A Pirbright Guide to Helping Your Child with Times Tables and Number Bonds

Maths is a subject which is fun, challenging, rewarding and useful throughout adult life. However, children can also find it difficult, confidence sapping and frustrating. For children to succeed in maths, they need to learn a range of strategies for calculating and learn how to apply these to the problem in hand.

The foundation on which these skills are built is quick recall of mental maths facts. When children are secure in their mental maths knowledge, their all important confidence improves, allowing them to take on new concepts and ideas more readily. As such, at Pirbright we view mental maths as of the upmost importance in every child's development. However, we also know that finding ways to make learning these facts fun can be tricky. This guide aims to give you a variety of tips, tricks and games which you can try out at home to make the challenge of learning essential number facts a fun and exciting prospect for the whole family.

Times Tables Tricks

The first thing to remember is that multiplying works both ways, so it is sometimes easier to turn the problem round. If you don't know 6x3, try 3x6!

Don't forget the division facts!
The children don't really know their tables until they know all the division facts too. For example, 3x4 = 12. So 12 ÷ 3 =4 and 12 ÷ 4 =3

2's – just double the number!
10's – always end in a zero
5's – always end in a zero or five
9's – the digits of the numbers in the nine times table always add up to 9 or a multiple of 9. Try it out!

Another clever trick is to use your fingers to work out the nine times tables as shown in the picture.

Doubling is a great way of using the tables you know to work out the tougher ones.
eg. double your 2's to get your 4's and then again to get your 8's.
Double your 3's to get your 6's

Use the easier tables to work out the harder ones:
For 6x, do 5x and 1x and add them together!
For 7x, do 5x and 2 x and add them together!
For 8x, do 10x and take 2x off!
For 9x, do 10x and take 1x off!

Zero times anything is zero!

Activities for Learning Times Tables

Write them out!
There are tonnes of fun ways to learn your tables out there and we encourage you to use as many different ways as possible to keep it interesting. However, there is still a place for practising writing them out, so don't forget it when planning your varied mental maths work out – it works!

Chant it!
Counting out loud, backwards and forwards, has been researched and proven to be a powerful aid in learning times tables. You could do it in different voices or add dance moves - The Macarena works well!

Play Fizz Pop
Extend your counting by counting in ones but every time you get to a number in the three times table, say fizz. Extend by using pop for the 5's. Mix and match the tables your child is learning to make this different each time and keep them thinking. Will they be good enough to play fizz, pop, bang, wallop?

Sing it!
Our brains have an incredible ability to remember words when there is a melody behind them. There are lots of times tables songs out there which make use of this. If none of those seem to work, why not try making up your own!

Quiz it!
Write out quizzes, fire questions at them out loud, or use one of the websites listed in this document to find ways of testing your child. Identify the ones they struggle with and make sure to include these ones more often. Don't forget the division facts!

Draw a Grid

Draw a grid with numbers along the top and left hand edge. Ask your child to complete the grid by multiplying the row number by the column number and filling in the appropriate box. Mix up the numbers to make this more challenging.

X	3	6	9	7
8				
5				
2				

Make a Poster

times tables posters are available from a huge number of shops these days and there is certainly value in children constantly seeing their number facts. Why not ask your child to make their own version? They are more likely to look at it if they made it and they learn by making it in the first place!

Play Bingo!

Bingo is a simple game which needs very little equipment to play. Just get your child to choose from a variety of numbers and act as the bingo caller by asking questions. If they have the answer, they cross it out.

Play Pairs

Make some question and answer cards for all of the times tables that your child is learning. Ask your child to match the question card with the answer card. Once they seem to know them, turn them over and play memory pairs with them.

Make Flashcards

Help your child to make some flashcards with times tables and division questions on. Now test them – can they beat their record their record time?

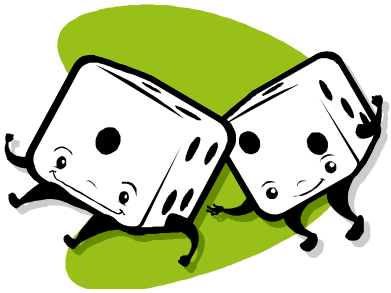
Use Dice

Take it in turns to roll two dice.

You score a point for correctly saying a number sentence about the 'product' of the top numbers. e.g. "*Four times 2 equals 8*."

Extension - You score a point for correctly using the dice in one each of addition, subtraction, multiplication and division. So if you roll a 3 and a 6, you could say:

3 + 6 = 9
3 - 6 = -3
6 – 3 = 3
3 x 6 = 18
3 ÷ 6 = 0.5
6 ÷ 3 = 2



(This is the best possible case; it is not always possible to make 6 different calculations with different answers, so score a bonus point if you manage it.)

Play Fingers!

A game that can be done any time, any place, anywhere! This game is similar to 'Roll Two Dice' but can be done with an element of competition if required. It is designed to encourage rapid recall of multiplication tables in a fun way.

You and your child each put a hand behind your back. Secretly extend between 1 and 5 fingers. Say "Ready Steady GO!" and both of you must bring the hand out in front of you.

Each of you must now call out the product of (*i.e. multiply together*) the number of fingers on each hand. For example, if you show 2 fingers and your child reveals all 5, you must both quickly call out "TEN"! The winner writes down one letter from the word "FINGERS (in sequence)", and the first person to write down all six letters is the winner of the whole game.

If your child is not confident with their tables, do not make it a competition – simply give your child a letter for each time they get it right and see if they can get to spell FINGERS with a specific time limit.

Extension - You and your child each put both hands behind your back. Secretly extend between 0 and 10 fingers.

Fantastic 4

Give your child a multiplication fact. Can they come up with the other 3 related facts to complete the fantastic 4?

For example: 3x4 = 12, 4x3 = 12, 12÷4 = 3, 12 ÷ 3 = 4

Gimme 5!

An extension of the game above, but now your child needs to come up with another two facts in the form of fractions. For the example above, these would be: One third of 12 is 4 and one quarter of 12 is 3.

Six of the Best

One step up from 'Gimme 5',this is a great game for reinforcing the bonds between multiplication, division and fractions. Choose any set of 3 numbers from the list below:

2,7,14	4,6,24	12,4,48
3,6,18	3,8,24	12,4,3
3,5,15	2,20,40	4,20,80
4,5,20	2,20,10	15,60,4
6,7,42	3,9,27	9,72,8
3,12,36	50,10,5	63,7,9
2,5,10	7,5,35	13,52,4
3,20,60	40,8,5	10,100,1000

Once you have exhausted this list, make up some trios of your own.

Your child must give you the six number facts relating the three numbers together. For example, if you chose the first set, the six facts are:

"Two times seven is fourteen."
"Seven times two is fourteen."
"One half of fourteen is seven."
"One seventh of fourteen is two."
"Fourteen divided by two is seven."
"Fourteen divided by seven is two."

Speed Cards

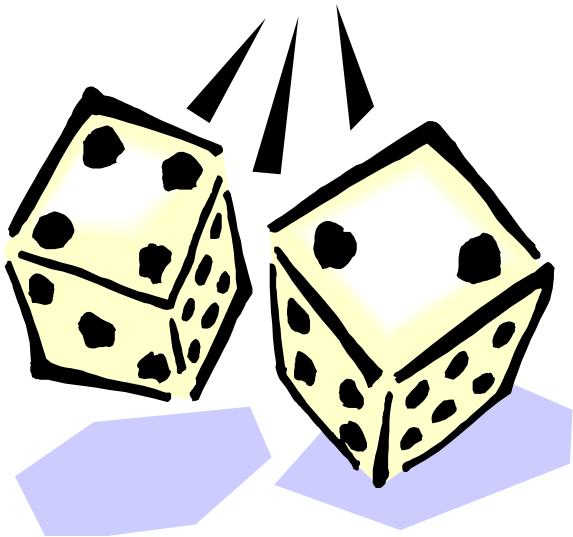
Take out the picture cards and jokers from a pack of cards. Take it in turns to turn over two cards at random and multiply the numbers. If you get it right, keep the cards. If not, put them back. How fast can you get through the pack?

Activities for Practising Number Bonds

Many of the activities and resources mentioned above will also work for number bonds, so feel free to adapt the ideas any way you can.

Use dice

Take it in turns to roll two dice.



You score a point for correctly saying a number sentence about what the two numbers add up to (e.g. "*Four plus 1 equals 5*")

Why not score a bonus point if you can work out the 'difference'. (In our example, "*Four minus 1 equals 3*")

Extend by using four dice – two for each number!

Bonds Snap

Find a pack of cards and remove all the picture cards. There should now be forty cards left: four aces, four twos, etc.

Starting with 20 cards each, take it in turns to turn over and deal a card. If both top cards add up to ten, shout 'SNAP'! The first person to shout it

correctly wins all the cards on the table. The winner is the first person to collect all the cards.

If they are ready, why not play bonds to 9 instead? Or 11?

Count On & Count Back

Counting is incredibly powerful and also helps children when it comes to multiplying and dividing.

This is an easy game for two players which needs no equipment at all. One of you chooses a number from the first column (the size of jump), and the other chooses a number from the second (the starting number).

Taking it in turns, you must say the next number in sequence.

So, if you chose to start with jumps of 2, and your child chooses to start at 7, the conversation would go (hopefully):

You: “7”

Child: “9”

You: “11”

Child: “13” etc.

Stop when you get up to 50, or whenever you feel that your child is struggling, and swop roles. Repeat this until you have got to 50 at least 5 times.

To play ‘Count Back’ start on a number around 50 and count back until you get to zero (or below!)

Use Dominoes

Similar to cards and dice, dominoes are great for generating numbers to add or find the difference between.

Play Fingers!
Exactly the same as the multiplication game (see above), but this time you add the numbers. For an extension, try finding the difference!

Play Shut The Box
Another game with two dice. Both write out the numbers from 1 to 9. Take it in turns to roll the dice and add them up. Cross off the total, or if you prefer, cross off any two numbers that make the total, or indeed any two numbers that make the total.

So, if you roll 3 and 4, you could cross off 7, or 2 and 5, or 1 and 6, or 3 and 4. Assuming you can cross off two numbers (or their total), you can roll again.

The aim of the game is to cross off all your numbers before becoming stuck, at which point play passes to your opponent. Once you have both become stuck (or succeeded), your remaining numbers become your final score – the aim is to have as low as score as possible (preferably zero!)

So, a player whose card looked like this at the end would score 237.

~~1~~ 2 3 ~~4~~ ~~5~~ ~~6~~ 7 ~~8~~ ~~9~~

Shopkeeper
Practise those all important adding and subtracting skills in a real life context by setting up a little shop.

Speed Cards1
This can be played in the same way as the multiplication speed cards, either adding or finding the difference between the two numbers.

Speed Cards 2
This is a good one for the more competitive mathematicians! Remove the picture cards (jacks, queens and kings) and all the black cards from a pack. You are left with the ace to ten of hearts and diamonds. Shuffle these then deal one face up. Deal the next card on top and your child has to add it on mentally and say the total out loud. Repeat until every card is dealt. You should finish on 110 if all calculations are correct. How fast can they do it?

Extend this to taking away by starting on 100 and finishing on -10.

Fifteen

This game uses a single set of 1 - 9 cards. Lay them face up on the table in a row. Take it in turns to take a card from the centre. The object of the game is to take cards that add up to exactly 15 (aces count as 1), using exactly 3 cards.

For example, perhaps you started by taking the 8, then your opponent took the 3, then you took the 5, then your opponent realised you had 13 so took the 2. A great move would be to pick up the 6. Why? You now have an 8, a 6 and a 5. If your opponent tries to stop you getting 8 + 6+ 1 you could pick up the 4, as 4 + 5 + 6 is 15.

As you can see, this game can always be heavily weighted in favour of the person who goes first. They cannot guarantee to win but they can guarantee never to lose if they play correctly! Does that sound familiar? If you are reminded of noughts and crosses you would not be far off!

Useful Websites

http://www.mathletics.co.uk/ Your child has a login (worth £39!) for this website. It is absolutely loaded with maths activities. Check out the Mathletics guide on the school website for more information.

http://www.mathsisfun.com/ A great website with lots of information on all areas of maths, as well as some fantastic maths training games.

http://www.maths-games.org/ Another website packed full of links to online activities.

http://www.teachingideas.co.uk/maths/contents.htm Worksheets, quizzes and tests galore!