



First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	


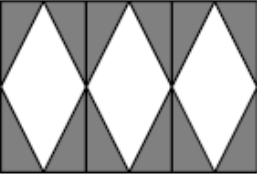

Patterns

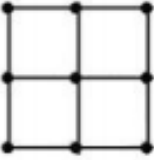
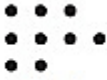
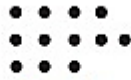

Welcome to the Math Challenge #11. Problems can be solved by noticing its patterns, making an organized list or a combination of both strategies! Enjoy this challenge.

Kinder & First Grade: solve at least 3 problems.
Second & Third Grade: solve at least 7 problems.
Fourth Grade and above: solve at least 12 problems.

Answer

1. Meredith counts by two starting at 10. What is the 4 th number she will say?	
2. Norma counts backward by two starting with 20. What is the 4 th number she will say?	
3. Gary rakes leaves. The first day, he fills 5 bags. The second day, he fills 8 bags. The third day, he fills 11 bags of leaves. If this pattern continues, how many bags will he fill on the fifth day?	
4. Hank is planting pepper plants. In the first row, he plants 1 pepper. In the second row, he plants 2. In the third row, he plants 4. In the fourth row he plants 8. If he plants a total of 5 rows, how many pepper plants are there in all?	
5. What is the total of: <i>one plus two plus three plus four plus five plus six plus one plus two plus three plus four plus five plus six plus one plus two plus three plus four plus five plus six plus one plus two plus three plus four plus five plus six plus one plus two plus three plus four plus five?</i> Hint: find a clever way to get to the correct answer.	
6. A train can hold 78 passengers. The train starts out empty and picks up 1 passenger at the 1st stop, 2 new passengers at the 2nd stop, 3 new passengers at the 3rd stop and so forth. If no one gets off, after how many stops will the train be full? Hint: Make an organized chart.	

7.	Andy is creating a design using colored shapes. He is starting with a triangle and ending with another triangle. In between the triangles, he has a circle to the left of a square. He continues with this pattern until he uses up 25 shapes. What is the 25 th shape?	
8.	Chelsea makes a display. He puts 1 photo in the first row, 4 photos in the second row, 7 in the third row, and 10 in the fourth row. If the pattern continues and he completes 10 rows of photos, how many total photos does Chelsea put in the display?	
9.	Elizabeth collects seashells each day during her vacation at Whidbey Island. On the first day, she collects 3 seashells and each day the number of seashells she collects is double the number of seashells she collected the day before. On what day will Elizabeth collect exactly 96 seashells?	
10.	The candy store has 4 separate large boxes, and inside each large box there are three separate small boxes, and inside each of these small boxes there are 2 separate smaller boxes filled with an assortment of candies. How many boxes, counting all sizes, are there all together?	
11.	Tom uses 12 right triangles to make the following design: How many white rhombi will there be in all if he uses 64 small right triangles?	
12.	There are 8 marks evenly spaced from each other along a meter stick. The first mark is at 27 cm. The eight mark is at 62 cm. Where in centimeters, is the fifth mark? Hint: Draw it out.	
13.	Take a look at the growing pattern below. The first figure has 1 dime. In figure 2, some dimes have been added to make a triangle shape with two dimes on each side. The pattern continues and the figures keep getting larger in the same way, so the sides are growing by one more dime each time while the center is empty. How many dimes will be in Figure 100?	

<p>14. Leisha is using popsicle sticks to build some grids for her city planning project. She needs 4 popsicle sticks to make a 1 by 1 grid, and 12 sticks to make a 2 by 2 grids as shown below. How many sticks does she need to make a 10 by 10 grids?</p>	
<p>15. A wall clock strikes every hour. The number of strikes corresponds to the time. For example, at 9 am and 9 pm you will hear 9 strikes. In addition, the clock strikes once at the half-hour mark. How many strikes can be heard in one 24-hour period?</p>	
<p>16. If the pattern continues, how many dots will be in the 100th figure of the sequence?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Fig. 1</p> </div> <div style="text-align: center;">  <p>Fig. 2</p> </div> <div style="text-align: center;">  <p>Fig. 3</p> </div> </div>	
<p>17. How many numbers between 1 and 99 are the product of any two even numbers?</p>	
<p>18. Desiree starts with 2 and count by 3s until she reaches 449. The pattern of numbers she says would be: 2, 5, 8, 11, ..., 449. Her first number is 2, second number is 5, third number is 8, and so on. If 449 is the nth number, find the value of n.</p>	

Solution is available on March 19, 2021 at www.mathinaction.org