#2

NS6-17: Prime Numbers and Composite Numbers

Name: _____

A **prime** number has <u>two</u> distinct factors (no more, no less): itself and 1.

A **composite** number has <u>more than two</u> factors: at least one number **other than** itself and 1.

---

1. a) How many <u>distinct</u> factors does the number 1 have? _____ b) Is 1 a prime number? _____

2. List all the prime numbers less than 10: _____

3. List all the composite numbers between 10 and 20: _____

4. What is the greatest prime number less than 30? _____

5. Circle the prime numbers.

   1 25 14 13 17 20 27 15 12 18 29 33

6. Eratosthenes was a Libyan scholar who lived over 2000 years ago. He developed a method to systematically identify prime numbers. It is called **Eratosthenes' Sieve**.

   Follow the directions below to identify the prime numbers from 1 to 100.

   a) Cross out the number 1 (it is not prime).

   b) Circle 2, and cross out all the multiples of 2.

   c) Circle 3, and cross out all the multiples of 3 (that haven't already been crossed out).

   d) Circle 5, and cross out all the multiples of 5 (that haven't already been crossed out).

   e) Circle 7, and cross out all the multiples of 7 (that haven't already been crossed out).

   f) Circle all remaining numbers.

   You've just used **Eratosthenes' Sieve** to find all the prime numbers from 1 to100!

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

7. The prime numbers 3 and 5 differ by 2.
   Find three pairs of prime numbers less than 20 that differ by 2.