## Target 100 – Game 1

### Instructions Target 100 – Game 1<sup>4</sup> Aim of the game

The aim of the game is to work out what a given number needs to be multiplied by to make it equal a specific target number, such as 100. The player who takes the smaller number of guesses is the winner.

#### Preparation

- Students work in pairs with one calculator between each pair.
- Photocopy enough of the sheets for each pair of students.

#### Rules

A sample game is provided below.

- One player gives a starting number (e.g. 17) and enters it onto the calculator.
- The calculator is given to the other player who has to guess what the number given (17) has to be multiplied by to give the answer of 100.
- They use the calculator to multiply their guess by the starting number to see what the answer is.
- In the sample game below the person guesses 7 first, which on the calculator gives them 119.
- The player can then make a second guess in the sample game the person guesses 6 next, which on the calculator gives them 102. This is still a bit too high.
- The player continues guessing and checking until they get an answer which starts with exactly 100 point something (that is, an answer between 100 and 101 is considered correct this can be made more exact to make the game more complicated).
- Once the target is reached the player records how many guesses they took.
- The players then swap roles, with one player giving the starting number and the other player using the calculator to guess the required number.
- The person who takes the least number of guesses wins the round.
- They keep repeating this sequence over a number of games.

#### Hints and variations

- You can specify a harder target, such as 100.0, or change it to a new number like 500.
- After students have played a few games, ask them questions about how they worked out their guesses, which starting numbers were more difficult and why?

<sup>&</sup>lt;sup>4</sup> This game is adapted from *Mathematics: A new beginning. A resource book for teachers of adults returning to study*, Beth Marr, Sue Helme (1987)

### Sample game

Starting number	x guess	answer
17	7	119
	6	102
	5.7	96.9
	5.8	98.6
	5.9	100.3
Number of guesses:		5

## CG4. Target 100 — Game 1

### Game 1

Name: \_\_\_\_\_

Starting number	x guess	answer
Number of guesses:		

### Game 3

Name: \_\_\_\_\_

Starting number	x guess	answer
Number of guesses:		

#### Game 2

Name: \_\_\_\_\_

Starting number	x guess	answer
Number of guesses:		

## Game 4

Name: \_\_\_\_\_

Starting number	x guess	answer
Number o		

# Target 100 – Game 2

### Instructions Target 100 – Game 2<sup>5</sup>

#### Aim of the game

Like Game 1, the aim of the game is to work out what a given number needs to be multiplied by to make it equal a specific target number, such as 100. In this game, the player who gets to the target first is the winner.

#### Preparation

- Students work in pairs with one calculator between each pair.
- No sheets are needed for this game just the calculator.

#### Rules

A sample game is provided below.

- The first player gives a starting number (e.g. 17) and enters it onto the calculator.
- The calculator is given to the other player who has to guess what the number given (17) has to be multiplied by to give the answer of 100.
- They use the calculator to multiply their guess by the starting number to see what the answer is. In the sample game below Player 2 guesses 7, which on the calculator gives them the answer 119.
- Player 2 then hands the calculator back to the first player, who then has to work out what they need to multiply this number (119) by to get it to equal the target of 100. In the sample game Player 1 guesses 0.9, which on the calculator gives them 107.1. This is still too high.
- The players continue swapping the calculator, guessing and checking, until one of the players gets an answer which starts with exactly 100 point something (this can be made more exact to make the game more complicated).
- The winner is the person who makes the answer equal the required target Player 1 is the winner in the sample game.
- The players then swap who starts and continue to play a number of rounds.

#### Hints and variations

- You can specify a harder target such as 100.0, or change it to a new number like 500.
- Again, after students have played a few games, ask them questions about how they worked out their guesses, what strategies they used and why?

<sup>&</sup>lt;sup>5</sup> This game is adapted from *Adult Numeracy Teaching: making meaning in mathematics,* Dave Tout & Betty Johnston (1996)

## Sample game

Player 1 guess and keys pressed	Answer on calculator	Player 2 guess and keys pressed	Answer on calculator
17	17	×7	119
X 0.9	107.1	X 0.8	85.68
× 1.1	94.248	× 1.1	103.6728
× 0.95	98.48916	× 1.05	103.413618
X 0.97	100.31120946		

So player 1 is the winner!

# CG5. Target 100 — Game 2

### Game 1

Player 1 guess	Answer on calculator	Player 2 guess	Answer on calculator

### Game 2

Player 1 guess	Answer on calculator	Player 2 guess	Answer on calculator

### Game 3

### Game 4

Player 1 guess	Answer on calculator	Player 2 guess	Answer on calculator

Player 1 guess	Answer on calculator	Player 2 guess	Answer on calculator