# Devonshire Primary Academy Mathematics Policy

Implementation Date: September 2014
Adopted by Governors/HT: HT
Review period: 3 Years
Last review date: November 2019
Person responsible for policy: Ms S. O'Hagan

## Aims

The aim of this policy is:

- ✓ To ensure that all children are challenged appropriately to allow them to develop mastery in the subject
- ✓ To ensure consistency across the subject
- ✓ To ensure all teachers have high expectations of all children

At Devonshire Primary Academy we follow the **White Rose** Scheme of Work and use **Classroom Secrets**; an online tool with differentiated and suitable resources for all primary ages.

## Prior Learning

The purpose of prior learning is to establish a starting point; to ensure that the teacher has a clear understanding of what the children in their class already know and where any gaps in their knowledge are. The aim is to ensure that the children have a secure understanding of the curriculum that they are being taught to ensure that they are confident to apply their learning to a range of different contexts.

- ✓ Prior learning should be accessible to all pupils within the class
- ✓ One or two questions from each programme of study is enough to check understanding
- ✓ An understanding of vocabulary should be checked to ensure that the children are able to access word/reasoning problems

Prior learning should be completed at the beginning of each new topic (regardless of whether the topic has been covered before) in pencil; this should be marked/self- assessed after completion.

Teachers should adapt their lesson planning around the outcome of the prior learning to ensure pupils are accessing work from their starting point.

Once the topic has been taught and practised by pupils, the prior learning should be revisited in purple pen which will show visible progress in their workbooks.

*(See the WAGOLL and examples in appendix 1.)*

## 'Steps to Success'

Steps to Success (process success criteria) "…are more detailed, task specific success criteria that guide learners whilst they are engaged in learning."

**The Aim:**

- ✓ Pupils will use Steps to Success as instructions/a prompt which will allow them to complete a task independently
- ✓ Pupils will be able to easily identify where they are making mistakes/where they are missing out steps before applying the 4B's

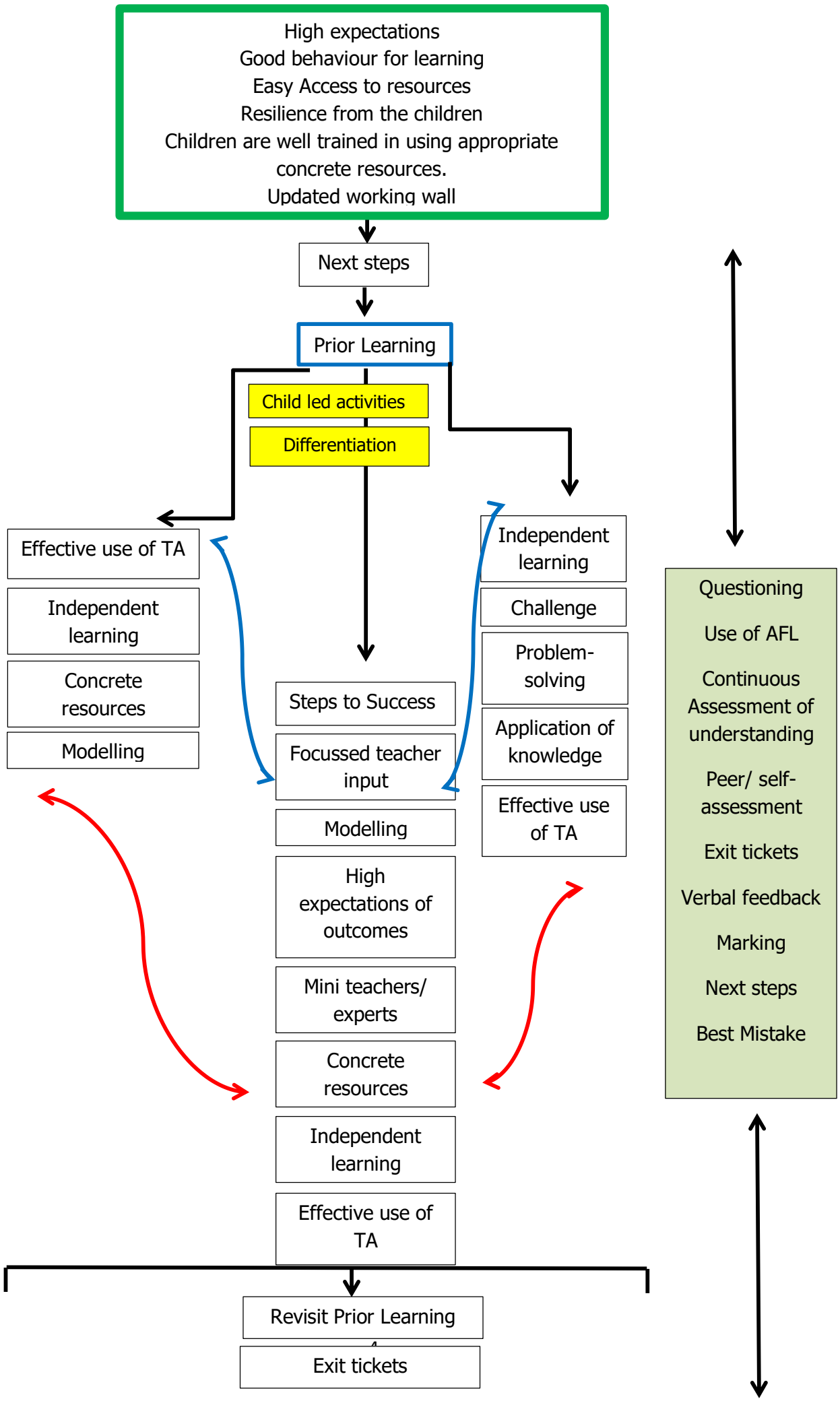
**The Steps to Success should be presented in a way that is meaningful for the class** *(see examples in appendix 2)*.

They could be:

- ✓ Generated independently, following the teacher input
- ✓ Generated as a group to check understanding and consolidate the learning
- ✓ Generated by the class teacher as each step is taught
- ✓ A selection of 'Steps to Success' that are mixed up, ready for pupils to reorder

Pupils should be encouraged to use them during the lesson as a strategy to build independence and resilience.

Steps to Success must be used for every concept that follows a process.


High expectations
Good behaviour for learning
Easy Access to resources
Resilience from the children
Children are well trained in using appropriate concrete resources.
Updated working wall
Next steps
Prior Learning
Child led activities
Differentiation
Effective use of TA
Independent learning
Concrete resources
Modelling
Steps to Success
Focussed teacher input
Modelling
High expectations of outcomes
Mini teachers/ experts
Concrete resources
Independent learning
Effective use of TA
Independent learning
Challenge
Problem-solving
Application of knowledge
Effective use of TA
Questioning
Use of AFL
Continuous Assessment of understanding
Peer/ self-assessment
Exit tickets
Verbal feedback
Marking
Next steps
Best Mistake
Revisit Prior Learning
Exit tickets

## Glossary

*What is meant by certain terms used throughout the policy, according to Devonshire staff.*

Resilient Children: will try a variety of different methods and show their working out. You will see them supporting their peers and embracing the challenges they are given rather than giving up when something seems tricky in the first instance.

To create this atmosphere, you will see teachers celebrating mistakes and modelling ways to check/overcome them. There will be a learning pit in the classroom and you may see children/teachers using them to discuss how a learner is feeling about a task. Teachers will often praise pupils for 'having a go' or highlighting an area that many children are finding difficult so that any issues can be addressed. ABC will be apparent throughout the lesson to encourage children to support each other.

Working Walls: will display current learning. You will find relevant vocabulary that is referred to by the teacher and children throughout the lesson; this will support the learning taking place. There may be evidence of a WAGOLL (including 'Steps to Success')/WABOLL that has been generated by the children during the sessions which highlights mistakes that have been made. All of the resources on the display must be purposeful; they should assist the children with becoming more independent.

Independence: Our aim is to create independent, resilient learners. If the children are independent learners, you may see children choosing a task that provides an appropriate level of challenge. The children will be using the 'confidence cards/cups' to show how they are feeling about a particular task and you will see peers supporting one another when they are finding tasks difficult. The children are aware of the 4B's and they use them if they are struggling. Resources are accessible around the classroom and you will see the children selecting them carefully to suit the task that they are completing.

Access to Resources: In each classroom you will see clearly labelled resources that the children have easy access to. There will be a range of resources, which are fit for use, for each area of the curriculum that the all of the children know how to use appropriately. The adults in the room have a clear knowledge of which resources are available and can be seen encouraging the children to use them if they are finding their task difficult.

High Expectations: In a class with high expectations you will see children taking pride in the presentation of their work; they will be completing work that is suitably challenging. Most children will be working independently; however, you may see some children supporting their peers. All of the children will be actively listening and there is a positive learning atmosphere. They are aware of what is expected of them and the teacher models the expectations consistently.

Good Behaviour for Learning: The children demonstrate good behaviour for learning by following the instructions that they are given, on the first occasion, without making a fuss. There will be focussed and positive discussions around the learning taking place in the classrooms and the children will be using the 4B's as means of support in the first instance to ensure that they are working as independently as possible. Tracking and ABC will form

part of the lesson and the children encourage and support each other throughout the process. All children listen to one another respectfully.

# Appendix 1

**Prior learning: Tuesday 30th April 2019**

**WALT:** Add and subtract a multiple of 100 to a three digit number

-

1) 256 + 200 =

2) 765 + 300 =

3) 964 – 500 =

4) 874 – 600 =

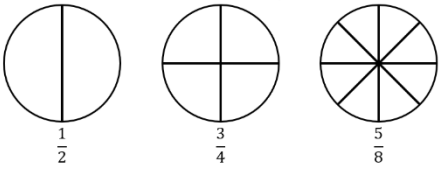
5) 832 - ? = 532

6) ? - 200 = 498

07.05.2019

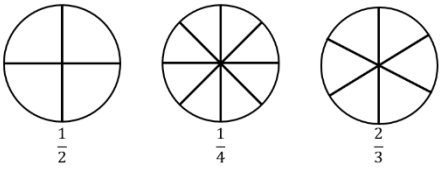
WALT: understand equivalent fractions.

1. Shade the shown fraction of these shapes.



$\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$

2. Shade the shown fraction of these shapes.



$\frac{1}{2}$ $\frac{1}{4}$ $\frac{2}{3}$

3. Write an equivalent fraction for each of these fractions. Diagrams are given to help.

$\frac{1}{2} = \frac{\square}{\square} = \frac{\square}{\square}$ $\frac{1}{3} = \frac{\square}{\square} = \frac{\square}{\square}$

4. Answer these sums (Simplify your answer).

$\frac{1}{4} + \frac{2}{4} = \frac{\square}{\square}$ $\frac{4}{7} + \frac{1}{7} = \frac{\square}{\square}$ $\frac{6}{12} - \frac{4}{12} = \frac{\square}{\square}$

$\frac{2}{5} + \frac{1}{5} = \frac{\square}{\square}$ $\frac{6}{9} + \frac{2}{9} = \frac{\square}{\square}$ $\frac{2}{6} - \frac{1}{6} = \frac{\square}{\square}$

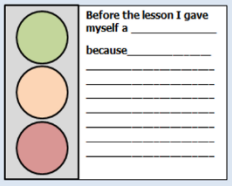
5. Answer these sums (Simplify your answer).

$\frac{1}{2} + \frac{1}{4} = \frac{\square}{\square}$ $\frac{1}{10} + \frac{1}{5} = \frac{\square}{\square}$ $\frac{1}{3} + \frac{2}{6} = \frac{\square}{\square}$

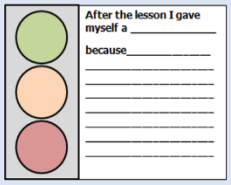
6. Convert these mixed numbers to improper fractions.

$1\frac{1}{2} = \frac{\square}{\square}$ $1\frac{1}{5} = \frac{\square}{\square}$ $3\frac{1}{3} = \frac{\square}{\square}$

Before




After




**Prior Attainment**

## Money Year 4

**Y1**

Name the coins below.

**Y1**

How Much money is in each jar?

**Y2**

How many different ways can you add these coins to reach the total of 20p? You can use the coins more than once.

_____

_____

**Y3**

At a market stall by the seaside,

Hannah can buy the following items:

postcard 25p

lolly 35p

ice cream 75p

cake £1.20

cola 55p

Hannah has £2.

She buys three items and has less than £1 in change. Which three items could she have bought?

_____

_____

**Prior Learning**

# Division Year 4

1. 10 ÷ 2 = _____

2. 12 ÷ 3 = _____

3. There are 6 cookies and 3 children. They share the cookies equally. How many cookies does each child get?

_____ cookies

4. 25 ÷ 5 = _____

5. 393 ÷ 3 = _____

6. 180 ÷ 5 = _____

7. How did you work out question 6? _____

8. List some synonyms for division.

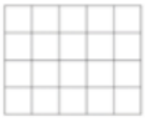
_____ _____ _____ _____ _____

9. 384 ÷ 6 = _____

10. 24 people travel to an airport in taxis. 4 people travel in each taxi. How many taxis are used?

_____

**Prior Learning- 09/04/19**



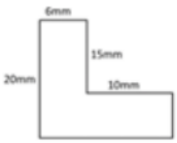
Area = _____ square cm


Area = _____ square cm

A rectangle measuring 7cm by 4cm. Area = _____ square cm

A square with side 6cm. Area = _____ square cm

A rectangle with sides 5mm and 8mm. Area = _____ square mm




**29.04.19.**

**Prior learning: algebra**

**If a = 4**

32+a=

5a=

2a+5=

**What is the value of N?**

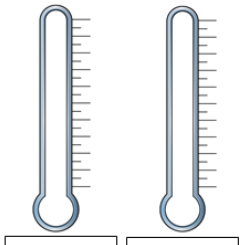
N+ 35=62

3N= 36

5N+7=52

Have a go at this problem before you practise. Come back to it at the end and have another go with your purple pen.

Thermometer of Understanding




**Prior Learning- Formal Method Multiplication-18/10/18**

1) 30 × 40 = 120
2) 1.52 × 6 = 9.12
3) 9.07 × 5 = 45.35
4) 418 × 46 = 19228
5) 729 × 54 = 39366
6) 6574 × 31 = 203794

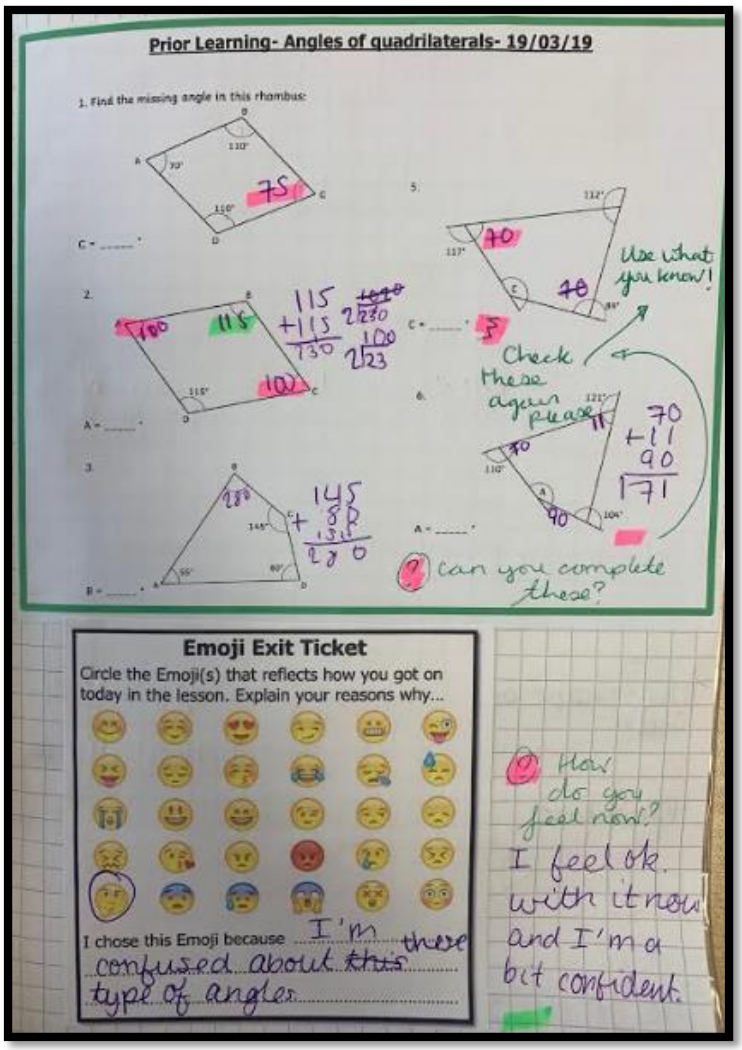
7. Eggs are sold in trays of 24. In a week, a farmer sells 372 trays. How many eggs does he sell in one week?

8. A bag of nails contains 613 nails. A hardware store has 23 bags. How many nails are in the 23 bags?

**Emoji Exit Ticket**

Circle the Emoji(s) that reflects how you got on today in the lesson. Explain your reasons why...

I chose this Emoji because I understand more now and I don't need any help with my work



## Prior Learning- Angles of quadrilaterals- 19/03/19

1. Find the missing angle in this rhombus:

Use what you know!

Check these again please

Can you complete these?

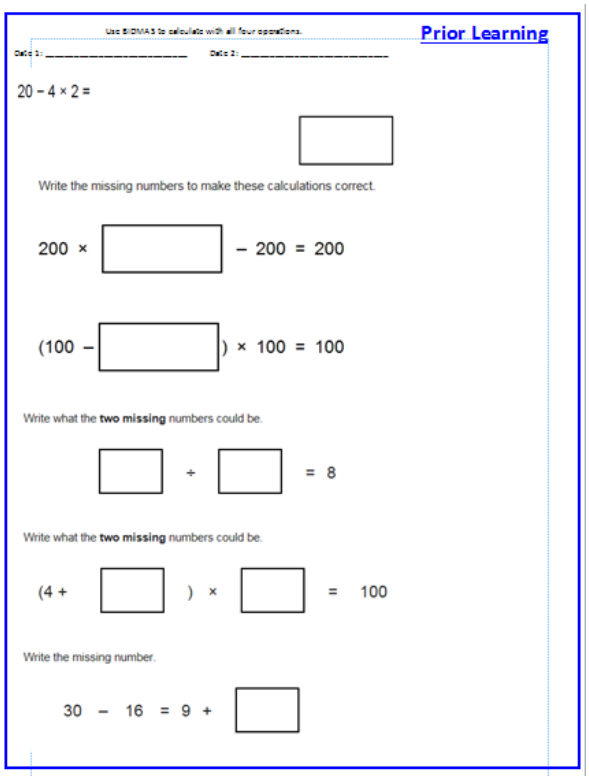
### Emoji Exit Ticket

Circle the Emoji(s) that reflects how you got on today in the lesson. Explain your reasons why...

I chose this Emoji because I'm confused about this type of angles these

How do you feel now?

I feel ok. with it now and I'm a bit confident.



## Prior Learning

Use BIDMAS to calculate with all four operations.

Date 1: _____ Date 2: _____

20 − 4 × 2 =

Write the missing numbers to make these calculations correct.

200 × ☐ − 200 = 200

(100 − ☐) × 100 = 100

Write what the **two missing** numbers could be.

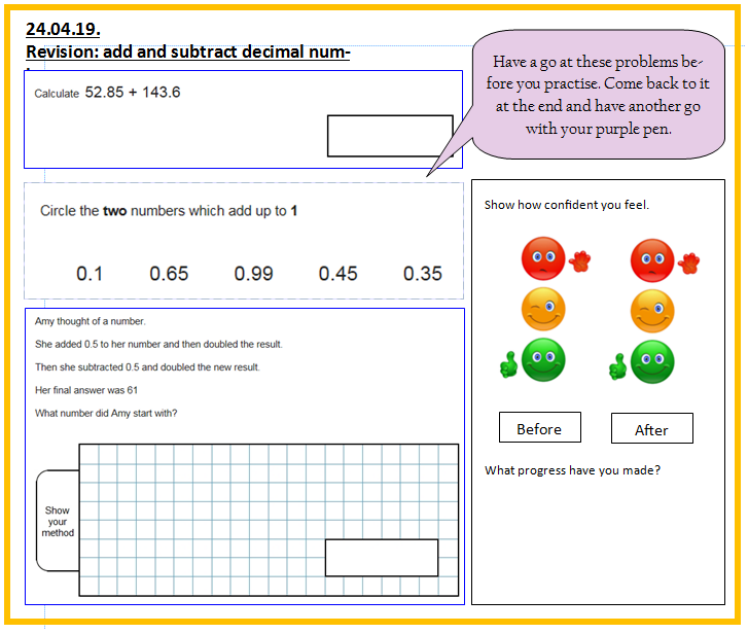
☐ ÷ ☐ = 8

Write what the **two missing** numbers could be.

(4 + ☐) × ☐ = 100

Write the missing number.

30 − 16 = 9 + ☐



**24.04.19.**

**Revision: add and subtract decimal num-**

Have a go at these problems before you practise. Come back to it at the end and have another go with your purple pen.

Calculate 52.85 + 143.6

Circle the **two** numbers which add up to **1**

0.1 0.65 0.99 0.45 0.35

Amy thought of a number.

She added 0.5 to her number and then doubled the result.

Then she subtracted 0.5 and doubled the new result.

Her final answer was 61

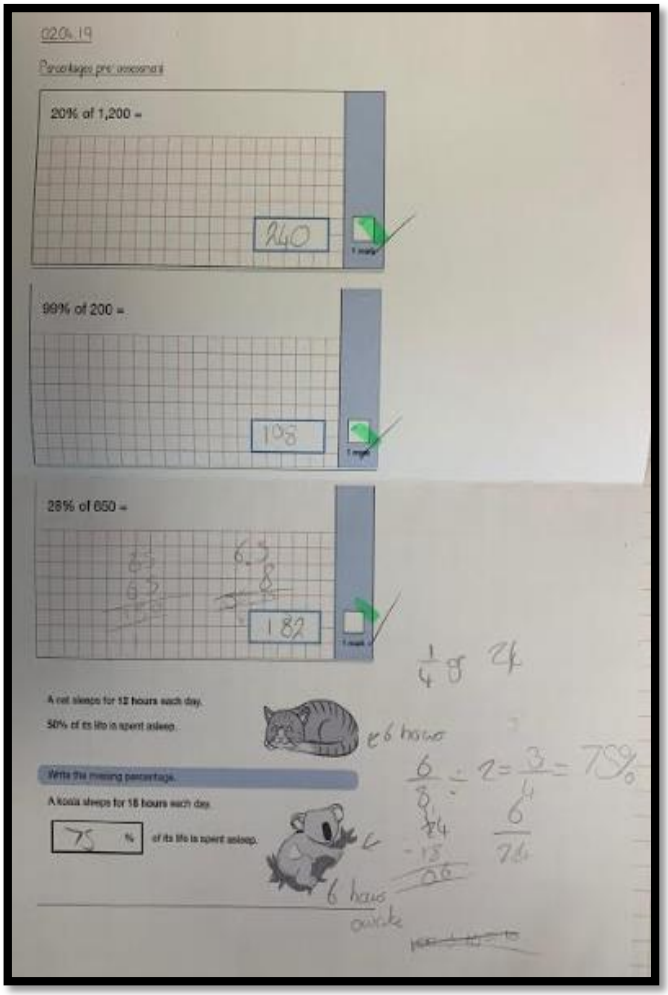
What number did Amy start with?

Show your method

Show how confident you feel.

Before After

What progress have you made?



02.04.19

Percentages pre: concerns

20% of 1,200 = 240

99% of 200 = 198

28% of 650 = 182

A cat sleeps for 12 hours each day.

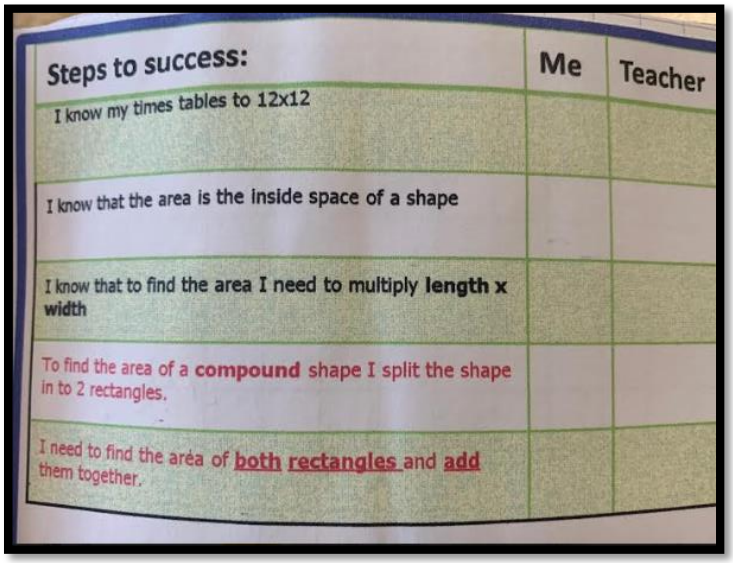
50% of its life is spent asleep.

Write the missing percentage.

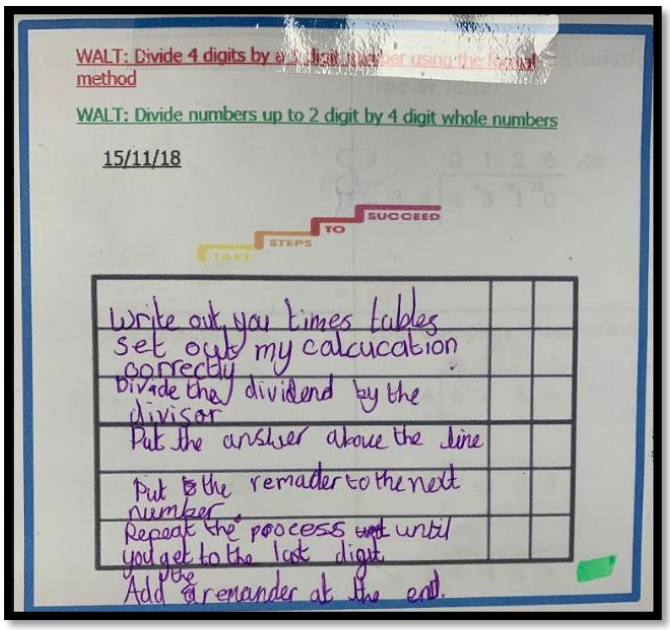
A koala sleeps for 18 hours each day.

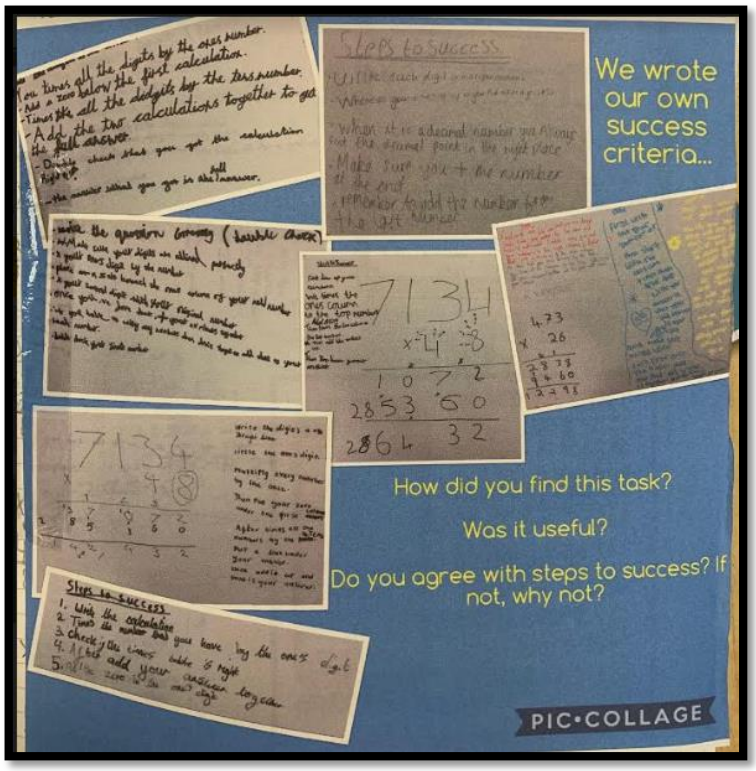
75 % of its life is spent asleep.

## Appendix 2



| Steps to success: | Me | Teacher |
|---|---|---|
| I know my times tables to 12x12 | | |
| I know that the area is the inside space of a shape | | |
| I know that to find the area I need to multiply **length x width** | | |
| To find the area of a **compound** shape I split the shape in to 2 rectangles. | | |
| I need to find the area of **both rectangles** and **add** them together. | | |




| Steps to success: | Me | Teacher |
|---|---|---|
| Know the value of each digit | | |
| Place the biggest number on top | | |
| Add zeros so that both numbers have the same amount of digits | | |
| Check the operation | | |
| Complete the calculation. | | |
| Check your calculation, using the inverse. | | |