

FIRST® LEGO® League

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IDENTIFYING A PROBLEM

SESHAN BROTHERS

ABOUT THE AUTHOR

- Seshan Brothers were on team Not the Droids You Are Looking For
- Our research project for Trash Trek was a Global Innovation Award semi-finalist project (Top 20 out of 30,000 teams).
- Our research project in Nature's Fury won Innovative Solution at the FIRST LEGO League International Open in Toronto.
- Our research project for World Class was EV3Lessons.com! ;-)
- We are the Champion's award winners from World Festival 2018



GETTING AN EARLY START

- Usually, FIRST LEGO League releases the theme for the following year around December of the previous competition season
- FIRST also releases a video teaser on their YouTube channel
- You can start thinking about the *high-level topic* pretty early.



On your mark, get set, flow! Drink in the 2017 HYDRO DYNAMICS season and learn all about water – how we find, transport, use, or dispose of it. In the 2017 FIRST® LEGO® League Challenge, students age 9 to 14 from 80 countries will make a splash with HYDRO DYNAMICS. What might become possible when we understand what happens to our water?

FIRST LEGO League challenges kids to think like scientists and engineers. During the HYDRO DYNAMICS season, teams will choose and solve a real-world problem in the Project. They will also build, test, and program an autonomous robot using LEGO® MINDSTORMS® technology to solve a set of missions in the Robot Game. Throughout their experience, teams will operate under FIRST LEGO League's signature set of Core Values, celebrating discovery, teamwork, and Gracious Professionalism®.

COMING SOON!
Launches August 29, 2017

INTO ORBIT CHALLENGE

Join our mission into the 30th season of FIRST®! Prepare for blast off, break out of your earthly constraints and go INTO ORBIT™. The 2018/2019 FIRST® LEGO® League season will transport your team into space, where you'll explore, challenge, and innovate in the vast expanse of space.



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GET A HEAD START ON IDEAS

- Go on some early field trips to inspire project topics
 - In Animal Allies, many teams visited Zoos and Aquariums over the summer
- Do some preliminary online research related to the topic
- Your goal is not to finish your project, but get some general ideas for possible topics related to the theme.



READ THE CHALLENGE DOCUMENTS CAREFULLY

- Sometimes, you are allowed to pick only from a certain sub-set of topics (e.g. Nature's Fury listed which natural disasters were allowed)
 - Avalanche or landslide
 - Earthquake
 - Flood
 - Hurricane
 - Storm (wind, sand, blizzard, or rain)
 - Tornado or cyclone
 - Tsunami
 - Volcanic eruption
 - Wildfire
- Sometimes, it calls for something specific (e.g. Senior Solutions required a Senior Partner for every team)

FIND A SENIOR PARTNER

Your Project challenge this season is to solve a problem faced by seniors as they age. To start, your team needs to find a senior partner. Many people define seniors in different ways. For the Senior Solutions Project, look for an adult who is 60 years of age or older.

PICK A TOPIC EVERYONE AGREES UPON

- Everyone works on the project
 - Pick a topic that all team members can agree on/are interested in
- One idea is to have all team members do a little bit of research on their favorite topic and then present this topic to each other.
 - Then the team decides which topic they are most interested in to pick for their team's project.
 - Next, the team identifies a specific problem within this topic



“IDENTIFYING A PROBLEM” PROCESS

Select an Animal

Identify the Human Interaction

Problem Selected

Dolphins

K-9

Bats



Bats

Bats are killed by wind turbines humans make



Bats are killed by White Nose Syndrome which humans can spread



How to reduce bat deaths caused by wind turbines

Sample based on team that participated in FIRST LEGO League Animal Allies

SAMPLE TOPICS IN ANIMAL ALLIES

- Chimney Swifts losing their homes
- Training therapy dogs
- K-9 dogs helping the police
- Monitoring bee hives to keep them healthy
- Bears getting into trash cans
- Finding lost dogs
- Preventing Lyme disease from deer ticks
- Helping baby turtles find their way to the ocean
- Cow tagging
- Animals drinking from polluted city water
- Keeping horses hydrated (Global Innovation award winner 2017)

Identify Think about all the different ways that people interact with animals. Sometimes it happens on purpose and sometimes it happens by accident. Pick a situation when people and animals interact, then identify a specific problem you want to solve.

After you select 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?

In the ANIMAL ALLIESSM Challenge, an animal is any member of the scientific animal kingdom (besides humans) that is currently alive today.

Sample topics from teams that participated in FIRST LEGO League Animal Allies

CREDITS

- This lesson was written by Sanjay and Arvind Seshan
- More lessons available at www.ev3lessons.com and www.flltutorials.com



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