3rd Basic

4th Advanced

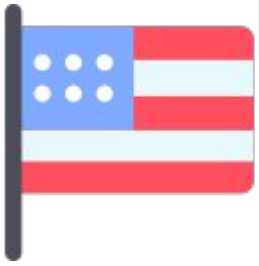
Helping With Math

USA GRADES

Divisibility Rules

Suitable for students
aged 7-9

This pack is suitable for learners aged 7-9 years old or 3rd to 4th graders (USA). The content covers fact files and relevant basic and advanced activities involving divisibility rules.



Groundhog Day is celebrated every 2nd of February. It is believed that the groundhog wakes up after sleeping through the winter on this day. It is also traditionally a day that indicates six more weeks of winter (if sunny) or early spring (if cloudy).

Divisible By

➔ When you divide one digit or number by the another, whole number is the result

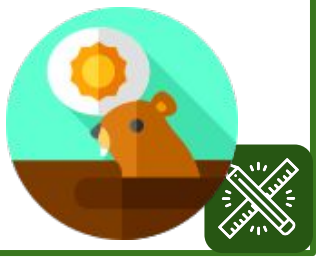
The Divisibility Rules are the rules that let you test if a particular number is divisible by another without too much computation.

DIVISIBILITY RULES

1	Any integer (not fraction) is divisible by 1 • 39 - Yes • ¾ - No
2	The last digit is even • 23**4** - Yes • 23**9** - No
3	The sum of the digits is divisible by 3 • 135 (1+3+5 = 9, and 9 ÷ 3 = 3) - Yes • 178 (1+7+8 = 16, and 16 ÷ 3 = 5 3/10) - No
4	-The last 2 digits are divisible by 4 -For small numbers: half the number twice and the result should still be a whole number • 4**36** (36 ÷ 4 = 9) - Yes • 3**57** (57 ÷ 4 = 14 ¼) - No
5	The last digit is 0 or 5 • 15**5** - Yes • 55**1** - No
6	-Even and divisible by 3 -Passes both the 2nd and 3rd rule • 642 (last digit is even ; 6+4+2 = 12, and 12 ÷ 3 = 4) - Yes • 236 (last digit is even ; 2+3+6 = 11, and 11 ÷ 3 = 3 33/50) - No

DIVISIBILITY RULES

7	Remove the last digit then double it. Subtract the result from the remaining numbers. The result should be divisible by 7 • 294 (4x2 = 8 ; 29-8 = 21 ; 21÷7 = 3) - Yes • 416 (6x2 = 12 ; 41-12 = 29 ; 29÷7 = 4 7/50) - No
8	The last three digits are divisible by 8 • 5, **512** (512 ÷ 8 = 64) - Yes • 11, **167** (167 ÷ 8 = 20 22/25) - No
9	The sum of the digits is divisible by 9 • 999 (9+9+9 = 27, and 27 ÷ 9 = 3) - Yes • 724 (7+2+4 = 13, and 13 ÷ 9 = 1 11/25) - No
10	The number ends in 0 • 1,06**0** - Yes • 1,00**1** - No
11	Add and subtract the digits in an alternating pattern. Check if the answer is divisible by 11 • 12, 837 (+1-2+8-3+7 = 11, and 11÷11 = 1) - Yes • 874 (+8-7+4 = 5, and 5 ÷ 11 = 9/20) - No



DIVISIBILITY RULES

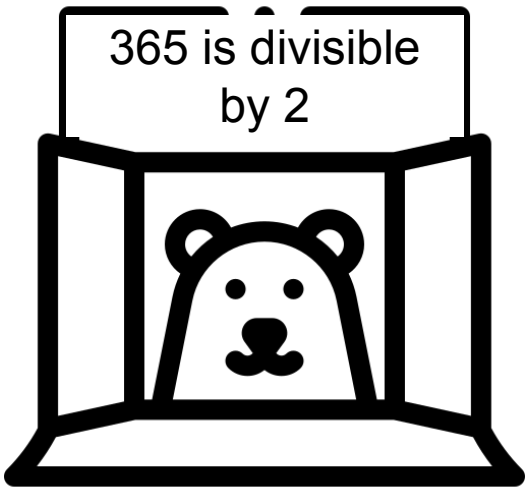
12	-The number is both divisible by 3 and 4 -Passes both the 3rd and 4th rules • 1, 212 - Yes (By 3 -> 1+2+1+2= 6, and 6 ÷ 3 = 2) - Yes (By 4 -> 12 ÷ 4 = 3) - Yes • 526 - No (By 3 -> 5+2+6+= 13, and 13 ÷ 3 = 4 33/100) - No (By 4 -> 26 ÷ 4 = 6 ½) - No

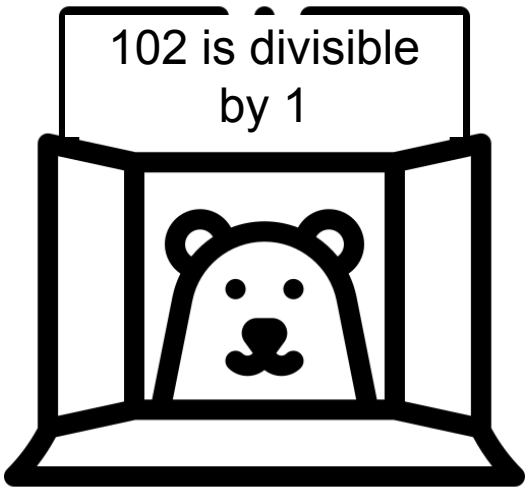
TABLE OF ACTIVITIES

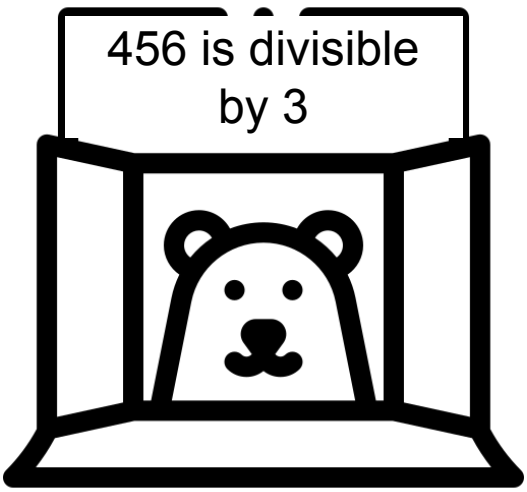
OH! A GROUNDHOG!

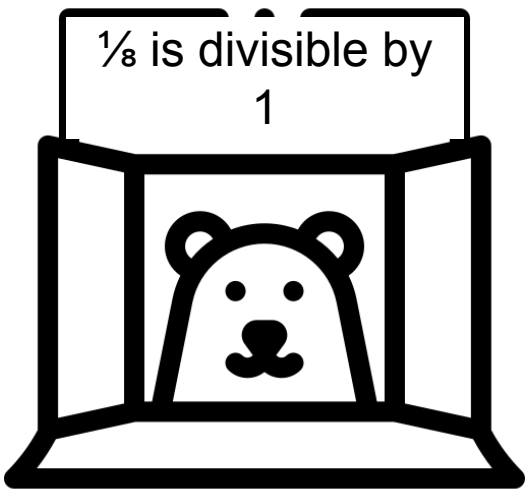
G3
Basic

Oh! Groundhogs! Do not miss the opportunity of playing with them. Color the icon that shows the correct divisibility rule.







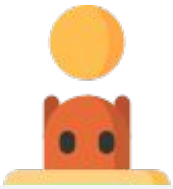


CUTE LIVING CREATURES

G3 Basic

Make sure to match these cute groundhogs. Look at their board. Draw a line to connect the appropriate divisibility rule.

Two hundred fifty



One hundred sixteen

Four hundred eighteen

Five hundred seventy-three

Divisible by 2

Divisible by 3

Divisible by 4

Divisible by 4

WAITING FOR GEORGE THE GROUNDHOG

G3 Basic

It's a nice weather to wait for George the groundhog. While waiting, fill in the blanks. Your answer should only be ranging from 2-4.

1. 99 is divisible by _____

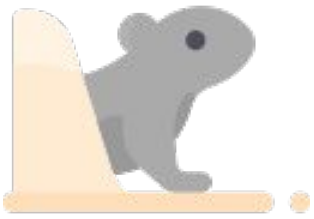
2. 198 is divisible by _____

3. 232 is divisible by _____ or _____

4. 116 is divisible by _____ or _____

5. 189 is divisible by _____

6. 78 is divisible by _____




FROM HIS BURROW

G3 Basic

Will a groundhog appear from his burrow? Make a guess while you cut and paste the numbers with their respective divisibility.

Divisible by 4	Divisible by both 4 and 6	Divisible by 6
		

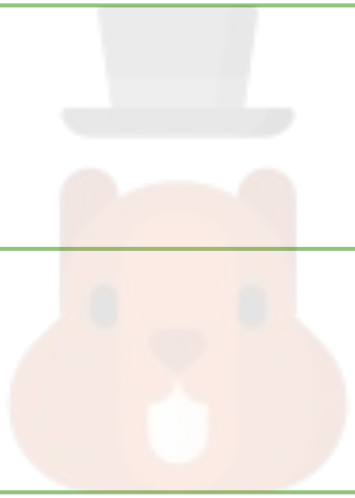
159	219	276
174	264	280
192	268	376

PHIL'S WEATHER PREDICTION

G3
Basic

What do you think will be Phil's weather prediction this year? But first, write the divisibility rules of the following numbers in your own words. Afterwards, provide two examples for each.

Number	Divisibility Rule	Examples
1		
2		
3		
4		
5		

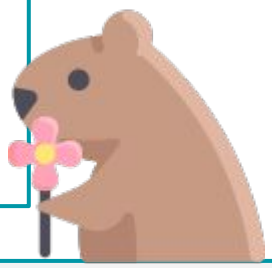


PUNXSUTAWNEY CELEBRATION

G4 Advanced

Join the people of Punxsutawney, Pennsylvania in celebrating Groundhog Day! Do that by answering the questions below.

1. The following numbers are divisible by 6, which one is different?



A	648	C	522
B	766	D	732

2. What is the ending number that corresponds to the divisibility rule of 10?

A	0	C	2
B	1	D	3

3. Which of the following numbers is divisible by 11?

A	26,917	C	37,685
B	48,187	D	22,345

4. What divisibility rules should number 12 passed?

A	1st and 2nd rule	C	3rd and 4th rule
B	2nd and 3rd rule	D	4th and 5th rule

PHIL'S PROGNOSTICATION

G4 Advanced

What would be Phil's judgement? Why not try this activity first? Put a check if the statement is correct. Otherwise, put an X. Note: explain the given even if it is correct or not.

1. Three thousand eight hundred eighty-five is divisible by seven. ☐

Explanation:

2. Six thousand four hundred seventy-three is divisible by eight. ☐

Explanation:

3. Eight hundred ninety-five is divisible by nine. ☐

Explanation:

PLAYING WITH PHIL

G4 Advanced

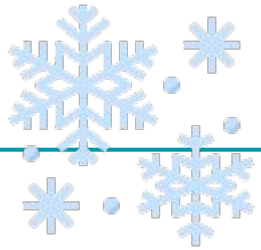
Have a fun moment with Phil the Groundhog! Fill in the blanks by writing the correct word/s to complete the divisibility rules.

Divisibility Rule	
1	Any _____ (not _____) is divisible by 1
2	The _____ digit is even
3	The _____ of the digits is divisible by 3
4	The last _____ digits are divisible by 4
5	The last digit is _____ or _____
6	Passes both the _____ and _____ rule
11	_____ and _____ the digits in an alternating pattern. Check if the answer is divisible by 11
12	The number is both divisible by _____ and _____

TEAM SPRING OR TEAM WINTER?

G4 Advanced

Will it be an extended winter or an early spring? Find out as you put a check under the numbers that each given is divisible by.



Divisible by…?

Number	2	3	4	5	6	9	10
136							
369							
1,976							
45							
1,674							

WE LOVE GROUNDHOG!

G4 Advanced

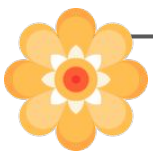
Assume that a family of groundhog love sweets, help them to figure out the solution by answering the following questions, then explain your answer.

1. Mr. Groundhog sells doughnuts in packs of 5. Will there be any individual doughnuts remaining after packing 220 packs?

2. Mrs. Groundhog wants to plant 875 sunflowers in her garden. Can she plant them in rows having 7 plants each without any flowers left?

3. The Groundhog's factory has 25, 672 candies, which needs to dispatch in packs of 8. Will there be any candies left after the packaging process is complete?

4. Amy the Groundhog packed 9 wafers in one basket. There were a total of 118 wafers, and she wanted to pack all of them into such baskets. Did any wafer remain?



ANSWER GUIDE

Activity 1

1. 102 is divisible by 1
2. 456 is divisible by 3
3. 138 is divisible by 2

Activity 2

By 2: 418 By 4: 116
By 3: 573 By 5: 250

Activity 3

1. 3
2. 2
3. 2 or 4
4. 2 or 4
5. 3
6. 2

Activity 4

By 4: 376, 280, 268
By 6: 174, 219, 159
Both: 276, 192, 264

Activity 5

Answers may vary.

Activity 6

1. B
2. A
3. A
4. C

Activity 7

1. ✔ 2. X 3. X

Activity 8

1. integer
   fraction
2. last
3. sum
4. two
5. 0, 5
6. 2nd, 3rd
7. Add
   Subtract
8. 3, 4

Activity 9

1. 2, 3
2. 3, 9
3. 2
4. 3, 5, 9
5. 2, 3, 6, 9

Activity 10

1) None. Since the last digit of 220 is 0, it is divisible by 5. There will be no extra doughnut for others.
2) Yes. Since 875 is divisible by 7, there will be no extra row/s for planting sunflowers.
3) Yes, there will be extra candies because 25672 is not divisible by 8.
4) Yes, in fact, 1 wafer will be left. 118 is not divisible by 9.

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