PET OVERPOPULATION
LESSON 3: Grades 4-6
DOGS AND CATS CAN’T ADD AND SUBTRACT,
BUT THEY SURE CAN MULTIPLY!!

Show Me Standards: Academic Goals: 1.4, 1.6, 1.8, 1.10, 2.1, 2.2, 2.3, 3.1, 3.2, 3.5, 3.6, 3.7, 4.1, 4.3 & 4.7; Communication Arts: 1, 4 & 6; Mathematics: 1 & 3; Science: 4 & 8

Objective: To help students understand that there is a very serious pet overpopulation problem with dogs and cats, why that problem exists and how it can be solved.

Materials:
- Chalkboard or large paper on an easel
- Chalk or markers
- Calculator

Method: The teacher will review spay and neuter facts with students. Recall the fact that nearly 5000 animals are born every HOUR in the United States. If every family adopted just one dog or one cat, there would still be too many. There simply are not enough caring homes available for all the dogs and cats that are being born.

Have students calculate how many kittens can be produced by one unspayed female cat. To do this ask one student to go to the chalkboard and draw a cat with the year (2002) next to the cat. Create a scenario (“This is my beautiful cat, Princess. She is black and white and we love her dearly.”) Princess is not spayed, so in the spring of 2002 she has a litter of kittens. In this litter she has two surviving female kittens. Also, in the fall of 2002, Princess has a litter of kittens with two surviving females. (The reality is that Princess can have more than two litters a year, and certainly can have more than two surviving females from each litter, but for the sake of simplicity, we will work with these lower numbers.)

Next to the year 2002, write the number 4---to demonstrate how many female kittens Princess brought into the world during this year.

Now, pretend it is the year 2003. Princess is only two-years-old. She has not been spayed, so she has a litter of kittens in the spring of 2003 and the fall of 2003. Again, two surviving female kittens from each litter, so Princess is again responsible for bringing four more kittens into the world. BUT…in 2003, her female kittens from 2002 are old enough to have kittens. EACH 2002 kitten has a litter in the spring of 2003 and a litter in the fall of 2003, (using the same premise as Princess, they will each have two surviving females per litter----and remember, in reality the numbers can be much higher. Remind students that we are trying to keep it simple for tabulation purposes.) SO, according to our framework, each 2002 kitten (remember there were four) now has produced four kittens of their own. Next to the year 2003, add the kittens. (Four for Princess, four for EACH of her spring kittens and four for EACH of her fall kittens.)

It is now 2004. Princess is only three-years-old and very capable of reproducing. She has a litter in the spring and a litter in the fall, with two surviving females in each litter. Princess has produced four more female kittens in 2004. BUT---her 2002 kittens have each had a litter in the spring and a litter in the fall---along with their 2003 kittens and Princess’ 2003 kittens!!!! Get the idea? Now is the time to consult the calculators and begin the math.

If we were to block off Princess and her female geometric offspring for a ten-year period, how many kittens could be brought into this world by ONE unspayed female? (Remind students that this number in reality is very low. The truth is Princess can truly have more than four surviving female kittens in a year’s time---and we haven’t even calculated the male kittens which are causing females to get pregnant as well.)
Well, according to the above calculations, Princess will produce 40 kittens in a 10-year period. But her kittens’ kittens will cause a population explosion. Have students try to calculate the number using calculators and working in small groups. After a period of time, have them explain their findings to the class.

The answer: If left to reproduce at the above rate, one unspayed female cat can be responsible for indirectly causing the births of more than *9,765,625 female cats!!! This demonstrates the absolute necessity of spaying and neutering.

The very simple surgical procedure of spaying and neutering is the only solution to the pet overpopulation problem in all communities.

Remind students: Spaying is a term that applies to female dogs and cats. It is a surgical procedure (operation) performed completely under anesthesia (a medicine that makes animals go to sleep for a very short period), so the dog or cat feels no pain at all. A small incision (cut) is made in the abdomen (stomach area) and the female reproductive organs are removed. They wake up and after one day feel fine. The only difference is that they no longer can have puppies or kittens. They are actually healthier and live longer because of spaying.

Neutering is a term that refers to male dogs and cats. It, too, is done under anesthetic so the animal feels no pain. A small incision is made and the testicles are removed. Without the testicles, a male dog or cat cannot cause a female dog or cat to have puppies or kittens. One day after the surgery, the animal is fine and lives a longer healthier life because of the simple act of neutering.

For discussion: Which of the above scenarios is more humane? The offspring of Princess will necessitate finding over 86,000,000 homes for all of the kittens. Remember, this is only ONE female cat. Is this possible? Do you see a lot of homeless cats and kittens in your community? Is the act of spaying and neutering kinder for the animal? Why?

Call To Action: Pet overpopulation is a serious problem that affects us all—whether we own a pet or not. Our response to its presence in our communities helps to define us as people. Encourage students to create a poster that depicts this problem. Distribute these posters throughout the community…in grocery stores, post offices, community buildings, other schools…spreading the message of responsible pet ownership and the importance of spaying or neutering. Have students presents this message to other classrooms and at the next PTA or Home/School meeting for adults to hear.

Attention Teacher: See the following activity sheets “Dogs can’t Add…” and “Multipli-cat-ion”.

Web sites: For recommended animal-related web sites visit [www.apamo.org](http://www.apamo.org) and choose “Animal Issues” from the left-side menu, then choose “Links” from the top of the page. Or [click here](http://www.apamo.org) to launch your browser and link directly to the list.

*Example:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total at Start of Year</th>
<th>New Kittens Born</th>
<th>Total at End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>1 (x4 kittens=)</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2003</td>
<td>5 (x4 kittens ea.=)</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>2004</td>
<td>25 (x4 kittens ea.=)</td>
<td>100</td>
<td>125 etc., etc.</td>
</tr>
</tbody>
</table>
Dogs can’t Add,  
Cat’s can’t Subtract,  
But they sure can **MULTIPLY**!

An unspayed female dog, her mate and all of their puppies, if none are ever neutered or spayed, add up to:

<table>
<thead>
<tr>
<th>Year</th>
<th>Dogs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>16</td>
</tr>
<tr>
<td>2 years</td>
<td>128</td>
</tr>
<tr>
<td>3 years</td>
<td>512</td>
</tr>
<tr>
<td>4 years</td>
<td>2,048</td>
</tr>
<tr>
<td>5 years</td>
<td>12,288</td>
</tr>
<tr>
<td>6 years</td>
<td>67,000 dogs!!!!!!</td>
</tr>
</tbody>
</table>

There aren’t enough good homes for all of these dogs.
Be a responsible pet owner.

**Spay or neuter your pet!**
Let’s say you woke up this morning to the usual sights and sounds in your home. Except overnight you turned into a cat! On the back, write a short story about a day in your life.