Parents as Partners

Dear Parents,

This leaflet aims to give you guidance on what your child is doing in Mental Mathematics at school and ways in which you can support their learning.

At TEMIS we focus on developing students' mental methods and understanding before teaching written algorithms. Written algorithms should be viewed simply as an efficient way to record processes of which students already have a thorough understanding, rather than a rote method. This approach is supported by research conducted in a range of countries. See www.temis.iea.ac.pg for more information.

The daily Mathematics lesson in all grades involves a short mental starter, giving students the opportunity to develop and practise mental skills. Often the mental starter will involve games and discussion, with recording done informally on mini-whiteboards.

The ideas within this leaflet will help support the work which is already occurring in school. We recommend that you try to keep the sessions short (no more than 10 minutes) and most importantly FUN!

Should you have any questions, please don't hesitate to contact your child's teacher.

The TEMIS Team

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Grade 3

- Count on or back in 2's from any 2 digit number
- Recognise odd and even to 100
- Recognise two digit and three digit multiples of 2,5, 10 and 3 digit multiples of 100
- Say the number 1, 10 or 100 more ore less than any given two or three digit number
- Compare and order and position numbers on a number line to at least 1000
- Round any two digit number to the nearest 10, three digit numbers to the nearest 100
- Add 3 or 4 single digit numbers mentally
- Partition into 10's and units and then recombine. Eg 47+22 = 40 + 20+ 7+2 = 60+9=69
- Find a small difference by counting up eg 102-97
- Say or write a subtraction statement corresponding to a given addition statement and vice versa.
- Say or write a division statement corresponding to a multiplication statement
- Find half of a number using knowledge of doubles
- Read time to 5 minutes on an analogue and 12 hr digital clock
- Use everyday language to describe features of 2D and 3D shapes including hemisphere, prism, semi-circle, quadrilateral
- Find totals and work out change
- All pairs of multiple of 5 with a total of 100 eg 35+65
- Know by heart 2s,4's, 3's, 6's, 5s, 10s
- Derive division facts corresponding to 2's, 5's and 10's

Grade 4

- Round any positive integer less than 1000 to the nearest 10 or 100
- Recognise multiples of 2,3,4,5 and 10 up to the 10^{th} multiple
- Count forward and back in steps of any constant size from any given number
- Derive quickly all number pairs that total 100
- All pairs of multiples of 50 with a total of a thousand
- Find a small difference by counting up e.g. 5003 -4996
- Partition into 10's and units adding the 10's first.
- Add or subtract the nearest multiple of 10 and adjust
- Derive quickly doubles of all whole numbers to 50 and corresponding halves
- To multiply by 4 double then double
- To multiply by 5 multiply by 10 and halve
- To multiply by 20 double then multiply by 10
- Multiply by partitioning eg 23x4 = 20x4 + 3 x4
- Read time to the nearest minute on analogue and 12 hr digital clock, using am and pm
- Use everyday language to describe features of 2D and 3D shapes including heptagon, tetrahedron, equilateral and isosceles triangles
- Explain how a problem was solved
- Choose the correct operation to use in a range of problems
- Derive quickly all number pairs that total 100
- Know by heart 2s,3s,4s, 5s, 10s
- Begin to know 6s,7s,8s,9s

Activities which improve mathematical thinking

- Card games. Most card games require collecting totals, matching or remembering numbers that have gone before. They are excellent practice for mental arithmetic.
- Dice games.
- Board games. Again these are excellent, the buying of items or giving of money often helps with understanding larger amounts, up to millions! There are also many simple two-player games of strategy, which involve logical thinking and working out a winning strategy – all good maths!!
- Battleships' is a fun way to use graphs.
- Talk about pocket money with your child. Help him/her add it up week by week, and work out whether s/he can afford a particular toy or treat. Shop using money and calculate change.
- Think about time. Look at clocks, both digital and analogue. Estimate how long a certain activity will take to do and see if you are right! Work out how long it is until the next mealtime.
- Think about calendars and dates too. Make a timeline that includes the birthdays of each member of the family and work out how far apart each one is. Use different units: months, weeks and days, even hours, minutes and seconds. Add other important events, such as a family holiday, and encourage your child to count down to the big day.
- Cooking is great for helping your child get to know simple weights and measures. It is a good way to introduce the idea of ratios and proportions, too. Bear in mind that your child will be learning the metric system at school, so try to measure amounts in grams and kilograms.

Remember ...

Mathematical Talk

Throughout all grades, students are encouraged to learn and use the language of mathematics. It should be remembered that many words have a different meaning in mathematics to every day situations; eg odd, take away. Asking children to explain their ideas and talk about maths has many benefits:

- Helps students to develop their understanding and clarify their thoughts
- Encourages reflection and recall
- Builds students' confidence
- Develops a sense of ownership
- Reveals how much children understand

Attitude Counts

Your feelings will have an impact on how your child thinks about mathematics and themselves as mathematicians. Positive attitudes about maths are important for your child's success.

Problems can be solved in different ways

Some problems may have only one answer but there are often many different ways to get to it. Your child may solve a problem differently to you. For example
12 + 14 can be solved by saying 12 +4 = 16 and 10 more is 26 or by saying 12 +10 =22 and 4 more is 26. Both methods reach the correct answer. Ask your child to explain their method. Be prepared to share your method in a positive way.

Wrong answers can help

Wrong answers help show you which ideas your child is not sure of. Talking through these problems give you the opportunity to explain the ideas or practise the skill.

Mental Maths

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A guide for Middle Primary Parents (Grades 3 and 4)