LESSON 5.3 WORKBOOK

Should animals be used in scientific research?

In the last couple of lessons we have referred to experiments in which laboratory animals have been used to test the adverse effects of drugs. The question of whether or not animals should be used in scientific research is one that triggers quite a debate. In this lesson, you will explore the issue as a class, reading various perspectives on the issue and debating the merits of each.

Various perspectives

The relationship of animals and humans has been the subject of differing philosophical views for thousands of years. The controversy continues today in many aspects of contemporary life. Some people believe that a vegan lifestyle is the only moral choice. Others believe that humans should treat animals "humanely", but that we should be able to use animals and animal products at will, including for biomedical or other scientific research. Others believe that humans have no moral responsibilities to animals and we are free to treat animals however we want.

Advocates of animal rights believe that animals have legal rights and are members of the moral community. Therefore, they believe that animals should not be used by humans for any purpose. Advocates of animal welfare believe that non-human animals should be treated humanely and without unnecessary suffering, but otherwise are available for humans to use for food, clothing, research and entertainment.

To determine where you stand on the issue, you need to learn about the historical views on the relationship between humans and animals, current views, and in particular the role of animals in biomedical research. In groups, you will learn about these concerns from multiple perspectives, including:

- National Institutes of Health (NIH)
- People for the Ethical Treatment of Animals (PETA)
- Americans for Medical Progress (AMP)
- Understanding Animal Research
- Humane Society of the United States

A brief summary of each perspective is included here, but you are encouraged to do your own research to learn more about each perspective’s stance on the use of animals in biomedical research.
Lesson Reading

National Institutes of Health (NIH)

NIH is the steward of medical and behavioral research for the nation. Its mission is to support science in the pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability.

NIH-supported scientists study diseases that cause pain and suffering and threaten the quality and length of life. NIH-supported scientists also study basic biological processes, expanding our knowledge of the origins and causes of disease. Through such research, involving both humans and animals, scientists identify new ways to treat illnesses, extend life, and improve health and well-being.

Both people and animals have unique and important roles as research subjects. Many medical advances that enhance the lives of both humans and animals originate from animal studies. The types of animals used in research are chosen for their similarity to humans in anatomy, physiology, and/or genetics. Not only can we learn how to prevent, treat, and cure human diseases by studying animals, but often the treatments developed can also be used to improve the health of animals.

When new thinking about diseases and treatments are developed from this research, they must be evaluated very carefully so that benefits and risks from the proposed approach are clear. When necessary, new hypotheses are tested in animals first in order to gather sufficient evidence of these benefits and risks before considering possible use in humans.

We can study animals in ways that we cannot study people for many reasons. Animal studies conducted in the laboratory allow scientists to control factors that might affect the outcome of the experiments—factors like temperature, humidity, light, diet, or medications. Even the genetic composition of many animal models can be known and understood completely. These rigorous controls allow for more precise understanding of biological factors at hand and provide greater certainty about experimental outcomes when developing treatments.

All animals used in federally-funded research are protected by laws, regulations, and policies to ensure the smallest possible number of subjects and the greatest commitment to their welfare. Fulfilling these protections is a collaborative effort between NIH, federally-supported scientific investigators, and research institutions.

You can learn more about the NIH’s perspective on animal use in research at their website — see this unit on the student website or click below:

NIH Website: OER Animals in Research

From the NIH’s perspective, what historical precedents justify contemporary use or non-use of animals in scientific research?

From the NIH’s perspective, what benefits and problems have developed because of the use or non-use of animals in scientific research?

From the NIH’s perspective, should animals be used in scientific research? If so, what considerations should be given to their care and well-being? If not, why not?
People for the Ethical Treatment of Animals (PETA)

Each year, more than 100 million animals—including mice, rats, frogs, dogs, cats, rabbits, hamsters, guinea pigs, monkeys, fish, and birds—are killed in U.S. laboratories for chemical, drug, food, and cosmetics testing; biology lessons; medical training; and curiosity-driven experimentation. Before their deaths, some are forced to inhale toxic fumes, others are immobilized in restraint devices for hours, some have holes drilled into their skulls, and others have their skin burned off or their spinal cords crushed. In addition to the torment of the actual experiments, animals in laboratories are deprived of everything that is natural and important to them—they are confined to barren cages, socially isolated, and psychologically traumatized. The thinking, feeling animals who are used in experiments are treated like nothing more than disposable laboratory equipment.

Human clinical, population, and in vitro studies are critical to the advancement of medicine; even animal experimenters need them—if only to confirm or reject the validity of their experiments. However, research with human participants and other non-animal methods does require a different outlook, one that is creative and compassionate and embraces the underlying philosophy of ethical science. Animal experimenters artificially induce diseases; clinical investigators study people who are already ill or who have died. Animal experimenters want a disposable “research subject” who can be manipulated as desired and killed when convenient; clinicians must do no harm to their patients or study participants. Animal experimenters face the ultimate dilemma—knowing that their artificially created “animal model” can never fully reflect the human condition, while clinical investigators know that the results of their work are directly relevant to people.

Human health and well-being can also be promoted by adopting nonviolent methods of scientific investigation and concentrating on the prevention of disease before it occurs, through lifestyle modification and the prevention of further environmental pollution and degradation. The public needs to become more aware and more vocal about the cruelty and inadequacy of the current research system and must demand that its tax dollars and charitable donations not be used to fund experiments on animals.

You can learn more about the PETA's perspective on animal use in research on their website — see this unit on the student website or click below:

PETA Website: Animals Used for Experimentation
Lesson Reading

Americans for Medical Progress

Animal research plays a crucial role in scientists’ understanding of diseases and in the development of effective medical treatments.

Research animals provide scientists with complex living systems consisting of cells, tissues and organs. Animal models can interact and react to stimuli, giving researchers a picture of a compound moving through a living system and an idea of how that stimuli might react in a human being. Animals are biologically similar to humans in many ways and they are vulnerable to over 200 of the same health problems. This makes them an effective model for researchers to study.

The majority of research animals are used in experiments focused on disease treatment and prevention, and the treatment of injuries. Laboratory animals are also used in basic medical research, breeding other research animals and diagnosis.

Rats and mice account for about 95 percent of all animals used in research. Most of the remaining research animals are rabbits, guinea pigs, hamsters, farm animals, fish and insects. Combined, less than one percent of the remaining research animals are cats, dogs and non-human primates. The overwhelming majority of research animals are specifically bred for laboratories.

Before conducting research on animals, most scientists make absolutely certain animals are needed for their experiments. For more than 50 years, scientists have relied on the “3Rs”: refinement of tests so animal distress or pain is minimal, reduction of the number of animals used in one particular study, and the replacement, whenever possible, of animal experiments with non-animal experiments.

As living beings with a conscience mind, we cannot ignore human or animal suffering. Each day scientists use their knowledge to minimize suffering in both humans and animals by conducting medical research that will benefit the greater good. They work to provide research animals with a clean environment, food, water and minimal pain and suffering.

You can learn more about the perspective of Americans for Medical Progress on animal use in research on their website — see this unit on the student website or click below:

AMP Website: Animal Research Benefits

From the perspective of Americans for Medical Progress, what historical precedents justify contemporary use or non-use of animals in scientific research?

From the perspective of Americans for Medical Progress, what benefits and problems have developed because of the use or non-use of animals in scientific research?

From the perspective of Americans for Medical Progress, should animals be used in scientific research? If so, what considerations should be given to their care and well-being? If not, why not?
Understanding Animal Research

Animals are essential in scientific research, medicine development and safety testing. They are necessary to understand the body in health and disease, and to develop new and improved medical treatments. But their use is not undertaken lightly. Both the potential scientific and medical benefits of the research, and the possible suffering of the animals used, are weighed up carefully before any animal research project can proceed.

No one wants to use animals in research, and no one would use them unnecessarily. Animal research is considered a last resort, to be used only when there is no alternative method. Strict regulations and a licensing system mean that animals must be looked after properly and may not be used if there is any other way of doing a piece of research.

Non-animal methods are used for the majority of biomedical research. Animal studies are used alongside these other types of research. Such 'alternative' methods include the study of cells and tissues grown in the laboratory, computer-modeled systems, and human patients, volunteers or populations.

You can learn more about the perspective of Understanding Animal Research on animal use in research on their website — see this unit on the student website or click below:

Website: Understanding Animal Research

From the perspective of Understanding Animal Research, what historical precedents justify contemporary use or non-use of animals in scientific research?

From the perspective of Understanding Animal Research, what benefits and problems have developed because of the use or non-use of animals in scientific research?

From the perspective of Understanding Animal Research, should animals be used in scientific research? if so, what considerations should be considered for their care and well-being? If not, why not?
Lesson Reading

Humane Society of the United States

Picture the dog at your feet, the guinea pigs or mice you had as pets growing up, or the birds at the feeder in your yard. Now imagine 25 million animals just like these living in small laboratory cages and being deliberately sickened over the course of weeks, months, or even years — and then killed.

If animal experimentation was the hallmark of 20th century biomedical research, sophisticated non-animal methods are likely to characterize 21st century research. Many humane state-of-the-art alternatives to animal experiments have already been shown to be effective in advancing medical progress, cutting research costs, and eliminating animal suffering.

The Humane Society of the United States (HSUS) is at the forefront of promoting these research methods and their continued development, as well as ending some of the most inhumane research practices. Until the day when animals are no longer used in harmful experiments, the HSUS, with your help, also strives to gain stronger legal protection for animals used in research, and seeks to limit animal use and suffering. Right now, approximately 95% of the animals used for research aren’t afforded even the minimal protections of the Animal Welfare Act.

You can learn more about the Humane Society’s perspective on animal use in research on their website — see this unit on the student website or click below:

- Humane Society Website: Biomedical Research

From the perspective of the Humane Society, what historical precedents justify contemporary use or non-use of animals in scientific research?

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From the perspective of the Humane Society, what benefits and problems have developed because of the use or non-use of animals in scientific research?

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From the perspective of the Humane Society, should animals be used in scientific research? If so, what considerations should be given to their care and well-being? If not, why not?

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Do you think animals should be used in scientific research? If so, what considerations should be given to their care and well-being? If not, why not?

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Do humans have moral responsibilities for animals or are animals destined to serve humanity?