Helping your child with Maths – games and FUN!

Helping with Maths at home can often be an issue… we've all been there, tears and frustration and your children aren't happy either! The key is to try to make maths fun and games are the best way! Maths really is all around us and we hope that the following ideas might help stimulate some Happy Maths in your house!

Golden Rules

- DO give LOTS of praise. Resist the temptation to point out mistakes every time a child does a 'sum' wrong. Children need encouragement to be confident, and a confident child makes a better learner.

- DON'T push a skill, especially if a child is becoming confused or is feeling pressured. It pays to talk to the teacher if you feel your child is not understanding something, rather than confuse them further by teaching them in a different way.

- DO play games! Dice, dominoes, track games and cards all make excellent excuses for using applying our number skills. The evidence shows that children who play games do better at maths!

- DON'T force workbooks on your child. They will do plenty of writing in their maths books at school. At home, it is great to help them memorise number facts and to practise doing simple calculations in our heads as we need them!

- DON'T stress written calculations laid out as you used to do them! Nowadays it is the development of what we call 'numerical fluency' that counts. Children need to be comfortable with numbers, to understand how they work and to be confident in doing mental calculations.

Some practical ideas...

Practising number facts
- Number bonds to 10, 20, 100, Times tables, Doubles etc:
    o Practise through games.
    o Can the children beat you?
    o Play ping pong: eg for number bonds to 10, you say 4, they need to say 6 and so on.

- Throw the dice: throw two dice.
    o Can the children add the numbers?
    o Multiply the numbers?
    o Find the difference between them?
    o Recite the times table for that number?
    o Can you do it faster?

- Playing cards:
    o Just playing cards is good maths practice – 21s can be played as any total!

- o Or challenge them to a two minute game: you turn over two cards and they must add/multiply/find the difference etc. If they are right they keep the cards. After two minutes how many cards have they got?
- Give your child an answer. How many maths questions can they come up with to fit the answer?
- Start with a fact, eg 5 + 3 = 8. Over a few days try together to compile as long a list as you can of further facts that derive from the first one, eg 8 – 5 = 3, 300 + 500 = 800 etc

Practical problems
- Shopping:
  - o the cost of a meal.
  - o An estimation of the total cost of the shop.
  - o Change from a note.
  - o Percentage off or extra…

- Holidays and trips out.
  - o Work with your child on the timetable.
  - o How much petrol, how many miles, can they convert that to kilometers?
  - o How long will it take – what time will you get there?
  - o Lots of games to play on the way… adding number plates, making a tally of car colours or makes, predictions of speed and time.

- Watching TV!
  - o How long does the programme last?
  - o What is the average number of adverts in the breaks?
  - o How long do they spend watching TV each day… in a week… a month… a year… in their lifetime…

- Cooking
  - o Pricing the meal/recipe and change from ten pounds etc
  - o Weights and measures – accuracy but also estimation, what does 500g actually look like and feel like?
  - o Ratio and proportion – scaling a recipe up or down for more or less people…

Additionally, here are a number of specific ideas for all ages

Activities using a number line

Number detective
You will need
Nothing except the number line!
- Tell your child to pick a number on the line but not to tell you! They should write it down - to prevent cheating!
- You are going to guess their number by asking questions.
- They can ONLY answer 'yes' or 'no' to your questions.
- You have to try to guess their number in three questions or less!
E.g. You play like this:

- Your child chooses '7' but does not tell you!
- Your first question: Is your number further along the number line than 5? (Your child answers 'yes' or 'no'. If it is '5' they still say 'no'.)
- Your second question: Is your number an even number? (Now your child answers 'yes' or 'no'.)
- Your third question: Is your number written with only curly lines? (Now your child again answers 'yes' or 'no'.)

Keep playing like this until you have guessed their number.

- Then give your child a turn to guess a number which you have thought of. (You may need to 'assist them' with the questions!)

NB For the first few times you play this, you may need to guess your child's numbers, rather than the other way around. It is thinking of the questions that's hard!

Which two?

You will need

Raisins, biscuits or other snacks

- You choose two numbers.
- You add these two numbers and write the total.
- Show your child the total.
- They have to guess what two numbers you chose.
- If they guess wrong, you get a raisin.
- If they guess right, they get a raisin.

E.g. play goes like this:

- You write 7
- They guess 3 and 4.
- You say 'no!' and you eat a raisin.
- They guess 6 and 1.
- You say 'yes' and they eat a raisin.

Now they choose two numbers, add them and write a total.

- You try to guess the two numbers they chose.
- Play continues like this. Who eats most raisins?

NB Encourage your child to try to say the total without working it out!

Ten more

You will need

Nothing except the number line!

- Decide who will have a turn first!
- That person writes down a number. They do not show the other person! E.g. Your child writes 7
- They then add ten, and write the new number, e.g. 17.
- Their partner then points at a number on the line, e.g. 3 and says the number ten more, e.g. 13.
- The first person must say whether the secret number they have written is larger or smaller than the number spoken. E.g. You say 13 so the child says, 'larger' because their number (17) is larger than 13.
- You then try another number on the line, e.g. 5, add ten and say the total, e.g. 15.
- The child says 'larger' or 'smaller', according to whether their secret number is larger or smaller than the number you have just said.
- Keep playing like this until you have guessed their number.
- Then you have a turn at writing a secret number which they have to guess.

NB For the first few times you play this, your child can write the number and have you guess, rather than the other way around. It is the adding 10 that is hard!

What total?

You will need

Some raisins

- Ask your child to choose a number on the line that is larger than 4 but to keep it secret. They write it down – without you seeing!
- You say two numbers, e.g. three and two.
- They add these two numbers and say the total, e.g. 5.
  - o   If the total is the same as their number, they must give you a raisin!
  - o   If the total is not the same as their number, they get to take a raisin.
- Assuming you have not yet guessed their number, play again.
- Say another two numbers.
- They add these numbers and say the total.
- Play continues like this until you have guessed their number!
- Now you write down a secret number and they have to choose two numbers to add.
- Continue playing like this!

NB This activity is designed to help your child to add two small numbers. Encourage your child to start with the larger number and to find it on the number line. They then move their finger along the number of spaces indicated by the smaller number.

One more, ten more

You will need

A coin

- You and your child each choose a number on the line.
- You each write your number.
- Take turns to spin a coin.
- If it lands 'heads', say the number one more than your number.
- If it lands 'tails', say the number ten more than your number.
- If you are correct in the number you say then you can score ten points!
- Now each person chooses a new number.
- Spin the coin, and play again.
- Keep playing like this until one of you has more than 100 points!

NB Saying ten more should not really be any harder than saying one more. Encourage your child to see that ten more often takes us to a 'teen' number!

Three in a row!

You will need

Paper and felt-tips

- You and your child both draw a 3 x 3 grid on your page.
- Take turns to choose a number from the line.
- You each write the number somewhere on your grid.
- Choose another number each and repeat the process.
- You are both trying to make rows or columns which add up to ten!
  E.g. 3 + 2 + 5 or 4 + 5 + 1 or 3 + 3 + 4.

- You continue taking it in turns to choose a number from the line and write it on your grid.
- When you have each chosen nine numbers and your grids are full, look at each other's.
- Each person scores 10 points for any rows and any columns which add up to 10!
- Play again and try to do better!

NB Encourage your child to plan ahead. 'If I choose a 3 that will make this row add to ten!' This is mathematical reasoning

Folded paper holes!

What to do…

- Fold a piece of paper in half.
- Draw two straight lines that meet against the folded edge. See the example below.
- Cut along the lines and then open out your paper.
- What shape is the hole? Is it a shape you know?
- Do this again and try to make a shape which doesn't have 4 sides.
- Can you make a square, an oblong? How about a triangle?
- Remember you can only cut two straight lines!

Telephone Keypads

What to do…

- Look at someone's mobile phone key pad.
- Write down 2-digit numbers that you can see, e.g. 12 or 56 or 78.
- How many of these can you write?
- Write these down in a list starting with the smallest then go up to the largest
- Which two 2-digit numbers are the closest together?
- Can you find 3 single digit numbers that add up to make 15 e.g. 1 + 9 + 5?

Chain Mail

What to do…

- Work with your child to create a chain each. Here's how!
- To start write a 2-digit or 3-digit number.
- If it is odd, multiply it by 3 and add 1.
- If it is even, halve it.
- Keep going like this, until you go round in a circle.
- Create one chain each and then try another and then another.
- Compare about ten chains. What do you notice?
- Who created the longest chain? The shortest chain?

Durer's magic square

What to do…

- Copy the square.
- Somehow you have to fit each of the numbers 2-9 on the square in such a way that:
  - Every row adds to 34
  - Every column adds to 34
  - Each diagonal adds to 34
  - The four central squares add to 34

16			13
	10	11	
			12
	15	14	1

- When you have succeeded in this (!), try adding the four corner squares.
- What about the sum of the four squares making up each corner of the square?
- Finally try adding the pairs of adjacent (next-door) numbers in each row!

I'm thinking of a number…

You will need:

A hundred Square

- Take it in turns to choose a number from the hundred square – but don't tell your partner what it is!
- The person choosing gives the other player clues to try and guess the number they are thinking of. For example, less than 25, odd, rounds to 20 etc.
- Using the clues the other player should try and guess the number.

Remainder Scores

What to do…

- Use six mixed 2p and 1p coins placed in a mug
- Tip these out of the mug.
- Add up the coins that land heads up, e.g. 2p + 2p + 1p = 5p.
- Choose a number from one of the circles below.

(124) (99) (150) (111)

- Divide this by the amount in heads, e.g. 124 ÷ 5 = …
- Score the remainder
- Repeat this six more times and then add up all the remainder scores.

Higher or Lower

You will need:

Paper and pens

- To begin select the upper and lower number limits, eg between 10 and 100.
- One player selects a number and records it on a piece of paper.
- The other player/s guess what they think the number might be.
- For each guess the first player tells if the chosen number is higher or lower.
- Play continues until the number is guessed.

This game can also be played in more advanced varieties to develop skills in ordering larger numbers, decimals or fractions. See the examples of more advanced games below.

- 3 digit number between 300 and 600 (eg 345)
- 4 digit number between 2000 and 4000 (eg 3027)
- number with 1 decimal place between 6 and 9 (eg 7.3)
- number with 2 decimal places between 4 and 5 (4.87)
- fraction with single digit numerator and denominator, between 0 and 1 (e.g. 4/5)

Jumbled Operation

You will need:

Paper and pens

- Simply give a jumble of numbers and signs for kids to unjumble, e.g. X = 1, 2, 3, 7.
- Children then work out a sensible number sentence that uses each sign and digit, i.e. 3 X 7 = 21.