

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 (DG 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	1	
87	8	10	etc	6		151	5		etc	7		215	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	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"		pair				"4x4-5"		pair				"3x3-5"		
10's	tens	units	D.R.			10's	tens	units	D.R.			10's	units	D.R.
17	1	7	8			11	1	1	2			4	0	4
73	7	8	3	1		39	3	14	9	3		7	0	7
297	9		etc	9		151	5		etc	7		16	1	6
1193	9	18		5		599	9	14		5		43	4	3
4777	7			7		2391	9			6		124	2	etc
19113	1	8		6		9559	5	14		1		367	6	
76457	5			1		38231	3			8		1096	9	
305833	3	8		4		152919	1	4		9		3283	8	
1223337	3			3		611671	7			4		9844	4	
4893353	5	8		etc		2446679	7	14		etc		29527	2	
	etc					etc						88576	7	
												265723	2	
"3x4-6"		pair				Hun	Tens					797164	6	
10's	tens	units				Thou	Thou	Thou	Hun	Tens	Units	D.R.	2391487	8
6		6											7174456	5
18	1	8				-5							21523363	6
66	6	7	etc			-45				4	etc	9	64570084	8
258	5					-245			2	etc		2	193710247	4
1026	2	7				-1245			1	etc		3	581130736	3
4098	9					-6245			6			8	1743392203	0
16386	8	17				-31245			3	etc		6	5230176604	etc
65538	3					-156245	1	5				etc.		
262146	4	7				-781245	7	8						
1048578	7					-3906245	9	0						
4194306	0	7				-19531245	5	etc						
	etc					-97656245	6							
						-488281245	2							
						-2441406245	4							
						-12207031245	0							
						-61035156245	etc							