

Thorndown Primary School

Number Sense Games and Activities.

Dotzi

Equipment needed: Dice

You must use standard dice to practise this game. Encourage the child to subitise ('suddenly see') the numbers on the dice rather than count them as individual dots.

Decide on a number 1-6.

Roll 10 dice. (This can be played with fewer dice, but there should be at least six.)

Put to one side the dice which show the target number.

Keep rolling until all dice show the chosen number.

Variations:

- Play with a partner and each select a different target number.
- Play with a partner who counts how many rolls it takes you to show your target number on all dice. Swap roles. Can your partner show their target number on all dice using fewer rolls?
- Remove dice when they show compliments to a chosen number. Eg. Only dice which numbers which add up to 8 can be removed.
- Dice can be removed if they have a difference of one or two from the target number.

Bunny Ears

Equipment needed- Two hands!

This game can be played in a variety of ways. The first way is simply to establish children's understanding of how numbers can be represented on their fingers. Children are told a number and then represent this on their fingers (without looking at them and whilst holding them behind their ears- representing a bunny!) Encourage children to subitise, rather than counting fingers. For number above 5, ensure children know that they have 5 fingers on one hand. (This sounds obvious, but initially, many children still count to check!)

Ask the children to show the number in another way. (It's good to consider how many different ways the child can represent one number, for example, 3 can be shown as 2 fingers on one hand and 1 finger on the other, or as 3 fingers on one hand and zero fingers on the other. This can also reinforce commutativity.) If children are struggling to do show a given number of fingers without looking, they can work towards this.) The game can also be played in pairs, whereby children work together to make the given number. Numbers can then move beyond 10!

The second variation is to make pairs totalling a certain number. Children are shown a number (in the form of bunny ears) by an adult and have to make the corresponding number on their fingers in order to total the target number. Eg. We're making 10, I show three, child shows seven. Children should be encouraged not to count their fingers.

USING TEN FRAME CARDS

- **Use these to practise subitising. Encourage children to explain how they know how many dots there are on the card. Help them to move away from counting to recognising easy patterns and using conceptual subitising (using number bonds) to say how many there are when the dots are in a trickier pattern. Using the spaces can help develop fluency in pairs that equal 10.**

Eg: I know there are 6 because there are 5 in a full row and I can see 1 more.

I know there are 9 because there is one space and 1 less than 10 is 9.

Tens Frame Grab

Equipment needed- Tens frame cards

Lay the tens frame cards out on the table for the children to see. Taking it in turns, each player calls out a number. It is then a race for the players to grab all of the cards which show that number. The game is finished when all of the cards have been taken. The winner is the person who has the most cards.

Spot the number

Equipment needed- Tens frame cards

If children are struggling with recognising some cards, select cards from the pack to include some they know and a couple of new ones they're working on. Turn over the cards and ask the child to say how many there are without counting. Try to make this fun! They can keep the cards they get right!

Higher or Lower?

Equipment needed- Tens frame cards

Pick a card from the pack. Guess whether the next card will be higher or lower and explain why. Cards can then be placed in order to help develop a sense of number magnitude.

Card Wars

Equipment needed- Tens frame cards, counters/pasta. Multilink cubes (optional)

Have the counters/pieces of pasta/cubes handy on the table.

Children to choose a tens frame card or playing card.

Who has the higher number? This game can be changed so that the lower number wins.

To increase the challenge and develop knowledge of subtraction facts, the child who has the highest number gets to collect counters to represent the difference between the numbers.

Eg. If Joe has a 9 and Sam has a 4 then Joe will collect 5 counters.

The object of the game is to have the most counters. This game can also be played in reverse, so the person with the lowest number has to pick up the difference.

To support children who find this tricky it is beneficial to make the numbers as towers with multilink cubes. The difference will then be very visible for them to see.

Mind Reading Cards.

Equipment needed- Tens frame cards/playing cards.

Two children choose a playing card or a tens frame card from pack. Children put the playing cards on their foreheads so that they cannot see their own card.

Surrounding children/adults tell the children the sum of the cards.

Children work through possibilities/use information to work out what their number is.

"If the total is 8 and I can see the other person's number is 5, then my number must be..."

Tens Go Fish

Equipment needed- Tens frame cards/playing cards.

Children to have five tens frames cards with various numbers on them. The rest of the cards are to be placed in the middle (face down.)

The object of the game is to get rid of all of your cards.

When it is your turn, if you have two cards which make 10 you can place them into the middle.

If you do not have two cards that make 10 you have to take a card from the middle or ask your opponent if they have the compliment to a card which you already have in order to make a pair to 10. If your opponent has the card they must give it to you, if they don't they can tell you to 'go fish' and you must take two cards from the middle! The first person to have no cards is the winner.

This game can be extended to be 12, 15, 20 go fish!

Easy Adds

Equipment needed: Dice

Throw dice 10 times.

Write the 10 numbers that are generated down.

How many ways can you use the numbers that you throw to make 10 (or your chosen number)? How many numbers can you cross off from the 10 you generated? How many numbers are left?

By doing this and looking at the numbers that have been written down the children are skimming for pairs equalling their target number.

This game can be played competitively by each player throwing the die 10 times and the person with the most pairs being the winner!

Five dice

Equipment needed: Dice.

Roll five dice.

Using the five numbers challenge the children to make the numbers 1-15. Depending on the child's stage in learning extend to include operations +, -, x and ÷. You can use numbers more than once both in a number sentence and to make several numbers.

Eg. Numbers rolled 6, 6, 5, 2, 1

1 ✓ 6+5=11	2 ✓ 6+6=12	3 ✓ 5-2=3 6+2=8 6+6+1=13	4 ✓ 5-1=4 (6-2)+5 6+6+2=14	5 ✓ 2x5= 6+6+2+1=15
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Don't Make 10!

Equipment needed: Paper.

Each person writes the number 1-9 on a piece of paper.

A circle is drawn on a shared piece of paper.

Taking it in turns, each person is allowed to put one number into the circle from their numbers.

The aim of the game is not to be the person who adds a number which makes a combination equalling ten.

Eg. If 6, 1 and 3 are in the circle you wouldn't want to put 4, 9 or 7 into the circle as they would make a compliment to 10.

Keep Up The Fluency

Equipment needed: Tens frame cards, counters.

Each person chooses 5 cards either from the tens frame cards or a pack of playing cards.

Out of these 5 cards you must choose the 3 cards which give you the total nearest to 20, the other 2 can be discarded.

If you do not have numbers totalling 20 you must collect counters that will make up the difference.

The winner is the person with the least counters.

This game can also be played to 10 or any other desired number.

To extend this game you can ask the chn to record their cards as a number calculation.

The Banker's Game

Equipment needed: Dice, cubes

In this game cubes represent money.

Roll dice.

Use cubes to count out the number that has been rolled.

Roll dice again, once you have reached the number 10 you can exchange 10 cubes for a rod of 10 cubes joined together or a ten from the Base 10 equipment.

Winner is the person who has the most 'money' at the end of the specified time period.

This game focuses on the child's ability to pass through the multiples of ten.

This game can also be played in reverse. All players can start with 50 cubes (joined into rods of 10/Base 10) each time the dice is rolled the player must decompose their number.

Concentration/Matching Cards

Equipment needed: Tens frame cards or playing cards

Choose 12 cards which contain 6 pairs totalling 10. These can either be tens frames cards or playing cards. The cards need to be shuffled and placed face down on the table. Children then turn over two cards. If they contain a pair which totals 10, they are a match and can be kept. Encourage children to subitise the number of dots on the cards rather than sit and count.

This game can be extended to pairs of other numbers, not just 10.

High Roller.

Equipment needed: Dice.

The aim of this game is to end with the highest total.

Roll 3 dice, put the highest value die to the side.

Roll the remaining 2 dice, again choosing the highest number and putting it to one side. Roll the remaining die, total the 3 dice.

Who can get the highest total?

Make 21

Equipment needed: Dice.

Roll 5 dice.

Which numbers from 1 to 21 can you make using the numbers shown on the dice?

Other games that can be played using the tens frame cards or standard playing cards

- **One more/one less-** cards all face down on the table. Each player has a starting card. Children must turn over cards until they find a card which is one more/one less than their card. If they do find the match, they can then choose another card as their starting card. If all cards are turned over and there is no match children can add another card to the table from the pack.
- **Highest Card Wins-** Choose a card from the pack. Highest card is the winner. Encourage subitising (suddenly seeing) rather than counting dots. Discuss how the child knows that card has that number Eg. 'I can see four and one more so I know it's 5.' 'I can see 3 and 3, I know that's a double.'
- **Target Number-** Choose a number. Choose two cards from the pack. Can you make your number?
- **Snap**
- **Pairs**
- **Make Ten-** Choose one card, how many more to make ten?
- **Odd One Out-** Choose three cards from the pack. Which card is the odd one out and why?
Are two of the numbers less than 5 and one more than 5?
Is one of the numbers not a multiple of 2?
If you add three to your numbers how many will be more than 8? The possibilities for this game are endless.