

# Counting Sheep

## Objective

Students learn about the origins of counting sheep, using counting words, design their own counting systems, use popcorn to represent sheep in various math equations, learn about a sheep's angle of vision in relation to angles and degrees of a circle, and use popcorn to make a handprint lamb.

## Background

Sheep are very gentle animals and are easily frightened. They flock together for protection because they can't really protect themselves. The sheep has many natural predators, animals that hunt and kill sheep for food. They include coyotes, wolves and domestic dogs. Sometimes larger animals, like mules or llamas, are kept in the pastures with the sheep to scare off possible predators.

The people who raise and care for sheep are called shepherds. Sometimes, shepherds have dogs to help take care of the sheep. The dog learns to round up the sheep, and when one wanders from the flock, the dog brings it back.

In order to keep accurate records, and to prevent sheep from straying, ancient shepherds had to perform frequent head-counts of their flocks. In some parts of the world, farms were granted access to common grazing land—land that everyone could use. To prevent overgrazing, it was necessary for each farm to keep accurate, updated head counts. Generally a count was the first action performed in the morning and the last action performed at night. A count was made after moving the sheep from one pasture to another and after any operation involving the sheep, such as shearing, foot-trimming, etc. Before the Industrial Revolution, shepherds in England, Scotland and Wales used their own numbering system for counting their sheep, with counting words to 20, but no higher. For every 20 sheep the shepherd would place a mark on the ground, move his hands to another mark on the crook or drop a pebble in his pocket. Twenty sheep was a score. (5 score sheep = 100)

There are many different breeds of sheep. Some are raised mainly for meat, and others primarily for their wool. Sheep are valuable because they often graze land that other livestock cannot. Sheep eat grass and hay. Oklahoma is a good place for raising sheep because it is one of only a few states that has year-round forage production.

## Activities

### ACTIVITY ONE: READ AND DISCUSS, MAPWORK

1. Discuss what basic needs of consumers sheep provide. (Food and clothing)

## Oklahoma C4 Standards

### KINDERGARTEN

Social Studies PALS—2.C.8  
Social Studies Content—2.3;  
3.2; 4.3

### COMMON CORE

Math Practice—MP.2,3,4,5  
Math Content—K.CC.2;  
K.NBT.1; K.MD.3; K.G.5  
Language Arts—K.RF.3;  
K.L.4,5

### GRADE 1

Social Studies PALS—2.C.8  
Social Studies Content—2.2;  
3.3

### COMMON CORE

Math Practice—MP.2,3,4,5  
Math Content—1.OA.5;  
1.NBT.2,4  
Language Arts—1.RF.3;  
1.L.4,5

### GRADE 2

Social Studies PALS—2.C.8  
Social Studies Content—3.2

### COMMON CORE

Math Practice—MP.2,3,4,5  
Math Content—2.NBT.1,2,5  
Language Arts—2.RF.3;  
2.L.4,5

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**GRADE 3**  
Social Studies PALS—C.8  
Social Studies Content—  
2.3

**COMMON CORE**  
Math Practice—  
1.MP.2,3,4,5  
Math Content—3.OA.3,4;  
3.NBT.1; 3.G.2  
Language Arts—3.W.7;  
3.L.4,5

**GRADE 4**  
Social Studies PALS—  
2.B.8  
Social Studies Content—  
1.1a, 2a

**COMMON CORE**  
Math Practice—MP.2,3,4,5  
Math Content—4.OA.1,4;  
4.MD.7; 4.NBT.5  
Reading—4.W.7; 4.L.4,5

**GRADE 5**  
**COMMON CORE**  
Math Practice—MP.2,3,4,5  
Math Content—4.OA.2  
Language Arts—5.W.7;  
5.L.4,5

2. Look at the Oklahoma Commodity map to find out how sheep impact Oklahoma's economy.
3. Locate the United States, England, Scotland, and Wales on a map. What ocean separates these countries?

#### ACTIVITY TWO: COUNTING SHEEP

1. Read and discuss background and vocabulary.
2. Divide students into groups, and provide each group with a bowl of plain popcorn. Tell students that the popcorn represents sheep.
3. Students will design their own systems for keeping count similar to the systems described above used by ancient shepherds (tally marks, knots on a string, pebbles, etc.)
4. Students will count their "sheep" first by fives, then by tens, and then by twenties, using the systems they have designed.
5. Students will multiply to find the total number of sheep for each group and for the class.
6. If each group is allowed to graze 100 sheep, how many sheep must be sold?
7. Read the Celtic counting words included with this lesson to the class. Students will pay attention to the rhythm and discuss what about the rhythm would be helpful with the counting.
8. Students will count their "sheep" as you read the words and use their markers to keep track of each score (20) of sheep.

#### ACTIVITY THREE: COUNTING WORDS

1. Students will make up their own counting words, from one to twenty.
2. Students will research to find counting words in other languages.

#### ACTIVITY FOUR: RADIUS OF VISION

1. Students practice angles and degrees of a circle. Students will stand and follow teacher directions, as follows.
  - Students will turn left or right in quarter, half, three-quarter and full turns. (For greater physical activity, have students jump from position to position.) Discuss the turns in relation to degrees of a circle.
  - Students will turn left or right by 45, 90, 180, 270 and 360 degrees.
  - With older students, discuss the specific names of angles (right angle, straight angle, obtuse angle, acute angle).
  - Students will change positions to demonstrate each of the angles listed above.
2. Students will work in groups of three to determine range of vision.
  - One student will stand on a paper circle.
  - Member Number 2 will place a mark on the circle showing the direction Member Number 1 is facing.
  - Member Number 3 will hold an object directly behind Member Number 1 and slowly move it around the edge of the circle until Member Number 1 can see it.
  - Member Number 2 will then mark the point on the circle where

Member Number 1 was able to see the object.

—Students will exchange places so that the range of vision is measured for each person in the group.

—Students will determine range of vision by calculating the degrees on the circle.

—Students will show the range of vision of a sheep by marking 270 degrees from the starting point on the circle.

—Students will compare their own ranges of vision with that of a sheep.

3. For younger students, mark the circle ahead of time at 270 degrees (range of vision for a sheep).

—Each student will stand on the circle while another student holds an object at 270 degrees ( the point marked ahead of time).

—The second student will then move the object to the point where the first student can see it.

—Students will discuss the difference between their own range of vision and that of a sheep.

4. Students will compose stories and draw pictures illustrating the difficulty predators might have sneaking up on sheep.

5. Students will use online search engines or library resources to find the sight radius of some other animals.

#### ACTIVITY FIVE: THE LINCOLNSHIRE SHEPHERD (POETRY)

1. Read the words to this traditional Irish song, included with this lesson, or provide the words and let students follow along while listening to a recording of the song:

<http://www.youtube.com/watch?v=GIGTAM4OmoY>

2. Divide the class into groups, and assign one of the verses to each group.  
—Groups will read through assigned verses, look up unfamiliar words or phrases in a dictionary or using an online search engine and provide interpretations for the class.

#### ACTIVITY SIX: HANDPRINT LAMB WITH POPCORN

1. Provide construction paper and popcorn.
2. Students will trace their hands on the construction paper and cut them out.
3. Students will draw sheep faces on the thumbs.
4. Students will draw hooves on the tips of the fingers.
5. Students will glue popcorn to cover the main part of the hand to look like wool.
6. Students will estimate how many kernels of popcorn it will take to cover the insides of their lambs.
7. Students will count the popcorn kernels to find a nonstandard measure of the area of the "lamb bodies."
8. Older students will measure a popcorn kernel in approximate metric units to establish a benchmark for measuring an use a grid to find the area.
9. Students will design a classroom graph to show the areas of the "lamb bodies."

#### Celtic Counting Words

1. yan, 2. tan, 3. tethera, 4. pethera, 5. pip, 6. sethera, 7. lethera, 8. hovera, 9. covera, 10. dik. 11. yan-a-dik, 12. tan-a-dik, 13. tethera-dik, 14. pethera-dik, 15. bumfit, 16. yan-a-bumfit, 17. tan-a-bumfit, 18. tethera-bumfit, 19. pethera-fumfit, 20. figgot

## Extra Reading

Gleason, Carrie, *The Biography of Wool*, Crabtree, 2007.

Green, Emily, *Farm Animals: Sheep*, Bellweather, 2007.

Lyon, George Ella, *Weaving the Rainbow*, Atheneum/Richard Jackson, 2004.

Scotton, Rob, *Russell the Sheep*, Harper Collins, 2005.

## Vocabulary

**common**—relating or belonging to or used by everyone

**flock**—a group of animals assembled or herded together

**grazing**—feeding on growing grass or herbs

**Industrial Revolution**—a rapid major change in an economy marked by the general introduction of power-driven machinery

**medieval**—of, relating to, or characteristic of the Middle Ages, the period of European history from about A.D. 500 to about 1500

**overgrazing**—allowing animals to graze (as a pasture) to the point of damaging the vegetation

**pasture**—land or a plot of land used for grazing shearing

**shepherd**—a person who takes care of sheep

Name \_\_\_\_\_

# The Lincolnshire Shepherd

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Chorus (after each verse):

Yan, tan, tethera, tethera, pethera, pimp.  
Yon owd ewe's far-weltd, and this ewe's got a limp  
Sethera, methera, hovera, and covera up to dik,  
Aye, we can deal wi' 'em all, and wheer's me crook and stick?

I count 'em up to figgits, and figgits have a notch,  
There's more to being a shepherd than being on watch;  
There's swedes\* to chop and lambing time and snow upon the rick,  
Sethera, methera, hovera, and covera up to dik.

From Caistor down to Spilsby from Sleaford up to Brigg,  
There's Lincoln sheep all on the chalk, all hung wi' wool and big.  
And I, here in Langton wi' this same old flock.,  
Just as me grandad did afore they meddled with the clock.

We've bred our tups and gimmers for the wool and length and girth,  
And sheep have lambed, have gone away all o'er all the earth.  
They're bred in foreign flocks to give the wool its length and crimp,  
Yan, tan, tethera, pethera, pimp.

They're like a lot of bairns\*\*, they are, like children of me own,  
They fondle round about owd Shep\*\*\* afore they're strong and grown;  
But they gets independent-like, before you know, they've gone,  
But yet again, next lambing time we'll 'a' more to carry on.

Yan, tan, tethera, tethera, pethera, pimp,  
Fifteen notches up to now and one ewe with a limp.  
You reckons I should go away, you know I'll never go,  
For lambing time's on top of us and it'll surely snow.

Well, one day I'll leave me ewes, I'll leave me ewes for good,  
And then you'll know what breeding is in flocks and human blood;  
For our Tom's come out o' t' army, his face as red as brick,  
Sethera, methera, hovera, and covera up to dik.

Now lambing time come reg'lar-like, just as it's always been,  
And shepherds have to winter 'em and tent 'em till they're weaned  
My fambly had it 'fore I came, they'll have it when I sleep,  
So we can count our lambing times as I am countin sheep

\*swedes= turnips, \*\*bairns = children, \*\*\*owd Shep = sheep herder's dog