PET OVERPOPULATION

**LESSON 3: Grades 4-6**

**DOGS AND CATS CAN’T ADD AND SUBTRACT, BUT THEY SURE CAN MULTIPLY!!**

**Curriculum Connections, Standards addressed:**

**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

**Knowledge Goals:**  Communication Arts: 1, 4 & 6; Mathematics: 1 & 3; Science: 4 & 8

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

**Common Core-Aligned Activities:**

**W.5.7—Conduct short research projects to build knowledge through investigation of different aspects of a topic.**

**SL.5.1c—Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.**

Of the scenarios below, which is more humane? The offspring of Princess will necessitate finding millions of 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? Are there any other alternatives that could be implemented to control the number of homeless animals? Is it fair to allow dogs and cats to reproduce at alarming rates when there are not enough homes for them?

**Character Concepts:** Responsibility

Being the guardian of another creature is very important. You hold their welfare in your hands. It is vital you do what you are supposed to do, and help your dog or cat control reproduction.

**STEM initiatives: Thinking critically in the connections to Science, Technology, Engineering and Math**

**3-5-ETS1-1—**Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

**5-PSI-4—**Cause and effect relationships are routinely identified, tested, and used to explain change.

How could a low cost (or free) spay/neuter clinic help the problem of pet overpopulation in your community? How could it be funded? What impact would it have on veterinarians in private clinics? What impact would it have on the number of homeless animals? How would it be advertised? Who would operate it?

**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 (2016) 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 2016 she has a litter of kittens. In this litter she has two surviving female kittens. Also, in the fall of 2016, 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 2016, write the number 4---to demonstrate how many female kittens Princess brought into the world during this year.

Now, pretend it is the year 2017. Princess is only two-years-old. She has not been spayed, so she has a litter of kittens in the spring of 2017 and the fall of 2017. Again, two surviving female kittens from each litter, so Princess is again responsible for bringing four more kittens into the world. BUT….in 2017, her female kittens from 2016 are old enough to have kittens. EACH 2016 kitten has a litter in the spring of 2017 and a litter in the fall of 2017, (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 2016 kitten (remember there were four) now has produced four kittens of their own. Next to the year 2017, add the kittens. (Four for Princess, four for EACH of her spring kittens and four for EACH of her fall kittens.)

It is now 2018. 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 2018. BUT---her 2016 kittens have each had a litter in the spring and a litter in the fall---along with their 2017 kittens and Princess’ 2017 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 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 anesthesia 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.

**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 present 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”.

**Reading:** Visit our section entitled ***Recommended Children’s Literature*** for a comprehensive listing of animal-related books.

**Web sites:** Visit our section entitled ***Recommended Web Links*** for animal-related web sites.

\**Example:*

# Total at Start of Year New Kittens Born Total at End of Year

2016 1 *(x4 kittens=)*  4 = 5

2017 5 *(x4 kittens ea.=)* 20 = 25

2018 25 *(x4 kittens ea.=)* 100 = 125 etc., etc.