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MINISTRY OF EDUCATION



NIHERST Preliminary RESEARCH PROJECT

The NIHERST Preliminary Research Project is an important part of the preparation for the competition. Each team should work on its own research project, which corresponds to the challenge topic "Tyrerama". There are several steps which must be completed by each team.

Consider that the Research Project consists of the following parts: Research & Analysis of the Topic, Finding a Problem, Developing an innovative solution and sharing your team's Findings with others. Explain in your presentation how you have fulfilled all parts of the NIHERST Preliminary Research Project. Keep in mind that the presentation should not be longer than 5 minutes!

Learn About the Topic

Your team is required to do some background research on a tyre shop and identify any problems. This can be done by either having a site visit to a tyre shop or using the internet. Record your findings and determine what can be done to create a solution to the problem/s you have identified.

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.

For "Tyrerama", think of it as a quest to make life better for everyone. Your Project mission this season is: **More than just an average tyre shop.**



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Identify a problem

Not sure where to start? Try the following:

Ask your team to think about all the different interactions taking place in a tyre shop. Pick a situation in which people interact with the machines in the shop and identify a specific problem they want to solve.

As a Team – Choose a tyre shop close to your home or neighbourhood that you may have seen in operation before. Study the ways people interact with the machines in the shop and what each one entails.

Think about questions like:

- When people use the tyre shop is it safe?
- Does the interaction happen in a timely fashion?
- What type of work is done, both efficiently and effectively?

Do you notice any ways that the interaction could be better – more productive, in a safer manner, or in a safer environment.

This might be a great time to interview a professional. The professional could be someone who works directly with the machines. Can a professional help your team learn about the way things work, safety, analysis, or problem solving?

As a Team – Identify a specific problem with the way interactions take place at the tyre shop. You might select a problem in one of these areas or add your own:

- Innovation (Breaking technological barriers / being one of a kind)
- Recycling
- Safety
- Effectiveness
- Efficiency
- 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, and websites.



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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 related sites. 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.

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 a tyre shop?
- 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 “Tyrerama” 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.



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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.



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