## Learning about Place Value *(tens and ones only)*

Use these **Activity Notes** with the **Place Value Activity Booklet** and the FunKey **Counting Cards Set 1** to help a child develop the following key skills and knowledge:

- Standard partitioning of 2-digit numbers
- Combining multiples of ten and single digits
- Adding 10 or 1 to any 1- or 2-digit number
- Identifying highest or lowest number
- Ordering numbers

To run some of the activities, you will also need the following:

- Nine 10p coins
- Nine 1p coins
- 18 small post-it notes, preferably nine in one colour and nine in a different colour

## How to use a FunKey Maths Mentoring Activity Booklet

Our activity booklets set out a series of activities which help children develop key skills in the target maths area. To really consolidate skills and build confidence a child needs to have **repeated opportunities to practise**. Remember that with younger children**, little and often** is a winning formula. 15 minutes at a time is enough to make progress. If you can manage **three sessions of 15 mins a week** you will make a difference.

You should do the activities in order, but the child doesn't have to be perfect at an activity before moving on**. Keep coming back to earlier activities for extra practice**.

In our Activity Booklets, you will see an activity and then three columns, with one, two or three stars at the top of the columns. Every time you do an activity, give the child a tick. **All children like encouragement!**

If the child is just starting out with a new activity and is still finding it tricky, give them a tick in the one-star column. When they are getting good, give them a tick in the two-star column. When they can do it confidently, the tick goes in the three-star column.

You are aiming at a minimum of **three ticks in the three-star column**. Brains forget, so you want the child **succeeding at the activity on three different days** before you can feel confident that they have really got it.

When they have three ticks in the three-star column for all the activities, you can sign and date the last page of the Activity Booklet and celebrate with them!

If you have questions, or want advice, email us on hello@funkeymaths.com or contact us on Twitter @FunKeyMaths where we also post details of new games, activities and resources.

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**Activity 1: Spend your money!** *(decomposing 2-digits into tens and ones)*
*(Video available on [www.funkeymaths.com](http://www.funkeymaths.com))*

You will need the two resource sheets for Activity 1 and nine 10p coins and nine 1p coins.

*Stage 1*
Look at the things for sale on the first resource sheet. Let the child choose an item to buy. Ask them to say the price.

Discuss what the digits in the price mean. For example, if the child chooses the sword, it costs 73p. Write 73 on the second resource sheet, so that the child can see that 73 means there are 7 tens and 3 ones. Then show the child how to pay 73p using the coins. Place seven 10p coins under the 7 and three 1p coins under the three.

Now it is time to count the cash. Encourage the child to count the 10p coins first and then the 1s.

"So, let's check if you have enough money."

*"10 – 20 – 30 – 40 – 50 – 60 – 70 … 71 – 72 - 73 pence"*

Always be clear with your questions what you are asking them to count: are you asking the child to count **the number of coins**, or **the value of the coins**. It is helpful to draw attention to the link between the number of 10p coins or 1p coins and their value.

*"How many 10p coins have we got?"*

*"1 – 2 – 3 – 4 – 5 - 6 – 7… I've got seven 10p coins."*

*"How much is that worth?"*

*"10 – 20 – 30 – 40 – 50 – 60 – 70 pence"*

*"That's right seven 10s are 70."*

*"How many 1p coins have we got?"*

*"1-2-3"*

*"How much is that worth?"*

*"3 pence"*

*"How much money have we got?"*

*"10 – 20 – 30 – 40 – 50 – 60 – 70 … 71 – 72 – 73 pence"*

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Take it in turns with the child to choose something off the resource sheet, and to pay for it. Keep going until all the items have been bought at least once.

When the child is confident **telling you how many tens and ones** they need**,** and they **can count the value of the coins accurately**, try this next activity.

*Stage 2*

This time, you count out the coins needed to pay for one of the items on the resource sheet. Don't tell the child what item it is. The child counts the money you have given them and works out what you want to buy. Make sure they count the tens first and then the ones. Keep emphasising the link between the *number of tens* and the *value of the tens*. This will help with 10x table facts!

## Activity 2: Stick 'em up! *(composing 2-digit numbers from tens and ones)*

*(Video available on www.funkeymaths.com)*

You will need the 18 small sticky notes for this activity, preferably 9 of one colour and 9 in a second colour.

*Stage 1*

Get your sticky-notes ready. Write each multiple of 10 (from 10 – 90) and each single digit (from 1 – 9) on its own sticky note. Ideally, use one colour for the multiples of 10 and the other colour for the single digits. Make sure to write the single digits on the left-hand side of the sticky notes. (The child is going to be combining a multiple of 10 and a single digit, and it is easier to read the combined number if the single digit is on the left of the sticky note.)

Place all the sticky notes on a wall or a door. It helps if you put the multiples of 10 together on the left and the single digits together on the right. Say a number. The child fetches two sticky notes to make that number. They then create the number by sticking one sticky note on top of the other (to hide the place holder zero). If they get it right, let them stick it on you! They LOVE this bit!

*Stage 2*

When all the sticky notes have been stuck on to you, peel them off one at a time. Look at the first one. Imagine it was 59. You would say something like:

*I've got a 5 and a 9. Is that right?*

You want the child to correct you. If they do think it is a 5 and a 9, encourage them to peek under the 9. They will see the place holder zero next to the 5. Ask them again,

*Is it really a 5? Or is it …….. 50?*

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Take off each of the sticky notes, asking the child each time about the value of the two digits. Keep letting children peek under the single digit until they get the hang of it.

Finally, when the child is getting confident at composing and decomposing two-digit numbers, play again but let them call the numbers! It is a good test of their new skills.

**Activity 3: Pink Slap Bingo** *(identifying 2-digit numbers from place value descriptions) (Video available on [www.funkeymaths.com](www.funkeymaths.com))*

Lay out the pink cards face up. You are going to give clues to a number. The first to understand the clue and slap the card showing that number wins it and takes it. The winner has the most cards at the end.

There are four different ways to give the clue. Make sure the child is good at Clue Type 1 before you move onto Clue Type 2. Don't move onto Clue Type 3 until they are confident at Clue Type 2 etc.

You can revisit this activity lots and lots, and gradually over time you can extend the range of clues types the child can deal with. The goal is eventually to give the child a mix of clue types.

Here are the four different ways to give a clue for card 37:

<u>Clue Type 1</u>

Three tens and 7 ones

<u>Clue Type 2</u>

7 ones and 3 tens

<u>Clue Type 3</u>

This number is the same as 30 add 7.

<u>Clue Type 4</u>

This number is between 30 and 40 and has 7 ones.

When the child you are working with gets good at understanding Clue Type 1 and Clue Type 2, try a game where you mix up both clue types.

Then, when you introduce Clue Type 3, play at least one game where you only give Type 3 clues. After that you could try a game mixing up all three clue types. Do the same when you

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introduce Clue Type 4. Let them get comfortable with Clue Type 4, before playing a game where you mix up all four clue types.

You can also make things more interesting by adding in other cards from the pack. Some people like to use a prompt sheet to help them give the clues.

## Activity 4: Play 1-2-3 Grab! *(ordering 2-digit numbers)*

*(Video available on www.funkeymaths.com)*

Lay out about 20 cards face down. You shout "1-2-3 Grab!" and you and the child both grab a card. You both read out your number. The higher card wins. The winner must explain how they know their card is higher. Model how to do this.

For example, you pick 42 and the child picks 76. You ask:

*"Which is higher?"*

*"How do you know?"*

They explain by saying something like this:

*"72 is higher because it has 7 tens, and 46 only has 4 tens.*

It is useful to follow up the explanation with these further questions.

| | | |
|---|---|---|
| *What are 7 tens worth?* | *Or* | *What is the value of 7 tens?* |
| *What are 4 tens worth?* | *Or* | *What is the value of 4 tens?* |

The player with the higher card keeps both cards, and you play again. The winner is the one with the most cards when all the cards have been picked.

## Activity 5: Hold the Line *(ordering 2-digit numbers)*

*(Video available on www.funkeymaths.com)*

The idea of this game is for players to compete to build a number line with cards taken from the table. Only one player can build a number line at any time – the player who has picked the highest card at that point in the game. To win the game, you have to be the one with the number line at the end of the game.

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- Place about 20 random cards face down.
- Both players pick a card. The one with the higher card gets both cards and can start to build a number line with them.
- Players then take it in turns to pick another card.
- The player with the number places their new cards into their number line.
- If the other player picks a card which is lower than the highest card in the number line, they have to give their card to the player with the number line.
- If the other player picks a card which is higher than the highest card in the number line, the player who is building the number line has to hand over all the cards in their number line, and the other player rebuilds the number line.
- Whoever is in control of the number line when the last card has been placed is the winner.

All through the game, keep asking the child which card is higher and how they know!

When building the number line, encourage the child to think about leaving appropriate gaps to represent missing numbers. So, for example, you might leave a large gap between 15 and 50 but a smaller gap between 50 and 63. It will not be exact, just indicative.

When the number line is built, it is a really good opportunity to look at it with the child and talk about which numbers go in the gaps, which numbers are one more or one less than cards in the number line, which multiples of 10 are missing and where they would go.

## Activity 6: Count 2 ways *(adding 1 and adding 10)*

*(Video available on [www.funkeymaths.com](http://www.funkeymaths.com))*

This activity helps children with adding 10 to any 1- or 2-digit number. You will need the 10p and 1p coins, and an A3 copy of the resource sheet for this activity

Before starting to count coins, look at the resource sheet which is a large 100-square with the child. It is important to check that they understand how a 100-square works. If they are not familiar with it, explore it with them.

*What do they notice about the numbers in rows?*
*What do they notice about the numbers in columns?*

Hide some of the numbers using the coins. Can they work out what the missing numbers are? How do they know they are right?

Once the child is familiar with how the 100-square works, give them a handful of coins. Explain that you are going to show them how to count it in two ways.

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First way: 10ps and then 1ps.
Together, count the 10ps and then the 1ps and work out the total. This is very similar to Activity 1 so they should be confident doing this.

For 53p, count like this:

10 – 20 – 30 – 40 – 50 …. 51 – 52 – 53p

Second way: 1ps and then 10ps
This time, you will use the 100-square to help you count and you will count the 1ps first.

As you count a 1p coin, place it onto the 100-square. The first 1p coin goes on 1, the second on 2, the third on 3 etc. Each time you count another 1p, you are adding one to the total, and the number under the last coin records the total. **Children will soon see that as you add 1, you move across the 100-square horizontally.**

When you have finished placing the 1p coins on the 100-square, start counting the 10p coins. Discuss with the child that you are now adding 10, so count on 10 in 1s from the last 1p coin. The child will see that when they add 10, they end up in the space on the next row, directly underneath the last 1p coin. Add another 10p, by counting on in 1s, and you will end up underneath the last 10p coin. **Children will soon see that when you are adding 10, you move down the 100 square vertically.**

So, the second way to count 53 would be like this:

1 – 2 – 3 – 13 – 23 - 33 – 43 – 53

Do this activity lots of times with different combinations of coins. The child will start to see the pattern. It is worth revisiting this part of the activity on several different days to ensure the child is really confident and is starting to confidently place the coins without counting on in 1s. When you think they are confident, try doing the activity again, but this time without the 100-square.

When children are first counting without the 100-square, they find it really helpful to lay the coins out as though the 100-square were still there.

Ideally, they would practise counting so many times, they would no longer need to lay out the coins in that way, but if they still want to, this is not a problem.

**DO NOT MOVE ON TO GAMES 7 – 10** until the child is confident at Activity 6 without using the 100-square.

You may need to keep coming back to Activity 6 to build skills and confidence. While you are revisiting Activity 6, break things up by revisiting other activities from earlier in the unit.

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## Activity 7: Play 99 going up *(adding 1 and adding 10)*

*(Video available on www.funkeymaths.com)*

This game is to give children more practice at adding 1 or 10. **Do not attempt Activity 7 unless the child is already confident at Activity 6.**

Put all the coins on the table and ask the child to count them. There should be 99p.

Make a pile of 10p coins and a pile of 1p coins, side by side, representing a 10s column and a 1s column. Make sure the columns are the right way round for the child (i.e. they are looking at the tens column on the left and the ones column on the right).

Put the two piles of coins near you and explain that you have all the money, and they have none! Then tell them that you are going to give them some money. You will keep giving them money if they keep telling their total.

Move one coin at a time, in any order. Put their coins into a new 1p pile and a new 10p pile. The child has to tell you the total value of the coins, not the number of coins in the piles. Keep moving coins until the child has all the money. If they have counted correctly their total should be 99p.

Many children find this activity hard at first, but with practice they get really good at it. What they are practising is a foundational skill which helps with lots of other number work they will do, so it is worth revisiting this activity many times and making sure their skills are really solid.

To help children when they first try this activity, you can record in writing the running totals, so that they do not have to hold the previous total in their working memory while they calculate the new total. Gradually you should try to wean them off needing the number to be written down – this will help improve their working memory.

Make sure the child is fluent or nearly fluent before moving onto Activity 8.

As the child's skills and confidence increase on this activity, you can try this twist: let the child control the coins and you say the totals. Deliberately make mistakes and let them correct you!

## Activity 8: 99 Going down! *(subtracting 1 and subtracting10)*

This activity is similar to *99 Going up!* But this time, the child starts with the money (with coins in two piles as in Activity 7). Always make sure the columns are the right way round for the child (the tens column on the left and the ones on the right).

This time, you take away one coin at a time and the child tells you how much they have left.

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When they are getting confident, you can let the child control the coins and you give the totals. Deliberately make mistakes and let them correct you.

## Activity 9: 99 Going up and down! *(adding and subtracting 1 and 10)*

For this activity, you start with some of the money and the child has some of the money. The child works out how much they are starting with. This time, you can give the child coins or take coins away from their pile. Their job is to give you a running total of how much money they have!

For a change, let the child be the one to move the coins. You then give the total for how much money you have. Deliberately make mistakes and let them correct you.

## Activity 10: Mind the Gap! *(tackling written addition and subtraction of 1 and 10)*
*(Video available on www.funkeymaths.com)*

This activity is to help children make the connection between Activities 7 – 9 and written questions where they need to add or subtract 1 and / or 10.

Get the resource sheets for Activity 10 ready. Follow the order 1 – 5 marked on the sheets.

Firstly, make sure the child knows how to read the questions. Say them out loud together. Discuss what the symbols mean. You may need to explain that the equal sign tells us that two things which look different are actually *worth the same*.

Then you are going to interpret the first question using the coins. For example if the question is: 54 + 10 = ?

You should:

- Say the question out loud.
- Talk about what the question means.
- Represent the question using coins. To do this, make 54 with 10p and 1p coins.
- Put these above the 54.
- Then put a 10p coin above the 10.
- Now move this 10p coin onto the pile of 10p coins making up 54.
- Then ask how much money there is altogether.
- Write the answer on the sheet.

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Work through the other questions on the first sheet. Gradually the child might show you that they no longer need to make the piles of coins to answer the question. That is great – It is what we are aiming for. If you think they need more practice doing questions with the money, invent some more questions in the same format. You might also try doing some questions in the format: 10 + 54 = ?

If a child attempts a question without the coins and they get it wrong, use the coins again to help them get the right answer. You have nailed the first question sheet when the child can answer the questions without needing the coins.

Work your way through the five different resource sheets, always starting by interpreting the questions, representing the questions with coins and then moving towards answering them without the coins.

**Congratulations! You have now completed the ten activities!**

**We hope the child you have worked with has learnt some new skills and had fun.**

**The next unit for them to try is the Doubling Unit.**

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