TITLE OF THE LEARNING SCENARIO

A Three Rs Learning Scenario

Title

Ethics in animal experiments

Author(s)

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Summary

Please summarize your learning scenario in 1-3 sentences. This will be used as a description when publishing your learning scenario on our websites and repositories.

This activity aims to raise awareness in students about the concept of scientific ethics in animal experiments. The argumentation-based teaching method used in the activity, the starting point of which is animal experiments, it is aimed to support students' scientific literacy by increasing their critical thinking skills.

Key elements

Overview	
Subject	Science, Philosophy, Art
Topic	*3Rs, Animal experiments, Ethics*
Age of students	9-11
Preparation time	2 hours
Teaching time	40*5 lesson
Online teaching material	*"Wordart" applications can be used for the word cloud activity during the event, and then "Wordwall", "Wooclap", "Quizizz" and "Bookwidgets" for the matching and evaluation activity.*
Offline teaching material	*Pc, projector, Internet connection, pen, paper* *Animal Templates (Annex 1)* *Matching cards (Annex 2)* *Dilemma cards (Annex 3)* *Evaluation Questions (Annex4)* *Formative Assessment Rubric (Annex 5)* *Self-Assessment Rubric (Annex 6)*
Resources used	*Guide dogs Video* *Diabetic Alert Dogs video* *Laika video* *Save Ralph video* *The 3Rs: What are Medical Scientists Doing about Animal Testing?*

This Three Rs Learning Scenario template has been adapted to the Three Rs Competition coordinated by European Schoolnet (EUN), as part of a project to promote alternatives to animal testing and the Three Rs through education initiated by the European Commission's Joint Research Centre and supported by the European Parliament. The Competition is based on the EC-funded Learning Scenarios developed by EUN (www.eun.org) in the context of the Three Rs Pilot project that took place between 2019-2020. The Competition is also supported by Scientix, funded from the European Union's H2020 research and innovation programme – project Scientix 4 (Grant Agreement N. 101000063). The content is the sole responsibility of the author and it does not represent the opinion of the European Commission (EC), and the EC is not responsible for any use that might be made of information contained.

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Aim of the lesson

Describe in 1-2 sentences what you would like to achieve with your students by the end of the lesson.

With the argumentation-based teaching method, it is aimed for young students to realize the ethical views on the use of animals in experiments and to discover alternative methods that can replace animals in scientific studies.

Trends

List the relevant trends that the lesson incorporates: http://www.allourideas.org/trendiez/results

- *Argumentation-based learning*
- *Peer Learning*
- *Collaborative Learning*
- *Lifelong Learning*

21st century skills

Add here how the lesson plan corresponds to 21st century skills. To find out more: http://www.p21.org/our-work/p21-framework.

- *Critical thinking*
- *Communication and collaboration*
- *Media and science literacy*

Lesson Plan

Describe here in detail all the activities during the lesson and the time they require.

Name of activity	Procedure	Time
Word cloud	Animal templates in annex 1 are distributed to students. Students are asked to make a word cloud by filling in the template in accordance with the questions below. Templates are displayed in the classroom throughout the lesson. • What concepts come to mind when you think of animals? • What do animals mean to you?	20m
Matching	Students are asked to share their answers by asking the following questions. • What is your relationship with animals like? Do you have a pet?	20m

	• Are animals important to us? Why? After the question-and-answer phase is over, the students will be asked, “Where and for what purposes do we use animals in our daily life?” The matching game in Annex 2 is played by asking the question.	
What do you think?	A discussion environment is created by asking the following questions to the students who see that animals are used in many fields with the matching activity. It is stated that the students should explain their opinions with their justifications. It is explained that there are no right or wrong answers to the questions, and each student is supported to express an opinion. • “What do you think about the use of animals in these fields? • “Are there positive and negative fields where animals are used? Why?"	20m
Watch and discuss	The discussion on the use of animals in our daily lives continues with four videos to watch. Students watch videos about guide dogs, diabetic dogs, animals used in scientific and experimental studies. After watching the videos, the discussion continues with the following questions. All students are encouraged to share their opinions. • What are your thoughts on guide dogs? • What do you think about animal trials before manned flight trials during space studies? Do you think animals should be used in such scientific studies? • What are your thoughts on training dogs to detect blood sugar levels in people with diabetes? • What do you think about animal testing of cosmetic products, vaccines and drugs? Do you think animals should be used in experiments?	20m
Argumentation	In the discussions held until this stage of the activity, it is discovered by the students those animals contribute to us in different fields. After this stage, an argumentation-based activity is started, which will develop students' critical thinking skills regarding the use of animals in scientific studies and experiments. Students are seated so that they can see each other. The dilemma cards given in Annex 3 are distributed to the students. Students are asked to share their claims about animal experiments with their friends by supporting their views on the dilemma cards, and to discuss different views according to the questions below. Before the discussion begins, students are informed about the concept of ethics. At this stage, the group is allowed to lead the discussion. At the point where the discussion is blocked, the teacher directs the discussion with various questions. • Should animal experiments be done?	30m

	• Is animal testing ethical?	
3Rs	After the discussion is over, the students are briefly told about the history of animal experiments. In 1959, the principles mentioned in the book 'Humanistic Experimental Techniques' by W.M.S.Russell and R.L.Burch and which are considered indispensable in animal experiments today and included in all legal texts related to animal experiments are introduced.	10m
Poster	Students are asked to divide into groups and design a remarkable and awareness-raising poster for the use of animals in science in the light of the knowledge they have acquired during the lesson. Posters are displayed at school.	30m
Boom game	At the end of the activity, an evaluation is made using the questions in annex 4 with a fun game called "Boom". Implementation of the game; • Evaluation questions are printed on separate pages. • All questions are combined into snowballs. The ball created from this paper is the bomb in the game. • Students sit side by side in a circle. In the middle of it, the teacher sits. • The teacher gives the bomb to a student and closes his eyes. • Students sitting around the teacher quickly circulate the bomb, that is, the ball of paper containing the questions. • The teacher shouts “BOOM” loudly whenever he wishes. • When the teacher shouts "BOOM", the student who has the bomb opens the question on the top of the ball and tries to answer it. • If the student answers the question correctly, he or she will not explode. However, if he/she answers incorrectly, the bomb explodes in his/her hand, and he/she loses an arm. He/she continues the game with the other arm. • The student who loses both arms, that is, answers two questions incorrectly, is out of the game. • The game is played in the same way until all questions are finished	10m

Assessment

Describe here the assessment method of the lesson, if any. For example, if you plan on assessing your students with a quiz, include here questions and answer options with color-coding the correct answers.

Formative and summative evaluations were made for evaluation. By using the rubric in Annex 5, the progress of the students in the process is followed by the teacher. Students who fill out the self-assessment form in Annex 6 personally discover the progress they have made during the activity. At

the end of the activity, a result-oriented evaluation is made with the questions in the game played, and it is determined whether the activity has reached its goal or not.

Student feedback

Add here the method with which your students will be able to give you feedback and discuss the lesson.

In the word cloud at the beginning of the activity, it was seen that the students included positive situations and examples about animals. At the end of the activity, the students stated that they noticed the negative situations related to the animals and they wanted the animals not to be affected by the negative situations. In addition, the students stated that they love animals and that animals are as valuable as humans and that ethical values should be followed in animal experiments. They stated that creating word clouds, matching and boom games were very enjoyable during the implementation of the activity, and they could think about the events in different ways during the discussions.

Teacher's remarks

*Add here your comments and evaluation **AFTER** the implementation of this lesson, if any.*

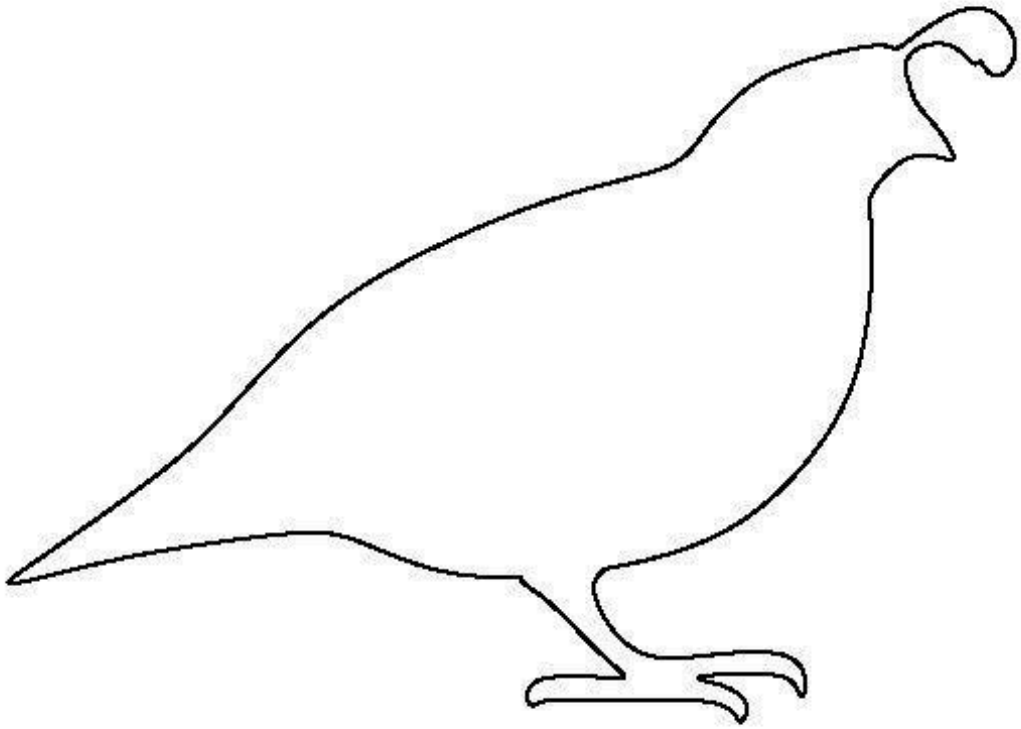
The activity can be applied in the classroom as well as online. In the activity, word cloud was first applied on paper to reveal the concept of animal in the minds of the students. Animal templates can be filled online through the Wordart application instead of being printed and filled manually. Afterwards, different web 2.0 applications can be used for the matching game and the evaluation part, which is played for students to discover the areas of use of animals. The videos shown to the students have been selected according to the age group and can be changed, added, or removed by the teachers who want to apply this scenario. It is very important for students to provide data and justifications to support their claims in the discussion sections conducted with the argumentation-based method. Students may be asked to conduct their own research according to their age group and present data and justifications to support their claims. In this activity, ready-made dilemma cards prepared considering the age group and time of the students were used. Teachers can add and remove these dilemma cards. At the end of the activity, it is very important for the students to reflect their views on animal experiments on the posters. At this stage, different paths can be followed.

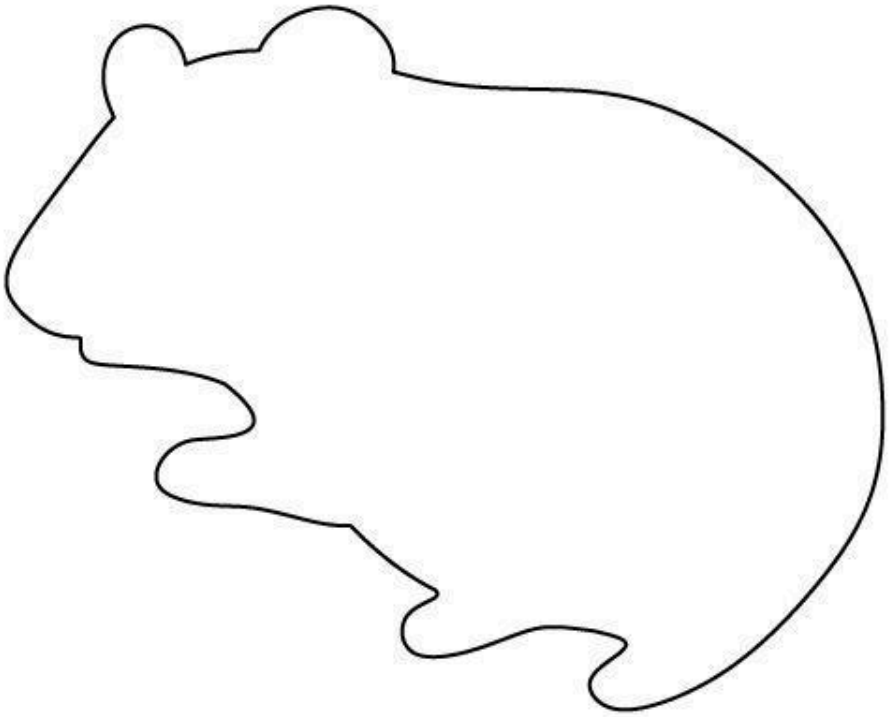
This learning scenario enables students to view events from different perspectives and experience different emotions together. At the end of the activity, it was seen that the students got important profits about the concept of ethics in animal experiments.

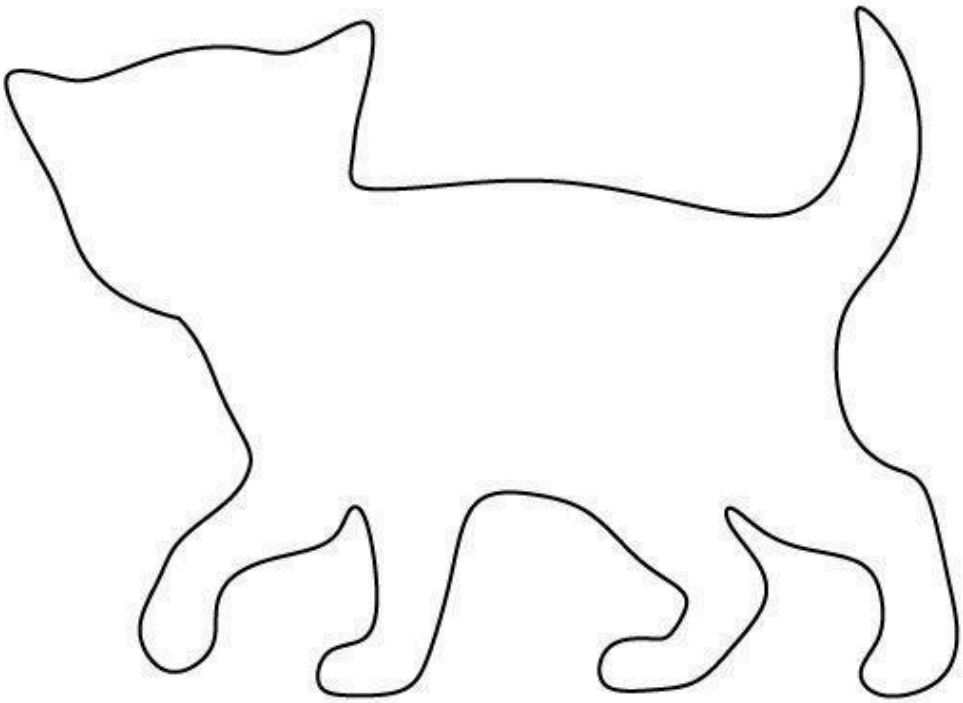
About the Three Rs

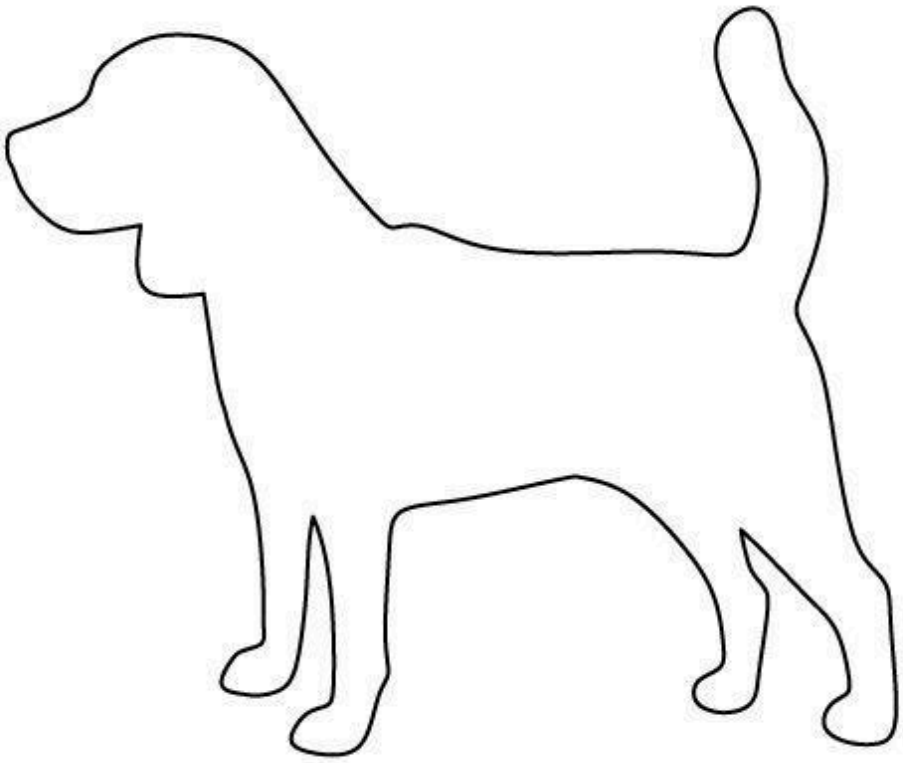
The Three Rs project aims to build learning activities to teach secondary school students about the welfare of laboratory animals and the Three Rs legislation (Replacement, Reduction and Refinement) for laboratory animal experimentation. The Three Rs project specifically emphasizes exploring the alternatives that uses no animals for testing. Through the learning activities, the project will help students become compassionate for animals, gain awareness of the alternatives to animal testing, become interested in ethics in science, and develop their critical thinking and science literacy skills.

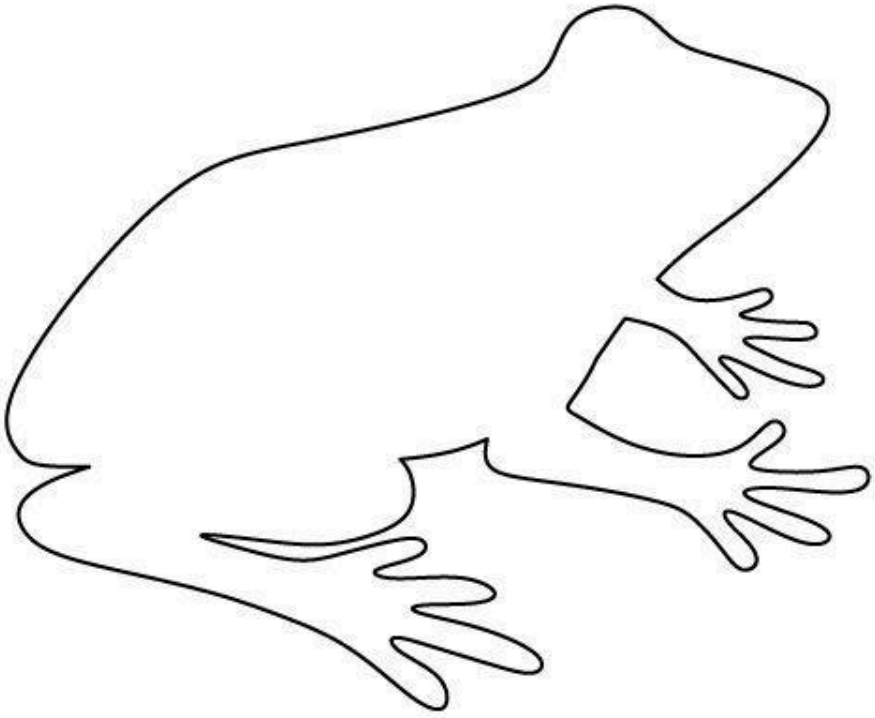
ANNEX 1. ANIMAL TEMPLATES

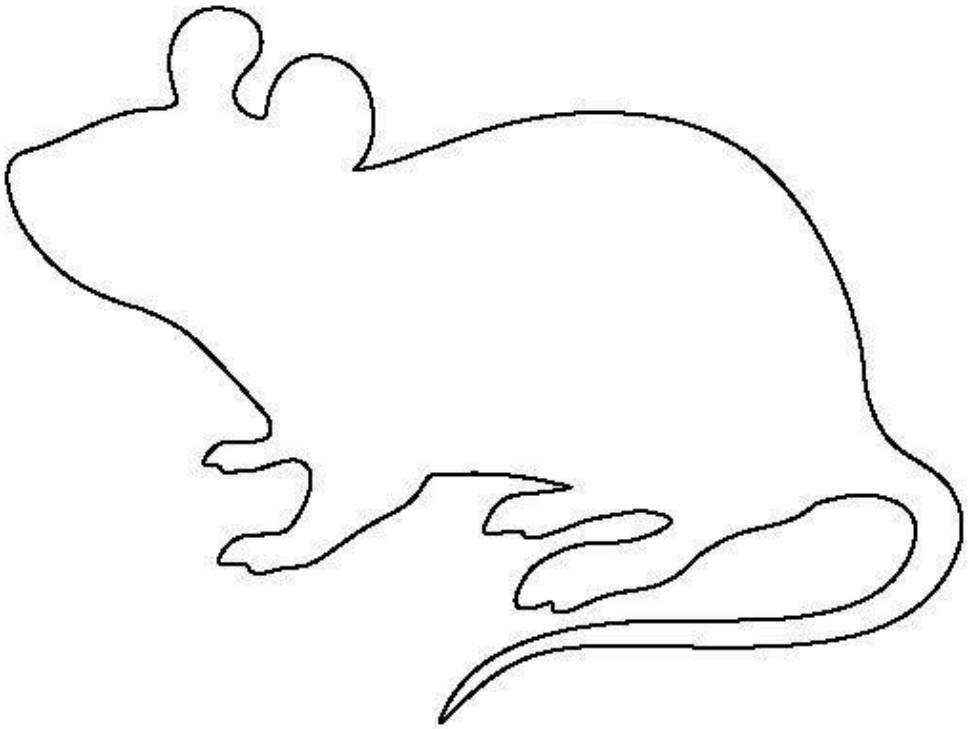


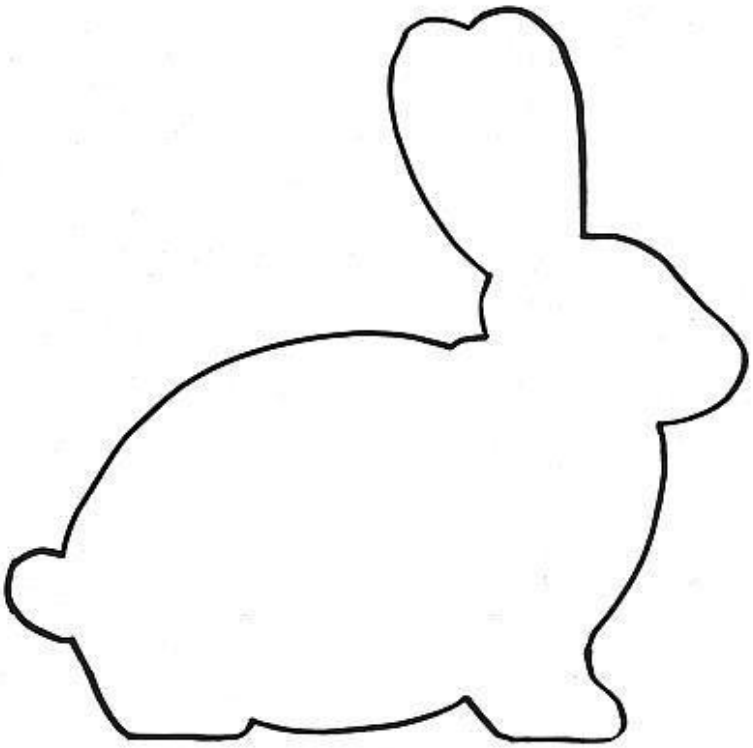


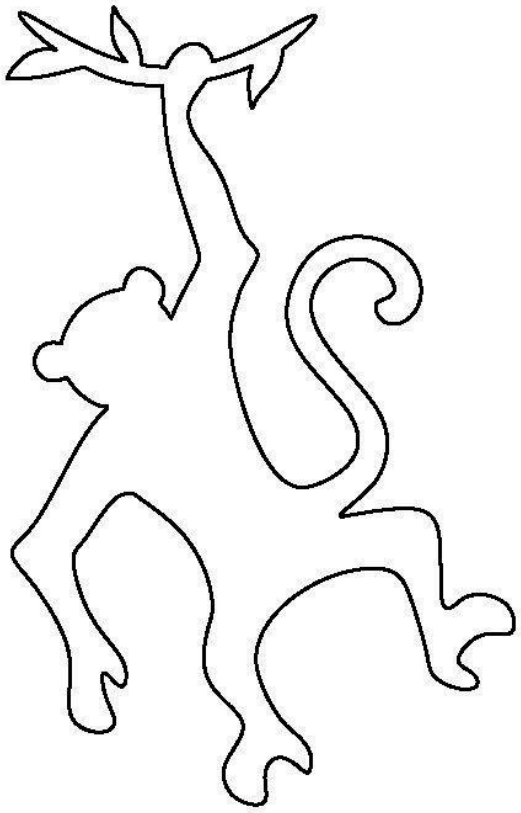












ANNEX 2: MATCHING GAME CARDS

NUTRITION & HUNTING	SEARCH & RESCUE	SCIENTIFIC RESEARCH
ZOO	ANIMAL FIGHTS	AGRICULTURE

SECURITY	CIRCUS	TEXTILE
SPORTS ACTIVITIES	ANIMAL EXPERIMENTS	PET













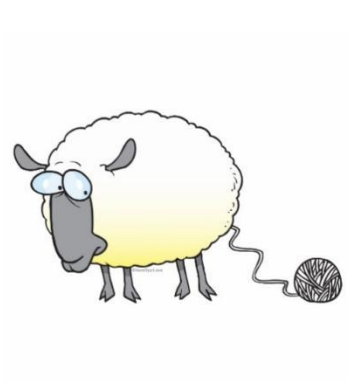




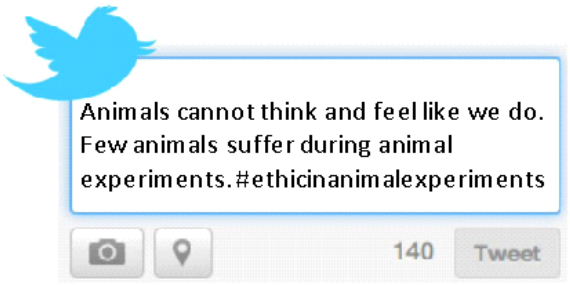


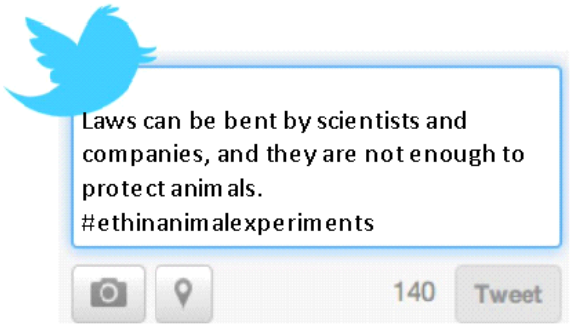


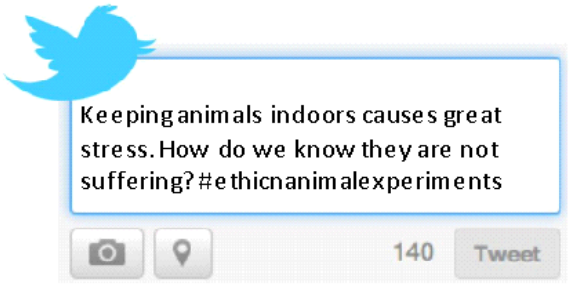


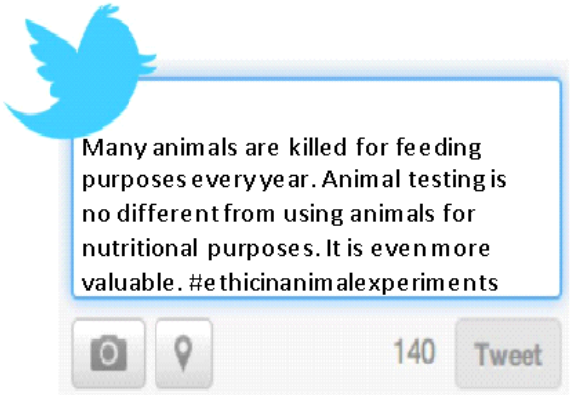


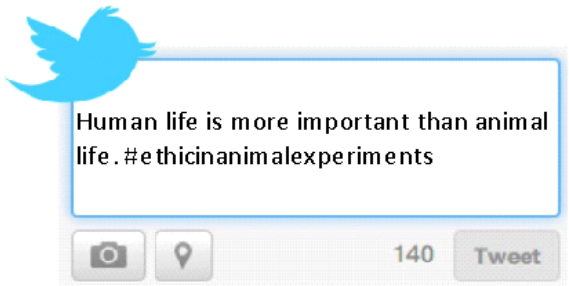
ANNEX 3: DILEMMA CARDS

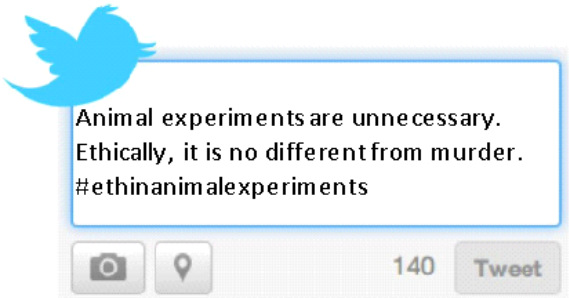

Animals cannot think and feel like we do. Few animals suffer during animal experiments. #ethicinanimalexperiments
140
Tweet

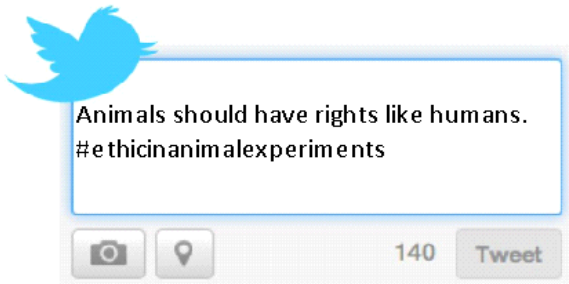

Laws can be bent by scientists and companies, and they are not enough to protect animals. #ethinanimalexperiments
140
Tweet

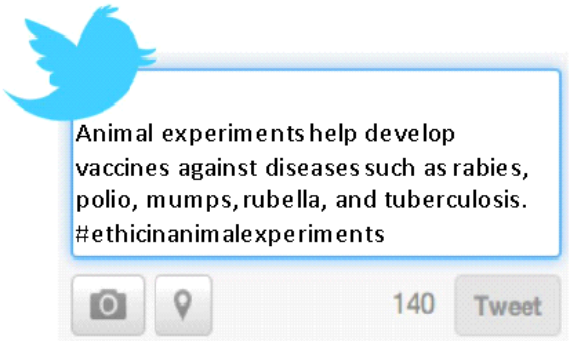

Keeping animals indoors causes great stress. How do we know they are not suffering? #ethicnanimalexperiments
140
Tweet

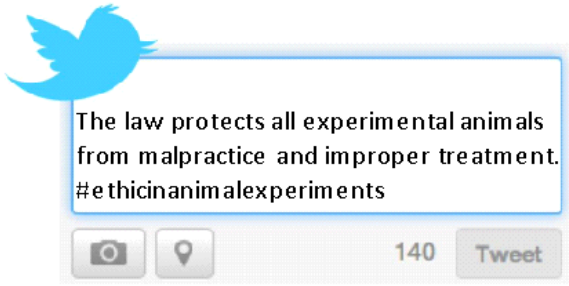

Many animals are killed for feeding purposes every year. Animal testing is no different from using animals for nutritional purposes. It is even more valuable. #ethicinanimalexperiments
140
Tweet

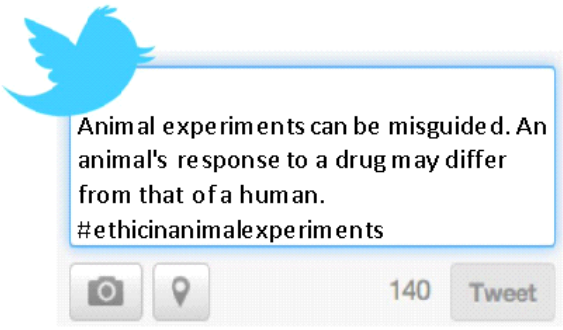

Human life is more important than animal life. #ethicinanimalexperiments
140
Tweet

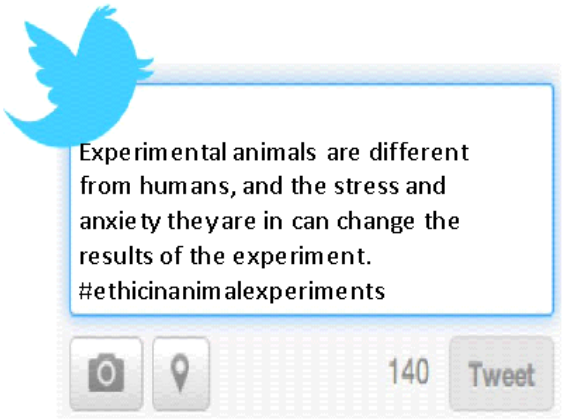

Animal experiments are unnecessary. Ethically, it is no different from murder. #ethinanimalexperiments
140
Tweet

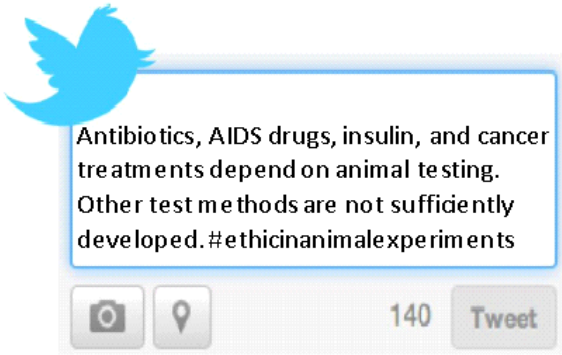

Animals should have rights like humans. #ethicinanimalexperiments
140
Tweet

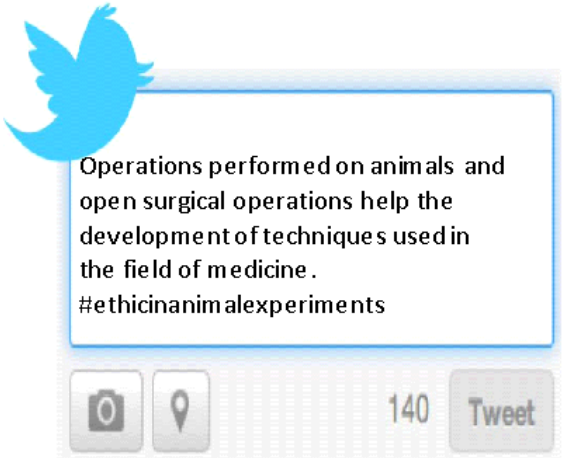

Animal experiments help develop vaccines against diseases such as rabies, polio, mumps, rubella, and tuberculosis. #ethicinanimalexperiments
140
Tweet

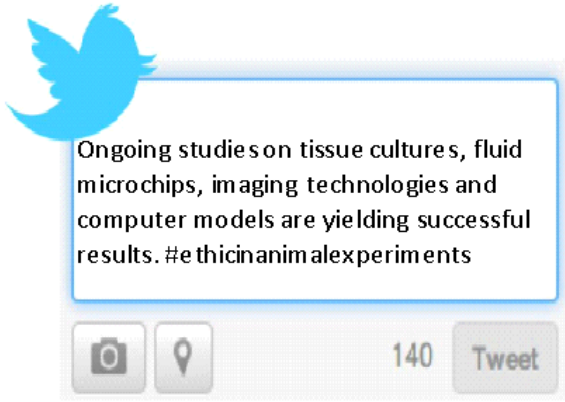

The law protects all experimental animals from malpractice and improper treatment. #ethicinanimalexperiments
140
Tweet

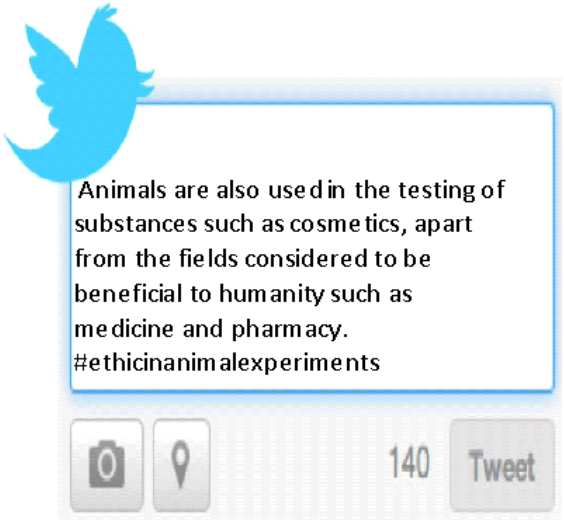

Animal experiments can be misguided. An animal's response to a drug may differ from that of a human. #ethicinanimalexperiments
140
Tweet

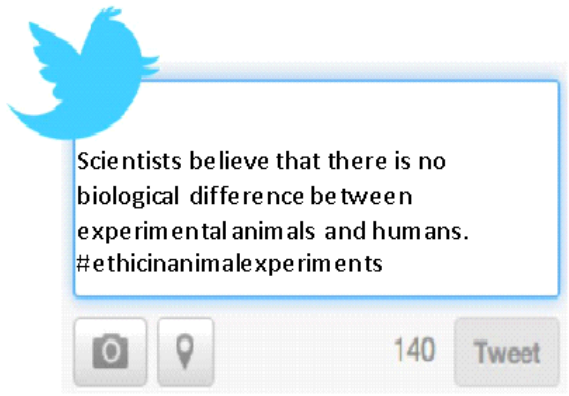

Experimental animals are different from humans, and the stress and anxiety they are in can change the results of the experiment. #ethicinanimalexperiments
140
Tweet


Antibiotics, AIDS drugs, insulin, and cancer treatments depend on animal testing. Other test methods are not sufficiently developed. #ethicinanimalexperiments
140
Tweet


Operations performed on animals and open surgical operations help the development of techniques used in the field of medicine. #ethicinanimalexperiments
140
Tweet


Ongoing studies on tissue cultures, fluid microchips, imaging technologies and computer models are yielding successful results. #ethicinanimalexperiments
140
Tweet


Animals are also used in the testing of substances such as cosmetics, apart from the fields considered to be beneficial to humanity such as medicine and pharmacy. #ethicinanimalexperiments
140
Tweet


Scientists believe that there is no biological difference between experimental animals and humans. #ethicinanimalexperiments
140
Tweet

ANNEX 4: EVALUATION QUESTIONS

1. Which of the following is not one of the uses of animals in daily life?

A. Textile

B. Animal experiments

C. Technology

D. Scientific Studies

2. Which of the following is not a hobby use of animals?

A. Circus

B. Zoos

C. Hunting

D. Security

3. What was the first animal species sent into space?

A. Dog

B. Monkey

C. Cat

D. Mouse

4. What do you call dogs trained for visually impaired people?

A. Friend dog

B. Friendly dog

C. Guide dog

D. Helper dog

5. What is the name of any operation performed on live animals for scientific purposes?

A. Animal experimentation

B. Subject

C. Subject animal

D. Clinical research

6. Which of the following is not one of the uses of animal experiments?

A. Nutrition

B. Cosmetics

C. Vaccination

D. Medicine

7. Which of the following is not one of the 3R concepts for more humane animal research?

A. Refinement

B. Repetition

C. Reduction

D. Replacement

8. Which of the following is not an alternative method developed against animal experiments?

A. Micro dosing

B. Microfluidic chip

C. Human experiments

D. Computer simulations

9. Which of the following is not one of the practices that will reduce possible pain and stress and improve living conditions of animals used in experiments?

A. Improved living spaces

B. Shorter experiments

C. Use of imaging technologies

D. Not using pain relievers

10. Which of the following cannot minimize the number of animals used in experiments?

A. Sharing and presentation of the results of animal experiments

B. Use of imaging technologies

C. Careful planning of experiments

D. Using different animals in experiments

ANNEX 5: FORMATIVE ASSESSMENT RUBRIC

Rubric				
Criteria / Perfomance	**Needs Improvement**	**Fair**	**Good**	**Excellent**
Fills the word cloud.				
Tells the areas where animals are used in daily life.				
In the matching activity, he/she matches the pictures suitable for the usage areas of the animals.				
Express their opinions about the videos they watch.				
Express their views on animal experiments.				
Presents his claim to animal testing.				
He presents the data and justifications to support his claim.				
Expresses ideas openly and respectfully during group discussion.				
He takes into account the opinions and thoughts of his friends.				
It is open to development and change.				
Knows the 3Rs principles.				
Recognizes ethical rules in animal experiments.				
Knows alternative methods that can be used in animal experiments.				
Knows the healing works that can save animals from excessive stress and anxiety.				
Prepares posters for animal experiments.				
Actively participates in the evaluation activity.				

ANNEX 6: SELF ASSESSMENT RUBRIC

Name & Surname:

1. **Describe your feelings about our activity on ethics in animal experiments. Did you enjoy working on it? How did you feel during the activity?**

2. **What did you do during the activity?**

3. **What did you learn during the activity?**

4. **Which stage of the event was difficult for you?**

5. **Were you satisfied with the gains you made during the activity?**