

Is not confident about when to stop counting when taking away (subtracting) in answer to the question 'How many are left?'

Opportunity for: developing mathematical ideas

Frogs and lily pads

Resources

- Green cubes to represent frogs
- Circles of green paper to represent lily pads
- 'Eggs' (table tennis balls) and egg boxes

Key vocabulary

| | |
|----------------|----------|
| how many left? | minus |
| count | subtract |
| count on | makes |
| count back | leaves |
| take away | |

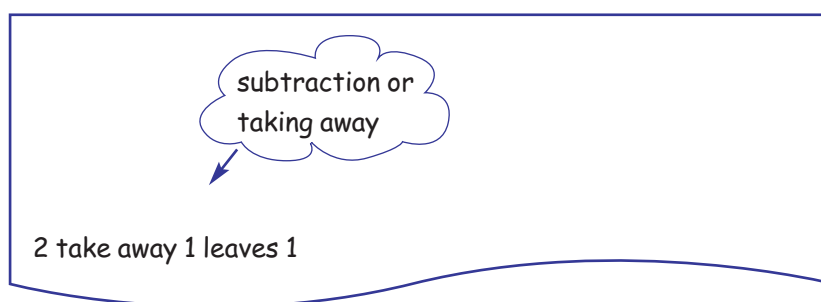
Teaching activity

Time 10–15 minutes

'Today we are going to do some subtraction using these frogs and lily pads.'

? What do you already know about subtraction/taking away?

You might want to start a concept map, or record in some way what the child already knows.



Select eight or nine 'frogs' (green cubes) and put each frog on a 'lily pad' (piece of green paper).

? Can you count the frogs?

? Can you count the lily pads?

? What can you tell me about these two numbers? *(They are the same.)*

If the child seems uncertain you might want to work with smaller numbers.

Ask the child to take away some frogs, talking you through what they are doing. Observe carefully what they do.

? How many frogs did you start with?

? How many frogs did you take away?

? How many frogs are left in the pond?

Encourage the child to count both the empty lily pads and the frogs that have been taken away so that they recognise that the numbers are the same.

If the child answers the first question incorrectly, ask how they could decide how many frogs there are altogether (so that they realise that the lily pads represent the initial number of frogs).

If they answer the second question incorrectly, ask them how they could find the answer. Get the child to count the number of lily pads that are empty (so that they realise that the number of frogs taken away and the number of empty lily pads are the same).

If the child answers the third question incorrectly, ask how they think they could find out how many frogs are left. Get them to count the number of frogs still sitting on lily pads (so that they make the connection between how many there are and how many are left).

Repeat the activity either with a different number of frogs and lily pads, or with egg boxes and ‘eggs’ (table tennis balls) using the spaces in the egg boxes and the ‘eggs’ as above.

- ? Show me the ones you took away.**
- ? Show me the ones that are left. How many are left?**
- ? Let’s write a number sentence about this. How many did we start with?**

11 eggs take away 3 eggs leaves 8 eggs.

- ? What shall we write down to remember for next time on the concept map?**

Make a note of the subtraction words the child knows and uses.

Spotlight 1

Is not confident about when to stop counting when taking away (subtracting) in answer to the question ‘How many are left?’

Opportunity for: communicating mathematical ideas

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How many left? **Time** 5–15 minutes

Resources

- Biscuits on a plate
- Vocabulary on cards
- Number line, floor number track
- Felt pens

Key vocabulary

| | |
|----------------|----------|
| how many left? | minus |
| count | subtract |
| count on | makes |
| count back | leaves |
| take away | fewer |

Teaching activity

‘Today we are going to use lots of different words that mean taking away, and we are going to do our taking away using these biscuits.’

Put seven biscuits on the plate.

- ? How many biscuits?**

? Take some biscuits away and tell me how many you have taken away.

? How many are left?

Observe the child carefully to see if they can work out how many are left, counting the appropriate set of biscuits.

If the child is unclear about what to take away and doesn't respond appropriately to the question 'how many are left?', repeat the activity, modelling the language and the counting of how many are left.

'You had nine biscuits on your plate. If you take two away then there are seven left. I've got six biscuits. Watch me take away three of them.'

? How many are left?

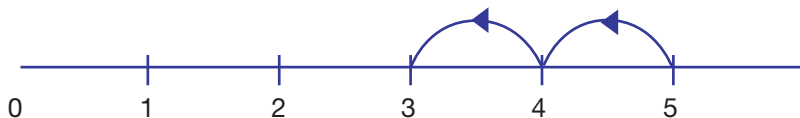
'Point to the ones that are left. Point to the ones we took away.'

? How many did we take away?

If the child is still confused you will need to repeat this kind of activity over a few days at registration time or another moment in the day, using a range of equipment, for example, felt pens.

? Five felt pens take away two, how many would be left?

You might find it helpful to relate the numbers to counting back on a number line or track.



Using the vocabulary cards, help the child to make some number sentences.

5 count back 2 means you land on 3.
 5 biscuits on a plate. If you eat 2 you are left with 3.
 5 take away 2 leaves 3.
 5 subtract 2 leaves 3.

If the child is not sure of the vocabulary, you will need to model it several times.

? Did you learn some new words today? Tell me the words you have learned.

Spotlight 2

Is not confident about when to stop counting when taking away (subtracting) in answer to the question ‘How many are left?’

Opportunity for: solving real-life problems

Musical chairs

Time 5–15 minutes

Resources

- Chairs or representations of chairs
- Vocabulary on cards
- Number cards (Resource sheets 1 and 2)

Key vocabulary

| | |
|----------------|----------|
| how many left? | minus |
| count | subtract |
| count on | makes |
| count back | leaves |
| take away | fewer |

Teaching activity

? Have you ever played musical chairs at a party? Tell me how you know that it’s a taking away game.

Put seven chairs in a row and explain (or act out) that in a game of musical chairs you have to take away one chair each time.

? Tell me a story about what you have done.

If there were 7 chairs and I take away 1, there will be 6 left.
The next time if you take 1 away there will be 5 left.

Now ask the child to use a different number of chairs to help tell another story.

? Show me what you took away. How many did you take away?

? Show me the ones that are left. How many are left?

Use a range of stories to ensure that the child understands and uses the vocabulary correctly. For example, there could be nine children coming to the party, so nine chairs are around the table, but two children don’t arrive.

? How many chairs do we need to take away?

? How many are left?

You could make a number sentence with cards.

9

take away

2

leaves

7

? What shall we record today that is important to remember?

Spotlight 3

Is not confident about when to stop counting when taking away (subtracting) in answer to the question ‘How many are left?’

Opportunity for: solving real-life problems

Shopping

Time 10–15 minutes

Resources

- Small items labelled with prices
- Ten 1p coins

Key vocabulary

| | |
|----------------|--------------------------|
| how many left? | subtract |
| count | makes |
| count on | leaves |
| count back | how much have you spent? |
| take away | how much change? |

Teaching activity

‘We are going to do some shopping today so we are going to use these coins.’

Show the items for sale, for example sweets, apples, and so on. Help the child to read the labels if necessary.

balloons 8p each

pencils 6p each

lollies 9p each

sherbert dips 7p each

Give the child ten 1p coins and ask them to choose an item to buy.

? How much does it cost?

? How much change will you have left?

If the child struggles, help them through each stage, putting out the ten 1p coins. Act as the shopkeeper and take away the cost of the item, modelling the language for the child.

Repeat with different shopping items, using a range of vocabulary, recording some shopping number sentences with the child.

yo-yos 26p each

? How much would it cost to buy everyone in the class a yo-yo?

? How much change would be left from a £20 note?



Spotlight 4

Is not confident about when to stop counting when taking away (subtracting) in answer to the question ‘How many are left?’

Opportunity for: developing mental images

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Am I right?

Time 10 minutes

Resources

- Cubes
- Number cards 0–25 inc. and symbol cards (Resource sheets 1, 2 and 8)
- Vocabulary cards
- Dice
- Calculator

Key vocabulary

| | |
|----------------|----------|
| how many left? | minus |
| count | subtract |
| count on | makes |
| count back | leaves |
| take away | fewer |

Teaching activity

‘We are going to play a taking away game today and I might not get the numbers right, so you will need to watch me very carefully and listen to what I say.’

Put the number cards 7 and above in a pile. Let the child take a card, read the number and put out that many cubes.

Then ask the child to throw the dice and take away that many cubes.

- ? How many are left?**
- ? Show me the cubes you started with.**
- ? So which ones did you take away?**
- ? So which ones were left?**

Make sure the child is confident that the answer to a subtraction calculation is the number left, not the number taken away.

Then you could take a card, throw the dice, but count the numbers wrongly. For example, if you took a 9 card and threw 3 on the dice you could say an incorrect number sentence such as:

‘I’ve got three cubes and I took away nine and it left six.’


Help the child to record correct number sentences, first using number cards and the – and = symbols, then using a range of words, challenging the child to extend their vocabulary.

9 take away 3 leaves 6.

9 minus 3 leaves 6.

6 is 3 fewer than 9.

If the child is still having difficulty, you might find that they respond better if you do the counting back on a number line or track, or if you use some equipment that you know they like, for example small objects or a bead string.

If they are unsure about the  key, let them key in some of the subtraction sentences on a calculator and record them with cards and symbols.

‘You know lots about taking away now. Let’s look at what we could add to your concept map.’



‘Write in words a number sentence with “fewer” in it.’

Spotlight 5: a learning check

Is not confident about when to stop counting when taking away (subtracting) in answer to the question ‘How many are left?’

Opportunity for: explaining and discussing

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Two-minute dice dash

Time 5–15 minutes

Resources

- Cubes
- At least two children
- Dice
- Number line or track
- Two-minute timer

Check: does the child use key vocabulary?

- | | |
|----------------|----------|
| how many left? | minus |
| count | subtract |
| count on | makes |
| count back | leaves |
| take away | |

Teaching activity

‘This game, **Two-minute dice dash**, will help you with learning about subtracting.’

How to play

1. Two players cooperate to count out twenty cubes.
2. They take turns to throw the dice and take away the number of cubes on the dice.
So if 5 is thrown, the children must take away five cubes and say how many are left. In this case, ‘we have fifteen left’. They can use the number line or track to help with this.
3. They keep throwing the dice, racing to get rid of all the cubes in two minutes.

Variations

- If the children are still unclear about which cubes show how many are left, you can play the game slowly without the time limit.
- Two players or more can play against each other, each with a dice, racing to see who can get rid of their cubes first.
- If you can play in a space where noise doesn’t matter, you might want to let children shout ‘none left’ at the end of their game.

? Which cubes are the ones you have left?

? Which cubes did you take away this time?

? How many are left?

Encourage children to count back on a number line or track rather than counting the cubes from one each time.

Learning outcomes

By the end of this set of activities, children should be able to:

- tackle related learning tasks with increased motivation and confidence;
- use and understand connected mathematical vocabulary;
- confidently identify during a subtraction activity the starting number and the amount taken away and know which is the number left;
- understand that the ‘–’ symbol indicates taking away or subtraction.