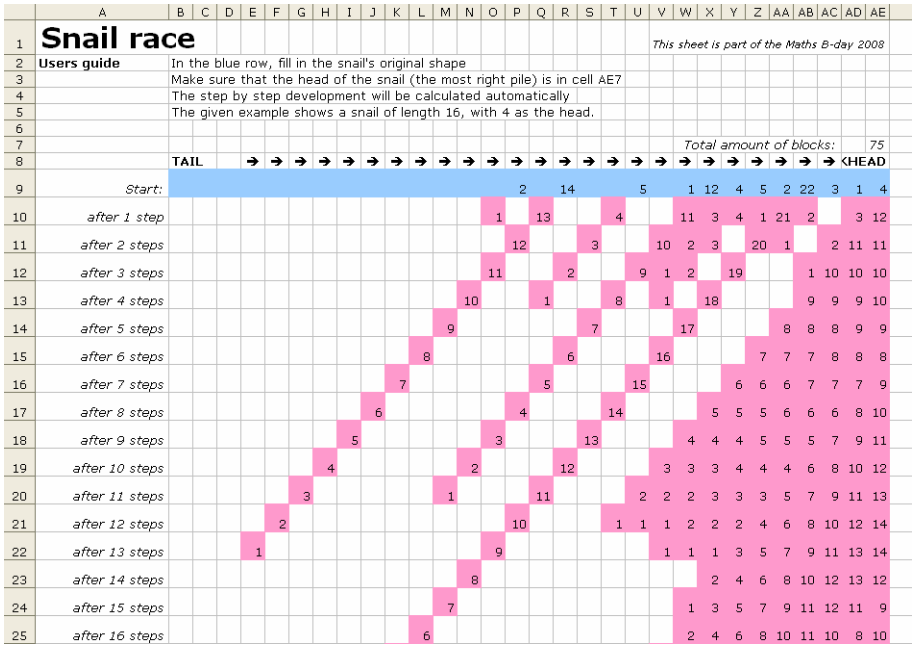
Short instruction on how to work with Excel for the tasks of the Maths B-day

▶ The snail

start the program Excel and open the document snail.xls.
The file that you open is called a *sheet*. It is just a big database. The small boxes that build the table are called *cells*.
Your screen will look more or less this way:



Snail race — *This sheet is part of the Maths B-day 2008*

Users guide
In the blue row, fill in the snail's original shape
Make sure that the head of the snail (the most right pile) is in cell AE7
The step by step development will be calculated automatically
The given example shows a snail of length 16, with 4 as the head.

Total amount of blocks: 75

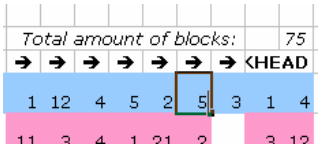
	TAIL →																						HEAD
Start:												2		14			5		1	12	4	5	2	22	3	1	4
after 1 step											1		13			4			11	3	4	1	21	2		3	12
after 2 steps												12			3			10	2	3		20	1		2	11	11
after 3 steps											11			2			9	1	2		19			1	10	10	10
after 4 steps										10			1			8		1		18				9	9	9	10
after 5 steps									9						7				17					8	8	8	9	9
after 6 steps								8						6				16					7	7	7	8	8	8
after 7 steps							7						5				15					6	6	6	7	7	7	9
after 8 steps						6						4				14					5	5	5	6	6	6	8	10
after 9 steps					5						3				13					4	4	4	5	5	5	7	9	11
after 10 steps				4						2				12					3	3	3	4	4	4	6	8	10	12
after 11 steps			3						1				11					2	2	2	3	3	3	5	7	9	11	13
after 12 steps		2										10					1	1	1	2	2	2	4	6	8	10	12	14
after 13 steps	1										9								1	1	1	3	5	7	9	11	13	14
after 14 steps										8											2	4	6	8	10	12	13	12
after 15 steps									7												1	3	5	7	9	11	12	11	9
after 16 steps								6													2	4	6	8	10	11	10	8	10

blue row

If the table does not fit well in your screen, you have to *zoom*. That is possible by changing the percentage in the menu

The blue row shows the initial shape of the snail, using the same notation as in the task. Underneath the blue row, you see all nexts steps of the snail.

If you want to investigate a different snail, you have to change the initial situation by clicking one of the blue cells and change the number in that cell. Then press 'enter':



Total amount of blocks: 75

→	→	→	→	→	→	→	HEAD
1	12	4	5	2	5	3	1	4
11	3	4	1	21	2		3	12

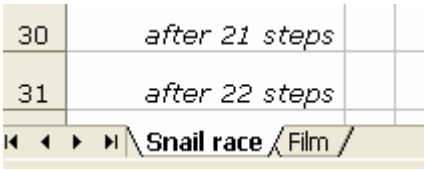
You can also use 'delete' to empty a cell; putting a '0' has the same effect. You don't need to change the 'total amount of blocks' (just above the blue row); that is done automatically by Excel.
As soon as a number is changed, the program will automatically re-calculate the development of the snail. That goes very fast!

When you are familiar enough with Excel, you may add other calculations for testing hypotheses.

Warning: If you (by coincidence) change things in the area beneath the blue row, it is possible that the sheet will no longer work well. Therefore you should always keep a copy of the original sheet at hand.

▶ The development of a snail shown graphically

The document `snail.xls` as it is described above, also contains a sheet with a graphical representation of the snail. Click the word 'Film' at the bottom of the screen:



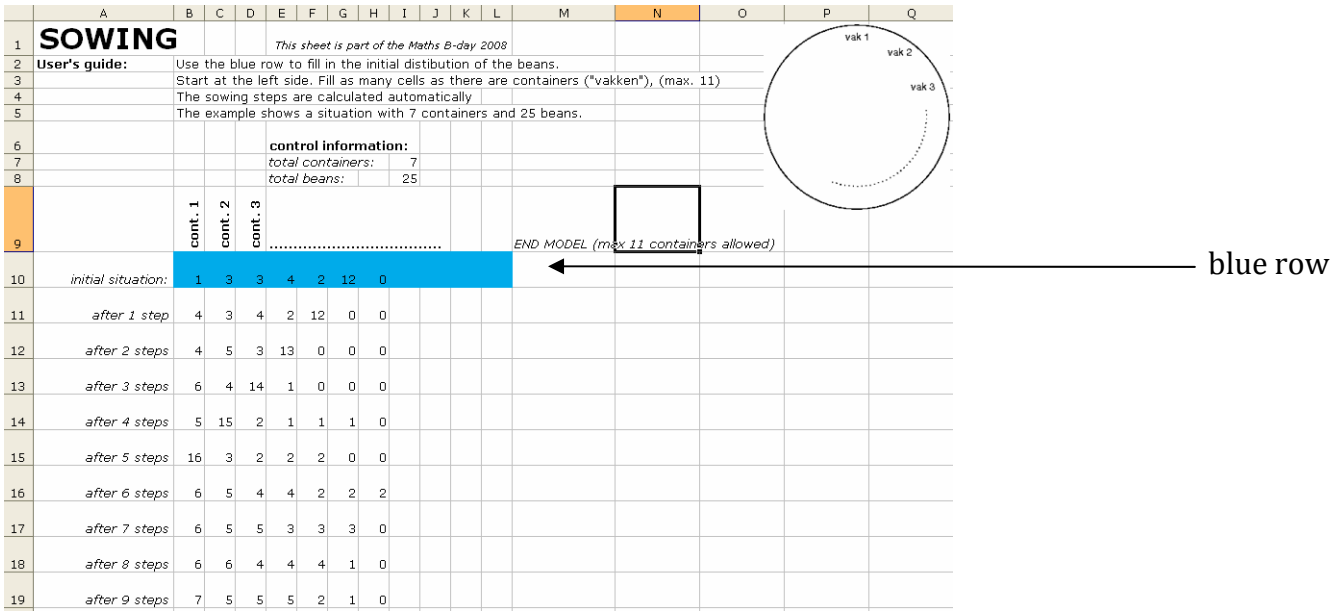
You go to another sheet now. Here you see the snail that was created on the sheet 'Snail race".
The only thing you have to do is use the slider:

In the graph you can follow the development of the snail.

Attention: In some versions of Excel this only works after clicking the graph before using the slider.

▶ Sowing beans

After becoming familiar with the snail, it will not be difficult to work with the Excel-file `sowing.xls`.
After opening the file, the screen will look like this:



As with the snail, you can create an initial situation by filling in the blue row. Excel will immediately calculate the next steps. The notation is the same as in the tasks. You don't need to change the control information (total containers and total beans); this is done automatically by Excel.

Different from the snail: in this sheet there is a difference between an *empty* cell and a cell that contains the *number 0*. In the blue row you see a sequence of numbers, followed by empty cells. The total number of containers *n* (see tasks) is calculated by Excel by counting the number of non-empty cells. A cell with number 0 in it counts as a non-empty cell. To empty a cell, click it and push the delete-key.

For this sheet also applies: Change the sheet if you like, but keep a copy of the original sheet at hand.