Year 6 – Maths – Four Operations (3 weeks)

Key Vocabulary
Add
Total
Make
Plus
Sum
More
Altogether
Difference
Leave
Subtract
Difference between
Less
Minus
Take away
Mentally, Orally
Column Addition
Column Subtraction
Estimate
Inverse operation
Solve problems
Number facts
Place Value
Complex

WRM Scheme of learning here

Learning Objective

1. *multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication*
2. *divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context*
3. *divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context*
4. *perform mental calculations, including with mixed operations and large numbers*
5. *identify common factors, common multiples and prime numbers*
6. *use their knowledge of the order of operations to carry out calculations involving the 4 operations*
7. *solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why*
8. *solve problems involving addition, subtraction, multiplication and division*
9. *use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy*

Small Steps and Learning Objective links – *not necessarily a lesson*

1. Add and subtract integers *(LO 7,8&9)*
2. Common factors *(LO 5 & 8)*
3. Common multiples *(LO 8 & 9)*
4. Rules of divisibility *(LO 9)*
5. Primes to 100 *(LO 8&9)*
6. Square and cube numbers *(LO 8)*
7. Multiply up to a 4-digit number by a 2-digit number *(LO 1 & 8)*
8. Solve problems with multiplication *(LO 4 & 8)*
9. Short division *(LO 8 & 3)*
10. Division using factors *(LO 8)*
11. Introduction to long division *(LO 3 & 8)*
12. Long division with remainders *(LO 3 & 8)*
13. Solve problems with division *(LO 4 & 8)*
14. Solve multi-step problems *(LO 7 & 8)*
15. Order of operations *(LO 4 & 6)*
16. Mental calculations and estimation *(LO 6 &8)*
17. Reason from known facts *(LO 4 & 8)*

Unit Lesson Progression

Knowledge Harvest – must be marked – Gaps in prior knowledge must be addressed in lesson starters, morning work, assembly boosters.

Unit lessons (depends on children's understating & teacher discretion)
A typical lesson structure:

- *Fluent in five*
- *Timetable activity*
- *Recap previous day/prior learning linked to toady's task/FIT…*
- *Intended learning (today's learning)*
- *Common mis-conception (most will be picked up in LICE marking)*
- *Task – (four-part lesson)*
- *Teacher Deployment*
- *Test base lesson*

End of unit knowledge harvest followed by AfL.

Suggested useful resources

Practice it & Secure it	Deepen it & Explain it
• Class room secrets – varied fluency • WRM scheme of learning • Target Your Maths	• TestBase • Class room secrets –reasoning and problem solving • WRM scheme of learning

Year 6 – Maths – Four Operations (3 weeks)

Previous learning (year 5)	Intended learning (year 6)	Future learning (KS3) Number
add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentally with increasingly large numbers use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 multiply and divide numbers mentally, drawing upon known facts multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers 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 solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context perform mental calculations, including with mixed operations and large numbers identify common factors, common multiples and prime numbers use their knowledge of the order of operations to carry out calculations involving the 4 operations solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy	use the 4 operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals recognise and use relationships between operations including inverse operations use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property