



CASEY'S

AWAKENING



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Casey's eyes lit up when he read the message 'Visitor's Day' on the black board in the front of the classroom. A few of his friends were gathered around talking about the special guest that would be speaking to the class today.

"Hey Casey!" said Felix, "We were wondering if the animal lady will bring animals with her...that would be great!"

"Yeah, speaking of animals, how many pets do you have now?" Annie asked Casey.

"WELL, I have a dog, two cats, a bird, fish and a snake." Casey answered proudly.

"Do you take care of all of them?" Yuri asked. "Sure," Casey replied, "and I'd like more—but my Mom said I have enough for now."

"Tell them what your snake eats." said Felix. "My Dad brings home a mouse from the pet store."

"YUCK!!!" screeched Annie. "Can't you feed the snake something else?" asked Mariah.

"Hey, don't you remember the science class when we learned about the food chain?" questioned Felix, "That's what snakes eat in the wild!"

"Hi!" Nadie called out, "What is everyone talking about?" "Today's guest," answered Casey, "She's going to talk to us about laboratory animals."

Nadie looked a bit worried, "My Mom said that where this person works they experiment on animals and I shouldn't listen to anything she has to say."



"Our teacher, Mrs. Palmer, said that she loves the animals and takes good care of them!" replied Mariah.

But Nadie assured all of them that she had books and pamphlets that tell scary stories about animals in laboratories with pictures as proof.

"Good morning class," Mrs. Palmer announced, as she entered the room, "I'd like all of you to settle down and get all your notes together for our guest today."

Casey was surprised when the young woman introduced herself. She didn't look like a person who would hurt animals.



"Good morning everyone, my name is Dee." she announced, "I am a veterinary technician and I work in a research laboratory."

Casey was very interested in what Ms. Dee was saying, because he too wanted to work with animals when he grew up.

Dee asked the class if they had pets at home. Several of the students raised their hands, excited to share their pet stories. "Have any of your pets been vaccinated?" Dee asked. She discussed the different vaccinations that are available for different animals and how they help keep their pets healthy.

Dee then asked if they had been vaccinated. Several students discussed vaccines and the different medicines that had been given to them by their doctor.

She then asked if they knew someone or a pet that had to take medicine every day.

"My father takes insulin because he has diabetes," said Felix. "Did you know that we first learned about insulin and diabetes from dogs?" Dee asked the class. "Dogs get diabetes like people?" Felix asked surprised.



"Yes, they do," answered Dee, "and because of the studies on dogs, science has been able to find ways to help both people and animals."

Dee continued to explain that the research process was like a big puzzle. Research tells the scientist how something such as a virus, works in the body, where it goes and how it multiplies.

And, sometimes scientists find things by accident, like the antibiotic penicillin!

"What kind of animals do you use?" asked Yuri.

"We use all kinds of animals," answered Dee, "but we conduct a thorough search to find out which animal model is best to use for each experiment. Over 90 percent of all animals used in research are mice and rats."

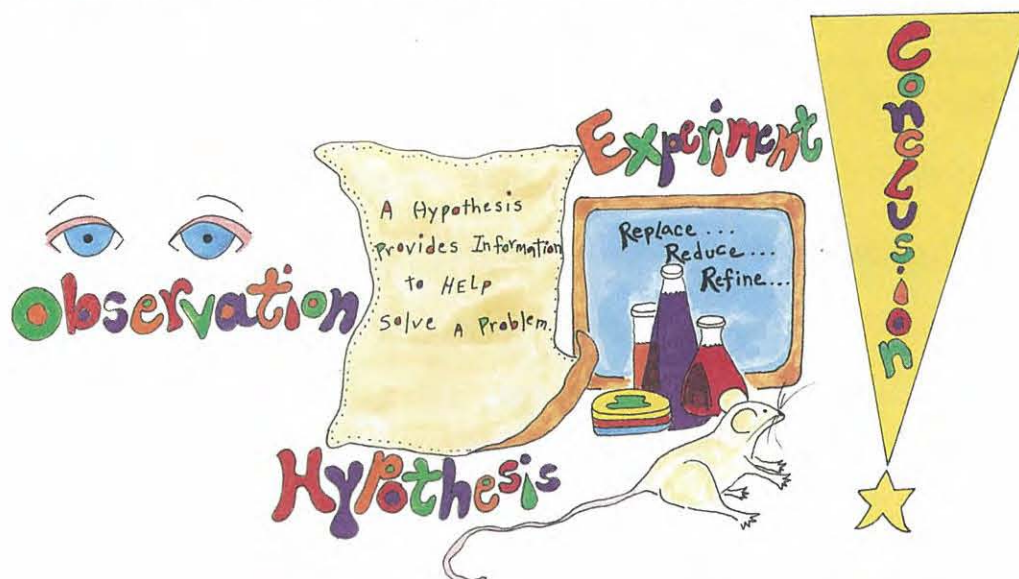
"Do you hurt the animals?" asked Mariah.

Dee explained how the animals are cared for and about the rules and regulations that are in place to protect the animals.

"Why do you need to use animals? Aren't there alternatives to replace animal testing?" Nadie questioned.

"There are really two answers to your question, Nadie: Yes there are alternatives, but no, we can't fully replace animals--yet," said Dee. "Alternatives are more than just replacing animals. Lets talk about the three **R's** of alternatives: **Reduction, Refinement, and Replacement.**

We **reduce** the number of animals to the fewest needed to give us useful information. We **refine** the procedures we use on animals so that they do not have to experience unnecessary pain or distress. We also keep them under conditions that are best for their species. For example, we keep them in cages that are big enough for them to move around comfortably. We give them appropriate toys and other playthings so they don't get bored. We put them in cages with other animals, if their species lives with other animals in the wild. We do this because we care about the animals, and also because animals that are kept under the best conditions give us the best results. Then we don't have to keep repeating experiments that will use more animals."

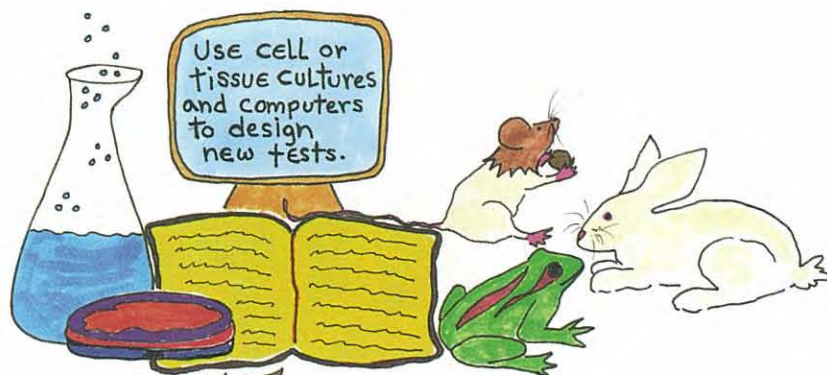


Dee explained that there are some cases in which animals have been **replaced** in testing. For example, rabbits were once used to test for pregnancy. Now people can buy an over-the-counter test that uses a simple biochemical reaction in place of a rabbit.

"For the most part though, we won't be able to eliminate the use of animals in research and testing for a long time" Dee added. "Non-animal methods, such as computer models and cells in culture, are being developed all the time, and we use them to answer as many questions as possible before we have to use animals. But these methods can't yet give us the same information that a whole animal can."

It's also important to note that, for any particular research the more we find out from our animal experiments, the better we can make our non-animal methods for that type of research."

Reduce



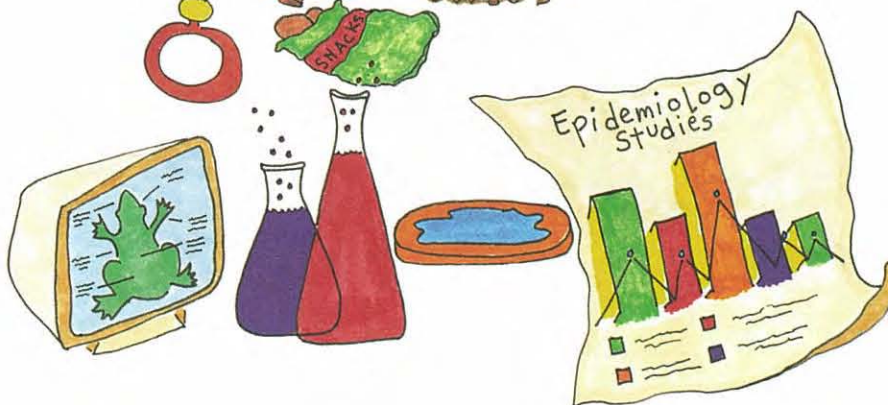
"Do you kill the animals?" asked Casey. The class became silent, anxiously waiting for her answer.

Refine

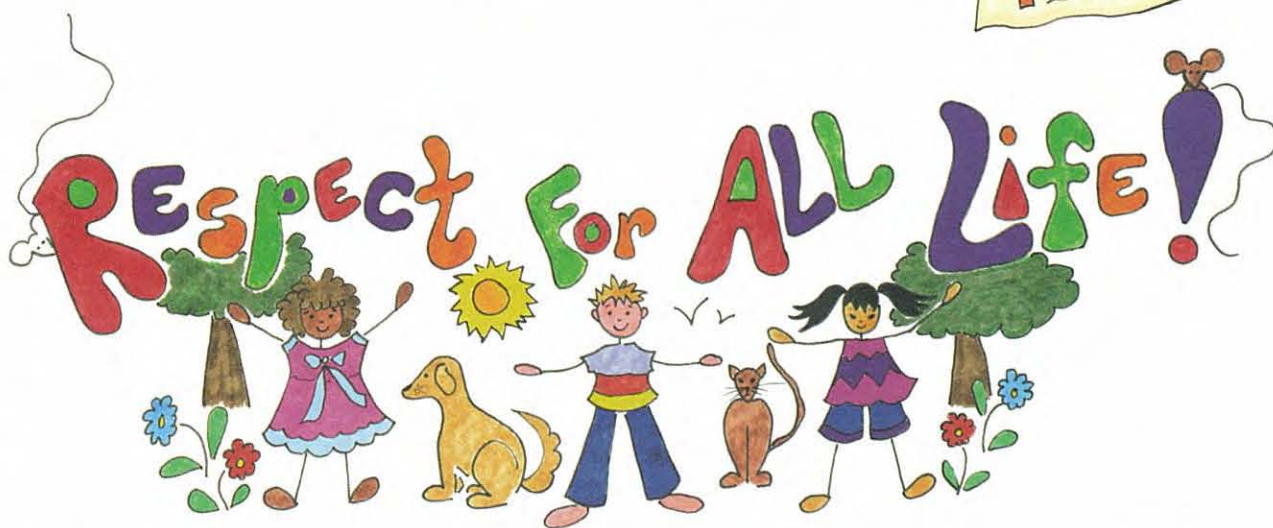


"Yes, we often do," Dee answered, "but we prefer to use the word euthanize. People who kill do not care or have respect for life. I care deeply for my animals. When animals need to be euthanized at the end of a study, we make sure that it is done painlessly and humanely."

Replace



Still feeling a little confused, Felix asked "How can you say you love animals and then kill them?"



Dee explained that when animals are euthanized at the end of a study, it is part of a much larger picture. Scientists may be looking at how a disease or how a medicine travels through the body and what effects it may have on body organs, like the kidneys, pancreas, heart or the liver.

Dee was just about finished when Casey asked, "Can we come and visit where you work?"

"Can we, Mrs. Palmer?" Yuri inquired, humming with excitement.

"I think that is a wonderful idea!" Mrs. Palmer replied.

The class cheered loudly at the thought of a field trip. Dee said good-bye and told them she looked forward to spending time with them at the research laboratory.

Basic Research is when a scientist is gaining a better understanding of life processes and how disease works.



We **reduce** the number of animals to the fewest needed to give us useful information.

Applied research is when a scientist is using information from basic research to solve a specific biomedical problem.

APPLIED RESEARCH

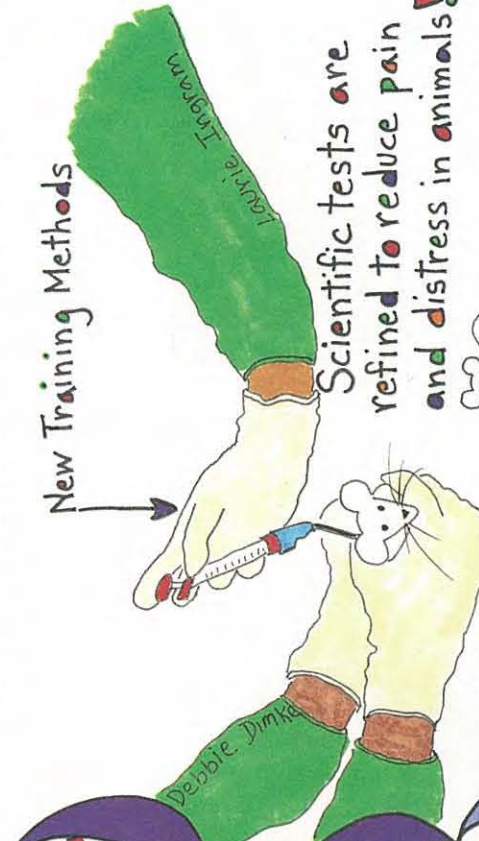


In some cases animals have been **replaced** in testing. For the most part, though, we won't be able to eliminate animals for a long time. New non-animal methods, such as computer models and cells in culture are being developed all the time, and we use them to answer as many questions as possible before we have to use animals.

Clinical research are studies in humans and animals that determine if a new drug, vaccine or medical procedure is safe and effective. **Institutional Review Boards** or **IRBs** are similar to Institutional Animal Care and Use Committees in that they are committees that review all experimental protocols involving human subjects.

CLINICAL RESEARCH

Clinical research applies to both Humans and Animals!



Scientific tests are refined to reduce pain and distress in animals!

Environmental Enrichment is an important aspect of animal care. A full enrichment program ensures the physical and physiological well being of ALL animals.

JoAnne Fagan

Goats like to be petted, scratched, talked to, and hand fed.



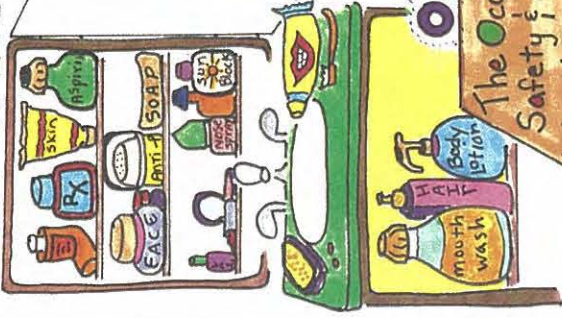
Pigs are very intelligent! They prefer scratching, playing with water, and shoe chewing.

REFINEMENT

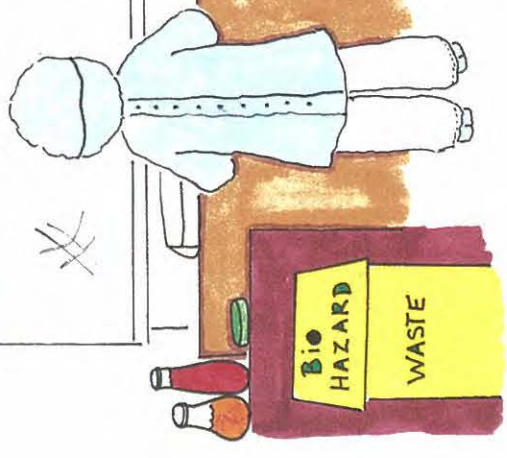
We **refine** the procedures we use on animals so that they do not have to experience unnecessary pain or distress. We also keep them under conditions that are best for their species.

SAFE MEDICINES AND PRODUCTS REQUIRE SAFETY TESTS

The Food and Drug Administration (FDA) requires scientific data from manufacturers documenting that new prescriptions or over the counter drug products are SAFE!

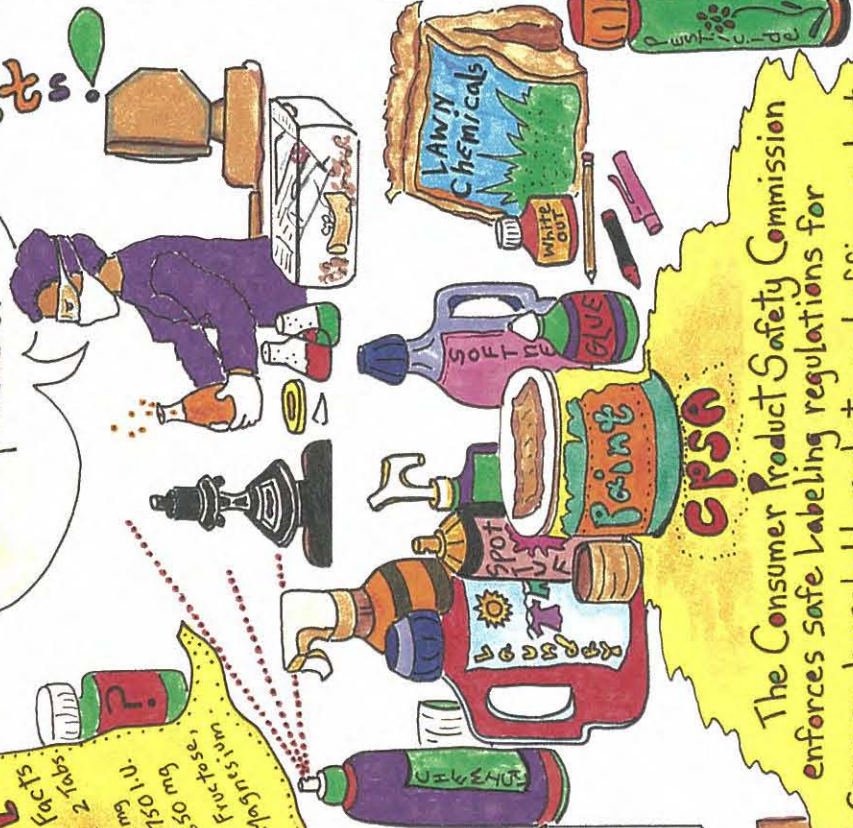


OSHA
The Occupational Safety & Health Administration watches over worker Health and Safety.



Safe Medicines and Products Require Safety Tests!

A Toxicologist conducts safety tests on medicines and products.



CPSC
The Consumer Product Safety Commission enforces safe labeling regulations for common household products and office products under the Federal Hazardous Substances Act (FHSA).

The Toxic Substances Control Act regulates all chemical substances manufactured in or imported into the U.S., except those already covered under other laws. Under **TSCA** the **EPA** can require specific animal tests to ensure a substance will not cause harm to people, animals and the environment. The **Federal Insecticide, Fungicide and Rodenticide Act** covers registration of ALL pesticide products used in the U.S.A. **FIFRA** rules require specific animal tests for premarket approval to determine proper labeling for safe consumer use.

EPA
Environmental Protection Agency

DID YOU KNOW? Much of the data used by **OSHA** to set guidelines for worker safety comes from safety research using animals!
FACT... When animal testing of a new product is needed to make a labeling decision, the **Federal Hazardous Substances Act** regulations specify the animal test methods to be used. The **Federal Insecticide, Fungicide, and Rodenticide Act** require specific animal tests for the premarket approval of pesticides and disinfectant products to determine proper labeling for safe consumer use.

RESPECT FOR ALL LIFE



GOOD ANIMAL CARE AND GOOD SCIENCE GO HAND IN HAND!

The **Institutional Animal Care and Use Committee (IACUC)**, is responsible for monitoring and evaluating the total animal care program, as well as for reviewing all proposed animal experiments.

Did You Know...?
A protocol is an application to use animals in research.

AAHA
The Animal Welfare Act was first passed by U.S. Congress in 1966. This law has been changed many times the last time was in 1990. The ACT covers all animals except rodents, birds, and cold blooded species. All research institutions that use or house laboratory animals must obey this law. The inspectors for the ACT are from the United States Department of Agriculture (USDA). The inspectors make sure that the Animal Welfare Act is enforced!

IACUC Use Committee
The purpose of a IACUC is to oversee the animal care program and review protocols. The Committee has at least 5 members; a veterinarian, a scientist, a non scientific member, and a member that is not affiliated with the research institution.

Hypothesis
Provides Information to Help Solve a Problem...

Observation

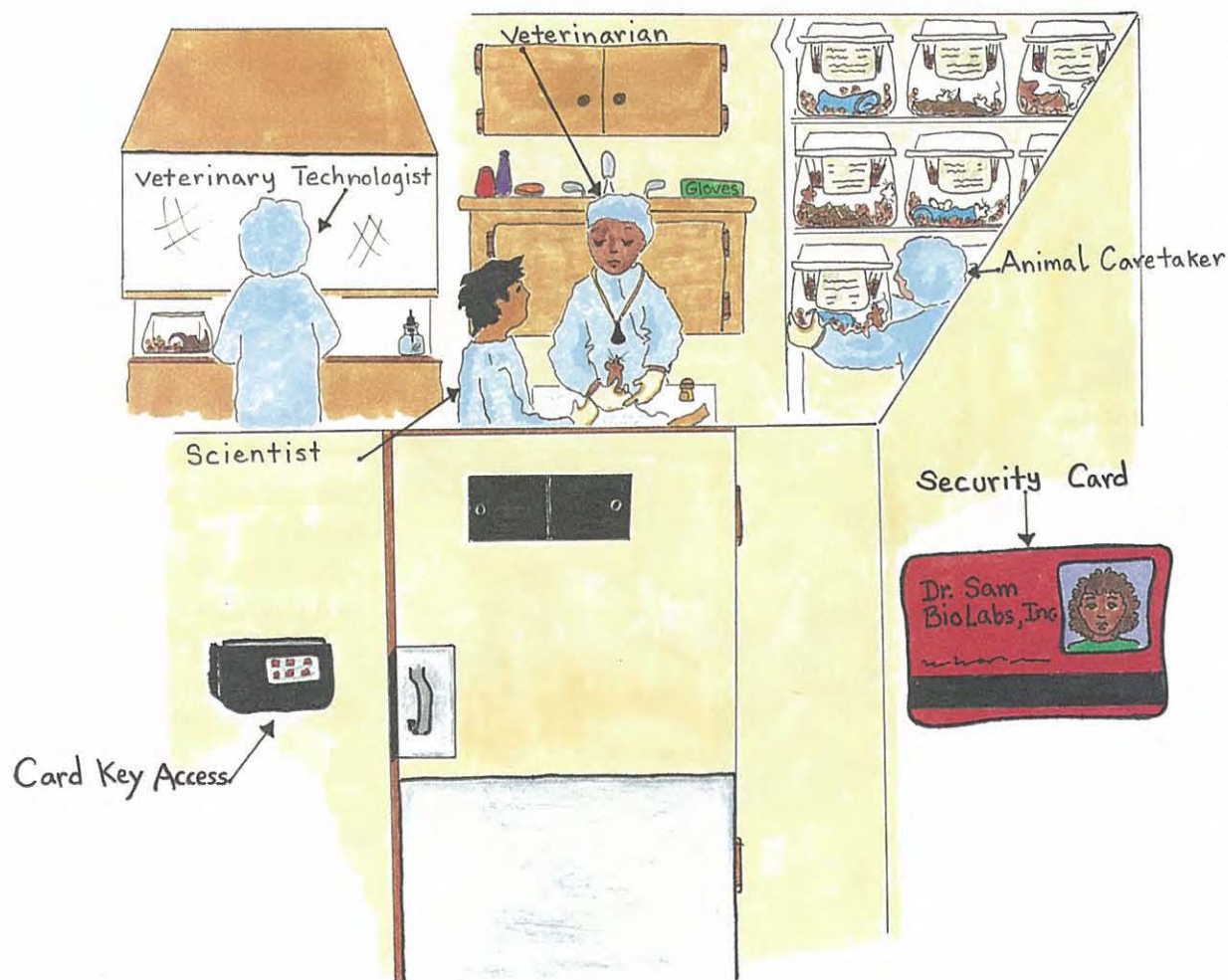
Experiment

Conclusion

Researchers / scientists proposing a procedure must explain to the committee in writing the number of animals they plan to use, why a certain species is necessary, and what steps will be taken to prevent unnecessary suffering. The **IACUC** has the power to reject any research proposal and stop ongoing projects if it believes animal welfare standards are not being met.

It had been a couple of weeks since Dee had visited Mrs. Palmer's class. The school bus pulled up to the front doors of the research laboratory and Larry the security guard greeted them.

As the class stood quietly waiting for Dee, they noticed all the different people that worked in the building. Mrs. Palmer explained about some of the people they would meet: doctors, scientists, veterinarians, chemists, animal caretakers, veterinary technologists, pathologists, and more.



Casey spotted Dee as she stepped off the elevator and waved. "Hello and welcome," Dee announced. "Has everyone met Larry, our security guard? He makes sure that people who do not work here cannot roam around the building without a guide."

They all took the elevator up to the third floor. "This is where our animal facility is located," Dee told them, as she slid a plastic card through a black box.

"What is that?" Nadie asked. "This is what we call a card key access," said Dee. "It is part of security. Everyone who works here in the animal facility has one—you cannot get in or out of the animal rooms or the research facility without one of these special cards."

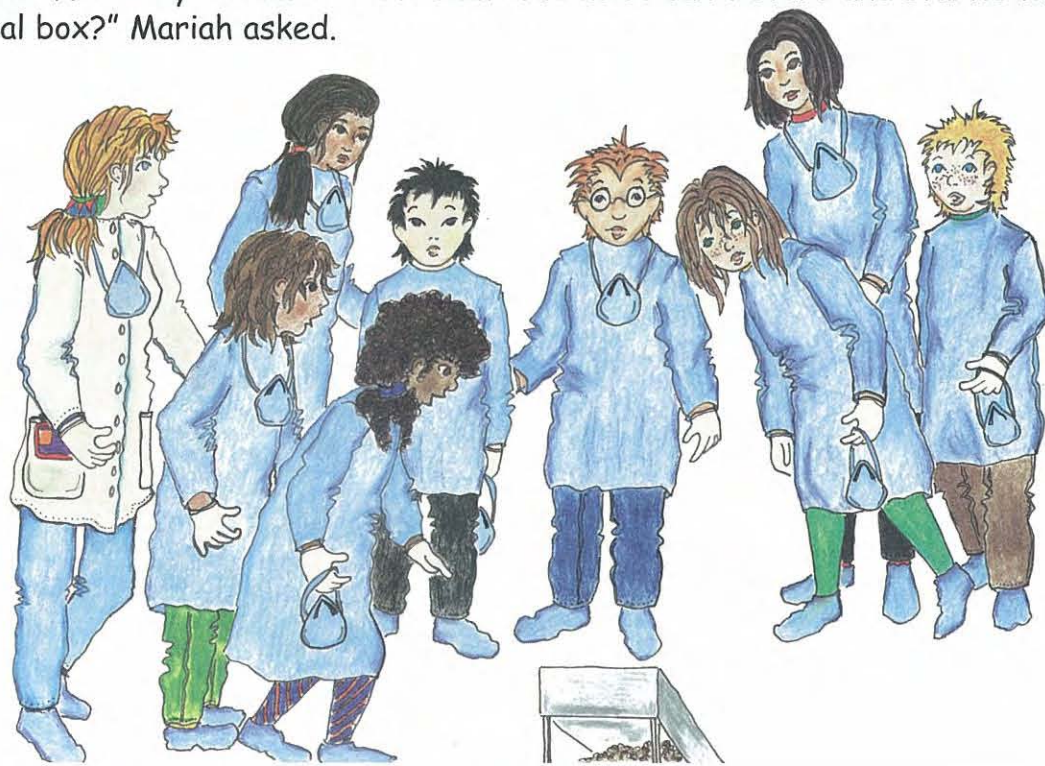
Just inside the animal facility, Dee handed everyone lab coats, masks, shoe covers, and gloves. She demonstrated how to wear the garments.

"Why do we need to cover up?" Yuri asked, while struggling to put on his shoe covers.

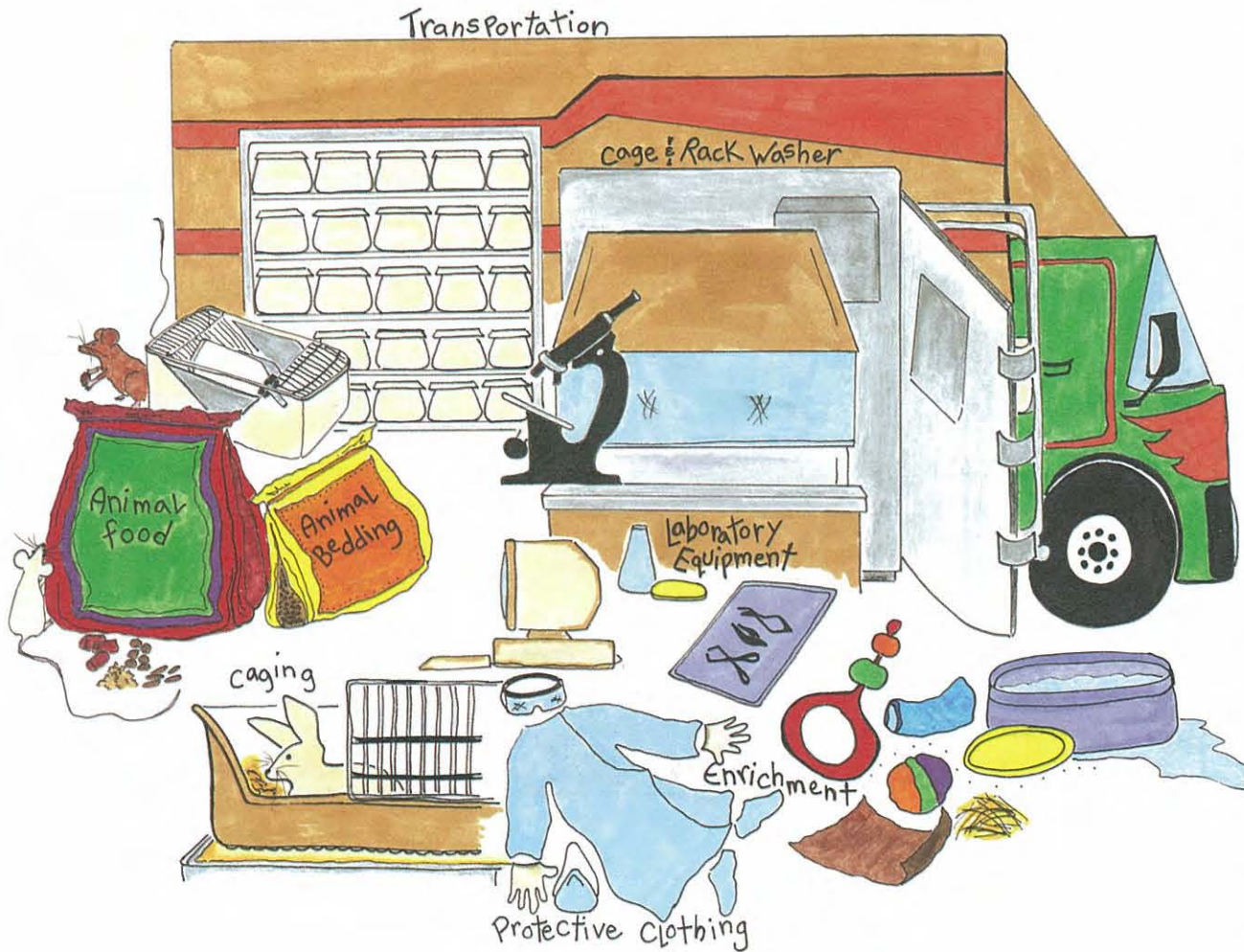
"We do this to protect the animals from any outside virus that could make them sick, and also to protect you," Dee replied.

As they entered the facility Dee instructed them to keep their voices low. She went on to explain that many animals hear things differently than we do and that loud noise can disturb and startle them.

"What is that metal box?" Mariah asked.



"That is a live trap," Dee explained, "we use these in the animal facility to protect our animals from outside intruders. The trap catches mice but does not hurt them."



"Why do you care if other mice get in?" Yuri asked.

Dee explained that most laboratory animals are bred for research.

There are businesses we call vendors that specialize in raising and providing specific animal models for different types of research. Since the animals are bred at these facilities we know exactly where they come from and how healthy they are! Animal models can range from the nude mouse, which is used in some cancer studies to pigs, whose hearts are similar to humans.

"Rabbit models are used in studies involving the immune system, as well as eye and ear studies. These animal models are bred to be disease free and if an outside mouse got in, it could pass on a nasty virus or parasites that would make our animals very ill."

"You know, all this reminds me of a story about a mouse named Casey...Would you like to hear it as we tour the animal facility?"

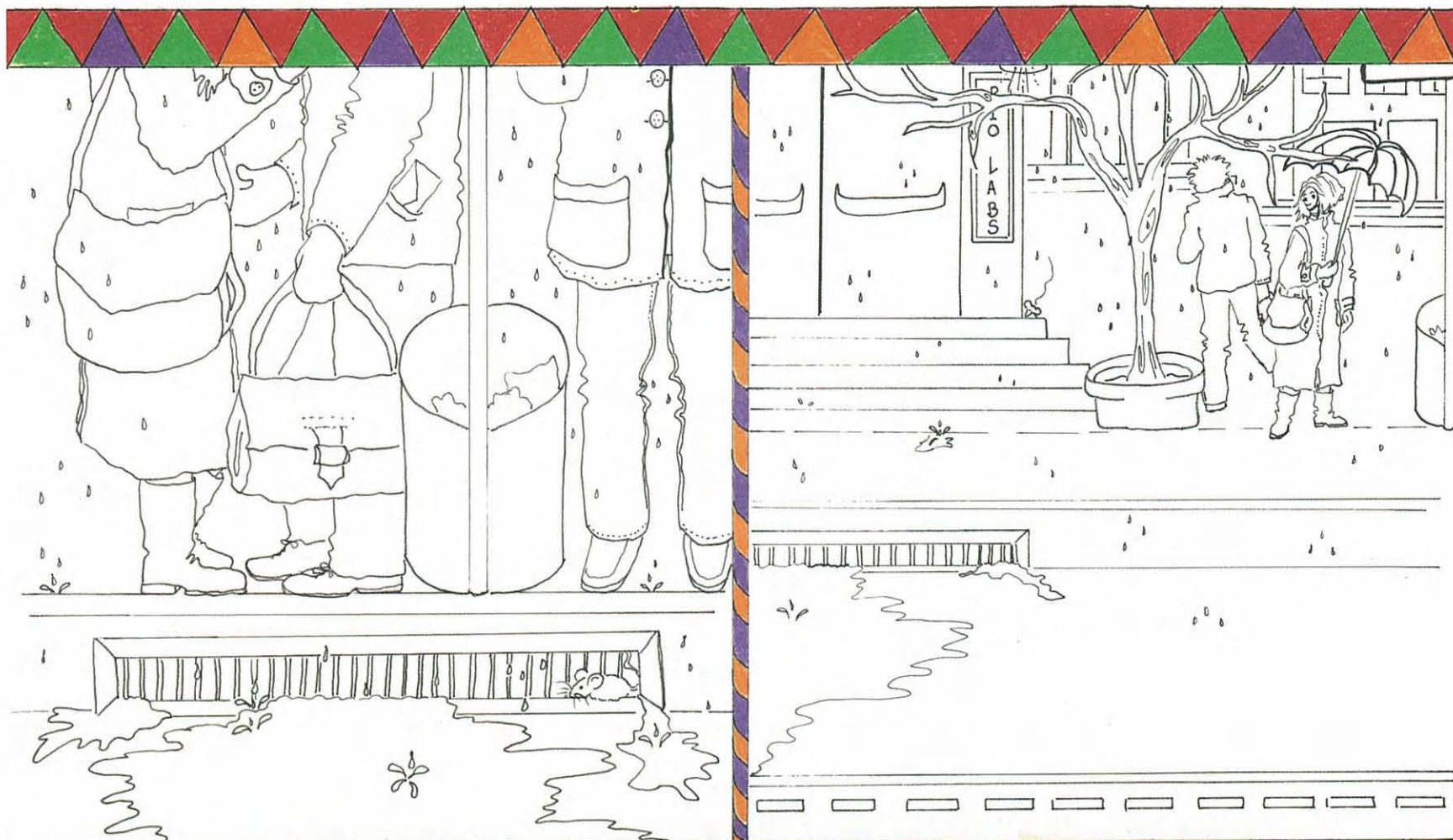
"Hey, that's my name!" Casey exclaimed.

"And some time ago, it was the name of a mouse that was here too. Are we ready to continue?" she asked.

A resounding YES, was the response!



Once there was a little brown mouse named Casey. He lived out in the streets where it was very dangerous. Casey's heart raced as he dashed in and out of the people in the street. One day Casey found his way into a building and dashed up the stairs and hid in one of the rooms.



Did you know... Most of the animals used in research today are mice and rats. These and other animals are specifically bred for research.



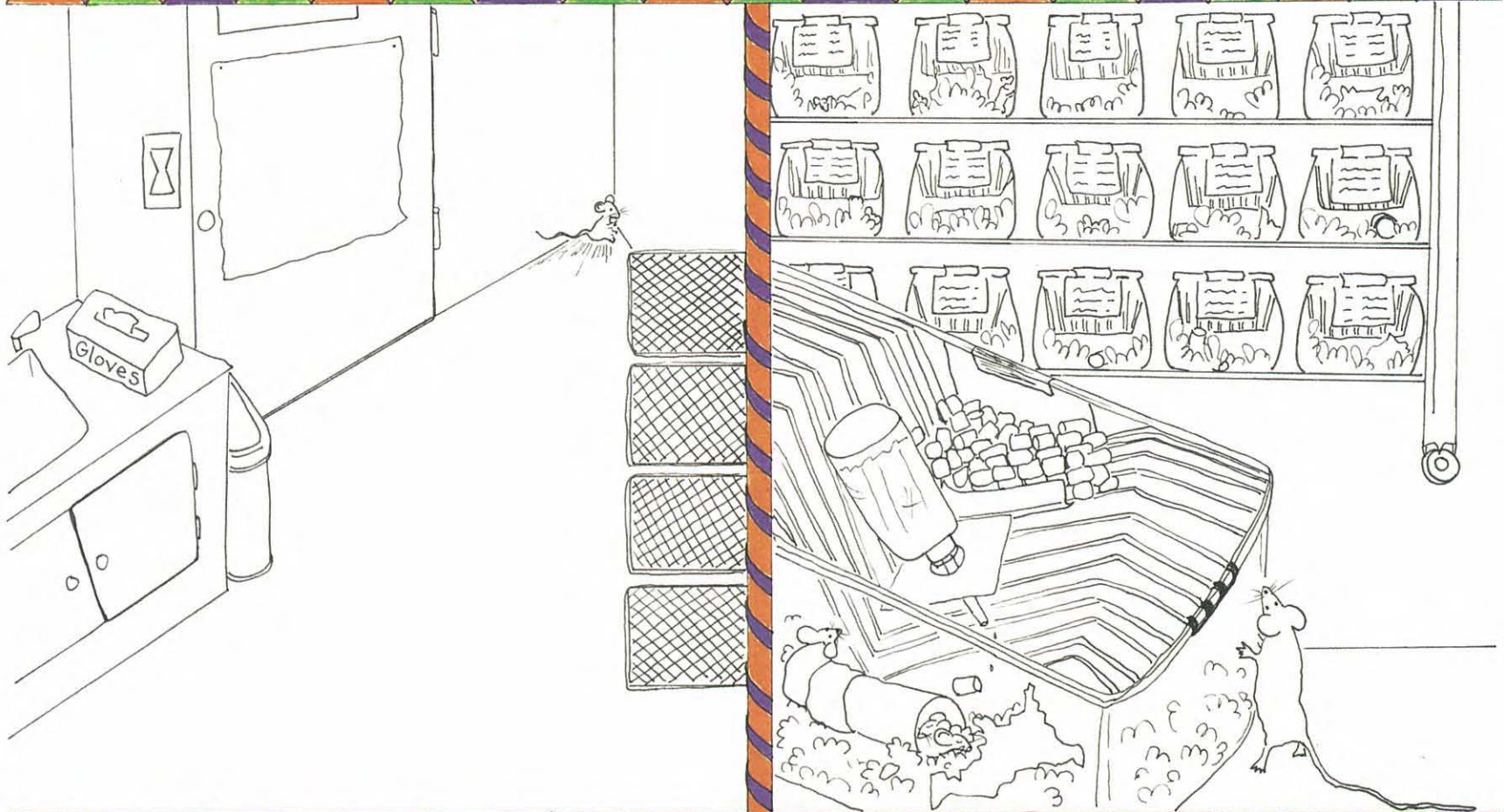
As they started the tour, Dee asked if they had questions.

Nadie had concerns and asked, "I heard that people's pets are stolen for research. Is this true?"

"In the past," Dee said, "a few people took animals that didn't belong to them and sold them to scientists. Today we, the research community, work hard to make sure that doesn't happen. There are laws that require us to keep accurate records of where all research animals come from."

Fact

Cages are designed to ensure All research animals have free access to food and water at ALL times.



Casey was cold and wet when he stumbled into the room. The room was dark but the smells were familiar. Casey perched himself in a corner and groomed his brown mouse fur. He was very hungry and could not remember the last time he ate a morsel of food. Then... the lights came on...

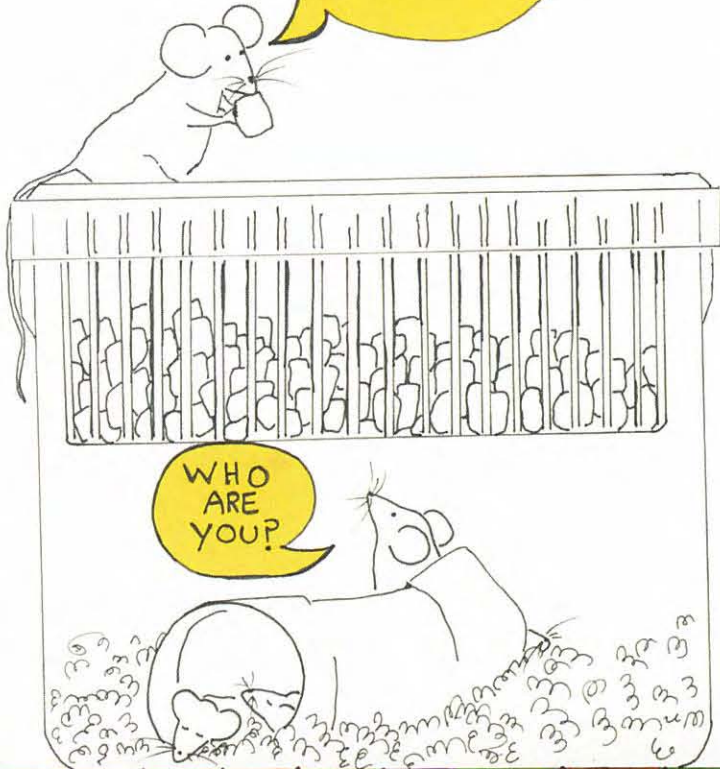


"Who makes everyone here obey the laws?" Casey asked.

"The **United States Department of Agriculture**," Dee explained, "or the '**USDA**,' visits research laboratories at least once a year. The USDA inspectors come to the research laboratory unannounced and examine the physical building, cages, and floors. They also review the experimental protocols and all records kept on the animals. If they find something wrong, the laboratory is written up and reported. We are then given a block of time to correct the problem before the inspector returns to make sure that the problem was corrected."

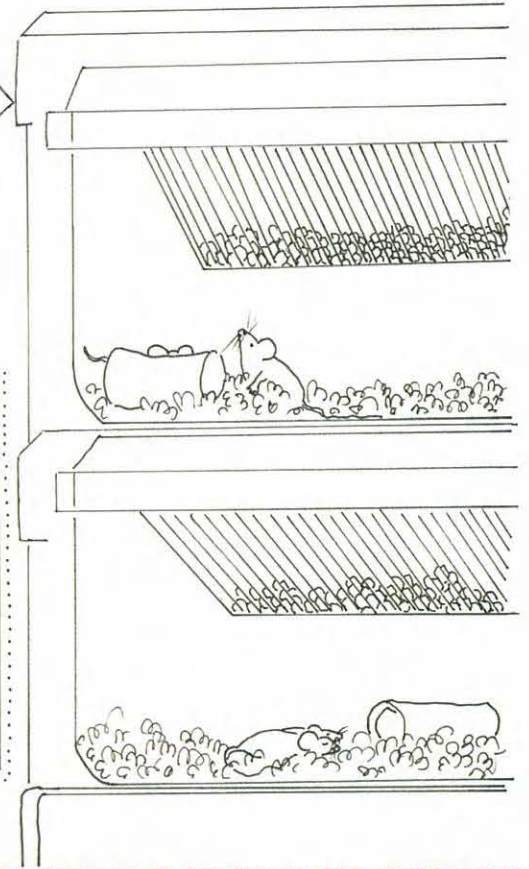
His eyes slowly focused and he noticed rows and rows of plastic boxes. Casey decided he would use his last bit of strength to climb up and get something to eat. As he anxiously took a piece of the tasty chow, he heard a tiny voice from below. Casey looked through the wire top and could not believe his eyes!

Who Am I,
WHO ARE YOU?

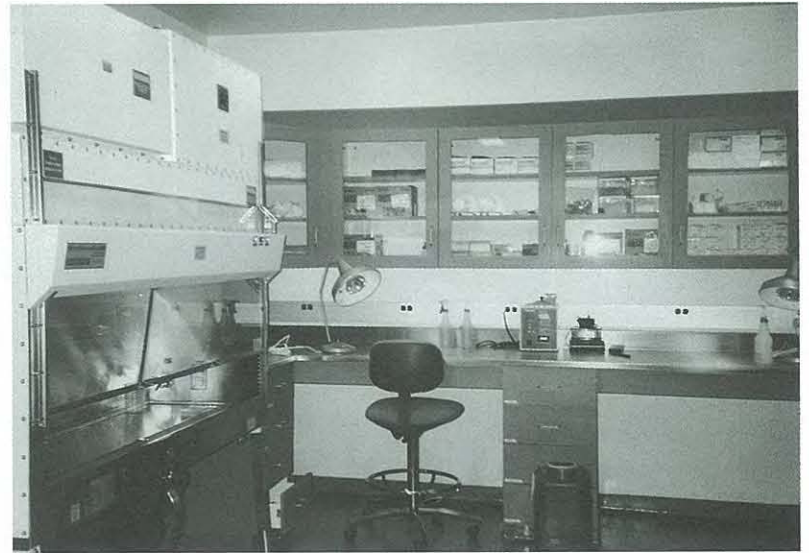


Mice get different viruses that can travel through the air. These filters help catch the virus.

Species: mouse BALB/c
Source: BioLabs
Arrival Date:
Age: DOB:
Sex:
Weight: 30 grams
Investigator: Dr. Lee
Protocol #: Lee-99-5



Tubes, nesting materials, and other environmental enrichment are placed in cages to encourage natural behaviors.

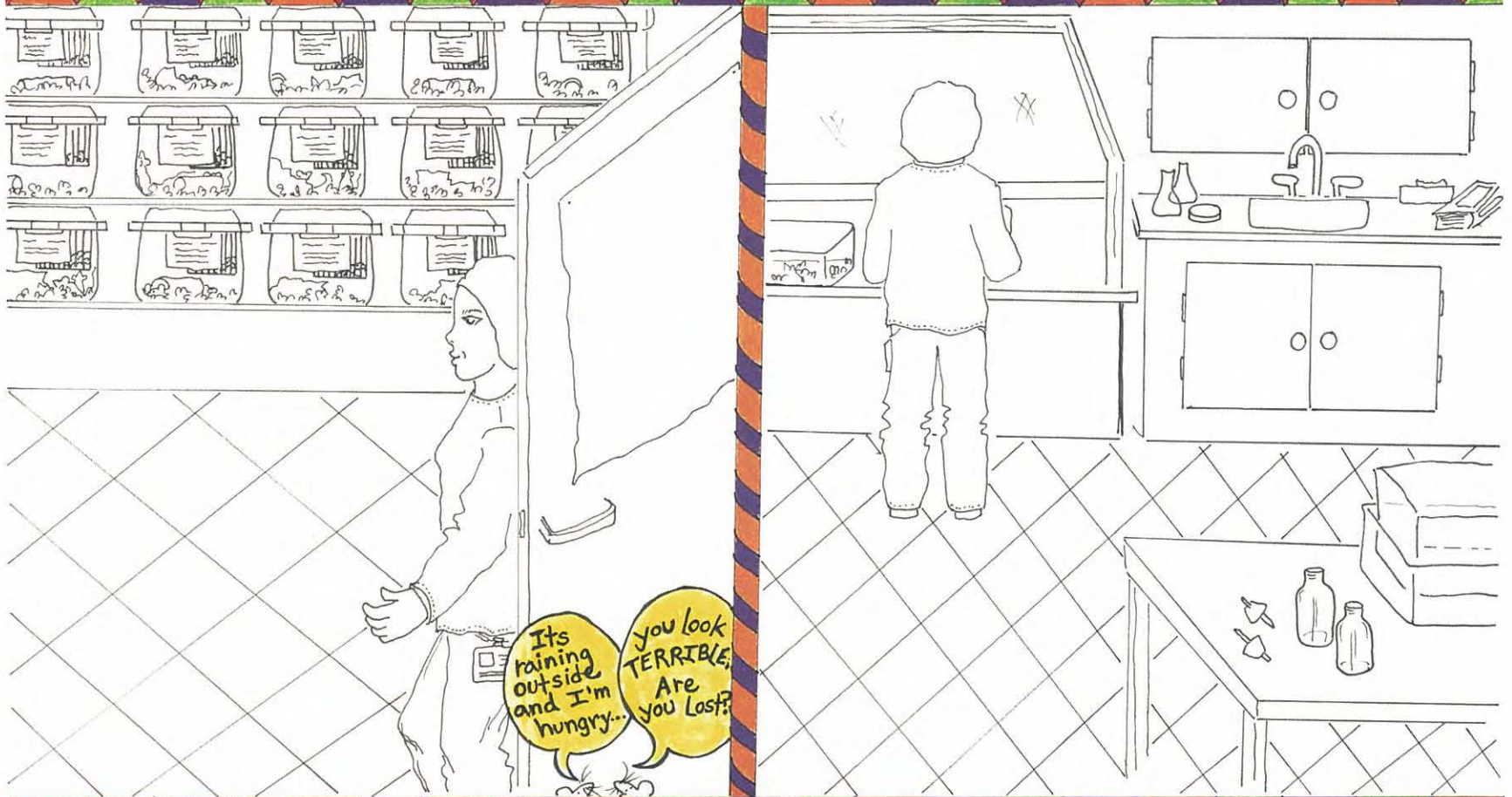


Mrs. Palmer asked if that was the only inspection that the laboratory had. Dee continued to describe that the USDA was only one of many. "Every three years we get inspected by AAALAC," she said.

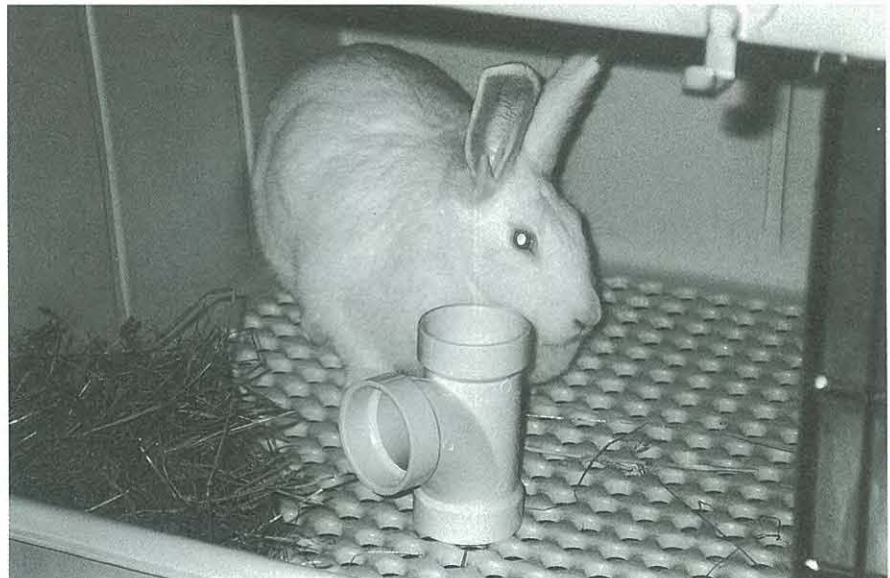
AAALAC International, the **A**ssociation for the **A**ssessment and **A**ccreditation of **L**aboratory **A**nimal **C**are, inspects research laboratories all over the world. This organization provides accreditation to laboratories that meet or exceed state and federal regulations.

Did you know? Veterinary technicians care for animals 7 days a week, including holidays.

- Their responsibilities include daily health checks and changing cages.
- They also provide medications to the animals as instructed by the veterinarian.



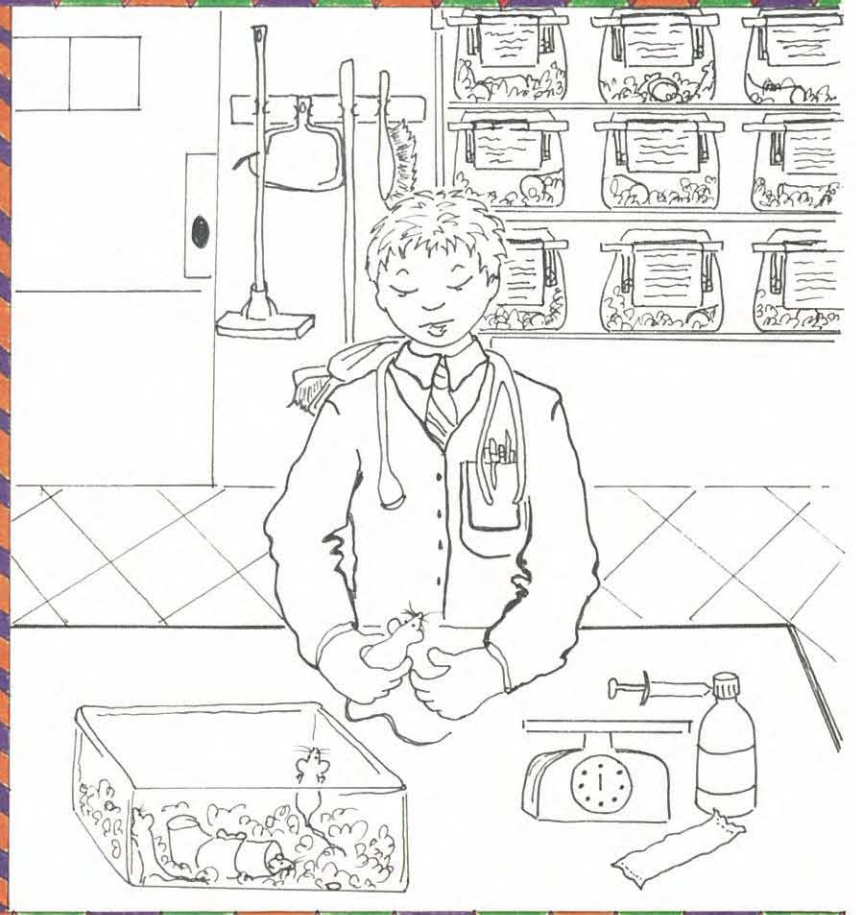
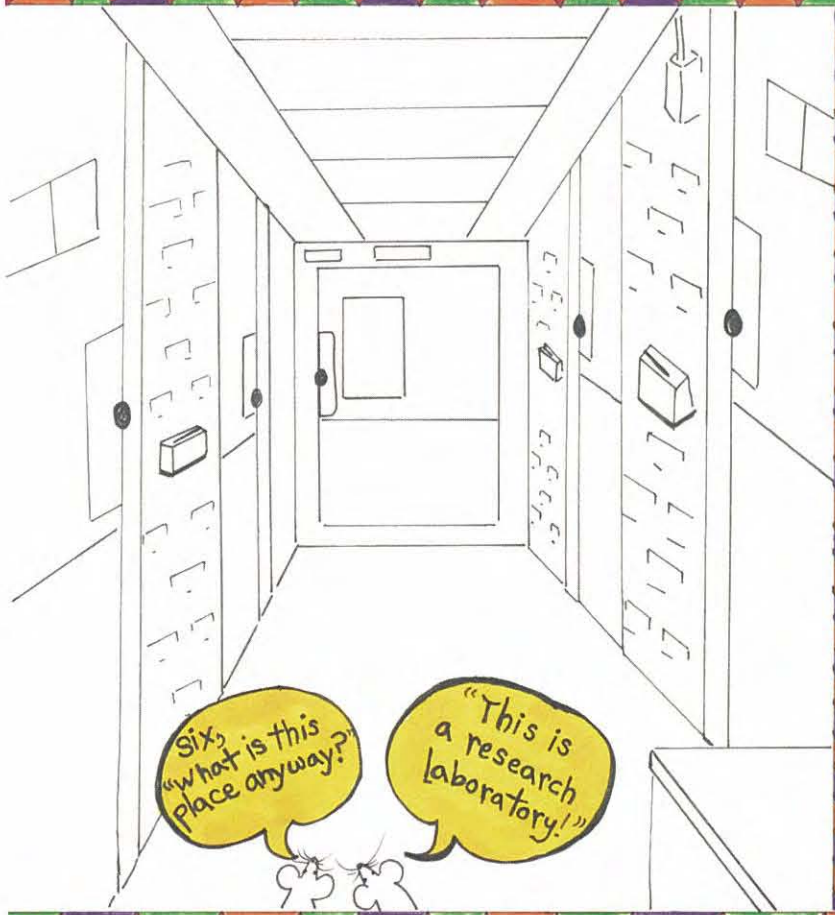
"my name is Six and these are my roommates." Casey took a look around and noticed there were mice EVERYWHERE! Six climbed to the top of the wire rack and slid her well groomed body through the slats. Casey became curious of his present surroundings. "Six, how long have you lived here?" "ALL my life," Six answered! The door then opened... "Who is that?" Casey asked. "That is Tee. She is a veterinary technician."



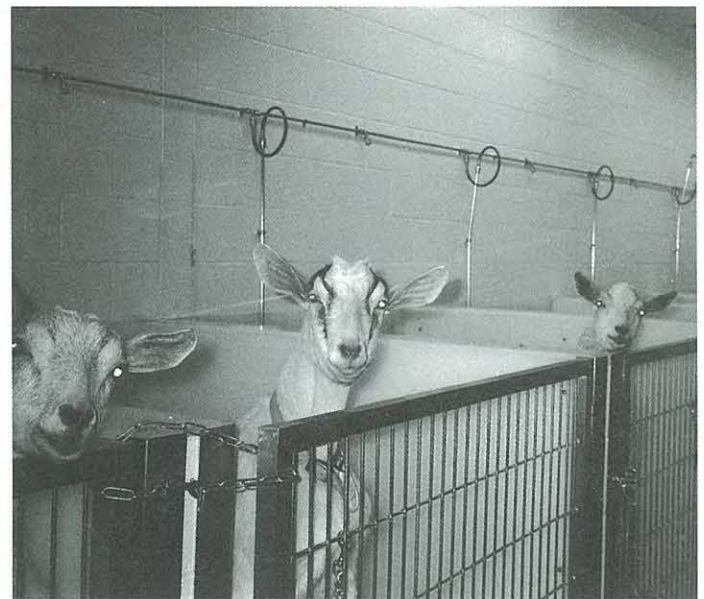
"Also, the Department of Public Health may conduct inspections in many states. And, last but not least we are inspected internally, at least once each year by the Institutional Animal Care and Use Committee or the **IACUC** as we refer to it. The committee must include at least one person who is unaffiliated with the institution and one veterinarian."

"The IACUC's purpose is to examine the animal care program and review all protocol applications that include the use of animals. The IACUC can approve, disapprove, or recommend changes to all protocols. The IACUC also makes the scientists do a literature search. This search will show if the experiment has been done before, and if the right animal model is being used."

Casey and Six walked down the hall and saw MANY MORE rooms with the same boxes. "Where do all the animals come from?" "Some of the animals were born here LIKE ME and others are from laboratories and other institutions that are licensed by the U.S.D.A.." "There is Dr. Lee!" said Six. "WHO IS HE?" asked Casey. "Dr. Lee is a scientist. He is exploring the use of different medicines to help people and animals." "Lets go in here."



EAG Before scientists can use animals in research, they must have an experimental Protocol that has been approved by the **IACUC**. This protocol must detail every Procedure involving animals!

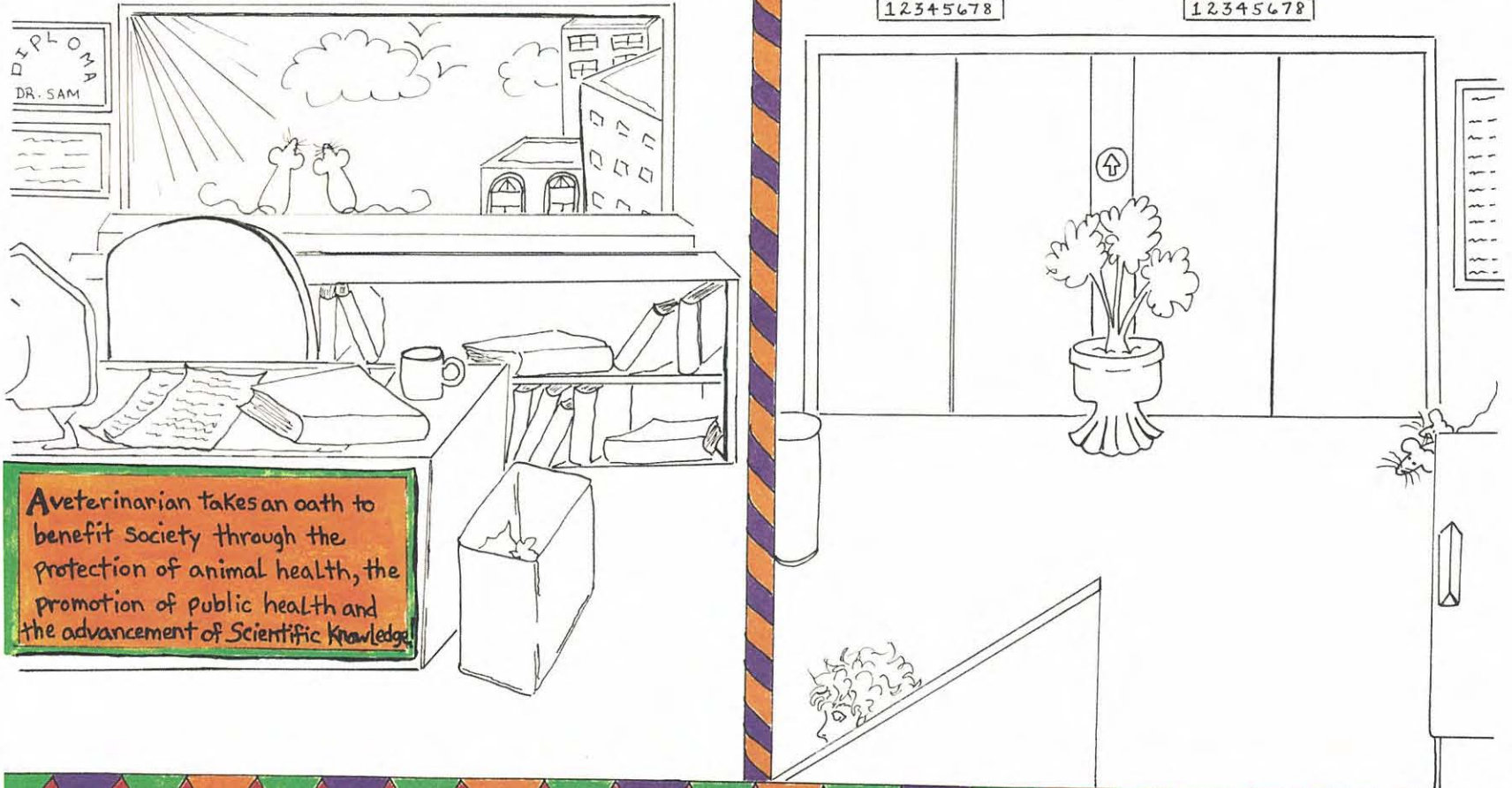


"It would be a waste of a life if we just chose an animal model blindly without doing the proper research before the experiment is approved. Also, all people working on the experiment must have the proper training, even the slightest little change such as a new person must be approved. NO scientific research with animals can be conducted without the full approval of the IACUC."

"Wow, the animals are really taken care of by everyone!" exclaimed Mariah.

"Yes," Dee answered, "research is not a right, it is a privilege and we take that very seriously."

A research veterinarian not only provides medical care to laboratory animals-- but they are also responsible for providing hands-on training to all persons involved in animal care!



"Who lives here?" Casey asked Six. "This is Dr. Sam's office. She is a veterinarian and she makes sure that we have proper medical care. Dr. Sam tells technicians like Tee, and scientists like Dr. Lee, the rules and regulations that protect animals like me. She is a very important part of our team." Six noticed that it had stopped raining and led Casey to the lobby. They said goodbye and Casey promised Six he would return someday.

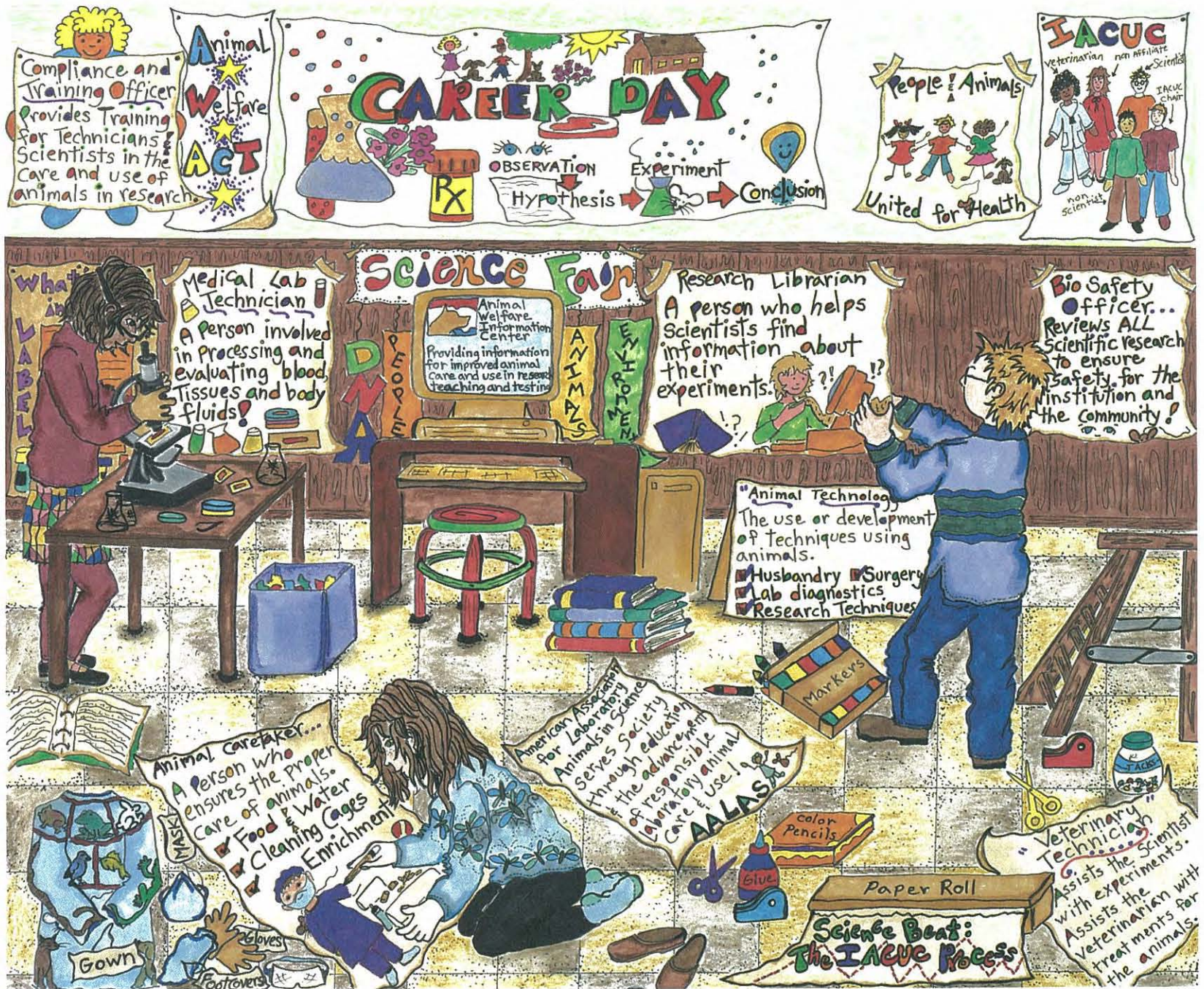


"Where do you get the information you need to do your job?" Annie asked.

"That's a great question—and I wish I could explain briefly...let's see," Dee continued, "Most everyone I know in this field has had two or more years of college. They have very strong science backgrounds and love to work with animals. There are organizations like the **American Association for Laboratory Animal Science**, or **AALAS** for short that provide training. This organization is dedicated to the education in the care and use of laboratory animals. They provide training programs and distribute lots of important information on veterinary care. Plus, there is also a strong network of professionals nationwide that can help me or my colleagues professionally."

Back in the classroom the children prepared for Career day. They made bright posters and drawings of the different career opportunities they learned about that day.

Annie was working on the animal caretaker poster. She liked to keep things in order, and is a very tidy person. She enjoyed the idea of feeding and caring for animals on a daily basis.



Felix chose the research librarian because he loves to read books. The thought of searching all the different literature for a specific project interested him.

Yuri wanted to become a scientist because he always liked to dabble into the unknown. He would sometimes daydream about inventions or finding a cure for cancer.



Mariah found the role as veterinarian fascinating. She loved animals, and seeing them sick or hurt made her want to help them.

Nadie, who was still unsure about her feelings on the use of animals in biomedical research, chose to draw the medical lab technician. She wanted to be a part of the big picture that Dee spoke about and this was her chance to contribute without working directly with the animals in the laboratory.

Casey on the other hand wanted to work with the animals. What he learned that day was people like Dee were the ones who took care of the animals all day long. He proudly drew himself as a veterinary technician. He wanted to be the one who not only helped the animals when they were sick, but who also got to play with them and make them feel special.

The important thing that all the students learned that day was that the research **team** is very important in the care and humane use of animals in research. A team effort is needed in the race to find treatments and cures for people and animals, and each one of us can be a part of this.

The Massachusetts Society for Medical Research, Inc.

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