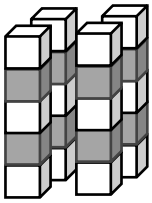
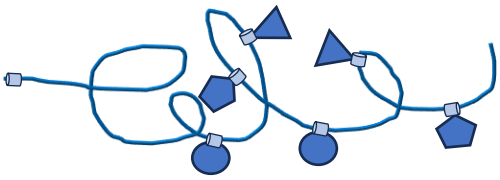
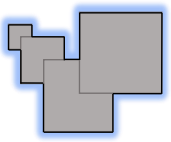
First Name: _____	**Last Name:** _____	**Grade:** _____
Teacher: _____	**Parent's email:** _____	

Interesting Patterns

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

		Answer
1.	Maria counts up by one starting with 11 and ending with 20. She claps everytime she says an even number. How many times does she clap? 11, **12**, 13, **14**, 15, **16**, 17, **18**, 19 **20**.	*5 [times]*
2.	Micah built 4 towers using gray and white cubes as shown on the right. He made each tower using five cubes. How may white cubes does he use to build the 4 towers? Each tower has 3 white cubes. The number of white cubes = 3+3+3+3 = **12.** 	*12 [cubes]*
3.	When written as 4/4/2024, the date April 4, 2024, has three 4's. What is the next earliest date that will have three 4's? April 14, 2024	*April 14, 2024, or 4/14/2024*
4.	Tairah is making a necklace. She places charms in a certain order. What shape of charm should she place next? Notice that the order she places the charms: circle, triangle, pentagon, circle, triangle, pentagon. The next charm should be a circle. 	*A circle*
5.	Number of gray squares: 7+5+7+5+3+1+3+1 = 32 Number of white squares: 5+3+5+3+1 =17 32 – 17 = 15	*15*
6.	Draw the model. If a block +4 is twice than the block, then one unit/block must be 4. So, on the first day he caught 4 fish, on the second 6, on the third 8. 4 + 6 + 8 = **18 fish** in total. 1st  2nd  +2 3rd  +4	*18 [fish or fishes]*
7.	Let's solve this problem backwards. There were 3 pieces of candy at the end. Before Chelsea took some pieces, there were 3+3 = 6 pieces. Before Tiara took some pieces, there were 6+6 =12 pieces. Before Santos took some pieces, there were 12+12 = 24 pieces. Check: 24 – 12 – 6 – 3 = 3 pieces ✓	*24 [pieces of candy]*

8.	<table><tr><td>2</td><td>3</td><td>1</td></tr><tr><td>3</td><td>1</td><td>2</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table> 2+2 = **4**	*4*
9.	16 circles to create a square means 4 circles in each row. 2 crayons on each side of square, **8 crayons in total**. 	*8 [crayons]*
10.	There are three pairs of opposite faces, (5 + 6 + 9 + 11 + 14 + x)/3 = (45+x)/3, so the missing number is a multiple of 3, and the missing number must be more than 14. A multiple of 3 that is greater than 14 is **15**. Let's check it: 5 + 15 = 6 + 14 = 9 + 11	*15*
11.	We have 8 groups of B-G, boy with right hand given to a girl. There are 4 more girls and 12 more boys to stand in a circle. To make smaller number of boys holding left hand with the girl, will put the order of BBBBBBBB BBG GBG GBG GBG BBG BBG GBG BBG	*8*
12.	The number of people who can sit on each side of the square table is 12 ÷ 4 = 3. When eight of these tables are arranged to make a long rectangular table, there will be room for 8 × 3 = 24 people on each long side and for three extra people at each end. Hence, the number of people that can sit round the long table is 2 × 24 + 2 × 3 = 48 + 6 = **54**	*54 [people]*
13.	76 – 62= 14 inches is the width of 1 sitting modular, without armrests. The width of 2 armrests is 62 – 2×(14) = 62 – 28 = 34 inches. The width of the chair 34 + 14 = **48 inches**.	*48 [inches]*
14.	The outer and inner shaded regions have areas 16 cm^2 – 9 cm^2 = 7 cm^2 and 4 cm^2 – 1 cm^2 = 3 cm^2. So, the total shaded area = 7 cm^2 + 3 cm^2 = 10 cm^2	*10 [cm^2]*
15.	$\frac{3}{4}\cdot 2^2+\frac{3}{4}\cdot 4^2+\frac{3}{4}\cdot 6^2+8^2=3+12+27+64=106\ in^2$ 	*106 [in^2]*
16.	We start with 27, 26, then 2×6+12 = 24, 2×4+12 = 20, 2×0+12 = 12, 1×2+12 = 14, 1×4+12 = 16, 1×6+12 = 18, 1×8+12 = 20, 2×0+12 = 12, 1×2+12 = 14, 1×4+12 = 16, 1×6+12 = 18, and so on. Notice that you will have the following sequence: 27: 26, 24, 20, 12, 14, 16, 18, 20, 12, 14, 16, 18, …. Repeat every 5 min. At 57 minutes you will have 18. After 60 minutes the number written will be **14**.	*14*
17.	Redmond is 7-letter word. Since 2023 is a multiple of 7, the 2024th letter is R.	*R*
18.	The largest sum she can get placing rooks diagonally: 1 + 12 + 23 + 34 + 45 + 56 + 67 + 78 + 89 + 100 = **505**	*505*