2nd Basic

3rd Advanced

Helping With Math

USA GRADES

Number Patterns

Suitable for students **aged 6-8**

This pack is suitable for learners aged 6-8 years old or 2nd to 3rd graders (USA). The content covers fact files and relevant basic and advanced activities involving basic number patterns.

Number Pattern
is a list of numbers that follow a certain rule of sequence.

HOW TO IDENTIFY ARITHMETIC PATTERNS OF NUMBERS?

2 , 4 , 6 , 8 , 10
+2 +2 +2 +2
Common difference is constant ✓

3 , 4 , 6 , 7 , 10
+1 +2 +1 +3
Common difference is not constant ✗

Arithmetic Numbers	Rule	Proof
2 , 3 , 4 , 5 , 6 , 7	add 1	2+1 , 3+1 , 4+1 , 5+1 , 6+1
11 , 9 , 7 , 5 , 3 , 1	subtract 2	11-2 , 9-2 , 7-2 , 5-2 , 3-2

NUMBER RULES

The **rule** indicates how much should we add, subtract, multiply or divide to the previous number in the sequence to determine the next term or number. Let's study the examples below.

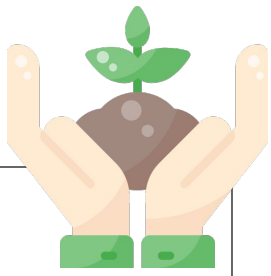
Arithmetic Numbers	Rule	Proof
2 , 3 , 4 , 5 , 6 , 7	add 1	2+1 , 3+1 , 4+1 , 5+1 , 6+1
11 , 9 , 7 , 5 , 3 , 1	subtract 2	11-2 , 9-2 , 7-2 , 5-2 , 3-2
5 , 10 , 20 , 40 , 80	multiply 2	5x2 , 10x2 , 20x2 , 40x2
400, 200, 100, 50, 25	divide 2	$\frac{400}{2}, \frac{200}{2}, \frac{100}{2}, \frac{50}{2}$

Explanation:

- In the first example, notice that the rule stated is to add 1. To determine the next term, we add 1 to the previous number. The same goes with the second example.
- In the third example, the first term is just multiplied by 2 to determine the next term. Also, in the fourth example, the first term is just divided by 2 to determine the 2nd term.

NUMBER RULES

REMEMBER:



- Even numbers are always divisible by 2.
- Even numbers can be decomposed into two equal numbers such that

  18 = 9 + 9
- Multiples of even numbers are always even numbers
- On multiplication chart, the products in each row and column increase by the same amount (skip counting).

1.) When you add two even numbers together, the resulting sum is **always even**.
For example: 4 + 8 = 12
Therefore, even + even = even

2.) When you add two odd numbers together, the resulting sum is **always even**.
For example: 3 + 5 = 7
Therefore, odd + odd = odd

3.) When you add an odd number and an even number together, the resulting sum is **always odd**.
For example: 7 + 2 = 9
Therefore, odd + even = odd

PRACTICE EXERCISES

Identify the arithmetic pattern in the following problems.

1. Find the next term in the arithmetic pattern below,

7, 15, 23, 31, ___

2. Find the next term in the arithmetic pattern below,

31, 24, 17, 10, ___

3. Find the next term in the arithmetic pattern below,

3, 6, 9, 12, ___

4. Find the next term in the arithmetic pattern below,

40, 20, 10, ___

5. Find the next term in the arithmetic pattern below,

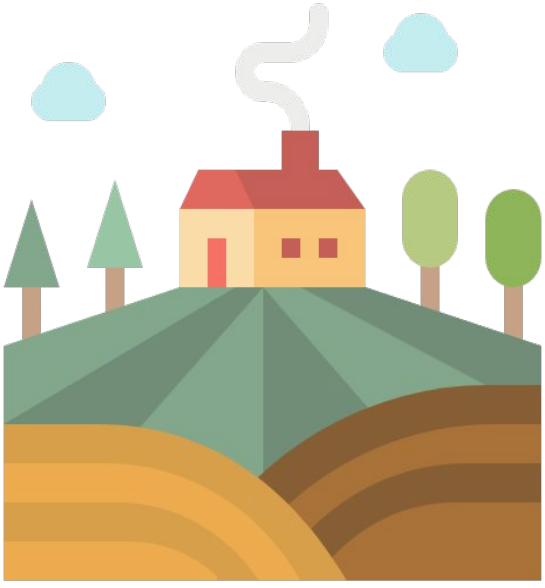
2, 5, 8, ___

TABLE OF ACTIVITIES

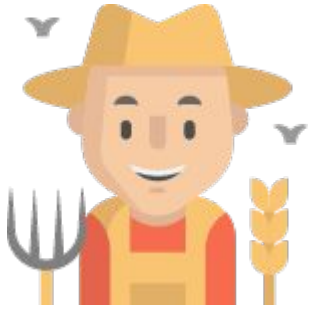
THE FARM VILLAGE

G2
Basic

The Farm Village is now open for visit! They are offering free dairy products to the first five customers who will answer the following questions correctly.



What number is being added to each set of numbers?



2, 4, 6, 8, 10, 12, 14, ...	Answer:
3, 6, 9, 12, 15, 18, 21, ...	Answer:
5, 10, 15, 20, 25, 30, 35, ...	Answer:
8, 11, 14, 17, 20, 23, 26, ...	Answer:
19, 24, 29, 34, 39, 44, 49, ...	Answer:

CHI-CHI-CHICKEN

G2
Basic

Chi-Chi the Chicken is about to lay eggs. Guide her towards the small house to do her errand. Color the eggs that contain odd numbers with the shade of brown.

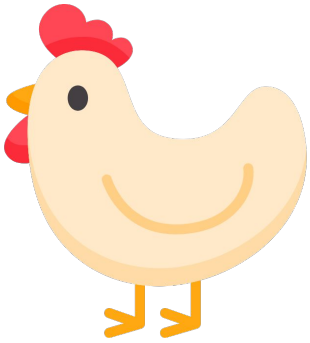
90 95 99 91

60 65 68 67 71 73 80

47 46 40 49 50 55 58

9 12 18 19 20 35 30

10 15 4 3



CROPS WITH PATTERN

G2 Basic

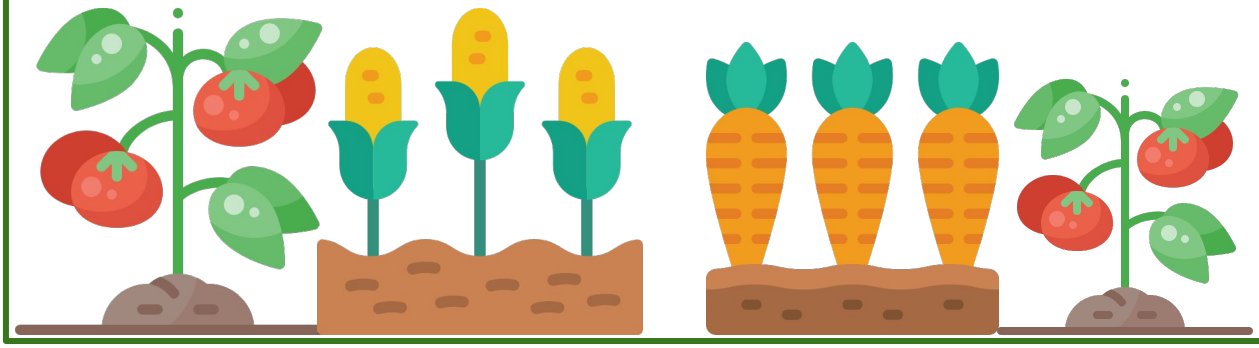
Cross out the crop that does not follow the rule on each item.

1.	4,	5,	6,	7,	8,	9,	11,	12,	13,	14,	15
2.	38,	36,	34,	33,	30,	28,	26,	24,	22,	20,	18
3.	9,	17,	25,	33,	41,	49,	56,	65,	73,	81,	89
4.	5,	11,	17,	23,	29,	35,	41,	48,	53,	59,	65
5.	2,	4,	8,	16,	32,	64,	125,	256,			

Alfred was asked to write a number pattern starting with 15 and whose common difference is 11. Did Alfred do it correctly? Why or why not?

15, 26, 37, 48, 59, 70, 81, 92, 103, 114

Answer:

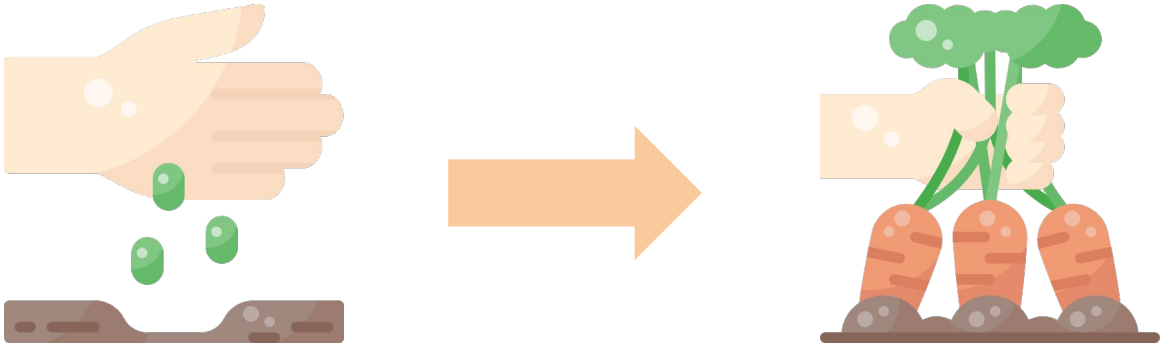


THE NEXT HARVEST SEASON

G2
Basic

The next harvest season is coming soon! To prepare the things needed for harvest, can you guess the next number that of each number pattern? Write your answer on the space provided.

1. 30, 40, 50, 60, 70, 80, 90, _____
2. 14, 18, 22, 26, 30, 34, 38, _____
3. 11, 22, 33, 44, 55, 66, 77, _____
4. 16, 31, 46, 61, 76, 91, 106, _____
5. 90, 83, 76, 69, 62, 55, 48, _____
6. 97, 85, 73, 61, 39, 27, 15, _____
7. 80, 76, 72, 68, 64, 60, 56, _____
8. 54, 51, 48, 45, 42, 39, 36, _____
9. 3, 6, 12, 24, 48, 96, _____
10. 4, 8, 16, 32 , 64, 128 , _____



CARROTS, POTATOES, PEAS

G2
Basic

Get a free sack of assorted carrots, potatoes, and peas if you will be able to answer the following questions correctly.

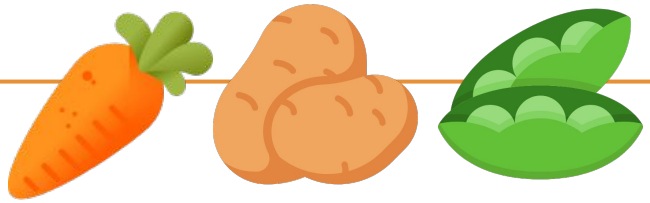
1. A set of numbers is following a certain pattern. It starts with 5 followed by 7, then 9, and so on. If this will continue, what would be the next three numbers?

2. If a number pattern started with 58, 55, 52, and so on, what number is the 10th term or in the 10th spot?

3. Meg is writing down a number pattern riddle for her best friend, Lily. The riddle is:

   81, 67, 53, _____, _____, _____.

   What is the answer to Meg's riddle?



FARM ANIMALS

G3 Advanced

Feed and take care of these farm animals by generating number patterns depending on the given.

1. Rule: start with 18 and add 4 to the seven succeeding numbers.

2. Rule: start with 36 and add 8 to the ten succeeding numbers.

3. Rule: start with 29 and add 5 to the eight succeeding numbers.

COWS IN LINE

G3 Advanced

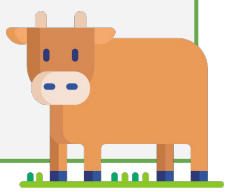
Make these cows form in line by forming a number pattern.

1. Start with the smallest even number. Then, generate the next five numbers by adding the first five odd numbers.

2. Start with the largest odd number less than 20. Then, create the next four terms by multiplying each to two.

3. Start with the smallest even number greater than 80. Then, generate the next five numbers by subtracting seven from each.

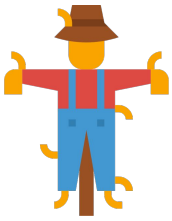
4. Start with 350. Subtract 23 from the first number and do it repeatedly until you make a number pattern with six terms.

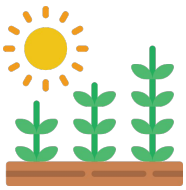


CROPS TO BUCKS

G3 Advanced

Help Mr. Barn sell his crops to generate some bucks. Guide him by supplying the terms on the next pattern.

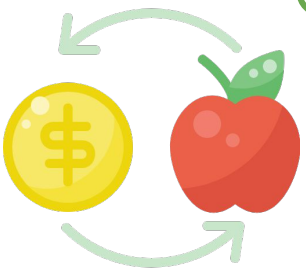


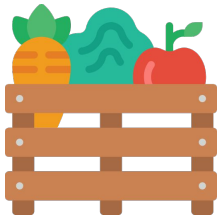


164

146

128



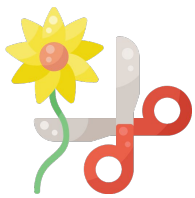
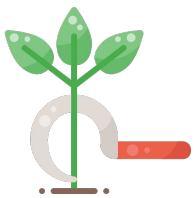


FARM TOOLS

G3 Advanced

Use these farm tools to cultivate the answers of the following two-rule number patterns.

3	4	9	10				
10	12	16	18				
87	82	79	74				
56	60	58	64				
11	11	22	22				
				83	85	88	90
				9	81	10	100
				6	36	7	49


BARN AND MILLS

G3 Advanced

Enjoy the good vibes brought by the barn and mills to answer the question below.

Rey created a number pattern riddle to be answered by his brother. Check and review the answer his brother. Did he get it correctly? Why or why not?

7, 14, 29, 58, 73, _____, _____, _____, _____

The answers of Rey's brother are 146, 161, 176, 352

Your answer:

ANSWER GUIDE

Activity 1

1. 2 2. 3 3. 5 4. 3 5. 5

Activity 2

1. The odd numbers are 3, 15, 9, 19, 35, 55, 4, 47, 73, 71, 67, 65, 91, 99, and 95

Activity 3

1. 1. 11 2. 30 3. 56 4. 48 5. 125
   Yes, Alfred did it correctly.

Activity 4

1. 100	2. 42	3. 88	4. 121	5. 41
6. 3	7. 52	8. 33	9. 192	10. 256

Activity 5

1. 1. 11, 13, 15 2. 33 3. 39, 25, 11

Activity 6

1. 18, 22, 26, 30, 34, 38, 42
2. 36, 44, 52, 60, 68, 76, 84, 92, 100, 108
3. 29, 34, 39, 44, 49, 54, 59, 64

ANSWER GUIDE

Activity 7

1. 1. 2, 3, 6, 11, 18, 27 2. 19, 38, 76, 152, 304
3. 82, 75, 68, 61, 54, 47, 40 4. 350, 327, 304, 281. 258, 235

Activity 8

1. 182, 200, 218, 236, 254, 272, 290, 308, 326, 344, 362

Activity 9

1. 15, 16, 21, 22 2. 22, 24, 28, 30 3. 71, 65, 62, 57
4. 66, 70, 68, 72 5. 33, 33, 44, 44 6. 73, 75, 78, 80
7. 7, 49, 8, 64 8. 4. 16, 5, 25

Activity 10

1. The answer is wrong. The last two numbers must be 352 and 367.

Copyright Notice

Thank you

Thank you so much for purchasing and downloading this resource.

We hope it has been useful for you in the classroom and that your students enjoy the activities.

For more teaching and homeschooling resources like this, don't forget to come back and download the new material we add every week!

Thanks for supporting **Helping With Math**. We can provide teachers with low-cost, high-quality teaching and homeschooling resources because of our loyal subscribers and hope to serve you for many years to come.

- The Entire Helping With Math Team :)