



FLL RESEARCH PROJECT 2016 „ANIMAL ALLIES“

Learn about the topic

When you meet an animal in your home, at the zoo or on a farm have you ever thought about whether that interaction helps you, the animal, or both? Share this situation with your team. Who is helping or being helped in each one?

Before you determine your particular topic in this area, try to learn as much as possible about the area. Use various sources such as: internet, books, newspapers, interviews with experts, etc. In the following you will find some suggestions for this year's theme.

The cow Rosa lives on a farm in Bavaria, Germany. Rosa leads a pretty good life, for a cow. She eats grass, takes naps and – when she feels it's time – she visits the robotic milking machine. The machine uses lasers to find Rosa's udders, clean them, and then pump the milk. Rosa munches on special grain while the machine works. When it's done, Rosa feels better and leaves the milking machine to find some more tasty grass.

The small boy Ben loves to hike in the mountains of Tirol, Austria. However, Ben lost his sight a few years ago. Hiking mountains might be difficult and dangerous. Luckily, Ben has a friend who also likes to hike: Tommy. As a trained guide dog, Tommy knows how to identify obstacles that might harm Ben or him. Even through the winter, Tommy helps Ben find a safe path over snow-covered tree roots and boulders.

The zookeeper Elena carefully threads fruit onto a wire at the Zoo in Leipzig, Germany. In the wild, fruit bats would generally eat fruit hanging from trees. Since fruit doesn't grow on the imitation trees in the jungle exhibit, Elena must think of creative ways to feed the bats. Instead of placing all of the fruit in a big pile, Elena hangs fruit from hooks or hides it somewhere unexpected in the exhibit. This way, breakfast is also an enrichment activity for the bats.

In the past, lions often attacked the livestock in Richard's village in Kenya. Residents hunted the lions to protect their homes and farms. After trying a few ideas, Richard discovered that moving lights could scare the lions away without harming them. He invented a system of flickering lights and installed them around the village. The lights kept the lions away from the livestock, so the people had no reason to hunt the lions.

For "ANIMAL ALLIES", think of people and animals as allies in the quest to make life better for everyone. Although sometimes people help animals and sometimes animals help people. **Your Project mission this season is: To make our interactions with animals better.**

Identify a Problem

Not sure where to start? Try the following:

Ask your team to think about all the different ways that people interact with animals. Sometimes people purposely seek out animals (like the trained guide dog Tommy helping Ben hike the mountain) and sometimes the solution happens by accident (like Richard saving the livestock from lions attack). Pick a situation in which people and animals interact and identify a specific problem they want to solve.

Note: in the “ANIMAL ALLIES” Challenge, an animal is any member of the scientific animal kingdom (besides humans) that is currently alive today.

As a Team – Choose an animal. It might be an animal that lives in your home or neighborhood. It might be an animal that you have seen at a zoo, aquarium, or farm. It might be an animal that lives in the forest, ocean, desert or another habitat.

Study about the ways people interact with this type of animal. (People must interact with this animal in some way to be valid for “ANIMAL ALLIES”.)

Think about questions like:

- When people interact with your animal, is it on purpose or by accident?
- Does the interaction help or hurt people, the animal, or both?
- What type of professionals work with or study your animal?
- Do you notice any ways that the interaction could be better – more productive, healthier, or happier for either the person or the animal?

This might be a great time to interview a professional. The professional could be someone who works directly with animals or researches animal problems for his or her job. Can a professional help your team learn about animal health, safety, enrichment, or living environments?

As a Team – Identify a specific problem with the way people interact with your animal. You might select a problem in one of these areas or add your own:

- Animals accidentally harmed by an activity that helps people (for example road building)
- Recreating a natural living environment inside human-made buildings
- Feeding
- Finding the right enrichment activities for a specific animal
- Healing injured or sick animals
- Managing feces
- Natural animal instincts accidentally harming people
- Conserving endangered species
- Transportation

After your team selects a problem, find out about the current solutions. Why does this problem still exist? Why aren't the current solutions good enough? What could be improved? Use resources like: news articles, documentaries or movies, Interviews

with professionals working in the field, ask your local librarian, books, online videos, websites.

Hint: field trips are a great way to learn about a new topic. Consider requesting a tour or interview from a local business, educational institution, or other animal-related site. However, some locations may have rules restricting visitors, or they may not have someone available to give an interview. If they say “no,” ask about virtual tours online or other institutions you could contact.

Create an Innovative Solution

Create an innovative solution to the problem. Any solution is a good start! Think about a solution that adds value to society **by improving something that already exists, using something that exists in a new way, or inventing something totally new.**

Think about:

- What could be done better? What could be done in a new way?
- Could your solution make people and animals more productive, healthier, or happier?
- How can you reimagine the way we work with or study animals?
- Could you use an adaptation from an existing animal (biomimicry) to help solve the problem you identified?

Reconsider different ideas! Be prepared that your first idea may not work as you expect. Then turn the problem upside down and think about it in a completely different way. Even a “silly idea” might inspire the perfect solution.

Have you thought about how someone could make your solution a reality? The research you have done will help you answer questions like:

- Why would your solution succeed when others have failed?
- What information would you need to estimate the cost for solving the problem?
- Do you need any special technology to make your solution?
- Who would be able to use it?

A great solution might be a device or technology, but maybe not. Look for the solution that the team thinks will solve the problem best. Team members should be prepared to tell the judges what makes their idea better than the existing solutions. Remember, your idea does not need to be completely new. Improving an idea that already exists or using something that exists in a new way is innovative.

Share with Others

Once you have a plan for your solution, share it with others!

Think about who your solution might help. How can you let them know that you have solved their problem?

- Can you present your research and solution to people who own, sell, or care for animals?
- Can you share with a professional or someone who helped you learn about your problem?
- Can you think of any other groups of people who might be interested in your idea?

It might be helpful for your team to share with someone who could provide real-world feedback about the solution. Getting input and improving are part of the design process for any engineer. It is OK to revise an idea if the team receives some helpful feedback.

Present your solution at a tournament

Any inventor must present their idea to people who can help them make it a reality, such as engineers, investors, or manufacturers. Like adult inventors, the Project presentation is your team's chance to share their great Project work with the judges.

As long as your team covers the basic Project information, they may choose any presentation style they like. Think of the talents your team members have. Could you perform a skit? Create a website? Make a comic book? Rap? Write a poem, song, or story? Your presentation can include posters, slideshows, models, multimedia clips, your research materials, and more. Be creative, but also make sure you cover all the essential information.

To be eligible for Project Awards and advancement, your team must include the following basic Project information:

1. Identify your team's "ANIMAL ALLIES" question and explain a solution of the topic.
2. Explain your team's innovative solution and how it can be happen in the real world
3. Describe how your team shared your findings with others.
4. Show different types of research resources (offline, online, experts, etc.)
5. Meet the presentation requirements:
 - Give your presentation live; you may use media equipment (if available) but only to enhance the live presentation.
 - each team member must participate in the Project judging session in some way.
 - Set up and complete your presentation in 5 minutes with no adult help.

Do you have questions about the Research Presentation? Send an e-mail to fill@hands-on-technology.org. Important answers to your questions will be published in the Q&A section under www.first-lego-league.org/en/faq/fragen.html.

You can find interesting links, possible experts and background information about the research topic for "ANIMAL ALLIES" online – go to: www.first-lego-league.org/en/fll/research-project.html.