This sheet gives you some more ideas about what children might explore from the 'Number Plumber' starting point. We are not suggesting that you present these tables to children, but it may help you see the possibilities. Of course learners will come up with their own ideas which will be just as interesting, if not more so!

Here is a table listing the numbers obtained if the operations are continued as in the video clip:

"3x4-5"
7
23
87
343
1367
5463
21847
87383
349527
1398103
5592407
22369623
89478487
357913943
1431655767
5726623063
22906492247
91625968983

Children might notice the number of digits increasing: 1,2,2,3,4,4,5,5,6,7,7,8,8,9,10,10,11,11

Here's what happens when you change the starting number (DR stands for digital root):

CHANGING STARTING NUMBER

"3x4-5"	pair				"4x4-5"	pair				"5x4-5"	pair	units	
	10's	tens	units	D.R.		10's	tens	units	D.R.		10's	tens	D.R.
7	0		7	7	11	1		1	2	15	1	5	6
23	2		3	5	39	3	4	9	3	55	5	6	5	1
87	8	10	etc	6	151	5		etc	7	215	etc	etc	etc	8
343	4			1	599	9	14		5	855				9
1367	6	10		8	2391	9			6	3415				4
5463	6			9	9559	5	14		1	13655				2
21847	4	10		4	38231	3			8	54615				3
87383	8			2	152919	1	4		9	218455				7
349527	2	10		3	611671	7			4	873815				5
1398103	0			etc	2446679	7	14		etc	3495255				etc
	etc				9786711	etc				13981015			
										55924055			

"6x4-5"	pair				"7x4-5"	pair				"8x4-5"	pair		
	10's	tens	units	D.R.		10's	tens	units	D.R.		10's	tens	units	D.R.
19	1		9	1	23	2		3	5	27			7	9
71	7	8	1	8	87	8	10	7	6	103			3	4
279	7		etc	9	343	4		etc	1	407	0		etc	2
1111	1	8		4	1367	6	10		8	1623	2			3
4439	3			2	5463	6			9	6487	8	10		7
17751	5	8		3	21847	4	10		4	25943	4			5
70999	9			7	87383	8			2	103767	6	0		6
283991	9	18		5	349527	2	10		3	415063	6			1
1135959	5			6	1398103	0			7	1660247	4	10		8
4543831	3	8		1	5592407	0	0		etc	6640983	8			9
18175319	etc			etc	22369623	etc				26563927	2	10		etc
										106255703	0	etc	
											etc		

(The column 'pair tens' is the total obtained by adding the tens digits of pairs of adjacent numbers.)

And here's what happens if you change other parts of the calculation in turn:

CHANGING ALL 5 PARTS OF IT

"3x4+5"

	10's	pair tens	units	D.R.
17	1		7	8
73	7	8	3	1
297	9		etc	9
1193	9	18		5
4777	7			7
19113	1	8		6
76457	5			1
305833	3	8		4
1223337	3			3
4893353	5	8		etc
	etc			

"4x4-5"

	10's	pair tens	units	D.R.
11	1		1	2
39	3	14	9	3
151	5		etc	7
599	9	14		5
2391	9			6
9559	5	14		1
38231	3			8
152919	1	4		9
611671	7			4
2446679	7	14		etc
	etc			

"3x3-5"

	10's	units	D.R.
4	0	4	
7	0	7	7
16	1	6	etc
43	4	3	
124	2	etc	
367	6		
1096	9		
3283	8		
9844	4		
29527	2		
88576	7		
265723	2		
797164	6		
2391487	8		
7174456	5		
21523363	6		
64570084	8		
193710247	4		
581130736	3		
1743392203	0		
5230176604	etc		

"3x4-6"

	10's	pair tens	units
6			6
18	1		8
66	6	7	etc
258	5		
1026	2	7	
4098	9		
16386	8	17	
65538	3		
262146	4	7	
1048578	7		
4194306	0	7	
	etc		

"3-4x5"

	Hun Thou	Tens Thou	Thou	Hun	Tens	Units	D.R.
-5						5	5
-45					4	etc	9
-245				2	etc		2
-1245			1	etc			3
-6245			6				8
-31245		3	etc				6
-156245	1	5					etc.
-781245	7	8					
-3906245	9	0					
-19531245	5	etc					
-97656245	6						
-488281245	2						
-2441406245	4						
-12207031245	0						
-61035156245	etc						