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POCKET PETS



4-H-YOUTH PROGRAMS
COOPERATIVE EXTENSION SERVICE
COLLEGE OF VETERINARY MEDICINE
MICHIGAN STATE UNIVERSITY

This manual is a reprint, with minor changes, from an Ohio State University Cooperative Extension Service manual on this subject. We are indebted to Ohio State University for granting permission to reprint this material.

Michigan 4-H - Youth educational programs and all other Cooperative Extension programs are available to all without regard to race, color, or national origin. ● Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gordon E. Guyer, Director, Cooperative Extension Service, Michigan State University, East Lansing, MI 48824.

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POCKET PETS

Rats and Mice

Rats and mice can be good company. They will ride on your shoulder or in a pocket. They learn to beg for food, to climb ladders, and many other tricks. To prevent smells and promote health, the cage should be kept clean, and the food and water should be changed daily! For so little work on your part, you can have a healthy, active companion.

4-H

4-H projects are designed for youth groups by members of the Cooperative Extension Service. Information concerning projects is available to your group from your county Extension Service office.

The 4-H Pledge is:

I pledge:
My HEAD to clearer thinking,
My HEART to greater loyalty,
My HANDS to larger service, and
My HEALTH to better living, for
My club, my community,
my country, and my world.

Project Requirements

The purpose of the 4-H Pocket Pet project is to give you an opportunity to learn about and care for an animal. It will be your responsibility to feed, water, clean, and play with your pet.

To learn how to care for your rat or mouse, it is important to read this book. To answer the questions in this book, you will need to read it thoroughly and talk with your fellow members, your group leader, and any local resource people available.

As a 4-H member, you will want to try to attend all the meetings of your club. Take an interest and help plan activities for the group.

Questions

What is the name of your 4-H group? _____

Who is your 4-H leader? _____

Who is your Extension 4-H - Youth agent? _____

Have you met your Extension 4-H - Youth agent? _____

Where is the 4-H office located? _____

Do you know the 4-H Pledge? _____

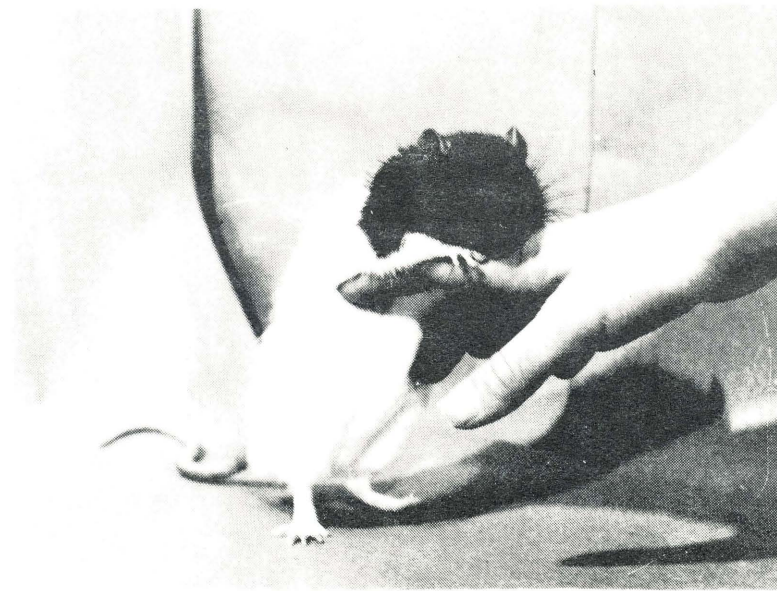
The history of the mouse can be traced back to 4000 B.C. Mice have appeared in worship services of religious groups in Asia, North Africa, and Germany. Chinese priests used them in their ceremonies. Japanese folk tales include mice, even though they are not native to that country, and many poems and stories have been written about them in this country.

Mice and rats are rodents. Their scientific family name is *Muridae*. They are hardy, very fertile, and easy to raise. They increase in population wherever people live.

Wild mice and rats are pests. They destroy stored food and carry diseases that are harmful or even dangerous to other animals and people.

Domestic or "tame" mice and rats have been extremely valuable to people in all kinds of psychological, biological, medical, and nutritional studies. It is estimated that over 20 million mice and 10 million rats were used for research purposes in 1970. The cancer program alone requires millions of mice each year. Rats are used for nutrition experiments--particularly those in vitamin research.

Because these tame rodents are friendly and curious, they make excellent pets at home or in pet clubs.



This hooded rat investigates a strange hand. Rats are very curious and love to examine anything new.

It is sad that, even among adults, the bad reputation of wild mice and rats has spread to their tame relatives. Many youngsters have picked up fear and dislike of domestic mice and rats from their elders. However, those who have observed, fed, cared for, and handled these tame, intelligent, and affectionate little animals have come to love them.

Did you take a picture of your pet(s)? _____

If so, place it here.

Date _____ Name _____

Did you choose a male or a female? _____

Why? _____

Describe your pet(s): _____

Housing

Mice or rats should be kept in a good-sized wire or metal cage because they will gnaw through a wooden cage. If the cage has a raised wire floor, provide a solid upper platform for your pet to rest on for cleaning purposes. Connect the upper and lower platforms with a ramp or ladder. Furnish the cage with branches, swings, perches, or an exercise wheel. If the cage has a solid metal floor, line it with sawdust, cedar shavings, or commercial cat litter. Clean out and disinfect the bottom of the cage every other day and scatter fresh sawdust, shavings, or litter on it. For an efficient deodorant, mix one teaspoon of eucalyptus (ask your druggist) in a cup of water. Sprinkle a few drops of this solution on the cage floor daily to prevent any odor.

For a nest box, use an empty cottage cheese carton for mice and an empty cereal box for rats. Absorbent cotton or shredded paper should be furnished for nest material.

Describe your cage: _____

Feeding

Because mice and rats have similar nutritive needs, they will eat the same foods. Dry dog food and water will keep them in good health. Seeds, nuts, rabbit pellets, hard-boiled eggs, bread, breakfast cereals, rice, leafy foods, and raw potatoes are used by some pet owners, but these foods aren't required.

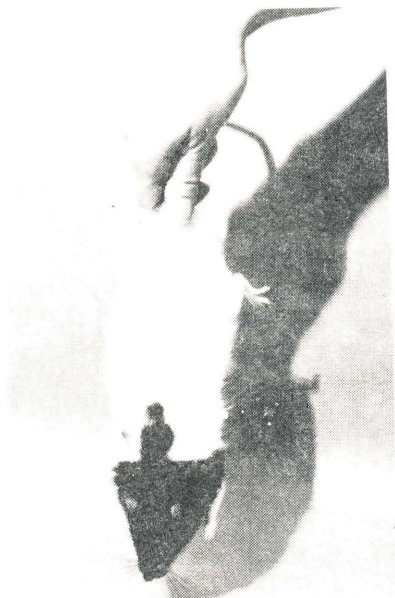
Mice and rats are gnawing animals, so provide a piece of wood to help keep their teeth in good condition. Supply fresh water in a gravity flow bottle.

What do you feed your pet(s)? _____

What is your pet's favorite food? _____

Handling

White mice and rats are usually very tame pets. The younger an animal is, the easier it is to tame. Therefore, try to buy an animal that is about one month old or has just been weaned. One of the fastest ways to tame a mouse or rat is to feed it from your hand or fingers. The simplest and safest way to pick one up is by its tail (this does not hurt it). Do not pick it up by the *tip* of its tail, or the skin may pull off in your fingers. Place the animal



If necessary, you can pick your pet up by the tail. Always grasp the tail right up near the body. Once caught, your pet should be held firmly, but not tightly.



carefully in your other hand and gently stroke its head and back. Never hold the animal too tightly; if you do, it will struggle to get away or even bite. All animals fear physical restraint. Once accustomed to you, a mouse or rat will come to the front of the cage, climb on your hand, or even explore your pocket.

The best time to play with your pet is in the early evening, because rats and mice are nocturnal, meaning that they like to sleep during the day and be active at night.

Tricks

Sometimes when you handle your pet, put a favorite food in your hand or pocket for a special treat so your pet forms the habit of coming to you.

Your pet needs to be rewarded whenever it does something that you especially like.

To get your pet to sit up, hold a special treat higher than your pet's head. At first, you may have to support your pet with one hand. Mice will usually learn what is expected of them if the trick is repeated daily. However, teaching tricks takes time and patience.



This mouse balances on a pocket while the rat (right) stands up and "dances." Treats, daily repetition, and patience are the tools needed for teaching your pet tricks.



In time, always using patience and a special treat, you can train your pet to do simple trapeze acts, climb from your hand to your shirt pocket, walk on its hind feet, climb ladders, go down slides, and many other tricks. Visit your library and pet shops for additional information on training mice and rats.

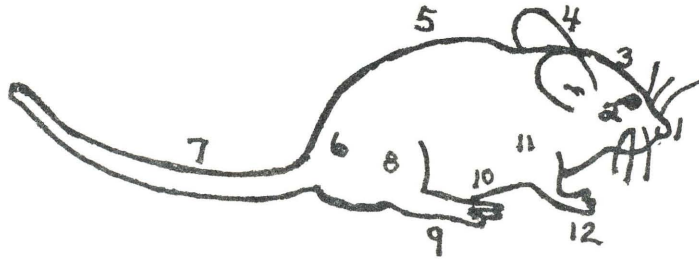
What tricks did you teach your pet(s) this year? _____

What problems did you have with your pet(s)? _____

Grooming

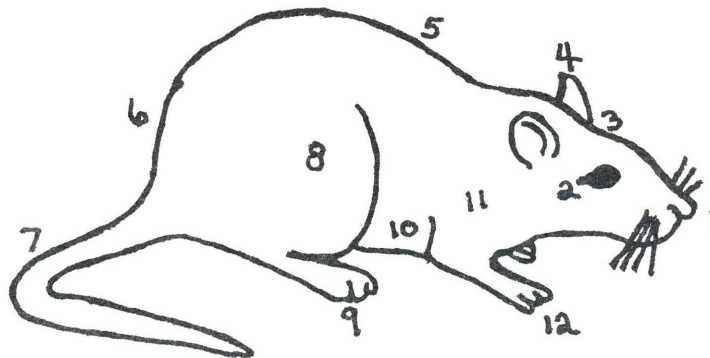
If mice or rats are kept under sanitary conditions, they will keep themselves spotlessly clean and well-groomed. If you smell a mouse or rat, *don't blame the animal; blame the person* who is supposed to take care of the cage!

PARTS OF A MOUSE



- | | | |
|-------------|------------------|--------------|
| 1. Nose | 5. Back | 9. Hind foot |
| 2. Eye | 6. Croup or rump | 10. Belly |
| 3. Forehead | 7. Tail | 11. Shoulder |
| 4. Ear | 8. Thigh | 12. Forepaw |

PARTS OF A RAT



- | | | |
|-------------|----------|--------------|
| 1. Nose | 5. Back | 9. Hind foot |
| 2. Eye | 6. Rump | 10. Belly |
| 3. Forehead | 7. Tail | 11. Shoulder |
| 4. Ear | 8. Thigh | 12. Forepaw |

Health Care

To keep pet mice and rats in good health, follow these rules:

1. Keep pets clean and dry.
2. Immediately isolate any pet that looks or acts sick.
3. If a mouse or rat has lice or fleas, dust it with an insecticide powder recommended for cats and disinfect the cage. *Never* use insecticide powder that is recommended for dogs.
4. Keep food dishes fastened to the side of the cage well above the floor to prevent the contamination of food by urine or feces. The dish should be small enough so the animal can't sleep in it.

With reasonable precautions, these pets should stay in good health and live out their full life span of about three years.

Did you have any disease problems this year? _____

If so, what were they? _____

How often do you clean and disinfect your pet's cage and equipment? _____



If you would enjoy having a white rat like this one to carry around on your arm, be sure to follow the basic health rules, change food and water daily, and play with your pet each evening.

Breeding

A female mouse is ready to breed at eight to 10 weeks of age, and a female rat is ready at three months. For both animals, the gestation period is about 21 days. The average litter is six to 10 babies born without hair and with their eyes closed. Mice and rats are good mothers. They will even accept and nurse orphans that are near the age of their own litter.

After a pair of mice or a pair of rats mate, they may be left together for a time in the same cage. However, when the babies are born, remove adult males from the cage until the babies are weaned or are three weeks old.

Young children should be warned that baby mice must be handled carefully since they have a habit of jumping. They may leap from the hand onto a hard floor and injure themselves. As the babies approach maturity, the sexes must be separated or animals will multiply very rapidly. You should realize that if you carelessly allow your pet mice or rats to breed, you have the responsibility as owner of disposing of the babies. You may offer them to your friends or phone the local humane society to see if they will accept them.

Did you raise a litter? _____

If so, how many were there in the litter? _____

How old were they when you first saw them? _____

Describe what they looked like: _____

What did you do with your babies? _____



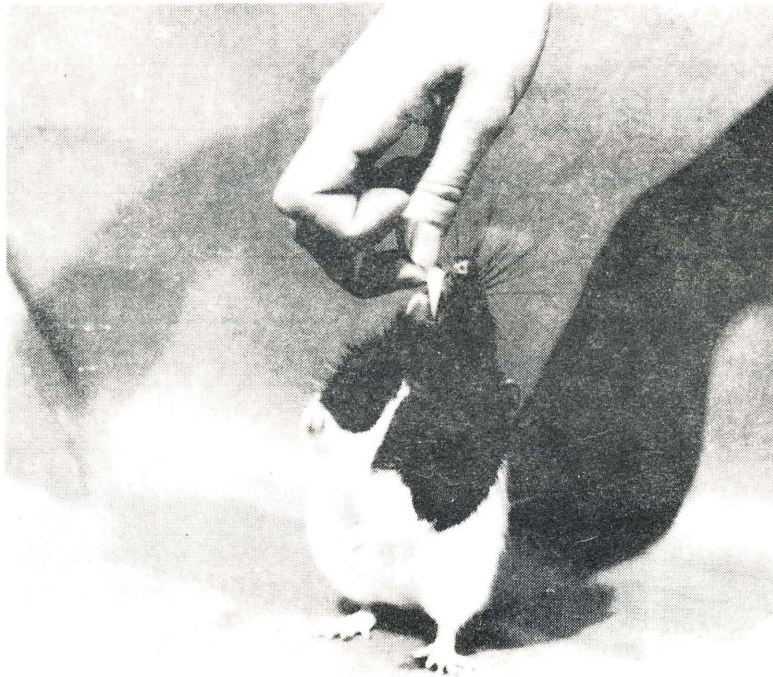
This mouse explores an arm without fear, because someone gave it a secure home. Make sure you can find homes for the babies before breeding your rats and mice.

Future Studies

Visit your local school or public library and read about your pet. Also, visit the pet department in stores and obtain books on raising rats and mice.

In school, you may want a project for the science fair or a special project in your science class. If so, you have a real opportunity in a rat or mouse science project. Your science teacher can help you obtain ideas for developing a science project. Your library will also be of help to you.

You can set up different experiments by feeding various diets to your animals and reporting on the results. There are many experiments that you might try. Ask your Extension home economist agent for the address of the nearest branch of the National Dairy Council. They have reference materials which will help you set up a nutritional study.



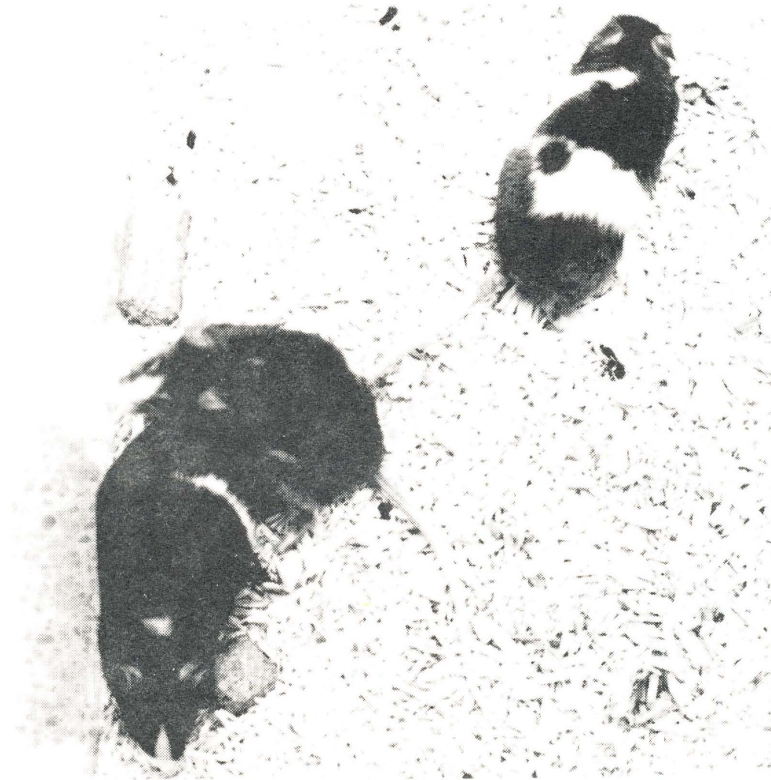
Rats make excellent subjects for nutrition experiments.

The bodies of all animals are made up of millions of microscopic building blocks called cells. Each cell contains a center portion called the nucleus. The nucleus contains chromosomes which occur in pairs. In the mouse, there are 20 of these pairs.

Genes occur in the body cells in pairs because they are carried by the paired chromosomes. Of the pair, one chromosome comes from the father and one comes from the mother. The sex cells, the sperm and the egg, each contain only one chromosome and, as a result, one gene in each pair. Whichever gene each sex cell contains depends upon chance. An individual will transmit only one of each of the pairs of genes in its body cells to its offspring.

Certain genes may mask the effect of other genes. These genes are called dominant genes. The gene being masked is termed a recessive gene.

Mice can be used to illustrate some of the principles of genetics. Mice can be used in science fair projects to show the separation of genes when they are passed to the young from the parents.



Mice are often used for genetic experiments because they are easy to breed, multiply rapidly, and are not expensive to house and feed.

Here is an example of a science fair project. Many kinds of wild mammals, including mice, have a peculiar distribution of pigment in their hair. The hair is mostly black or dark brown, but each hair has a yellow band just below the tip. This color pattern, known as the agouti pattern, gives mice their "mousy" color. This pattern is also found in tame mice. There are also mice which have all white fur and pink eyes; these are called albino mice. The agouti pattern is the result of a dominant gene which is given the capital letter C. The albino mouse is the result of a recessive gene given the small letter c. This gene must be obtained from both parents; its effects will not be observed if the agouti gene (C) is present. In other words, the agouti gene (C) is dominant to the albino gene (c).

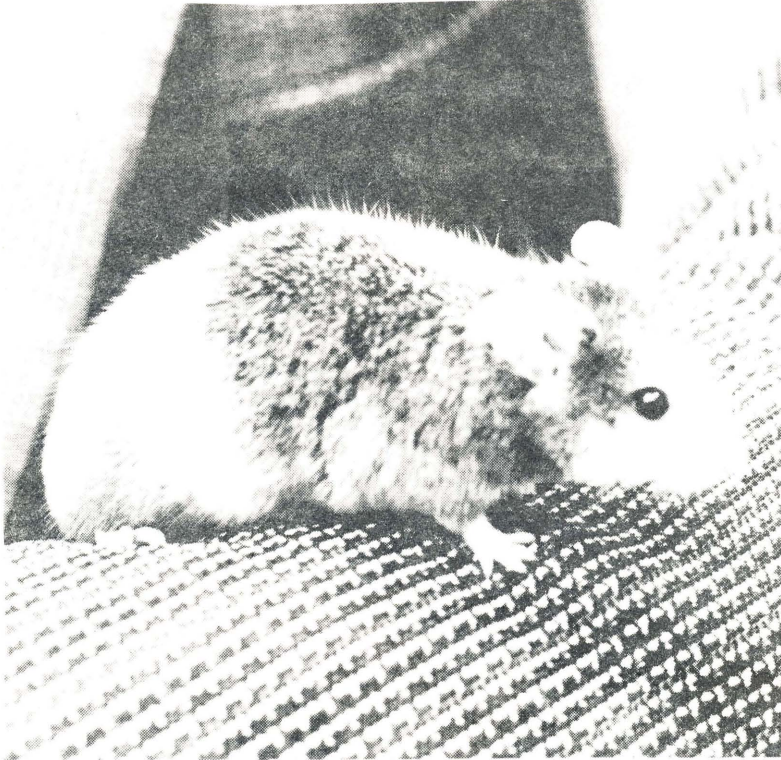
Step I--Mate a mousy-colored mouse (C) with an albino (white) mouse (cc). The offspring may be of two types. In the first type, the offspring may be one-half the mousy color and one-half white if the mousy-colored parent contains one gene for white (Cc).

Step II--Cross two mousy-colored mice from the offspring of the Step I mice. Three out of every four offspring will have the mousy color and one out of the four will be white with pink eyes.

Step III--Cross a mousy-colored offspring from Step I with its mousy-colored parent. All offspring will be mousy in color.

Step IV--Cross a mousy-colored offspring from Step I with its white parent. Half of the offspring will be mousy-colored, and half will be white.

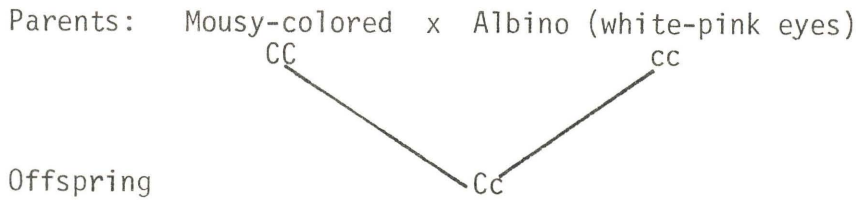
The above tests will prove that albino (white with pink eyes) mice are the result of a recessive gene.



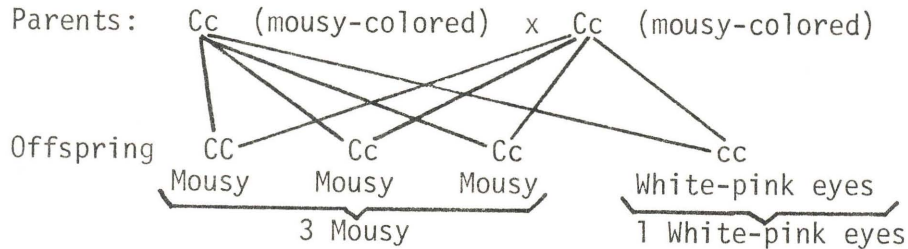
This mouse has the agouti hair pattern, so the color of this mouse is caused by a dominant gene.

How can we predict what the offspring will look like? In Step I, we knew that the mousy-colored parent carried at least one dominant gene (C), and we knew that the white albino parent carried two recessive genes (cc). The following is what would have happened if the normal parent (mousy-colored) had two normal genes.

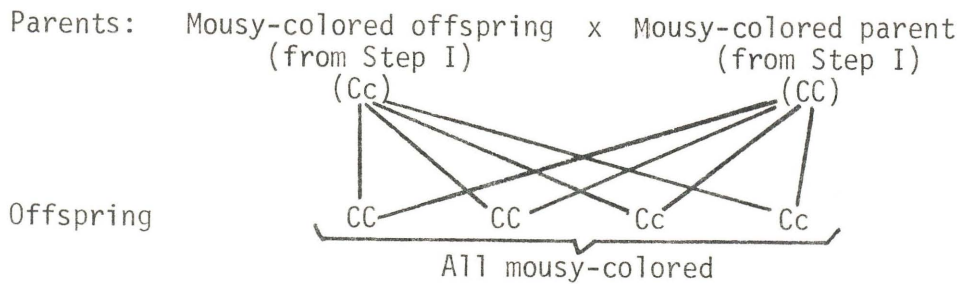
Step I



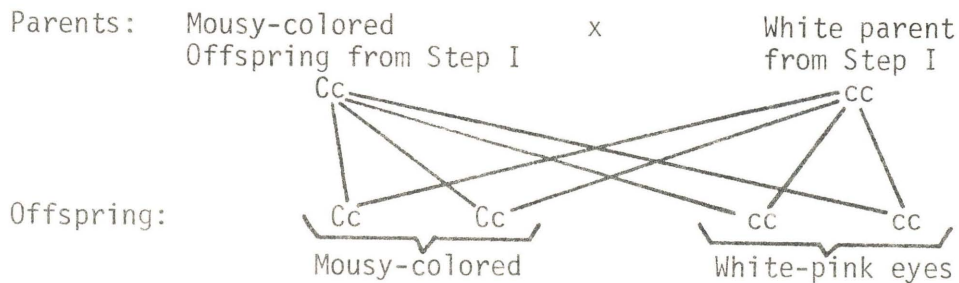
Step II



Step III



Step IV



Similar results are obtained with any recessive genes. The following references may be consulted to obtain more information on the subject: The Principles of Heredity by Laurence H. Snyder; General Genetics by Adrian M. Srb, Ray D. Owen, and Robert S. Edgar, and Mice Breeding by Dr. Karl Nestor. The latter is available through the Poultry Department, Ohio Agricultural Research and Development Center, Wooster, OH 44691. You can also find other relevant materials at your school and local library.

HOW MUCH DOES YOUR PET COST YOU?

Expenses

1. Cost of pet _____
2. Cost of cage or building materials _____
3. Cost of feed:

<u>Kind of Food</u>	<u>Date Purchased</u>	
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Cost of reference books:

<u>Title</u>	
_____	_____
_____	_____
_____	_____

5. Other expenses (toys, bedding, medicine, etc.):

<u>Item</u>	
_____	_____
_____	_____
_____	_____

Total Expenses _____

Income

1. Sales of animals:

<u>Number Sold</u>	<u>Date Sold</u>	<u>Amount Received</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total Income		_____

Difference between total expenses and total income _____

MY PET

(Write a short story about your pet)