

Factor and multiple chains

Worksheet : Mastery



Factors and Multiples chains (Example)

Do one now! How many numbers did you use?



1. Pick an even number from the grid opposite. Cross it out.
1. This is the start of the chain.
Now the next number must be a factor or a multiple of this first number.
1. Then continue to build the chain, choosing a factor or multiple of the previous number until it is no longer possible.



Factors and Multiples chains

Play on your own.

How big is your chain?

1. Pick an even number from the grid opposite. Cross it out.
1. This is the start of the chain. Now the next number must be a factor or a multiple of this first number.
1. Then continue to build the chain, choosing a factor or multiple of the previous number until it is no longer possible.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50



Alternative chains using 100 square



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

How many different chains can you create for the three different types of alternate chains?

1. Chains which alternate between a multiple and factor each time.
1. Chains which are made up of multiples of the first number only.
1. Chains which are made up of factors of the first number only.



Alternative chains using 100 square



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

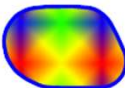
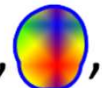


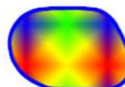
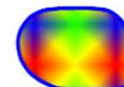
Challenge Slide



Here are two more alternating multiple and factor chains.

What are the missing values?
Can you prove your answers and explain how you know?

48 , 12 ,  10 , 30 ,  99 , 11

36, 3,  11, 55, 5,  8



Interactive game : Now try this game either on your own or challenge an adult !

<https://www.transum.org/Maths/Game/Flabbergasted/>

The screenshot shows a web browser window with the URL [transum.org/Maths/Game/Flabbergasted/](https://www.transum.org/Maths/Game/Flabbergasted/). The browser's address bar and tabs are visible at the top. The game interface has a black background with a red border. On the left, a white box contains the following instructions:

Instructions

The first player chooses an even number.

Players alternate choosing a number that is a factor or multiple of the number the previous player chose.

If one player is unable to choose a valid number, the other player wins.

It's Player 1's turn.

Click on an even number.

On the right, there is a 10x10 grid of red buttons, each containing a number from 1 to 100. The numbers are arranged in rows of 10, starting from 1 in the top-left and ending with 100 in the bottom-right.

At the bottom of the browser window, the Windows taskbar is visible, showing the search bar and various application icons. The system clock in the bottom right corner displays the time 12:21 and the date 01/02/2021.

