

Fun maths games for all

I'd suggest getting a shoebox and filling it with 'resources' for maths games. E.g. a pack of cards, small countables (like marbles or beads), bundles of straws; grouped in 10's with some singles, dominoes, money (lots of coins!) dice, lolly sticks, printed x tables square and 100 square.

A whiteboard/scrap paper and pen is also useful.

You can adapt these games to make them easier/harder and you can play with more than two players.

Counting on or back challenge



With an adult, roll a dice twice to make a two-digit number. Write that number on a whiteboard.

- Can the adult count on from that number in 10's? Ask them to show you how to add ten to **any** number. They will need to use resources e.g. straws to help.
- What do they notice?
- Can they think of a rule for 'how to add 10 to any number' ?
- What happens to the number in the Tens column?
- Can they see a pattern? What if I said 'add 20'?

You can roll a dice three times to make a three-digit number to start from if they think it's too easy! Or what about 4 rolls to make a four-digit number?

If you get time, have a go at counting back from a number. Again, use resources in the box to help you count back. It is very helpful to see how the amount becomes ten less when you use resources e.g. straws. Make sure you get your friend to write down a number sentence on a whiteboard and explain how they know the answer.

Remember to use what is in the box to help you. Why not do this with money? Or on a numberline? Perhaps use a 100 square or counters. Think about what would be the best method of solving the question.



'Calculator Check' Challenge.

This is a challenge for 2 people. It involves counting on and back -using a calculator to check. Remember you can use resources from the box to help solve the problem! Make a 2, 3 or 4 digit number however you wish [dice, perhaps] One person holds the calculator and keys-in the number. Then they decide to ask their partner to $+$ / $-$ 10, 100 or even 1000. Their partner writes the answer on a whiteboard before they show and check the calculator. Then they keep on going!

They have to keep counting on or back in that number, checking after each answer. What do you notice? Look at the whiteboard. Can you see a pattern. What is the rule for counting on and back $+$ / $-$ in 10's, 100's or 1000's. How do you predict the next number in the sequence? How do you know?

Now it's the other persons turn to use the Calculator 😊



Counting on and back using something from the box.

This challenge is all about counting on or back in 2's, 3's, 4's or 5's from any number.

Make a number to start. Choose how many you are going to count on or back in. Now check and prove you are correct by using 2 resources e.g. a numberline and 100 square.

Your partner should check. What do you notice about the numbers?

What is the quickest way to count on or back in that number, mentally? Is it easier or harder to start from an odd number?

Make sure you take it in turns and help each other check. Talk about the patterns.

Step counting with Kermit.



Counting in steps using a 100 square. Choose the Kermit-coloured counters [green!] if you have them. Count in 4's from the number 4. Place a counter on each number that Kermit would land on. When you have got to number 40 get your friend to take-over and carry on the pattern. Have a good look at the pattern. What numbers are under the counters? Put your finger on a green

counter and ask your friend to say what's under the counter. Ask them to say what the next numbers in the sequence are – without looking at the counters.

Guess what?! All of these numbers are in the 4x table!!

If I had 3 jumps of 4, what would I land on? Have a look. This is the same as 3 groups of 4 and also 3 times 4 $[3 \times 4]$! Confusing, isn't it! Can you set each other a challenge question, using the 100 square to help you.



Miss Piggy and Kermit picturing numbers.

Ask a partner to count on from any 2-digit number. After a while, say 'stop'. Now, ask them to picture that number. Give them about 20 seconds with their eyes closed and

ask them to show you how they represent that number. They might like to just explain what they are thinking or show you using the resources, how to make the number.

Now ask some Number Facts Questions like:

- Is it odd or even? How do you know? Prove it!
- What is before the number? What is after the number?
- What number is $>$ [or $<$] that number? (greater than $>$ or $<$ less than)
- Is it in the 5x table? 10x table? How do you know?

- Round the number to the nearest 10 and explain what you've done.
- Add 10 to the number. Subtract 10 from the number. How did you do it?
- Partition the number. What is each digit worth? How'd you know?



Dr Bunsen and Beaker
Money Partitioning.

Write an amount of money on the whiteboard. E.g. 36p. Ask a friend to look at the number and partition the money amount. What is the 5 worth? Show me!

Now ask them to make the whole amount in 10p's and

1p's. Now ask them to make the amount in 3 different ways. Talk about what they are doing as they work out how to do it. You try it on a whiteboard. Extend to using £1 and £2 amounts. Make sure you both have a go at writing the '£' sign; it's tricky but important to know. Have fun with money!

Remember, when counting the total amount, always start with the highest value coin first. If you have a 20p, 2p, 1p, 50p and 5p then start at the 50p. Counting is easier when you can SEE and TOUCH objects. So, put your finger on the 50p and move it to the side, so you know it has been counted. Keep that '50' in your head as you put your finger on the 20p and move it as you add it. So, now you have 70p altogether, so far. Then, touch and move the 5p; now it's a total of 75p...so far. Keep that 75 in your head as you add and move the 2p [now 77p total] then add and move the 1p. Now 78p total.

The key is to take your time. Count slowly and carefully and move the coins as you count. Don't forget that all-important 'count the highest value coin first' ☺



High or Low game for 2 or more players.

Decide if 'highest' or 'lowest' number wins before you start.

Draw a 'Th H T U' grid on your whiteboard. Roll a dice 4 times and write down the highest possible number you can make from those four digits [or lowest] Then it's your partners turn. They roll four times. They write down the highest possible number. Whoever has the highest number overall wins a point. [this can be repeated as often as you like, you may like to say 'first to 5 points is the Champion'.

Remember, you can decide that the aim of the game is to make the lowest possible four digit number and therefore, the lowest number wins.

Talk about how you KNOW that your number is higher / lower than theirs.





We love sweets!

Some sweets are sold individually; in 1's, like a 2p chew. I could just buy one.

Some sweets are sold in bags of 5 or 10.

Let's imagine that in our shop, sweets are only sold in bags of 10.

Your teacher (who is very generous) is going to give each child in your class one sweet. There are 32 children in your class. Every child must have a sweet (we don't want anyone being left out!) How many packets will your teacher need to buy?

How are you going to work this out? Will your teacher have any spare sweets that s/he can eat?

Now, you think of a similar question for your friend. Use larger numbers if you wish. Maybe your teacher wants to buy everyone in your yeargroup a sweet; that's 128 children. How many bags will s/he need to buy then?

Ask your partner to explain their thinking and check their working-out. Can they use something from the resources box [straws?] to show you how many 10's are needed?



Estimate or guesstimate!

This is a challenge for 2 or more people. One person grabs some counters [or money, or straws] and shows the other person for 10 seconds. The other person / people playing, have to write their estimates for how many /how much on a whiteboard. The closest guess is the

winner. The person who grabbed the counters /coins is in charge of counting them carefully.

You all need to work out the **DIFFERENCE** between each guess and the actual amount to work out who is the closest. Talk about this as you do it. Repeat the game with someone else being the person who grabs the counters /coins.

Ask the people who got really good guesses how they did it! What were they thinking when they looked at the counters /coins?



Hey there! I'm thinking of a number!

Here are some clues...

It's a 3 digit number. It's even. It's in the 3x table. It's >303 but <309 . What is it?????

I'm not telling you. It's a secret. So there. Hee hee!

Play this game with a friend. **YOU** think of a number [write it down] and give them clues

to help them guess. If they are not sure of something, use the resource box to help. Take it in turns to play Guess The Number! You can start with 1 digit or 2 digit numbers if you like. They may like to

make a note of what you're saying; this is allowed and will help them
have a good guess 😊