

Learning about doubling

Use these **Activity Notes** with the Doubling **Activity Booklet** and the FunKey **Doubling Cards** to help a child develop the following key skills and knowledge:

- Counting dots or objects up to 20
- Understanding the meaning of *equal* and *unequal*
- Understanding the mathematical symbols: $+$ and $=$
- Adding single digits
- Recall of doubles up to 20
- Recall of halves up to 20 (even numbers only)
- Linking doubles and the 2x table
- Understanding the meaning of phrases such as: *two 7s* or *three 8s*

In addition to the Doubling Cards, you will also need at least 20 counters (or another set of 20 objects to count) for Activity 5.

If you haven't used a FunKey Maths Activity Booklet before, please read this!

Our activity booklets are designed to help you work through a structured series of activities with a child to develop their skills and confidence in a target area of maths.

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 see a difference. More is even better!

You should do the activities in the order set out, 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 often see an activity next to three columns, with one, two or three stars at the top of the column. Children thrive on encouragement so give the child a tick every time you do an activity. The one-tick column is for when they are developing new skills, the two-tick column is to show improvement and the three-tick column is for when they are confident at the activity.

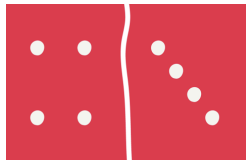
You want children to be confident with the activity on at least three separate occasions. Only then can you begin to be confident that the new skill is secure. Even then it is worth revisiting earlier activities from time to time as you work through the rest of the Activity Booklet.

If you have any questions or suggestion, or you would like some advice about this unit, email us on hello@funkeymaths.com

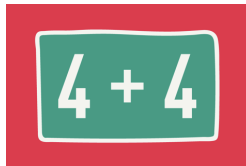
Have Fun!

Preparation before you start working through the Doubling Activities Booklet

There are four types of cards in the pack. In the notes we refer to them as follows:



Dot cards



Addition cards



Answer cards

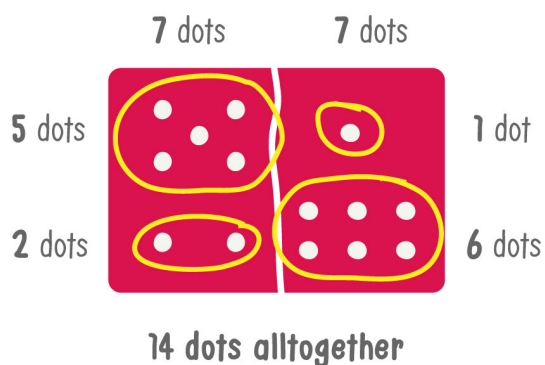
Multiplication cards



The Dot Cards

Spend some time looking at the Dot Cards with the child before you start work on the ten activities in the Doubling Activity Booklet. Check that the child is confident with the following activities:

- Can they count the dots accurately?
- Can they see that even though the patterns on the left-hand side and the right-hand side of each card look different, there are the same number of dots on each side?
- Do they understand the words 'equal' and 'not equal'? Can they use the words?
- Can they compare the total number of dots on different cards and say which is more, which is less, how many more, how many less?
- Watch how children work out how many dots there are on a card.



Ideally, we want children to be able to split a large group of dots into smaller groups which they recognise (perhaps from a dice pattern) and to be able to add the smaller groups together.

This card shows two different ways to make seven. There are many other ways to split up the dots to make seven. Give the child opportunity to explore alternative ways to make seven.

The Language of Doubles

There are many different ways to talk about doubles and this makes understanding the world of doubles trickier for children. Before you start working with the child, work out what language you are going to use.

Look at the card below; you could describe what you see in any of the following ways:



5 and 5 (sounds like 5 'n' 5)
5 add 5
Double 5

If you were giving the answer to the question *5 and 5?* you could give the answer as:



5 and 5 is 10 (sounds like 5 'n' 5 is 10)
5 and 5 makes 10
5 and 5 equals 10
5 and 5 is equal to 10
5 and 5 is the same as 10

Choose which phrase you will use (your **Key Phrase**) and stick to it **until children are confident**. Only when they are confident with that phrase should you introduce an additional, alternative phrase. Children do need to understand the meaning of all the phrases listed.

Likewise, when you start working with the multiplication cards, you need to choose a **Key Phrase** to talk about what is on the card and stick to it until the child is confident with this phrase.



Two times five
Two lots of five
Two multiplied by five
Two five times
Two fives

The short phrase *two fives* is a very useful one for children to be comfortable with – it helps when they are learning times table facts. Build up to it slowly, otherwise children don't understand what it means, and they might think two fives means 55.

To understand what the short phrase *two fives* represents children need practice talking about different groupings. It helps children to describe things in full sentences at first, and then develop language shortcuts. Here are the language stages the child might go through on the way to understanding what two fives actually means.

Question	What can you see on the card?
Stage 1	<i>There are two equal groups. There are 5 dots in each group.</i>
Stage 2	There are two groups of 5
Stage 3	There are two fives
Stage 4	Two fives

Developing Rote Recall of Facts

Once a child's understanding of the concept of a double is secure, you can focus on developing rote recall of facts. For this purpose, children need to learn a phrase which includes the question and the answer. The shorter the phrase, the easier it is to remember. We recommend this format: *5 add 5 is 10*, which when pronounced sounds like: *5'n' 5 is 10*

Always get children to give the answer to a doubles question using the whole phrase: *5'n' 5 is 10*. Saying the whole question and answer phrase helps hugely with fact retrieval.

When a child is learning facts for rote recall, they are mainly relying on their auditory memories. In other words they need to hear the facts and say the fact (outloud or in their heads) many times. As you work through these activities, talk about the cards as much as possible and use the target phrases as many times as you can.

How to progress through the ten activities

1. Activity 1

Watch carefully to see which doubles the child already knows. The ones children are most likely to know are: $1 + 1$ $2 + 2$ $5 + 5$ $10 + 10$

2. Activities 2 – 4

During Activity 1 notice which doubles the child already knows. These are the “known” doubles. When you first play Activities 2 – 4, use the cards for the “known” doubles and add in one, or two, “new” doubles. As the child becomes familiar with the “new” doubles, add another “new” double and play Activities 2 – 4 again. Keep doing this until all the doubles are known.

3. Activity 5 – 10

Do not progress onto Activity 5 or beyond until the child can match the addition cards to the answer cards in less than 2 minutes AND they understand a variety of key phrases to describe the dot and addition cards.

Activity 1: Match! *(Matching dot cards, addition cards and answer cards)*

Show the child the **addition cards** and the **dot cards** and ask them to match them up. As they are doing this, point to the cards and use your chosen **Key Phrase** to talk about what is on the cards. The more you use the **Key Phrase**, the more quickly it will become familiar.

When the dot and addition cards have been matched, introduce the **answer cards**. Help the child match the **answer cards** to the pairs of **dot and addition cards**. They may know some of the answers already or they may need to count the dots to work out the answer.

Notice which doubles the child knows – the “known” doubles. Once the child knows about four doubles you can use these to play Activities 2 – 4.

Keep coming back to Activity 1 at the start of each new session, until the child can match the dot, addition and answer cards in less than about 2 minutes.

Activity 2: Catch! *(Recalling doubles)*

Use the “known” doubles and up to two new doubles for these activities.

You throw the ball and say a number. They throw it back giving the double.

You can also practise doubles with skipping. You skip. The child counts your skips, doubles that number then skips the answer. Or you can do this activity with star jumps or any other physical challenge.

Activity 3: Pairs *(Matching addition cards and answer cards)*

Spread out the addition cards face down on the left and the answer cards face down on the right. Pick an addition card first and try to find the matching answer card. If you make a pair you keep it and get another go. If you don't make a pair, you turn the cards back over, and the other person gets a go. The winner is the one with the most pairs when all the cards have been picked.

When a child picks one of the addition cards, use your **Key Phrase** to ask the question?

For example, “What is 3 ‘n’ 3?”

When someone makes a pair, they take the two cards. The winner is the one with the most cards when all the cards have gone. Each time someone makes a pair, make sure to say the full sentence and make sure the child repeats it.

Well done! 3 ‘n’ 3 is 6

Activity 4: Addition Slap! *(Rapid recall of doubles)*

Spread out all the answer cards face up on the table. Put the addition cards face down in a pile. Turn over the top card in the pile and race to be the first to slap the matching answer card. The first to slap the right card takes it. Each time someone slaps a card, they must say the full **Key Phrase** before they take the card.

3 'n' 3 is 6

The winner has the most cards when all the answer cards have been taken.

IMPORTANT NOTE: The child is only ready for Activities 5 -10 when

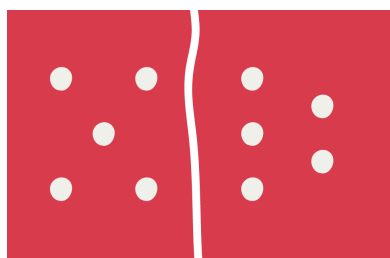
- (i) they can look at any addition card and tell you the answer quickly
and
- (ii) they can describe an addition card using any of the following **Key Phrases**: 5'n' 5 is 10, 5 add 5 is 10, double 5 is 10.

DO NOT GO ON TO ACTIVITY 5 before the child is confident with all these things!

Activity 5: Say it! Slap It! *(Understanding and using the key phrase "two groups of ...")*

This activity helps children connect doubling to the 2x table by introducing the **multiplication cards** and the **Key Phrase**: *two groups of ...*

To introduce the new Key Phrase, pick one of the dot cards.



Ask the child to describe the card in the ways they already know. They might say

5 'n' 5 is 10
5 add 5 is 10
Double 5 is 10.

Use the counters to make what you can see on the card. Make sure there is a gap between the two groups of five counters.

Point to the first group of counters and say something like:

Here's one group of counters.

Point to the second group of counters and say something like:

Here's another group of counters.

Ask how many counters in the first group. Ask how many counters in the second group. Finally, bring it all together with the Key Phrase: ***there are two groups of 5.***

Repeat this activity with all the dot cards. Each time, make the groups out of counters, point and say how many are in each group and form the Key Phrase: ***there are two groups of ...***.

Then, put the counters away and lay out all the dot cards face up. You describe one of the cards using the Key Phrase: ***there are two groups of ...*** and the child slaps the matching card. When the child is getting confident at this, reverse roles: they use the Key Phrase to describe a card and you slap the matching card.

Repeat this activity over several sessions to make sure the child can use this Key Phrase fluently.

Activity 6: Make it! (*Representing “two groups of...” and matching to multiplication statements*)

In this activity you use the Key Phrase *two groups of ...* to describe one of the dot cards and the child makes what they hear with the counters.

Each time they finish, get them to describe what they have made using the Key Phrase: *two groups of* Then, ask them to find the matching dot cards and multiplication card(s).

There are two possible ways to represent *two groups of five* in a multiplication sentence: 2×5 and 5×2 . Check your school’s approach on this. You can then work with one or both sets of cards, whatever ties in with the whole school approach to teaching multiplication.



Two groups of 5



5 two times

Do this activity for all the dot cards. Then, instead of saying a double, make a double with counters and ask the child to describe it using the Key Phrase: *two groups of ...* and find matching dot and multiplication card(s).

Activity 7: Multiplication Match *(Matching multiplication and answer cards)*

Spread out the multiplication cards and the answer cards face up. How quickly can they match them up? Aim to do it in less than 2 minutes. You can use one set of the multiplication cards or both sets.

As the child matches multiplication and answer cards, keep modelling the stem sentences using the long and short forms:

two groups of five

two fives

Activity 8: Multiplication Slap *(Practising the 2x table)*

Spread out the answer cards face up on the table and put the multiplication cards face down in a pile (use just one set of multiplication cards, as appropriate for your school).

Turn over the first card in the pile. Players race to be the first to slap the matching answer card. If the player who slaps the right answer card can say the short form of the stem sentence, they take the card, and you play again. The winner has the most cards when all the answer cards have been taken.

Activity 9: Against the clock *(Matching cards which represent the same total)*

Mix up the addition and multiplication and answer cards. How quickly can the child match them all up? The target is to do this in about two minutes.

Activity 10: What's my card? *(Describing doubles in different ways)*

Spread out all the answer cards face up. You describe one of the cards using one of the Key Phrases. The first to slap the card which matches the description wins the card. The winner has the most cards when all the cards have been taken.

In this final activity, it is great to mix up different Key Phrases when you are giving the clues. On the next page are examples of sets of clues you could give.

Activity 10: Script 1

Double 5
Two groups of 3
 $4 + 4$
Double 10
 $8 + 8$
Two 9s
Double 1
 $7 + 7$
Double 2
 $6 + 6$

Activity 10: Script 2

Double 3
Two groups of 5
 $10 + 10$
Double 4
 $9 + 9$
Two 7s
Double 1
 $8 + 8$
Double 6
 $2 + 2$

If the child is feeling confident, let them be the one to give the clues. Encourage them to use all the different types of stem sentence.

Double is
..... + is
Two group of
Twos

Congratulations! You have now completed the ten activities!