EFFECTIVE MATHS

YEAR 6 ARITHMETIC AND NUMBER FACTS REVISION PROGRAMME

About the *Effective Maths* arithmetic and number facts revision programme

The *Effective Maths* arithmetic and number facts revision programme is an **additional** series of mini-lessons for Year 6. The programme lasts eight weeks.
In 2017 this means that schools should start the programme in the week beginning 27 Feb.

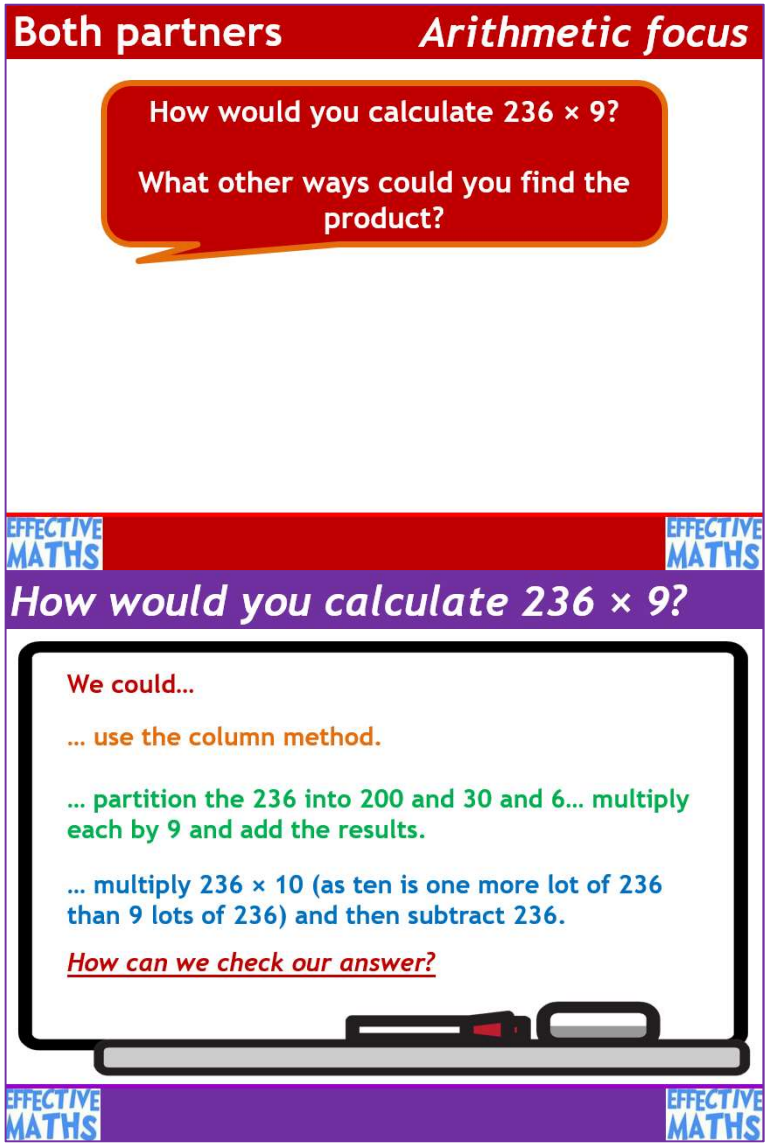
27-Feb-17					
06-Mar-17					
13-Mar-17					
20-Mar-17					
27-Mar-17					
03-Apr-17	**Easter Break**				
10-Apr-17					
17-Apr-17					
24-Apr-17					
01-May-17	Bank Hol				
08-May-17	Key Stage 2 SATS 2017				

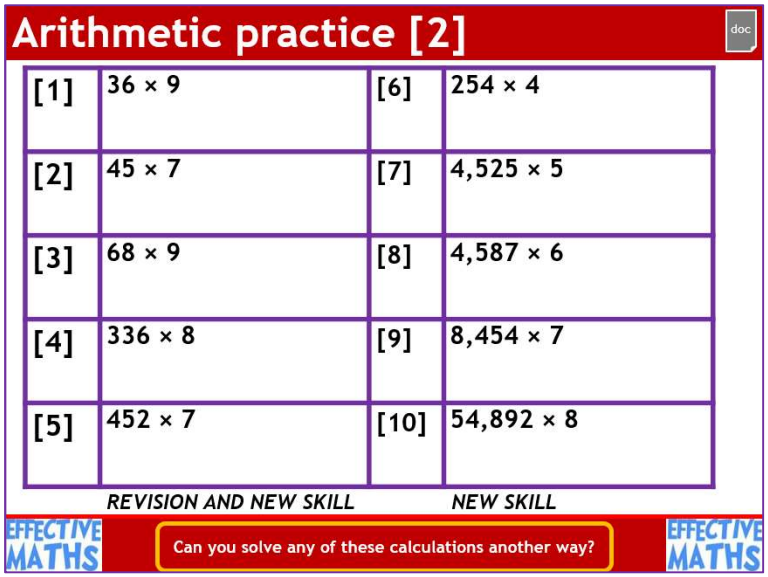
NB The Easter holiday is a week later for some schools.

As in all *Effective Maths* lessons, explicit demonstration and modelling by the teacher are essential. The two slides on the right are typical of how these additional lessons work. There is a one-minute discussion question (top right) followed by a teaching slide (bottom right).

Children may be involved in the teaching slide: for example, particular children might be invited to demonstrate the methods listed.

The teaching slide largely acts as a prompt for the teacher: the expectation is that the methods listed are modelled to the children in real life, not via slides. Children then work with a partner to complete the arithmetic practice section.





The programme aims to revise number facts and arithmetic in a structured manner. It does not replace the normal *Effective Maths* lessons, which largely focus on reasoning from now on. Remember that 64% of the marks are awarded for the reasoning papers:
Paper 1: arithmetic (40 marks)
Paper 2: reasoning (35 marks)
Paper 3: reasoning (35 marks).

However, ensuring children's success in the arithmetic paper is essential and a good range of strategies to tackle calculation are vital to ensure success in the reasoning papers.

The structure of each week is shown on the next slide. It would be sensible to share the structure with the children.

This is a new programme in response to demand from schools. The weekly lessons slides will be online the weekend before they are due to be used.

EFFECTIVE MATHS

Monday	Children are given a copy of **number facts** to revise at home for part 1 of the test on Friday. Children do some quick partner practice of the facts. The **arithmetic focus** for the week (or part of the focus) is introduced. Children will typically be asked how they would tackle a particular calculation. The teaching that follows then models a number of strategies for calculating the answer to the problem. Children then do **arithmetic practice** – ideally with partners, but on their own if this is what you feel is best. (As the weeks go by, the arithmetic practice will reflect the focus for the day as well as revisiting previous areas covered – the approach is cumulative.)
Tuesday **Wednesday**	Both days follow the same structure as Monday: • Number facts – partner practice • Arithmetic focus • Arithmetic practice – ideally with a partner *Note that the questions used in arithmetic practice reflect the arithmetic focus as well as revisiting previous areas covered .*
Thursday	• Number facts – partner practice • Arithmetic practice – with partner or independent. *Note that on Thursday there is no teacher input planned. If children do not appear confident in the arithmetic practice section of the lesson, then do extra teaching prior to the test on Friday.*
Friday	Test on the week's work and work from previous weeks.

EFFECTIVE MATHS

Make sure children have access to squared paper for all arithmetic practice.

EFFECTIVE MATHS

Recording children's marks is important. Where children are scoring less than 75% in the weekly test, think about the additional interventions necessary for those children.
Remember that the weekly test is covering areas just taught/recently taught. Expecting 75% is a minimum if teaching and day to day intervention have been effective.
One of the best forms of intervention is children having one-to-one 'tutorials' with an adult that has a good grasp of the required skills. These tutorials may be quite short – but they will have impact.
The table below comes from the Education Endowment Foundation's 'Teaching and Learning Toolkit'.

In terms of these lessons, the key points are:
[1] Let children work with partners as needed during the first four days
[2] Get worked marked quickly (children swap papers and mark) and give time for corrections
[3] Arrange one-to-one tutorials so that individual needs can be met in a focused manner
[4] Provide short amounts of time (through the number facts partner practice sections) for children to practise their weekly homework (number facts) prior to the test on Friday.

SUMMARY TABLE AND CONTENTS

Introduction and reader's guide: pages 3-6

Approach	Potential Gain	Cost	Applicability	Evidence	Summary	Page
Feedback	9 months	££	Pri, Sec, Maths, Eng, Science	★★★	Very high impact for low cost	12
Meta-cognition	8 months	££	Pri, Sec, Eng, Maths, Science	★★★★	High impact for low cost	17
Peer tutoring	6 months	££	Pri, Sec, Maths, Eng	★★★★	High impact for low cost	20
Early years intervention	6 months	£££££	Pri, Maths, Eng	★★★★	High impact for very high cost	11
One-to-one	5 months	£££££	Pri, Sec, Maths, Eng	★★★★	Moderate impact for very high cost	18
Homework	5 months	£	Pri, Sec, Eng, Maths, Science	★★★	Moderate impact for very low or no cost	13

EFFECTIVE MATHS

Overview of the *Effective Maths* arithmetic and number facts revision programme

27-Feb-17	**Number facts:** 9 × table and related facts **Arithmetic focus:** Multiplying and dividing by a one-digit number	
06-Mar-17	**Number facts:** 7 and 8 × tables and related facts **Arithmetic focus:** Multiplying and dividing using known facts; long multiplication	
13-Mar-17	**Number facts:** 6 and 12 × tables and related facts **Arithmetic focus:** Addition and subtraction	
20-Mar-17	**Number facts:** Any × tables **Arithmetic focus:** Decimals	
27-Mar-17	**Facts:** Equivalent measures **Arithmetic focus:** Multiplying and dividing by multiples of 10	
03-Apr-17	**Easter Break**	
10-Apr-17		
17-Apr-17	Facts: Equivalent fractions **Arithmetic focus:** Addition and subtraction of fractions	
24-Apr-17	**Facts:** Fraction/decimal equivalents; percentage equivalents **Arithmetic focus:** Multiplication and division of fractions	
01-May-17	Bank Hol	**Facts:** Equivalent times **Arithmetic focus:** Percentages
08-May-17	Key Stage 2 SATS 2017	

Detail of coverage linked to content domain from the KS2 maths test framework

Week 1: Multiplication and division

3C7 write and calculate mathematical statements for multiplication and division using the multiplication tables that pupils know

4C7 multiply two-digit and three-digit numbers by a one-digit number using formal written layout

5C7b divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context

Week 2: Multiplication and division

4C6a recall multiplication and division facts for multiplication tables up to 12 × 12

4C6b use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers

5C5d recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)

5C6a multiply and divide numbers mentally drawing upon known facts (Eg 1440 ÷ 12; 50 × 70)

5C7a multiply numbers up to 4 digits by a one or two-digit number using a formal written method

6C7a multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication

EFFECTIVE MATHS

Week 3: Addition and subtraction

4C2 add and subtract numbers with up to 4 digits
5C2 add and subtract whole numbers with more than 4 digits, including using formal written methods
6C9 use their knowledge of the order of operations to carry out calculations involving the four operations

Week 4: Decimals

4F8 compare numbers with the same number of decimal places up to two decimal places
5F8 read, write, order and compare numbers with up to three decimal places
5F10 solve problems involving numbers up to three decimal places
6F9a identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
6F9b multiply one-digit numbers with up to two decimal places by whole numbers

EFFECTIVE MATHS

Week 5: Multiplying and dividing by multiples of 10

6F9a identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places

Week 6: Addition and subtraction of fractions

4F4 add and subtract fractions with the same denominator 5F4 add and subtract fractions with the same denominator and denominators that are multiples of the same number 6F4 add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Week 7: Multiplication and division of fractions

5F5 multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

6F5a multiply simple pairs of proper fractions, writing the answer in its simplest form (eg half × quarter)

6F5b divide proper fractions by whole numbers

Week 8: Percentages

6R2 solve problems involving the calculation of percentages [e.g. of measures such as 15% of 360] and the use of percentages for comparison

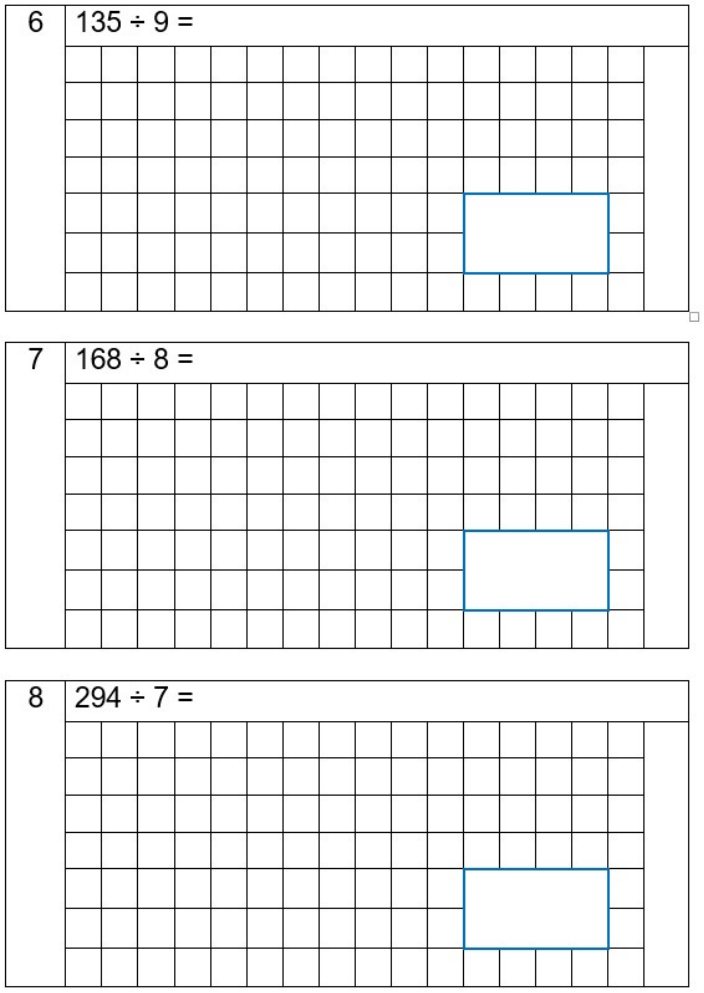
EFFECTIVE MATHS

Resources included

- A series of lesson slides for the week
- The number facts homework sheet to send home on Monday
- The weekly test to do on Fridays

The main point of the arithmetic revision programme is to provide a structure to revision and ensure that children are not simply completing one practice paper after another covering topics they have not recently revised.

The programme is cumulative: content taught and practised in week 1 is revisited in subsequent weeks.
The use of one-to-one tutorials is highly recommended for children who have not fully mastered particular skills.



Extract from one of the weekly tests

EFFECTIVE MATHS

First week of lessons online on 23 February 2017.

EFFECTIVE MATHS