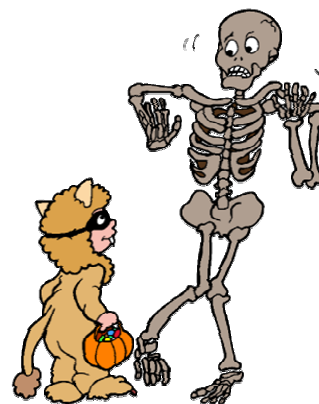# Halloween Math

3rd grade

Operations & Algebraic Thinking

Common Core Standards Based

3. OA 9 Identify arithmetic patterns and explain them using properties of operations

The witches are giving away free witches' hats today in preparation for Halloween. They gave away 4 hats in the first hour, 8 hats in the second hour, 12 hats in the third hour and 16 hats in the fourth hour. If this pattern continues, how many witches' hats will be given away in 9 hours?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.
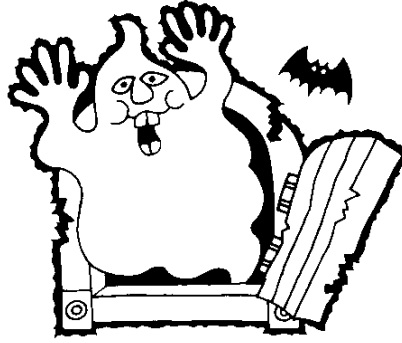
Some witches go for a broom ride on Halloween night. There were 12 witches on the first ride, 17 on the second ride, 22 on the third ride, and 27 on the fourth ride. If this pattern continues, how many witches will there be on the tenth ride?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

One ghost and 2 bats get on the first car of the Halloween train. Then 1 ghost and 2 bats get into the second car. Ghosts and bats continue to get on the Halloween train in the same way—1 ghost and 2 bats to a car. When there are 12 riders, the train starts. How many ghosts and how many bats are on the Halloween train when it starts?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

Crazy things are happening in the Haunted House! The ghost gets on the elevator and presses button 8. The elevator goes to floor 3! The ghost presses button 10 and the elevator goes to floor 5! He presses button 15, and the elevator goes to floor 10! What is happening? If the ghost pushes button 21, to what floor will the go?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

Willie's Ghostbusters' Cafè just received their supplies for Halloween. Willie can't believe his eyes when he opens the boxes! "I ordered 5 bags of bones, and they sent 25!" he exclaimed. "I ordered 10 buckets of slime, and they sent 50 buckets! What is going on?" thought Willie. Willie ordered 20 tubs of wiggly worms. How many do you think he received?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

This Halloween I had 500 pieces of candy to hand out to the trick-or-treaters in my neighborhood. I handed out 50 pieces during the first hour of Halloween. During the second hour, I handed out 62 pieces, 12 more than the first hour. During the third hour, I handed out 74 pieces, 12 more than the previous hour. If I handed out all of the candy at this rate, how many hours did it take to hand all of it out?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

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Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

1st hour	2nd hour	3rd hour	4th hour
4	8	12	16

5th hour	6th hour	7th hour	8th hour	9th hour
20	24	28	32	36

Each hour the witch gives away
4 more hats.

$4+4=8$ $8+4=12$ $12+4=16$ $16+4=20$
$20+4=24$ $24+4=28$ $28+4=32$ $32+4=36$

Now, I have to add all of the hats
given away in 9 hours.

$4+8+12+16+20+24+28+32+36=\boxed{180\ hats}$

Name __KEY__   Date_____

Some witches go for a broom ride on Halloween night. There were 12 witches on the first ride, 17 on the second ride, 22 on the third ride, and 27 on the fourth ride. If this pattern continues, how many witches will there be on the tenth ride?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

rides	number of witches
1	12 ⟩ +5
2	17 ⟩ +5
3	22
4	27
5	32
6	37
7	42
8	47
9	52
10	57

Each ride has 5 more than the last so on the tenth ride there will be 57 witches.
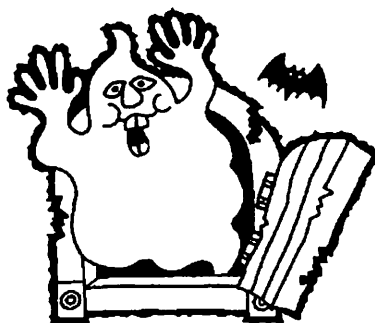
3. OA 9 Identify arithmetic patterns and explain them using properties of operations

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Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

Cars	Bats	Ghosts
1	2	1
2	2	1
3	2	1
4	2	1

so far
6 Bats and 3 ghosts
in 3 cars
6+3 = 9 riders

8 bats + 4 ghosts
8+4 = 12 riders
when the train starts.

3. OA 9 Identify arithmetic patterns and explain them using properties of operations

Name __KEY__   Date_____

Crazy things are happening in the Haunted House! The ghost gets
on the elevator and presses button 8. The elevator goes to floor
3! The ghost presses button 10 and the elevator goes to floor 5!
He presses button 15, and the elevator goes to floor 10! What is
happening? If the ghost pushes button 21, to what floor will the
go?

Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where
appropriate.

button	floor
8	3
10	5
15	10
21	16

$8 - 3 = 5$
$10 - 5 = 5$
$15 - 5 = 5$

when he pushes a button
the elevator goes down
5 floors, so if he
pushes 21, he goes to
floor 16

3. OA 9 Identify arithmetic patterns and explain them using properties of operations

Name **KEY**　　　　　　　　　　　　Date_____

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Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

orders	number received
5	25
10	50
20	100

$5 \times \boxed{5} = 25$

$10 \times 5 = 50$

$20 \times 5 = 100$

He received 100 tubs of wiggly worms because they multiplied his order by 5 each time.

3. OA 9 Identify arithmetic patterns and explain them using properties of operations

Name **KEY**   Date_____

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Explain your thinking using words, numbers or pictures. Use mathematical vocabulary where appropriate.

1st hour	2nd hour	3rd hour	4th hour	5th hour	6th hour	7th hour
500 − 50 ――― 450	450 − 62 ――― 388	388 − 74 ――― 314	314 − 86 ――― 228	228 − 98 ――― 130	130 −110 ――― 20	all 20 pieces given

I subtracted the amount of candy given away until I had none left after 7 hours.

Each hour I gave out 12 more than the hour before,

so $50 + 12 = 62$
      $62 + 12 = 74$
      $74 + 12 = 86$
      $86 + 12 = 98$
      $98 + 12 = 110$