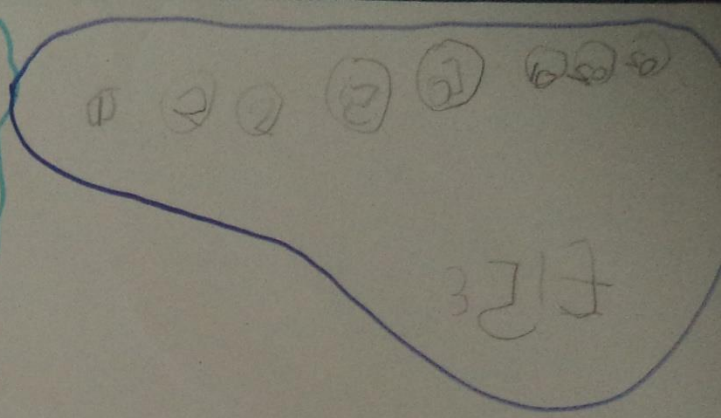
Lemonade Recipe
1000ml of water
140g sugar
3 lemons

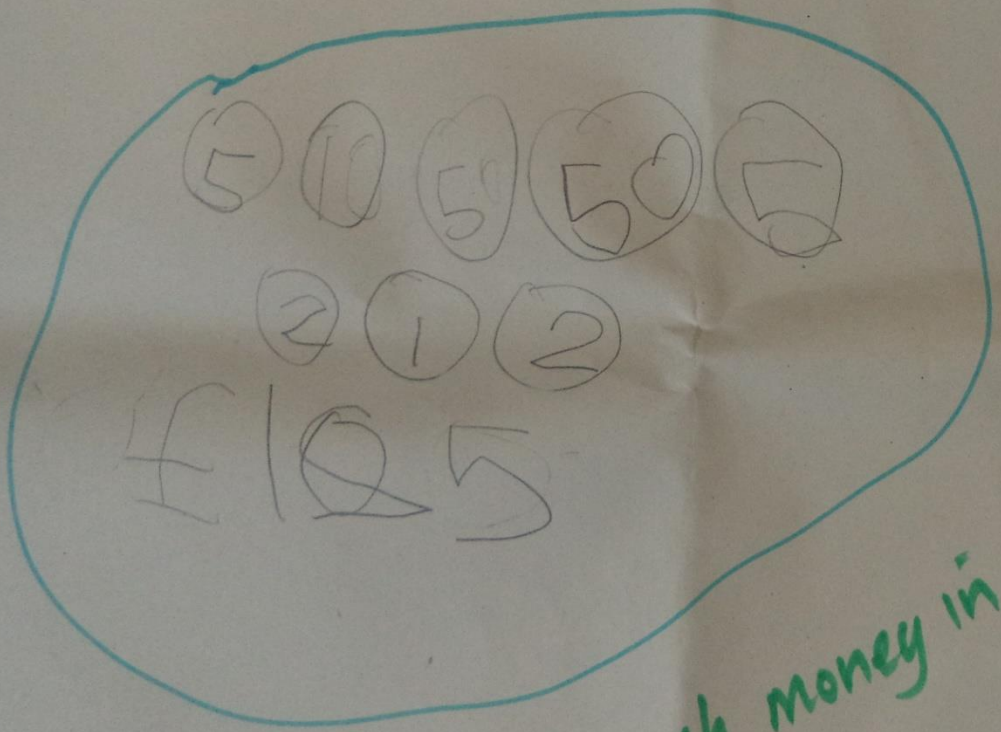
Diagram:

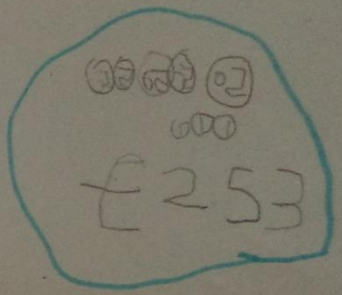
Lemonade Recipe
200g of sugar
1 litres of water
6 lemons
= 4 glasses of lemonade


How much money in Little Croc's Purse?
Lizzie Finlay
Little Croc's Purse
Finders keepers? Or honesty









How much money in Little Croc's Purse?

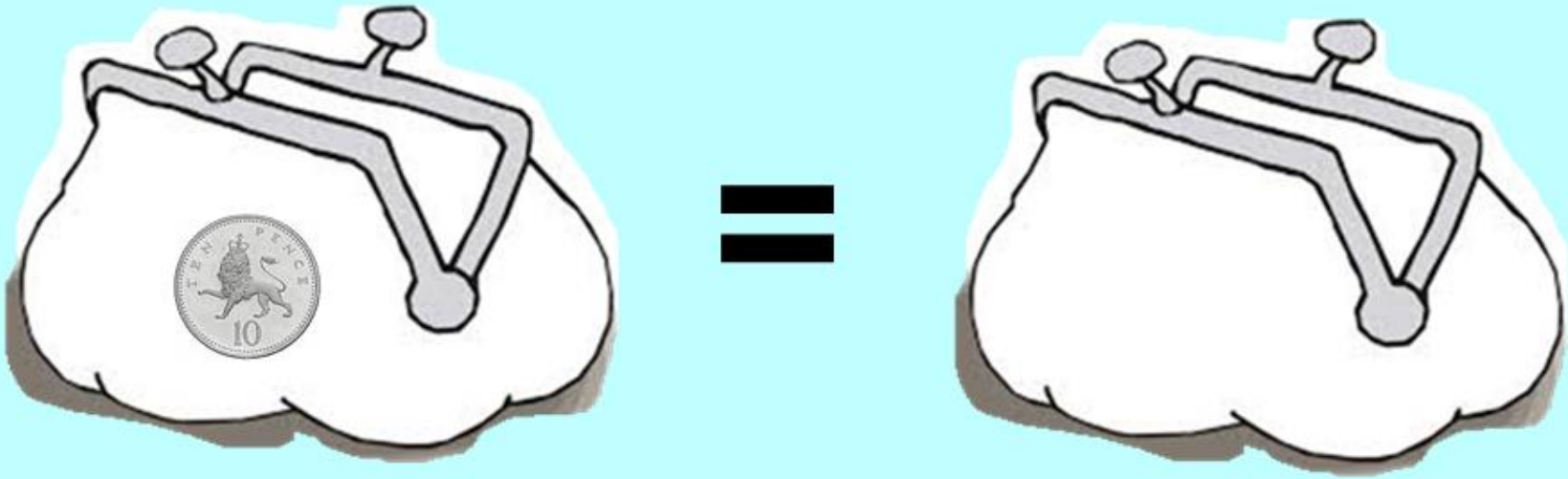
★ L.O. I can recognise coins and I know their value. ★

Can you describe this picture to your TP?

=

Extend Page

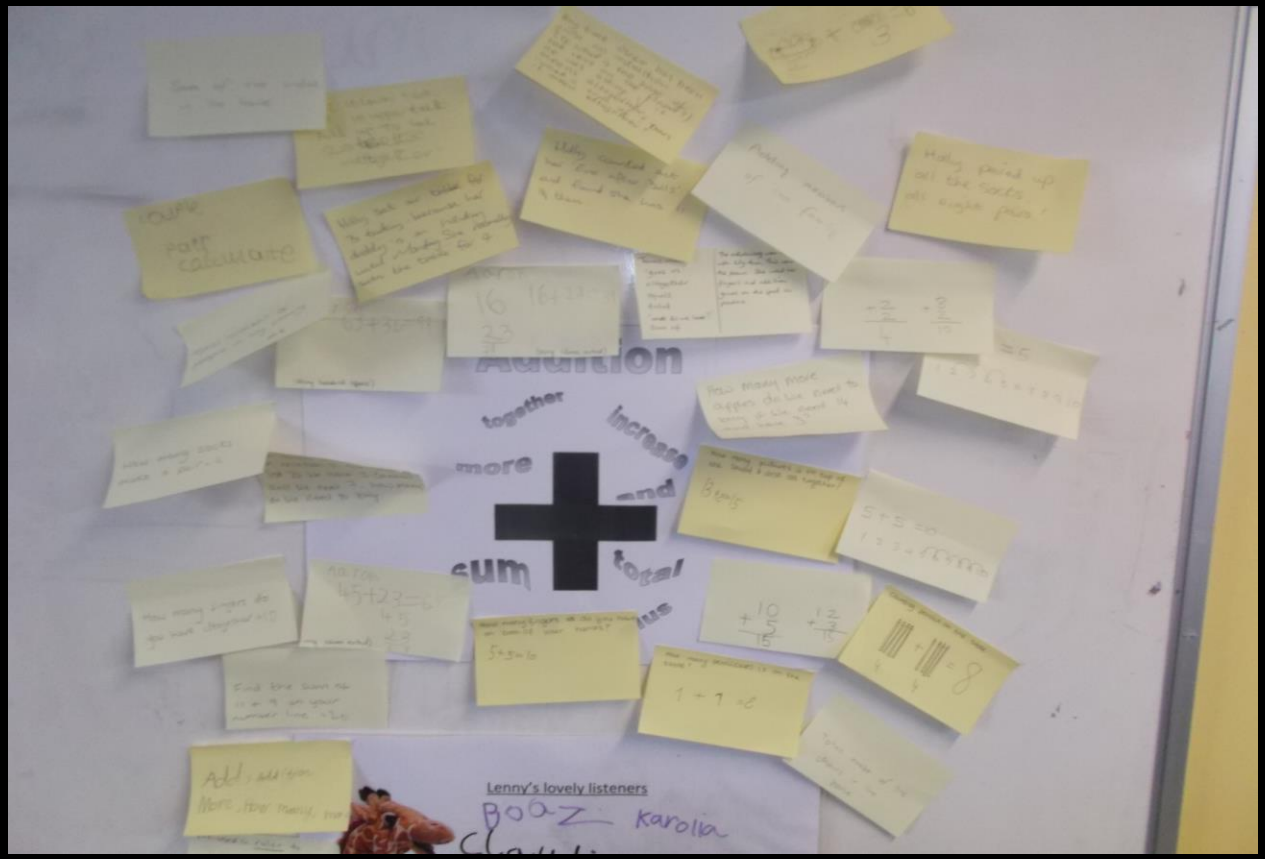
★ L.O. I can recognise coins and I know their value. ★



Can we make the amount in both purses equal but use different coins? How many ways can you find?

Extend Page

Involving parents in maths talk
Worked example, Project teacher, Sarah W



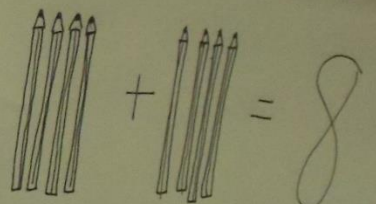
How many pictures is on top of the shielf & desk all together?

13 + 2 = 15

5 + 5 = 10

1 2 3 4 5 6 7 8 9 10

Counting pencils on the table



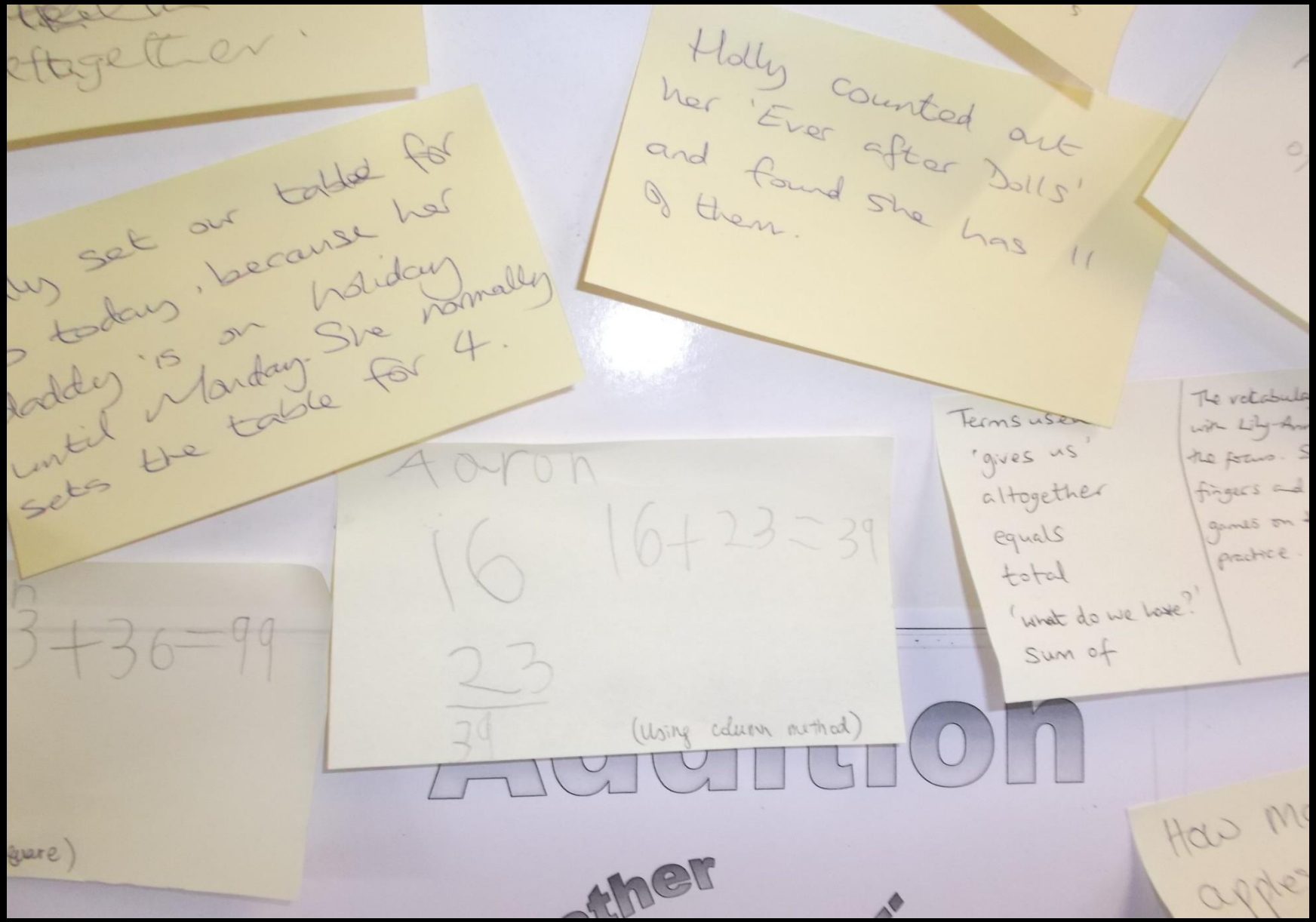
4 4

10 + 5 = 15

12 + 3 = 15

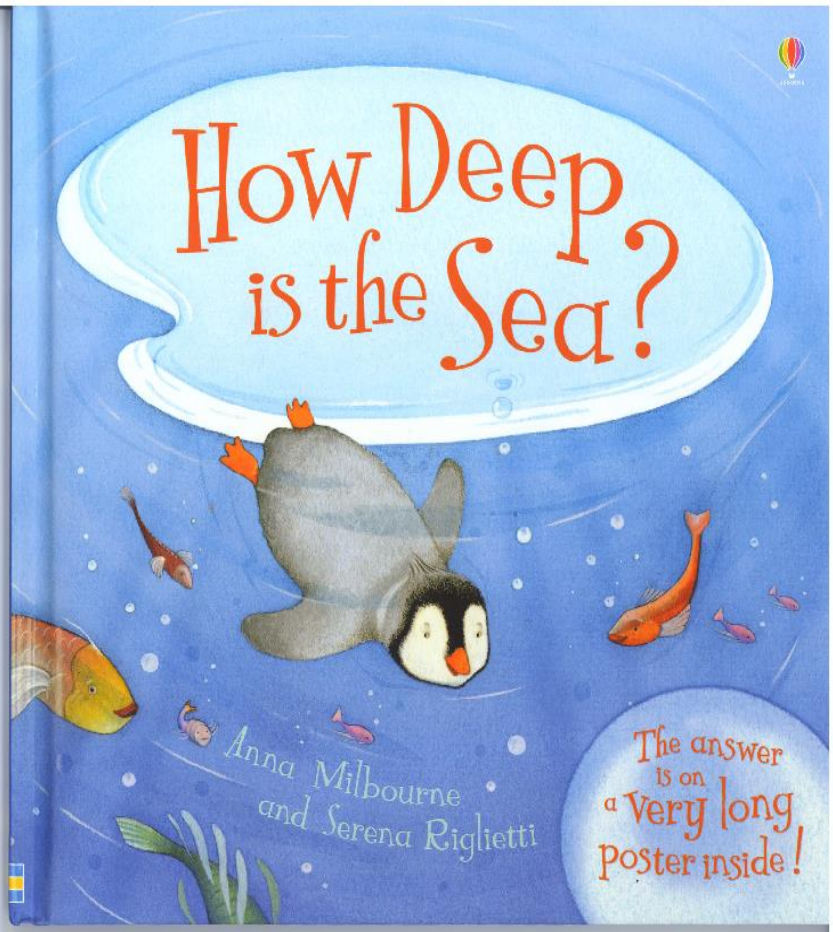
How many pencilcases is on the

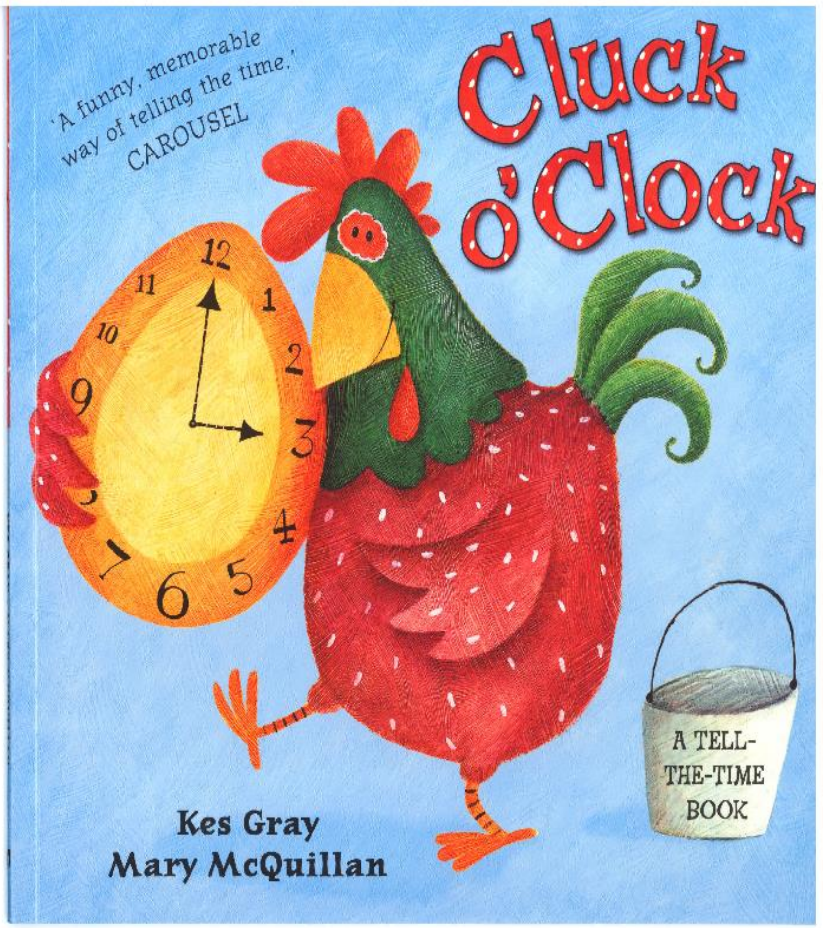
Total number of the


Holly counted out her 'Ever after Dolls' and found she has 11 of them.
Aaron
16
23
39
16+23=39
(using column method)
Terms used
'gives us'
altogether
equals
total
'what do we have?'
Sum of
Addition

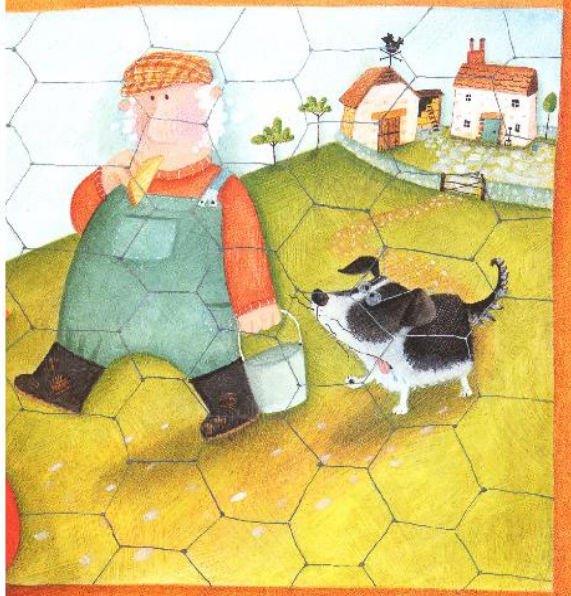
Dictionaries for engaging children's curiosity, worked example, Project teacher, Katie W

'*I know how to do divide-ision now like my brother because I can just read it! Can we learn division next?'*


How Deep is the Sea?
Anna Milbourne and Serena Riglietti
The answer is on a very long poster inside!


'A funny, memorable way of telling the time.'
CAROUSEL
Cluck o'Clock
A TELL-THE-TIME BOOK
Kes Gray
Mary McQuillan

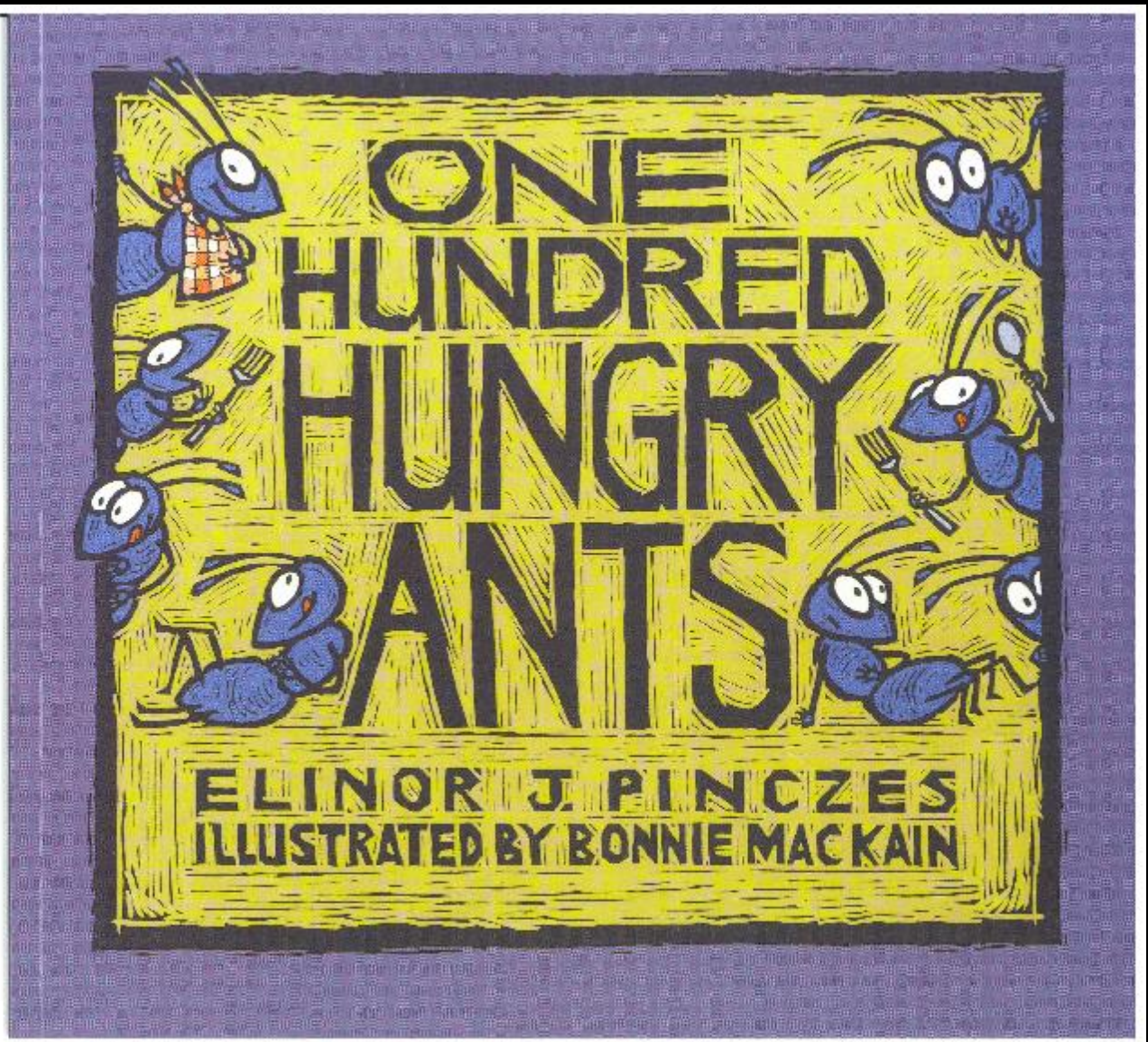
5 o'cluck. The farmer appears.
ɔast in his hand and soap round his ears.



5.05. He unlocks the door.
Rattles his bucket. Throws corn on the floor.

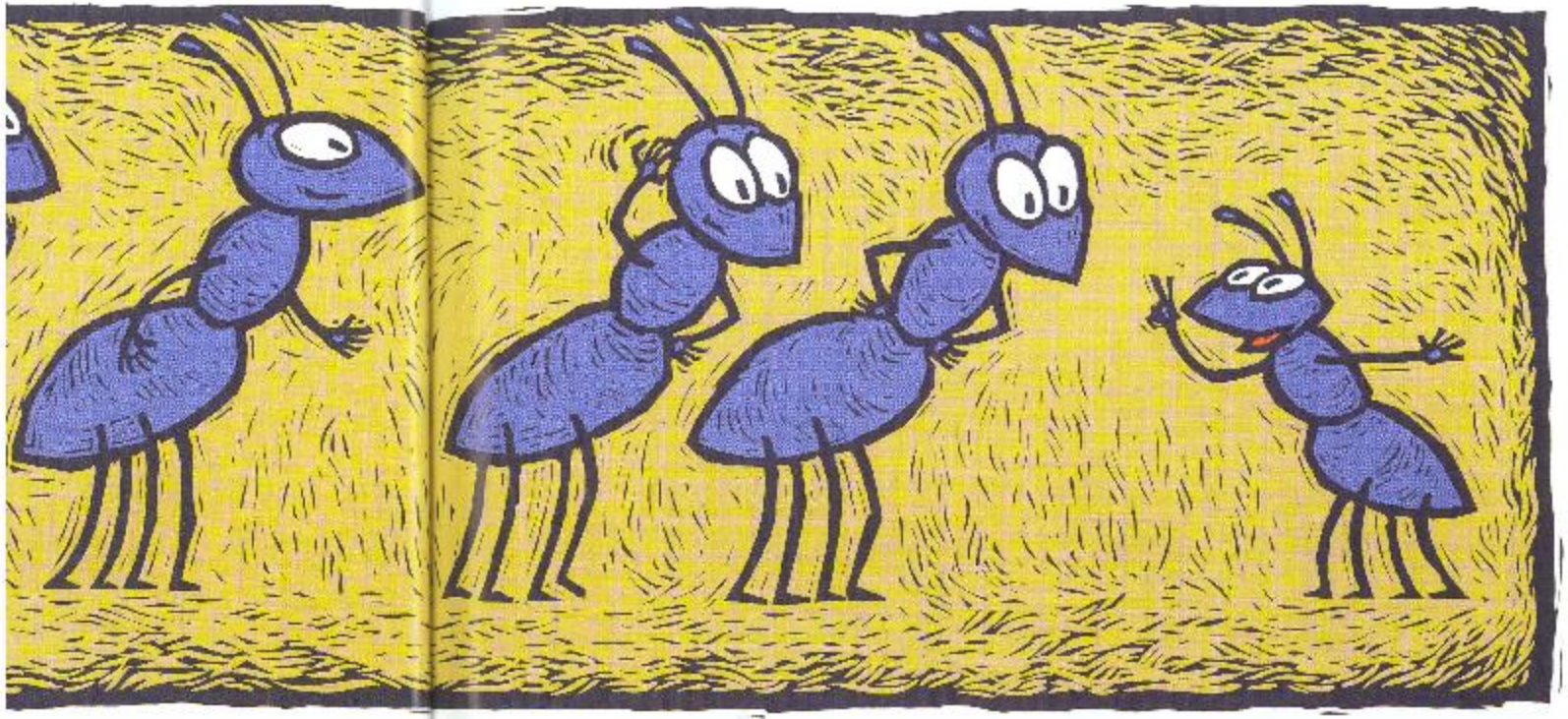
We gobble our breakfast in ten seconds flat.
Jessie's the fastest (that's why she's so fat).

6 until 8. We sit on our nests. We lay white eggs or brown eggs.
(Marge does requests.)


ONE HUNDRED HUNGRY ANTS
ELINOR J. PINCZES
ILLUSTRATED BY BONNIE MACKAIN

ging

"We're going to a picnic!
A hey and a hi dee ho!"



with 2 lines of 50
we'd get there soon, I know."