

Zoo Count in the UK
NewsDepth, January 15, 2009
Classroom Activities and Lessons



Overview:

Two giraffes, two lions, three zebras, four meerkatsno, this isn't the list of animals on Noah's Ark. It's actually the zoo keepers at the London Zoo taking stock of their critters. With more than 650 species to tally up, zookeepers have quite a task on their hands. The inventory happens once a year and is required of all zoos in the United Kingdom. It has proved to be a valuable tool for monitoring animal conservation efforts. In today's activities and lessons, students will be using math to help the zookeepers count, graph, and organize their findings.

http://www.google.com/hostednews/ap/article/ALeqM5iy_OM7NWir9o0kLn8u6eKcVBWdpQD95J7OJG0 Photo Source

Grade level: 3

Subject Material: Math

Standards:

Students will be able to:

- model and use the commutative and associative properties for addition.
- add whole numbers with and without regrouping.
- read, interpret and construct bar graphs with intervals greater than one.

Classroom Activities:

1. Activity # 1 Listening and memory

- The feature on NewsDepth about the London Zoo showed the zookeepers doing what with the animals? **(Counting them)**
- How often are they required to count all of their animals? **(Once a year)**
- The counting of humans happens every ____ years. Do you know what that is called? **(Census)**
- The headcount is required by whom? **(The government)**
- How many lions are in the London zoo? **(2)**
- Name as many of the animals as you can that were being counted in the story. **(Flamingos, Penguins, Monkey, Otters, Meerkat, Pelicans, Lions)**

2. Activity # 2 Let's Help the Zookeepers Add Them!

- Addition and subtraction are essential skills for people in many diverse occupations. Workers use addition and subtraction on a daily basis. In the NewsDepth feature, you saw one example of how zookeepers need addition skills to count the animals. Tell me other ways that zookeepers may need addition and subtraction skills. (Ordering and distributing food, possibly counting visitors to different attractions, categorizing animals, etc.)
- There are over 15,000 animals in the London Zoo. That's a lot of animals to keep track of. Visit the London Zoo Website and let your students discover how all of the animals are categorized: <http://www.zsl.org/about-us/animal-inventory,649,AR.html>
 - They are divided into 6 categories: invertebrates, fishes, amphibians, reptiles, birds and mammals. Discuss what characteristics each of these has that place the animals in that category.
 - Have students complete the handout entitled "Inventory of Animals at the London Zoo."

3. Activity #3 Graphing the Animals

- Using the "Inventory of Animals at the London Zoo," have each student create a bar graph using the 6 categories of species and indicating the male, female and unknown sex of the animals in the zoo. Display all graphs in the classroom.

4. Activity #3 We're Countin' At the Zoo: Commutative Property of Addition

- Materials: Have students cut out simple shapes of the different species of animals found in the zoo. We will use the Amphibians as a sample for this activity. There are 11 male and 8 female. Start with the males. Have them gather 11 amphibian shapes. Then ask them to place 8 on one pile and 3 on another pile. Ask another student to say the addition sentence for finding the total number of amphibians. Write the number sentence $8+3=11$ on the board. Move the shapes so they are in the opposite order. Ask a student to say the number sentence for the total number of amphibians now. Write the number sentence $3+8=11$. Ask students what they notice about the sums of these two number sentences.
 - Has the total number of amphibians changed?
 - Does the order in which you add numbers change the answer?
- Rearrange, It's Still the Same
 - Write number sentences on the board varying the addends. Ask students to come to the front and rewrite the number sentences, changing the order of the addends and verifying that the sums are the same.
- Mini Challenge
 - Invite students to solve a "mini-challenge." Many combinations of numbers can be added together to equal 11. List four ways to equal 10 using three or more numbers.

5. Activity #4 Compare the Zoos

- Visit both the London Zoo Site <http://www.zsl.org/zsl-london-zoo/> and the Columbus Zoo Website <http://www.columbuszoo.org/AnimalGuide/>. Have students make any comparisons between the way the two categorize the animals. Since the species are listed at both sites, you could have the students practice many addition and even multiplication problems using both sites.
- Assign students to work in pairs or small groups (depending on the access to the computers). Ask them to choose their favorite animal and check both zoo websites to see if they reside at both. Collect a list of one or two “shared animals” from each pair or group and have the students vote on their favorite animals. Then have the students prepare graphs that show how many students picked each animal. Ask a representative from each group to explain to their classmates how they made their graph.

Online Lessons (standards included)

<http://www.beaconlearningcenter.com/Lessons/1031.htm>

We're counting at the zoo: Students use sets of concrete materials to represent, count and match quantities to 10 or more given in verbal or written form while participating in hands-on activities.

<http://www.teachersdesk.com/lessons/agriculture/animals.htm>

Categorizing Animals: This is a lesson that will help students become familiar with the need for categorizing scientific information for animals. Students will categorize the 5 groups of animals (mammals, fish, birds, reptiles, & amphibians). This can be used with Activity #2.

<http://teachers.net/lessons/posts/3258.html>

Paper Bag Zoo: Students create animals from paper bags. Can be used with Activities #3 or #5.

<http://www.wcny.org/education/AllKindsLP.htm>

It Takes All Kinds: Students become junior zoologists while exploring the world of animals. In this lesson, students are encouraged to look at the similarities and differences between animals and use their observations to sort animals into animal groups.

Additional Resources

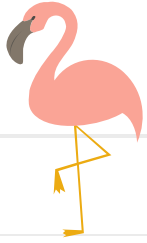
http://www.google.com/hostednews/ap/article/ALeqM5iy_OM7NWir9o0kLn8u6eKcVBWdpQD95J7OJG0 Associated Press article about the counting of animals at the zoos. It provides an explanation about why the count is required.

<http://www.worthingherald.co.uk/latest-london-news/Macaque-hailed-as-one-of.4857701.jp> Macaque hailed as one of zoo's success stories. A popular monkey who fathered two babies with two different females emerged as one of London Zoo's success stories in its annual stock-take.

<http://www.dailymail.co.uk/news/article-563068/Pictured-The-baby-monkey-thinks-mums-teddy-bear.html> An article about Conchita, the white naped manglebeey

<http://www.youtube.com/watch?v=YZ7XsXPelrg> The Conchita Diaries: Episode 1
This you tube feature is the first of several episodes following the development of Conchita, the white naped manglebeey. It is an excellent chronicle and was one of the most popular videos on you tube.

<http://www.zsl.org/zsl-london-zoo/news/visitors-go-potty-for-new-piglet-harry,939,AR.html> An article about Harry the Warthog, the first warthog to be born in the London Zoo in 100 years.



Inventory of Animals at the ZSL London Zoo

	male	female	unk.sex	Total Species
Invertebrates	0	31	8251	252
Fishes	0	0	5458	213
Amphibians	11	8	178	23
Reptiles	105	100	104	77
Birds	183	195	170	113
Mammals	145	152	13	77
total				

Total number of animals:

1. What is the total number of males?
2. What is the total number of females?
3. What is the total number of animals whose sex is unknown?
4. What is the total number of species?
5. What is the total number of animals at the London Zoo?

London Zoo's website: Source for inventory <http://www.zsl.org/about-us/animal-inventory,649,AR.html>

