Abundant Numbers

To find the **factors** of a number, you have to find **all** the pairs of numbers that multiply together to give that number.

The factors of 48 are:

- 1 and 48
- 2 and 24
- 3 and 16
- 4 and 12
- 6 and 8

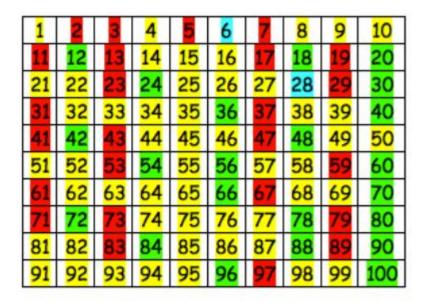If we leave out the number we started with (48) and add all the other factors, we get 76:

1+2+3+4+6+8+12+16+24=76

So … 48 is called an **abundant** number because it is less than the sum of its factors (without itself) (48 is less than 76.)

Task:

- There are 22 abundant numbers between 1 and 100 (48 is one of them).
- Find at least 11 more of them and prove it.
- On Seesaw we want to see your workings out to prove you have found 11 or more abundant numbers.
- HINT: Start by eliminating all the prime numbers between 1 and 100.

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

Answers:

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

prime numbers

not abundant numbers

perfect numbers

abundant numbers

A perfect number is what we call a number where the sum of its factors (without itself) is equal to the number.