Estcourt Primary Academy Mathematics Strategy

Rationale

Mathematics is a key aspect of the curriculum and along with reading, writing, speaking and listening, including oracy, it makes a significant contribution to the development of children as thinkers and learners. It is a central part of the academy's role that all children develop their mathematical ability and enjoy the process of cultivating this lifelong skill. At Estcourt, we aim to do two things; encourage and develop a lifelong love of maths, and to teach children to be fluent mathematicians who can reasoning and solve problems for a variety of purposes. This aims to ensure there is a rigorous and sequential approach to the teaching of mathematics, resulting in an embedded ethos of achievement.

Intent

We aim to:

- Nurture the children's sense of themselves as mathematicians
- Create an ethos of achievement in mathematics
- Ensure the delivery of Maths is filled with cross curricular opportunities.
- Ensure children are fluent in the number facts, including the times tables, and can apply this knowledge.
- Encourage children to use mathematical vocabulary to reason and explain, including using oracy skills, to show much deeper understanding
- Encourage children to become enthusiastic, confident and reflective problem solvers.
- Challenge children to stretch themselves and take risks in their learning.

Implementation:

Strategies for the teaching of mathematics

- The large majority of children progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention. The questioning and scaffolding individual children receive in class as they work through problems will differ and children who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further.
- At least one taught maths session is delivered daily, plus linked and continuous provision in the Foundation Stage. See appendix 1.
- A taught 30 minute arithmetic session delivered daily with the first 10 minutes dedicated to the teaching of age related times tables for the year group.
- The academy follows the structure of Same Day Intervention for Years 2 to 6.
- All maths sessions will have a clear objective-link to NC.
- A working wall should be visible in all classrooms with the non-negotiables displayed. See appendix 2.
- Current times table being taught in allotted timed to be displayed visibly in the classroom

- Opportunities for developing maths in the wider curriculum should be exploited wherever possible.
- Teachers will identify children who are working below or well below ARE (those with SEND) who will need support in addition to this session. This support may include interventions, pre-teaching or teaching objectives taken from a lower year group, depending on the needs of the individual.

Planning

Each class teacher is responsible for the teaching of Maths in their class. The following resources are an example of what is used to assist teachers with their planning:

- White Rose Maths Hub
- NCETM website and resources
- NRICH resources
- TestBase
- Delta Planning and Moderation Grids
- Master the Curriculum for Nursery and Foundation

Teachers in Y1-Y6 use the Long Term Plans Provided by the White Rose Maths Hubs to support with the sequential learning as well as vital coverage. These suggest what is taught when based on prior learning as well as how long it is taught for. See appendix 3.

Those in mixed year groups will used the Delta curriculum which aligns Whiterose objectives.

Session structure for Same Day Intervention:

Pre teach:

- A pre-teach will take place before every lesson. Teachers will identify a group of children who they will work with from prior assessment. These groups can be varied. The main aim of the pre-teach session is to ensure that children who may have gaps in learning which prevent them accessing the lesson are given the chance to be given prior teaching which provides them the same access to the lesson as others. There may be times when the teacher feels it more appropriate to work with a different group such as the most able.

The first session

- Around 40 minutes long
- Mixed ability seating
- Will always identify a link to prior learning.
- Teach-practice model of the I do, you do approach displayed via SMART Notebook where the objective is rehearsed and demonstrated by the teacher before being completed by the children in books.
- Higher order questioning will be used.
- First 3 questions will primarily focus on fluency and the 4th and 5th to focus reasoning style questioning becoming progressively more complex.
- Those children who are more able and can access the work independently without direct teaching are able to start Part A independently.

Between Sessions

At the end of the session, the teacher should have made appropriate formative assessments, which will enable the teacher to provide extra support for children who require it before the second session.

Creates the groups for the same day intervention:

SDI Bronze: Another set of fluency questions mirroring the questions from the first session.
Silver: Age related reasoning practice mirroring the questions from the end of the first session.
Gold: Age related Greater Depth focusing on problem solving.

The activities will be already be planned by the teacher on a planning pro forma.

The second session

- The session will take place after marking.
- The time between sessions will help demonstrate that the pupils have retained the learning from the first session.
- This session will be around 25 minutes.
- Teacher/TA works with SDI Bronze group to help them meet the LO through pictorial or concrete methods.
- Other teacher/ TA if relevant to assist and promote independence with the Silver and Gold groups. These groups work independently as can be on age related and deeper thinking tasks such as problem solving, investigations and reasoning activities.
- A diamond task should be provided for those children who have successfully completed Gold. This task is aimed to be more open ended and explorative. This task can go over a number of days for the children to complete.

<table>
<tr><td colspan="3">Session 1:
Teacher led using the I do, you do approach.
15 minutes</td></tr>
<tr><td colspan="3">Session 1:
Children completing questions independently.
25 minutes</td></tr>
<tr><td colspan="3">Between sessions:
Marking
15 minutes</td></tr>
<tr><td>Session 2:
SDI Bronze
25 minutes</td><td>Session 2:
Silver
25 minutes</td><td>Session 2:
Gold
25 minutes</td></tr>
<tr><td colspan="3">Diamond Task</td></tr>
</table>

Intervention

If the children have not fully mastered the second session, further intervention will be completed in an afternoon session taken by the TA or teacher if appropriate.

If certain pupils have clear large gaps at the end of the unit, they will be identified by the class teacher to take part in a Ready to Progress (R2P) intervention initiative brought in by the Department for Education (DFE). When this takes place, it is identified in books.

Year 1

- Maths in Year 1 is initially to be taught practically with fluency being the focus for questioning.
- Children who are secure within the fluency strand with be challenged with reasoning style questions when appropriate.
- Same Day Intervention is to be implemented when it is appropriate for the cohort. As a guide, pupils will have access to reasoning and problem solving through the provision in the autumn and spring term. As the year progresses, Maths will become more formalised and look more like Y2-6.
- For the majority of children, by the Summer Term, they will be exposed to the Same Day Intervention sessions to prepare them for Year 2.

Arithmetic

- Arithmetic is to be taught daily for 20 minutes post times table session.
- Teachers will use gaps in the four operations to inform sessions therefore as a result, these sessions do not need to be aimed at age related.
- Year 1 and Year 2 will start with practising questions based from the Year 1 arithmetic questions and will progress to Year 2 questions when Year 1 is fully mastered.
- Year 3 and Year 4 will start with practising questions based from the Year 2 arithmetic questions and will progress to Year 3 and Year 4 questions when previous year group questions are fully mastered.
- Year 5 and Year 6 will start with practising questions based from the Year 3 arithmetic questions and will progress to Year 4, Year 5 and Year 6 questions when previous year group questions are fully mastered.
- Teachers will complete a quiz based from appropriate year group, one day per week and will complete an informal QLA to inform which questions need to be practised by the whole class in the following week's lessons. This will be taught using the I do, you do approach.
- Arithmetic does not need to be recorded in books and can be completed on whiteboards.

Times Tables

- Times Tables are to be taught daily and for 10 minutes prior to an arithmetic session. If an arithmetic session is not happening that day, this can take place at what time is most suitable in the timetable.
- The current times table that is being taught in class is visible to all children in each classroom. This includes the division fact that is linked to the times table e.g. 3 x 4 = 12, 12 ÷ 4 = 3.
- The academy launched an EPA Times Table Approach (see appendix 4) that suggests which times tables are taught when and for how long for year groups Y2-Y4.
- Suggested examples of good practice of teaching times tables in the classroom are the following: a counting stick, rhymes and chants, timed tests, Hit the Button and Bingo/similar games.

- All children in Y2-Y6 will complete a times table assessment at the end of a half term including a baseline at the beginning of the year. This is a 60 question assessment linked to a specific times table and will include division facts also. These results are then recorded and monitored.
- The Trust will also complete a data collection half termly for Year 3, 4,5 and 6 linked to a similar assessment as the MTC.

Assessment

- Teachers in all year groups use Feedforward journals to record any assessment information during/after each lesson. This may include pupils who have not met the learning objective (Bronze) and any other individual/class gaps that have surfaced in a lesson-by-lesson basis. It also supports identification of pupils who will need access to R2P materials.
- Teachers in all year groups will the year group RAG document to assess children. Support for this can be seen in the Delta Moderation Grids.
- Teachers in Y2-Y6 will use the SDI approach to assess pupils in all lessons by identifying whether they should be on Bronze, Silver or Gold in the second session.
- Progress is monitored during RAG meetings which determines any interventions necessary for children who are a cause for concern
- Assessments are moderated at the end of a term using testing materials. These include past SATS papers, Maths Six Skills Tests and an example of an MTC.
- Teachers will also complete Question Level Analysis where necessary to inform their planning and teaching.
- EYFS continually assess their children in Maths using the EYFS framework.

Consistency in format and presentation

- All year groups will have Maths exercise books. There should be at least 4 pieces of written response by all children a week.
- When writing numbers, it is to be written as one digit per box. This includes any decimal points.
- All year groups are to use the same pro forma task sheet. See appendix 5.
- Some classes may be placing questions online.
- Questions should be listed in lower cased lettered form e.g. a, b, c.
- The learning objective should be evident at the top of all pieces of work.
- Size 8 Century Gothic font to be used for all typed work.
- The date will be written at the start of each piece of new learning for Y2 upwards. All year groups will write the short date.
- An arrow will be put under the Q on the 5 Qs sheet to show if a pupil needs to mark the answer on the sheet. If no arrow, the work is to be completed in the book.
- Task sheets should be stuck at the left hand side and working out should be completed on the right hand side. See appendix 6.
- The structure the SMART Notebook presentation should follow the format of vocabulary, 3 x I do, you do, deeper thinking question and a copy of the SDI Bronze, Silver and Gold tasks. See appendix 7.

Marking and feedback:

- Correct answers should have a clear green highlighter swipe through the letter; incorrect answers a clear green highlighter dot to the left of the letter.
- Learning objectives that have not been achieved should have a clear green highlighter dot to the left of it. Correct learning objectives should have a clear green highlighter swipe through the letters LO.
- The learning objective will be deemed to have been achieved if all of the fluency questions in the first session are correct.
- Correct parts of answers should be swiped green to show where the answer was correct for clarity for the child.
- For the second session, the question will be marked with the green swipe or dot (as stated above) and the words SDI Bronze, Silver or Gold will be swiped with a green highlighter if all parts of the question have been correctly.
- If children are self-marking, a purple square or purple dot is placed next to the answer. The teacher then checks the children' marking and if there are errors, will write VF, and follow up.

Homework

- Children will be given questions weekly to complete linking to prior learning in class. See appendix 8.
- The questions will be aimed at age related unless a child has a specific learning need and is on the SEN register.
- This is disseminated on a Friday via the online learning platform Seesaw with the expectation that it will be sent back and marked by the class teacher by the following Friday.

Appendix 1: Mathematical Development in the Foundation Stage

Mathematics in the Foundation Stage will be taught daily by teacher/adult-led sessions and through continuous provision.

Aim:

- The Foundation Stage aim is to support, foster, promote and develop children's mathematical development by providing opportunities for all children to develop their understanding of number, measurement pattern and space in a broad range of contexts in which they can explore, enjoy, learn and talk.

A stimulating mathematical curriculum is provided by:

- Planning a range of activities that promote mathematical development.
- Ensuring that the continuous provision in all areas of the Foundation Stage stimulates mathematical thinking thus embracing the notion of the hidden curriculum.
- Providing a range of extra curricula activities such as number and shape walks, shopping trips, baking and visits to the park.
- Developing mathematical thinking through spontaneous activities, all of which help to promote children's mathematical development.

Strategies for the teaching of Mathematics in the Foundation Stage include

- Planning the environment carefully so that children can initiate activities that promote the learning of mathematical skills and which can be extended.
- Planning activities that are purposeful.
- Planning games that give children opportunities to practice their mathematical skills and knowledge thus consolidating and extending their learning.
- Creating an environment where the children are confident and enthusiastic to join in with or talk about mathematical activities.

Appendix 2: Working Wall Example

Maths Working Wall Y2-Y6:

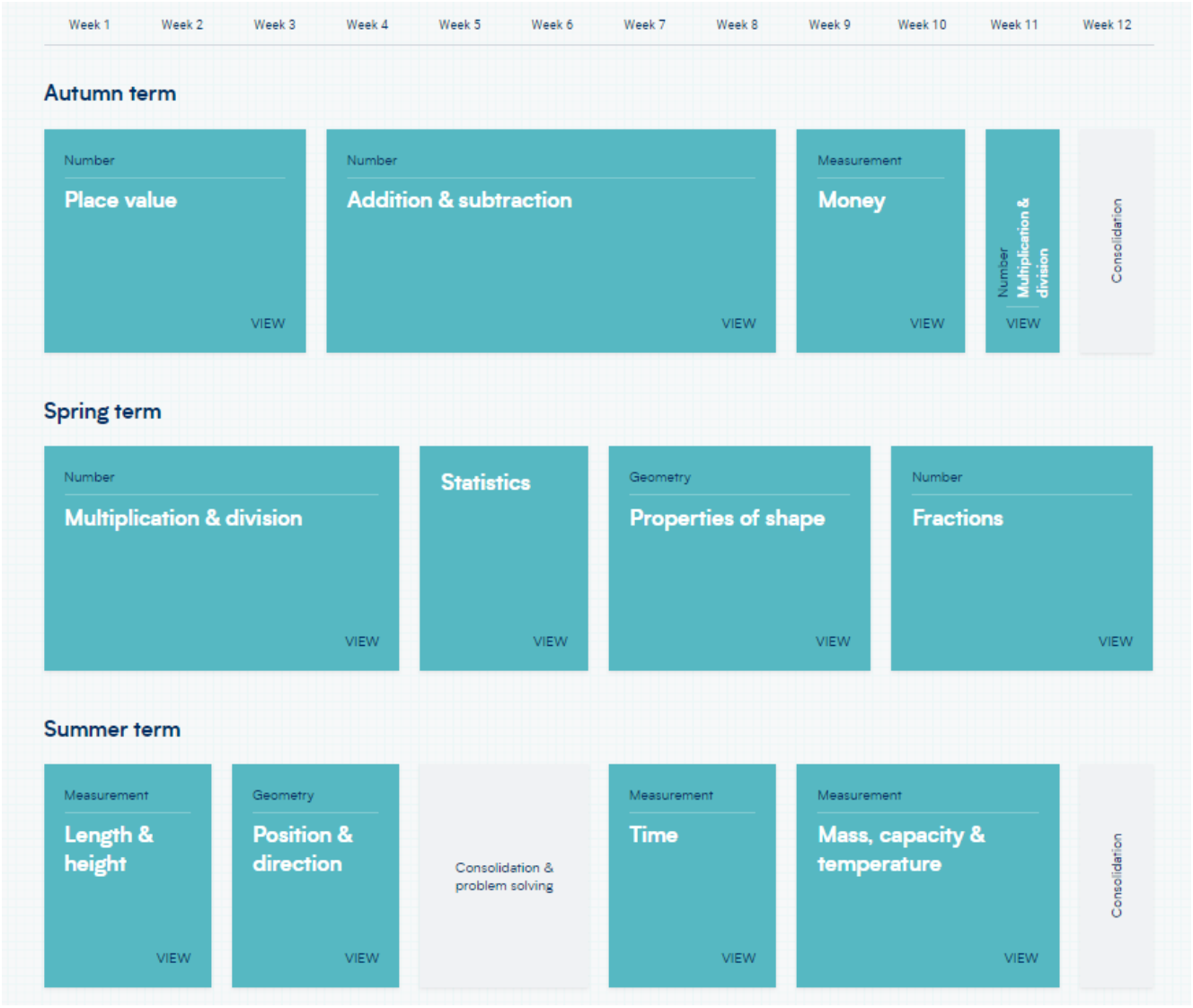
If you have a whiteboard in place, which is of suitable size, it is encouraged that you use this as your working wall.

MATHS

Four Operations	Today's Vocabulary	As Mathematicians, we are getting better at…
Inc. age expected methods to complete as well as different vocabulary.	Words from the unit you are completing along with visuals if appropriate eg. vertical – draw a vertical line **What comes in…?** Fill in the blank with current times table being taught. Times Tables making clear conceptual links to the real world.	Modelling linked to current learning

A counting stick with current times table being taught to go here please. In Y5/6 if TT are known well, this could be counting in fractions or decimals etc.

Appendix 3: Long Term Plan: Y2 example



#

Appendix 4: EPA Times Table Approach: Y2 example

Y1	
Day	Activity
1	Physical understanding. Manipulatives session. Numicon. Cubes. Base 10. What it actually looks like to see. Arrays. Reverse.
2	Verbal understanding. Chanting. Singing. Clapping. Counting stick. Reverse.

Y2/3/4	
Day	Activity
1	Physical understanding. Manipulatives session. Numicon. Cubes. Base 10. What it actually looks like to see. Arrays. Reverse.
2	Verbal understanding. Chanting. Singing. Clapping. Counting stick. Reverse.
3	Times Table Games and Tests inc. bingo, grids etc.
4	MTC PowerPoint of known examples.
*	TTRockstar session (1 x 30 minute session focussing on gaps)

Introducing a Times Table for the first time (or at least for the first time in a while!)

- It is important that pupils have conceptual understanding.
- How can they compare this to the real world?
- Link this to the display in your classroom e.g. 3 x times table could be triangles, three little pigs, Little Mix etc.
- Have pupils look out for groups of the times table that they are currently learning.

Y2

Autumn 1: x10

Week 1	1 x 10, 2 x 10
Week 2	5 x 10, 10 x 10
Week 3	3 x 10, 6 x 10
Week 4	4 x 10, 8 x 10
Week 5	7 x 10, 9 x 10
Week 6	11 x 10, 12 x 10

Autumn 2: x5

Week 1	1 x 5, 2 x 5
Week 2	5 x 5, 10 x 5
Week 3	3 x 5, 6 x 5
Week 4	4 x 5, 8 x 5
Week 5	7 x 5, 9 x 5
Week 6	11 x 5, 12 x 5

Spring 1: x2

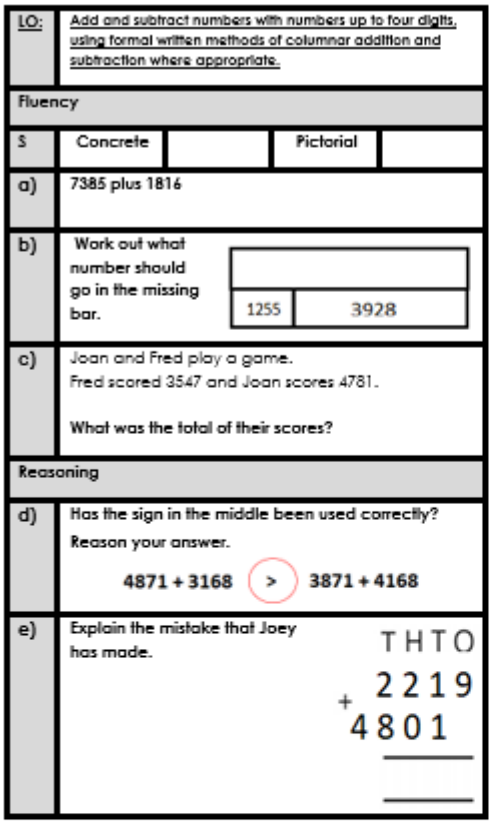
Week 1	1 x 2, 2 x 2
Week 2	5 x 2, 10 x 2
Week 3	3 x 2, 6 x 2
Week 4	4 x 2, 8 x 2
Week 5	7 x 2, 9 x 2
Week 6	11 x 2, 12 x 2

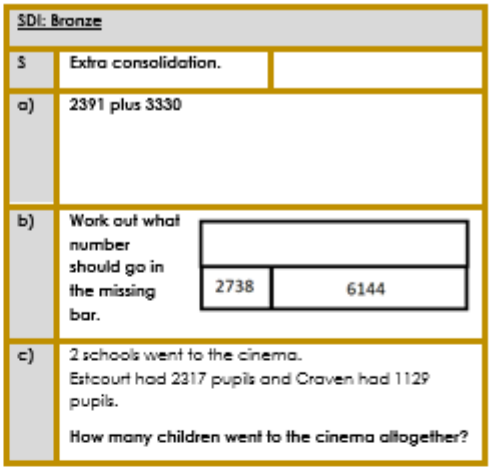
Spring 2: x3

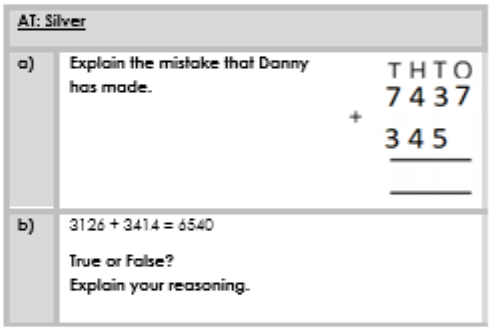
Week 1	1 x 3, 2 x 3
Week 2	5 x 3, 10 x 3
Week 3	3 x 3, 6 x 3
Week 4	4 x 3, 8 x 3
Week 5	7 x 3, 9 x 3
Week 6	11 x 3, 12 x 3

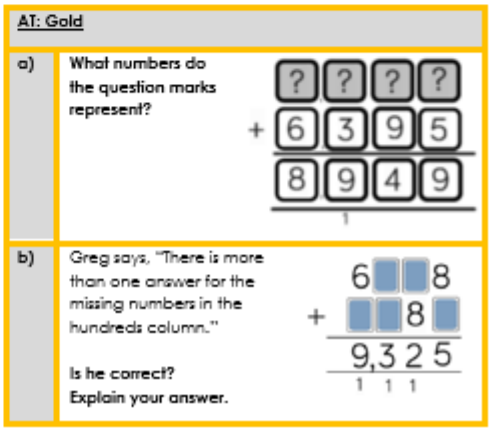
Summer Term: Plugging Gaps where needed using the same style approach.

Appendix 5: Task sheet Example







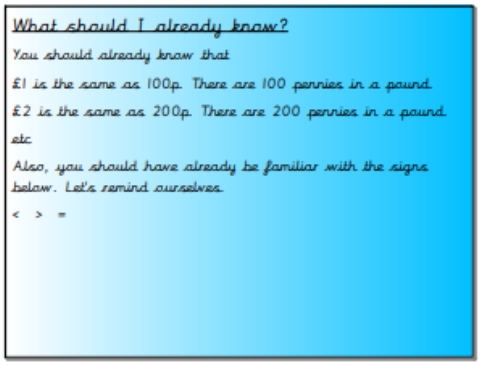


Appendix 6: Layout in Books

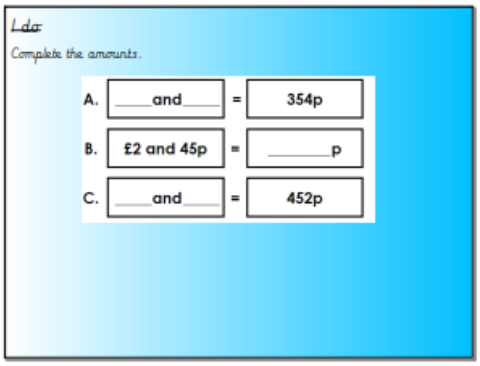
Part A Answers	Part A Workings	Part A Answers	Part A Workings
Part B Answers	Part B Working	Part B Answers	Part B Working

Appendix 7: SMART Notebook Example

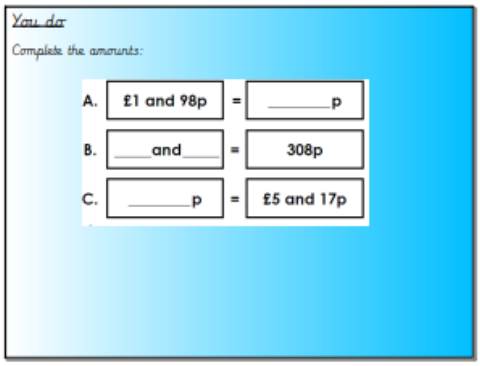
Sep 27-19:34



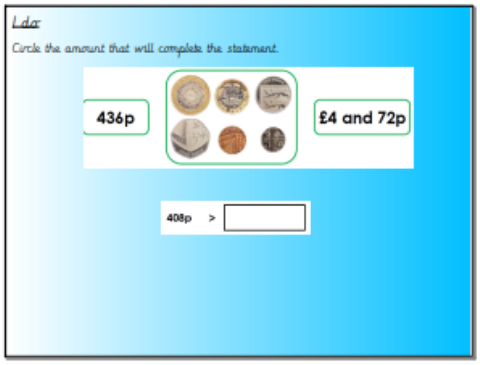
Sep 27-19:34



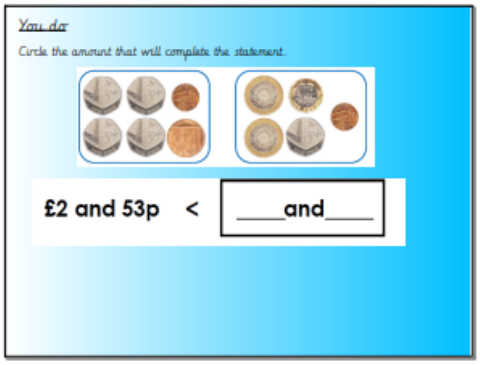
Sep 27-19:34



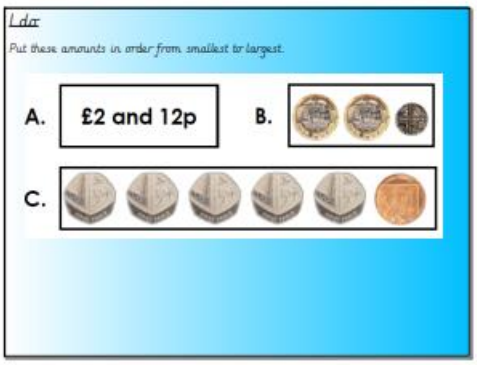
Sep 27-19:34



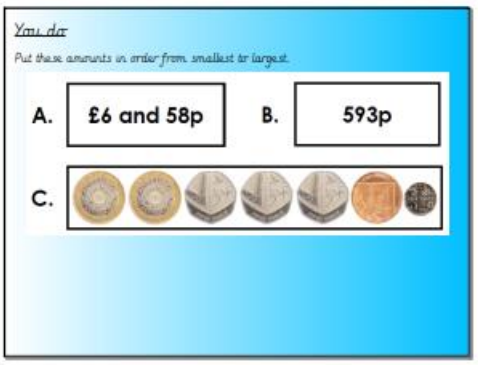
Sep 27-19:34



Sep 27-19:34

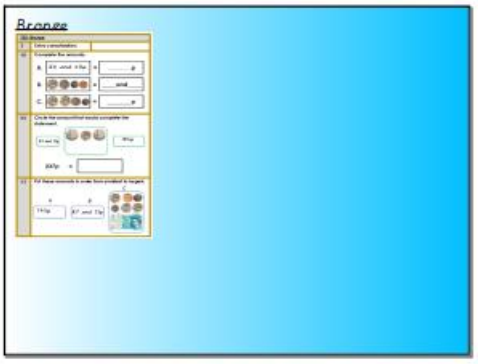


Sep 27-19:34



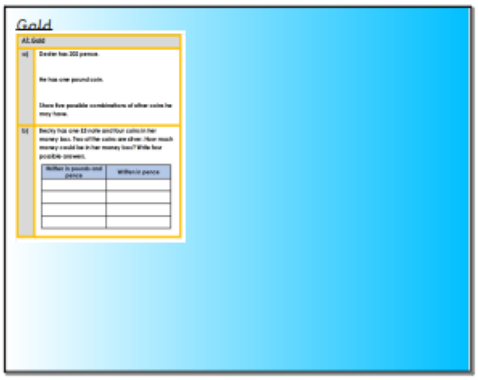
Sep 27-19:34

Sep 27-19:34



Sep 27-19:34

Sep 27-19:34

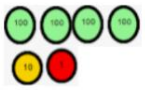


Sep 27-19:34

Appendix 8: Homework Example

Write the number shown in digits.

DELTA Estcourt

				
Three hundred and eighty six	Four hundred and twelve	One hundred and forty	Seven hundred and six	Five hundred and ninety nine