

## Spotlight 5: a learning check

Has difficulty in choosing suitable methods for calculations that cross boundaries: subtraction

### Opportunity for: explaining and discussing

### Frog in the well

Time 20–25 minutes

#### Resources

- Blank spinners (Resource sheet 13)
- Pencil and paper clip to work the spinner
- Climbing up (Resource sheet 28)
- At least two children
- Empty number line for each child or pair
- Small counter for each team
- Timer

#### Check: does the child use key vocabulary?

count on	still the same number
count up	boundary
count back	next multiple of ten/hundred
subtract	take away
partition	leaves
equals	

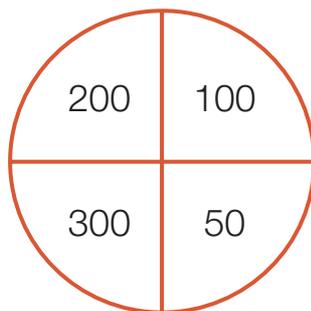
#### Teaching activity

‘This game, **Frog in the well**, will help you with adding and subtracting with larger numbers. Today we are going to work with a thousand.’

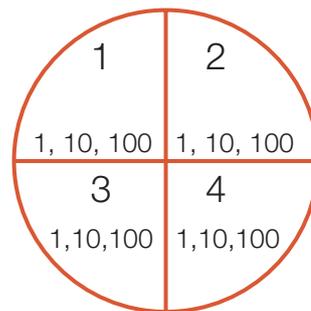
Set the game in some kind of context, a climber going up a 1000 metre high cliff or a frog climbing out of a 1000 metre deep well.

Children can cooperate to play this game in pairs or a larger team, or they can compete against each other.

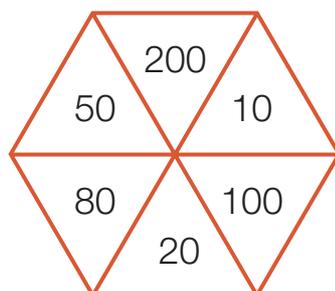
The spinner works by trapping the paper clip in the centre of the spinner with the pencil, then flicking round the paper clip with a finger of the other hand. If the paper clip stops on a line, the player chooses which of the two sections they want.



spinner A



spinner B



spinner C

Decide which spinner to play with and the height of the well or cliff.

Each player needs to draw their well or cliff first before the start of the game or use *Climbing up* (Resource sheet 28).

Decide whether you are going to play from a thousand down to zero or up from zero. This example starts at zero and uses the easiest spinner A.

You could start the timer once the players know what to do.

### How to play

1. Each team, pair or single player puts their counter on zero on their vertical number line or on Resource sheet 28 and takes turns to spin the spinner. They should record their numbers.
2. If they spin, for example one hundred, they move their counter from zero to 100 and write down the number of metres they still have to climb, in this case, 900 metres.
3. If everyone agrees they are right, the next player takes a turn with the spinner.
4. If players don't agree, the player who has moved has one more attempt to do their calculation correctly. If they are still wrong, they go back to where they were so they miss that turn.
5. They must try to get to the top in less than 15 minutes, then next time try to beat their personal best.
6. The winning team, if they are competing, gets to the top or beyond the top first, but they can only win if they can add up the total of all of their jumps! It should come to a thousand or more.

### Variations

- ↑ ● Play with a different spinner, for example spinner B. On this spinner, if you spin, for example, three you can choose whether you want to move three ones or three tens or three hundreds.
- ↑ ● If you play with spinner B you could change the rules so that if you spin, for example, three, you can choose any combination of the moves, as long as you move a total of three. So you could move one 100, one 10 and one 1.
- ↑ ● Spinner C is a bit harder. You will need to keep your recordings very clear.
- ↑ ● Play with any of the spinners and start from a thousand. Still say at each turn how far you have to go.
- ↑ ● Make the well or cliff a bit higher, for example 1050.

### 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;
- choose suitable methods of calculating when subtraction calculations cross boundaries;
- understand partitioning with place value cards when one or more boundary is crossed;
- estimate, calculate and check to see if their work is right.