The Tale of the Feral - Care and Multiplication of Feral Cats

Grade Level: 5-8

National Standards Addressed
Math Grades 3- 5 and 6-8

- Understand patterns, relations, and function Represent and analyze mathematical situations and structures using algebraic symbols
- Use mathematical models to represent and understand quantitative relationships
- Analyze change in various contexts
- Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
- Develop and evaluate inferences and predictions that are based on data

Science

- NS.K-4.1 and NS.5-8.1 Science as Inquiry
- NS.K-4.3 and N.S.5-8.3 Life Sciences
- NS.K-4.6 and NS.5-8.6 Personal and Social Perspectives

Character Concept
Respect, Responsibility, Kindness, Citizenship

Objective
Students will identify the difference between a feral and domesticated cat while using the scientific method of investigation, the practice of averages, and algebraic story problems. Students will learn about Trap-Neuter-Return and how a caretaker can help a feral colony to live safely.

Materials Needed

- Photos or drawings of cats and kittens (a minimum of 30, more are optional)
- HOTSheet on Spay/Neuter for each student- found at: http://www.humaneteen.org/files/pdf/HelpHomeless-Pets-HotSheet-Teen.pdf
- Scientific Method Flow Chart (You may wish to use http://www.makeitsolar.com/images/chartmethod.pdf or http://kentsimmons.uwinnipeg.ca/cm1504/Image37.gif.)
- Feral Cat Question Sheet for each student
- Pencils or pens for each student
- Poster board for each group
- Markers, colored pencils, or crayons for each group
- Other items to decorate posters (optional)
- Feral Cats Video http://video.hsus.org/?fr_story=3f1855c92b1034a02479ea5625635dd88b65f6f9&rf=bm

Preparation
Cut out and tape photos of cats around the classroom. Place some of the cats in obvious places and some in difficult to locate places.

Opening or Activating Strategy

1. Inform students that they will be learning about feral cats and how these cats impact the community. The class will be acting as animal care and control investigators. Tell students that a report has come in that (__group name or room number___) has been overrun by a colony of feral cats. The neighbors are complaining about the nuisance behaviors. They are to observe the problem and design a solution.

2. Ask students to define the terms “feral cat” and “colony” in their own words. Write the given definitions on the board. (Leave these up until the end of the lesson.) Let students know they will find out shortly how close they were to the real definitions.

3. Ask students to recall their science lessons and how any type of scientific investigation should begin. (You may wish to refer to the Scientific Method flow chart.) Hang a copy of the Scientific Method Flow Chart in the front of the room and leave it up throughout the rest of the lesson. Review the steps in the scientific method.

4. Using step one of the scientific method, observation, tell students they have two minutes to find out how many feral cats they see in the classroom. Remind them that during this stage they may move around the room, but they are not to touch any of the cats or interfere in any way. (You may wish to review the rules of look, listen, and leave them alone plus the safety implications in regards to feral cats and wildlife.)

5. After two minutes ask students to return to their seats. Ask a few students for their observed number of feral cats. Review with the students that in a real feral cat colony it would be difficult to observe every cat in one visit. Because the cats are often timid around humans some will stay in hiding. Explain that in a real colony it would be scientifically difficult to figure the exact number of cats in the colony; therefore the class will average the numbers that each student came up with. Ask every student for his or her number and then divide by the number of students in the room. Write the estimated colony number on the board.

6. Tell students that you will reveal the actual colony number at the end of the lesson.

Lesson Body

1. Pass out the Feral Cat question sheet. Ask students to flip to the backside of the page and draw a “T”. Label the first column “Descriptors” and the second column “Number.” Explain that students will continue their observation of a feral cat colony via video. Ask students to write down at least three descriptors in the first column. These should be things that they might expect to see in the feral cat colony. Feel free to help them with one or two to get started. Examples: black cats, kittens, overweight cats, thin cats, cats in trash cans, etc.

2. Inform students that they will be watching a short video to observe a colony and they are to tally the times they see any of their descriptors. If they see something multiple times they can add it to their descriptor list and begin tallying that descriptor as well.

3. Ask them to listen to the narration in the video as they watch for descriptors. There are questions on the other side of the T-chart that will be answered after the video is over.

4. Play the “Feral Cat” video located at http://video.hsus.org/?fr_story=3f1855c92b1034a02479ea5625635dd88b65f6f9&rf=bm.

5. After the video is complete draw a large T-chart on the board. Ask students to help you create a class list of descriptors. (Optional: Average the numbers seen for each descriptor if there is time.) Discuss similarities noticed by multiple students. Answer any student questions about the video or the descriptors seen.

6. Ask students to flip their T-Chart over and complete the Feral Cat question sheet. This can be done in pairs or small groups if desired. Note: If this lesson will be split into two days this is a good place to stop, as the questions not finished in class can be homework.

7. Review the answers to the Feral Cat question sheet. You may wish to replay parts of the video as you are reviewing the answers.

8. Split students into groups of four. Ask one person from each group to come to the front of the room to pick up one poster board, markers, and four HOTSheets, one for each student in the group. Have the group choose one person to draw a large pyramid on the poster board. Have another group member draw two lines separating the pyramid into equally distanced thirds. (Show the class an example of the desired outcome by drawing a large pyramid on the board.) Have another group member write the words "cat colony 2009", "cat colony 2010", and "cat colony 2011" on the poster as shown in the diagram below. When the group is finished drawing ask them to read the HOTSheet and circle the section that discusses how quickly cats reproduce.

9. Once each group has drawn a pyramid and read the HOTSheet review that the pyramid is a visual they will use to estimate how quickly a colony of cats can reproduce in two years if there is no intervention, such as Trap-Neuter-Return.

   Note: You may wish to review the definition of Trap-Neuter-Return (TNR) and Colony Caretaker here.

   Trap-Neuter-Return: Trap-Neuter-Return (TNR) is a strategy for improving the lives of feral cats and reducing their numbers. At a minimum, feral cats who are TNRed are spayed or neutered so they can no longer reproduce, vaccinated against rabies, and surgically ear-tipped on one ear (ear-tipping is the universally-recognized sign of a cat who has been TNRed).

   Colony Caretaker: Dedicated caretakers feed and provide shelter for TNRed cats, monitor the TNRed cats for sickness and remove new cats for TNR if feral or possible adoption if tame.

10. Ask each group to place the class colony average (from earlier in the lesson) in the 2009 section of the pyramid. And ask each group to assume that 50% of the cats are male and 50% are female. Groups may wish to write the number of females and males for the first section under the colony total.

11. Explain that the group is to use the HOTSheet and numbers from 2009 to figure out how large the colony could become without TNR in one year and in two years. (You may wish to review an example for the class using numbers much lower than their numbers. If desired, the students can use 5 as an average litter number.) Give the group 10-12 minutes to complete the activity. Once the group has completed the pyramid they may decorate the poster.

    Example: class colony average 20 cats, 10 are female
    Year 2010- 10 x 5=50 kittens +20= 70 cats (25 of the new kittens are female; new total of females =35)
    Year 2011- 35 x5=175 kittens + 70= 245 cats

    ---or---

    Female cats x 5= number of kittens + colony average= new total of cats in the colony

12. Ask students to provide you with the numbers they totaled and help fill in the large pyramid at the front of the room.

Closure or Wrap-up

1. Discussion or writing prompt: Describe what life might be like for the cats in 2011. Do you feel TNR would help the situation? Why or why not? How might a colony caretaker help?

2. Ask each group to decorate their poster. Hang posters in a public location with information about feral cats, TNR, and spay/neuter.