

## Description of Tasks and their difficulty ranges

Tasks are ordered in alphabetical order. There are several levels within each of the tasks. Below gives the range of difficulty from one to five stars within each task as well as a description of the task and the on-screen instructions. Once you have started a particular task you can view a 'Demo' of that task from the 'Help' menu.

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
1. Calculating	Find the correct value of a given number expression.	A series of number expressions will appear. Your tasks is to drag the correct number from the number box into the blue cell. After 10 questions the grid disappears. Score: one point for each correct answer.	X	X	X	X	
2. Calculating - negative numbers	Find the correct value of a given expression involving negative numbers.	A series of number expressions will appear. Your tasks is to drag the correct number from the number box into the blue cell. After 10 questions the grid disappears. Score: one point for each correct answer.		X	X	X	
3. Calculating - small grids	Find the correct value of a given number expression. Questions involve numbers on small grids.	A series of number expressions will appear. Your tasks is to drag the correct number from the number box into the blue cell. After 10 questions the grid disappears. Score: one point for each correct answer.	X	X	X		
4. Equivalent expressions (letters)	Enter three equivalent journeys for each situation given. Questions involve letters.	Type in three different journeys, one at a time, from the letter to the blue cell. Be careful! One mistake and your turn finishes and you will go on to the next question. Score: one point for each correct journey.		X	X		

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
5. Equivalent expressions (numbers)	Enter three equivalent journeys for each situation given. Questions involve numbers.	Type in three different journeys, one at a time, from the number to the blue cell. Be careful! One mistake and your turn finishes and you will go on to the next question. Score: one point for each correct journey.	X	X	X		
6. Expanding/Factorising	Expand or factorise given expressions.	Two routes are shown on the grid. The expression in the green cell comes from the thin green route. Type in the expression for the thick red route. Later in the task the grid disappears and then the routes are hidden! Score: one point for each correct expression.				X	X
7. Find the journey (letters)	Find the journey for a given expression. Questions involve letters on a large grid.	Click on the correct cells to show the journey starting from the letter and ending at the expression. Click on "I've finished" when you have finished your journey. Score: one point for each correct journey.		X	X	X	X
8. Find the journey (letters - small grids)	Find the journey for a given expression. Questions involve letters on small grids.	Click on the correct cells to show the journey starting from the letter and ending at the expression. Click on "I've finished" when you have finished your journey. Score: one point for each correct journey.	X	X	X	X	

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
9. Find the journey (numbers)	Find the journey for a given expression. Questions involve numbers on a large grid.	Click on the correct cells to show the journey starting from the number and ending at the expression. Click on "I've finished" when you have finished your journey. Score: one point for each correct journey.		X	X	X	X
10. Find the journey (numbers - small grids)	Find the journey for a given expression. Questions involve numbers on small grids.	Click on the correct cells to show the journey starting from the number and ending at the expression. Click on "I've finished" when you have finished your journey. Score: one point for each correct journey.	X	X	X	X	
11. How many places?	Find all the places on the grid where a given number should appear.	Click on every cell which contains the number 20. Click on "I've finished" when you think you have all of them in the correct cells! Score: All correct in 1 attempt = 3 points; Correct after 2, 3 attempts = 2 points; Correct after 4 attempts = 1 point.	X	X			

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
12. Inverse journey	Enter the inverse journey for a given original journey.	The blue cell has the result of a journey taken from the letter 'p' to the blue cell. You must enter into the Expression Calculator the inverse route of that journey, starting from 't' (the letter in the blue cell) and ending in the red cell. Remember it must be the inverse of the original journey. As a help for the first 10 questions you can see the original journey by pressing the button. Score: one point for each correct inverse journey.				X	X
13. Make the expression (letters)	Create a given expression by making movements round the grid. A timed challenge. Questions involve letters.	Look at the expression at the side of the screen. Drag the letter on the grid to create this expression within the time! Score: one point for each correct expression made within the time.		X	X	X	
14. Make the expression (letters - small grids)	Create a given expression by making movements round the grid. A timed challenge. Questions involve letters on small grids.	Look at the expression at the side of the screen. Drag the letter on the grid to create this expression within the time! Score: one point for each correct expression made within the time.	X	X	X		

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
15. Make the expression (numbers)	Create a given expression by making movements round the grid. A timed challenge. Questions involve numbers.	Look at the expression at the side of the screen. Drag the number on the grid to create this expression within the time! Score: one point for each correct expression made within the time.		X	X	X	
16. Make the expression (numbers - small grids)	Create a given expression by making movements round the grid. A timed challenge. Questions involve numbers on small grids.	Look at the expression at the side of the screen. Drag the number on the grid to create this expression within the time! Score: one point for each correct expression made within the time.	X	X	X		
17. Make them equal!	Find the number which will make two given cells have the same value.	What number will make $a=b$ ? Drag the number into 'a' or 'b' which will make these two cells have the same number inside. Score: one point for each time you make $a=b$ .				X	X
18. Multiple inverse journeys	Match up an expression with its inverse.	You will see two sets of expressions. The ones on the left contain the inverses of those on the right. But which is the inverse of which? You must click on the inverse of the expression which is highlighted. Score: two points for all correct, one point for three correct.			X	X	

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
19. Place the numbers (single player)	Find a cell where a given number could go.	As each target number appears, click on the cell where that number could go. Score: one point for each correct. If wrong, then the number will appear in blue in a correct cell.	X	X	X	X	
20. Place the numbers (two players)	Two player game of placing numbers on the grid.	Take turns to choose a number and drag it from the number box to a correct cell. You have five turns each. Score: the number you place correctly is the number of points you get, but you also get that number of points for every extra place in the grid the number appears.	X	X	X	X	
21. Simplify	Type in a simpler expression which is equivalent to a given expression.	Look at the expression in the blue cell. Type in a simpler expression which is equivalent to this. Later in the task the grid will disappear! Score: one point if it is simpler and two points if it is one of the simplest.		X	X	X	X
22. Substitution	Work out the value of an expression when substituting a number for a letter.	The value of the letter in the blue cell is shown. What is the value of the letter in the red cell? Drag it from the number box into the red cell. Later in the task the grid will disappear! Score: one point for each correct.		X	X	X	X

Task	Brief description	Instructions on screen	★	★★	★★★	★★★★	★★★★★
23. Substitution - negative numbers	Work out the value of an expression when substituting a number for a letter. Negatives numbers are involved.	The value of the letter in the blue cell is shown. What is the value of the letter in the red cell? Drag it from the number box into the red cell. Later in the task the grid will disappear! Score: one point for each correct.			X	X	X
24. Substitution - small grids	Work out the value of an expression when substituting a number for a letter. Small grids used.	The value of the letter in the blue cell is shown. What is the value of the letter in the red cell? Drag it from the number box into the red cell. Later in the task the grid will disappear! Score: one point for each correct.		X	X	X	
25. What is the expression?	Enter the expression for a given journey.	Enter the expression for the journey shown, starting with the letter 'b' (which is in the blue cell). Score: one point for each correct.		X	X	X	X
26. Where is the letter?	Given an expression on the grid, you have to find the cell which contains the letter.	Use the expression to work out which cell contains the letter 'a'. You can drag 'a' from the box into the correct cell or, for the first 10 puzzles, you can drag the expression around the grid to get back to the cell containing 'a'. Score: one point for each correct.		X	X	X	X