GOOD YEAR BOOKS

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PRIMARY ALGEBRA

Hope Martin

STUDENT WORKBOOK

Student Name: _____

Classroom: _____

Teacher: _____

Note: The separate Teacher's Edition includes solutions to all questions, mathematics background for each activity, extensions, and more.

GOOD YEAR BOOKS

Contents

Appendix

Pattern Block Patterns That Grow

Directions: Use your pattern blocks to make each of these growing patterns.

1   **2**   **3**
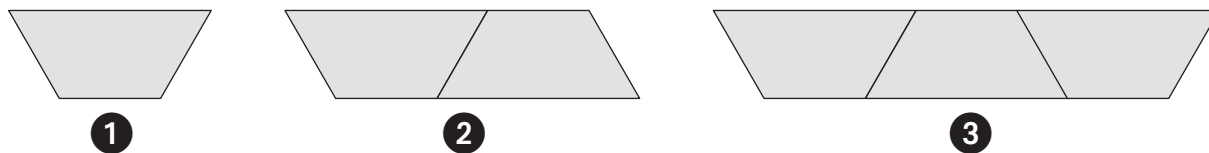
Each pattern above is called a "train." What will the next, or "fourth train," in this pattern look like? Draw a picture of it below. Explain how you solved this problem.

_____

- -

_____

1   **2**   **3**   **4**
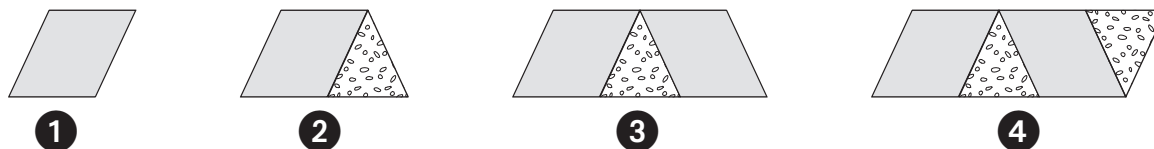
What will the "fifth train" in this pattern look like? How many triangles will there be? _____ How many trapezoids? _____ Draw a picture of the fifth train below. Explain how you solved this problem.

_____

- -

_____

Work with your partner to find a "rule" that will help you figure out how many trapezoids and how many triangles there will be in the tenth train of this pattern. Explain how you solved this problem.

_____

- -

_____

Design Your Own Pattern Block Patterns That Grow

Activity

Directions: Use pattern blocks to design an original growing pattern. You can use any blocks that you like, but remember: For it to be a **pattern,** you must be able to predict what will come next.
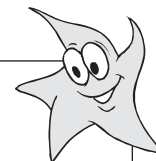
The first "train" of my pattern has: _____

The second "train" of my pattern has added _____ to the first.

The third "train" of my pattern has added _____ to the second.

Describe how your pattern grows.

_____

_____

_____

_____

_____

This is a picture of the trains of my growing pattern:

What Comes Next?

Activity

Directions: Let's take a look at some number patterns. These are called sequences because there is a relationship among the numbers. Examine each of these sequences. Then problem solve . . . **"What comes next?"**

1 **"What comes next?"** **1, 3, 5, 7, _____, _____, _____, _____,**

In your own words, describe how the pattern is formed:

_____

- -

_____

2 **"What comes next?"** **1, 3, 6, 10, _____, _____, _____, _____,**

This pattern grows in a different way. In your own words, describe how the pattern is formed:

_____

- -

_____

3 **"What comes next?"** **30, 26, 22, 18, _____, _____, _____, _____,**

This pattern is different from the others. In your own words, describe how the pattern is formed:

_____

- -

_____

4 **"What comes next?"** **1, 2, 3, 5, 8, 13, ____, ____, ____, ____,**

This pattern is very different! In your own words, describe how the pattern is formed:

_____

- -

_____

What Comes Next (continued)

Examine each of these sequences. Then problem-solve . . .
 "**What comes next?**

5 "What comes next?" 45, 40, 35, 30, _____, _____, _____, _____,

In your own words, describe how the pattern is formed:

_____

- -

_____

6 "What comes next?" 1, 2, 4, 8, 16, _____, _____, _____, _____,

This pattern grows in a different way. In your own words, describe
how the pattern is formed:

_____

- -

_____

7 "What comes next?" 24, 30, 36, 42, _____, _____, _____, _____,

This pattern is different from the others. In your own words, describe
how the pattern is formed:

_____

- -

_____

8 "What comes next?" 5, 6, 9, 14, 21, 30 ___, ___, ___, ___,

This pattern is very different! In your own words, describe how the
pattern is formed:

_____

- -

_____

Design Your Own Number Sequences

Activity

Directions: Now it's your turn to make up your own number sequences. Be as creative as you wish. Place your first four numbers in the boxes—check carefully to make sure that your numbers form a sequence. Then share your sequences with your partner—you solve his or hers and your partner will solve yours.

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

☐, ☐, ☐, ☐, _____, _____, _____, _____

Patterns in the 100-Table—Counting by 3s

Directions: Count by 3 in the table below, and shade in each third number. For example, count 1, 2, 3, and color in the number 3. Continue counting 1, 2, 3, …, and what number do you come to? That's right—6. Shade in the 6. Continue, counting carefully, and shade in the number you get to when you say "3."

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

Write out all of the numbers that are shaded. Do you see a pattern? Describe it.

Patterns in the 100-Table— My Own Number

Activity

Directions: Choose another number and use that number to count off a pattern on this hundreds table.

I chose the number _____. The first number I will shade will be a _____.
The next number I will shade in will be a _____.

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