

Prime Numbers

To know if a number up to 100 is prime and recall prime numbers up to 19.



Cut out the images of the arrays. Then sort them into the table to show if the arrays represent prime numbers or composite numbers.

Remember: if the array is incomplete, it is a prime number.

 3	 6	 5	 8
 4	 7	 9	 11
 18		 13	

Create your own drawings of arrays for the numbers below and sort them into the table.

2	10	12	14	15	16	17
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Prime Numbers (Incomplete Arrays)	Composite Numbers (Complete Arrays)

Prime Numbers

To know if a number up to 100 is prime and recall prime numbers up to 19.



- Sort the numbers into the correct place on the table.
Draw an array next to each number to prove your answer.

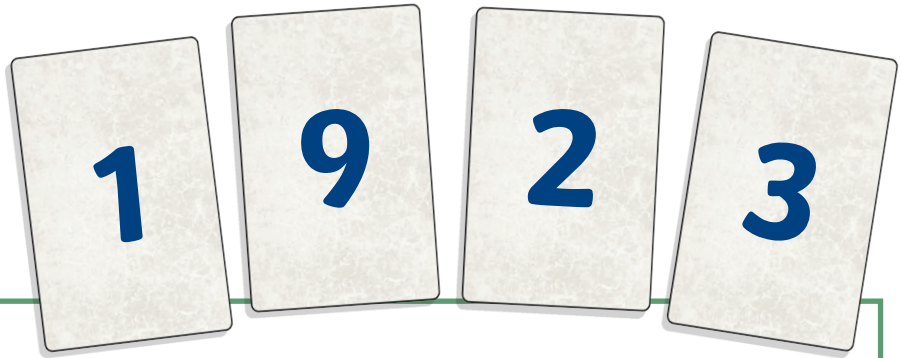
Prime Numbers	Composite Numbers

3	6	19	12
10	13	16	7

2) Write the missing prime numbers in the number sequence.

2, 3, , 7, 11 , 17, , , 27

3) How many prime numbers can you make using the digit cards below?



76 is a prime number because 7 is a prime number.

4) Felix is incorrect. Can you explain why he might believe that 76 is a prime number and explain why he is wrong?

Prime Numbers

To know if a number up to 100 is prime and recall prime numbers up to 19.



- 1) Sam has circled prime numbers up to 50 on the number square below. His teacher says that he has missed some numbers. Circle the prime numbers that Sam has missed.



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

- 2) Is 98 a prime number? How do you know?
Prove your answer below by drawing a model to show your reasoning.

3) The sum of two prime numbers is 32. What are the numbers?

Write the calculation in the box below.

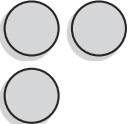
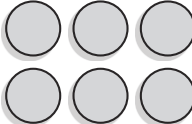
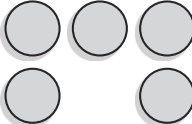
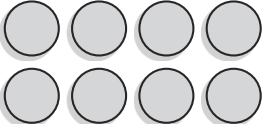
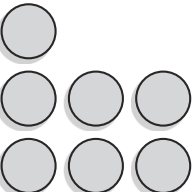
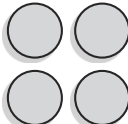
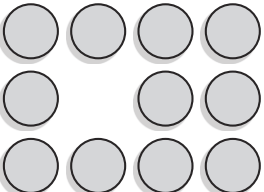
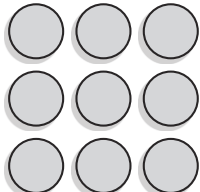
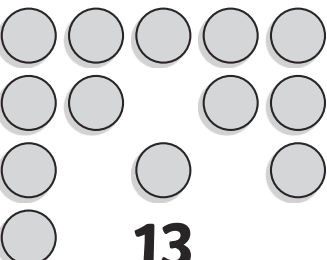
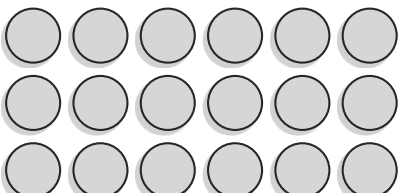
4) Write the three prime numbers which multiply to make 231.

$$\square \times \square \times \square = 231$$

5) Tick each statement according to whether it is always true, sometimes true or never true.

	Always True	Sometimes True	Never True
Prime numbers are odd.			
Prime numbers can have 3 or more factors.			
The sum of 2 prime numbers is always even.			
If you create an array of a prime number, it will be incomplete.			

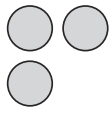
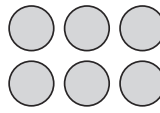
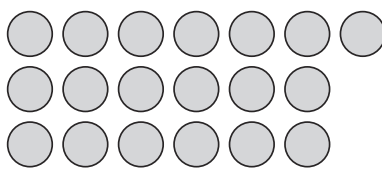
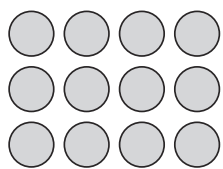
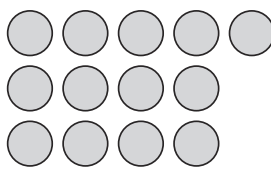
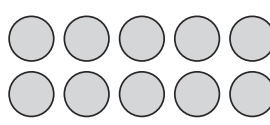
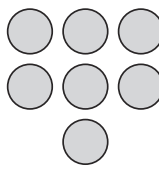
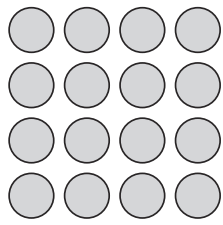
Prime Numbers Answers

Prime Numbers	Composite Numbers
 <p>3</p>	 <p>6</p>
 <p>5</p>	 <p>8</p>
 <p>7</p>	 <p>4</p>
 <p>11</p>	 <p>9</p>
 <p>13</p>	 <p>18</p>
<p>17 - Accept any suitable array.</p>	<p>2 - Accept any suitable array. 10 - Accept any suitable array. 12 - Accept any suitable array. 14 - Accept any suitable array. 16 - Accept any suitable array.</p>

Prime Numbers Answers

- 1) Sort the numbers into the correct place on the table.
Draw an array next to each number to prove your answer.

Accept any suitable arrays. For example:

Prime Numbers	Composite Numbers
<p>3</p> 	<p>6</p> 
<p>19</p> 	<p>12</p> 
<p>13</p> 	<p>10</p> 
<p>7</p> 	<p>16</p> 

- 2) Write the missing prime numbers in the number sequence.

2, 3, **5**, 7, 11, **13**, 17, **19**, **23**, 27

- 3) How many prime numbers can you make using the digit cards below?

2, 3, 11, 13, 19, 23, 31

- 4) Felix is incorrect. Can you explain why he might believe that 76 is a prime number and explain why he is wrong?

The child may believe it is a prime number as the tens value is 7 and 7 is a prime number. They have forgotten to take into account the ones value. The ones are even which means that 2 is a factor of 76.

Prime Numbers Answers

- 1) Sam has circled prime numbers up to 50 on the number square below. His teacher says that he has missed some numbers. Circle the prime numbers that Sam has missed.

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

- 2) Is 98 a prime number? How do you know?

Prove your answer below by drawing a model to show your reasoning.

98 is not a prime number as it has more than two factors. Children may make reference to the fact that 98 is a multiple of 2 so that tells us it has more than two factors. Children may draw a model where they list the factors that make 98. The factors of 98 are: 1, 2, 7, 14, 49 and 98.

- 3) The sum of two prime numbers is 32. What are the numbers?

Write the calculation in the box below.

$$13 + 19 = 32 \quad \text{or} \quad 29 + 3 = 32$$

- 4) Write the three prime numbers which multiply to make 231.

$$\boxed{3} \times \boxed{7} \times \boxed{11} = 231$$

5) Tick each statement according to whether it is always true, sometimes true or never true.

	Always True	Sometimes True	Never True
Prime numbers are odd.		✓	
Prime numbers can have 3 or more factors.			✓
The sum of 2 prime numbers is always even.		✓	
If you create an array of a prime number, it will be incomplete.	✓		