

How To Guides

Volume # 5: Breakthroughs

OVERVIEW

Breakthroughs is the fourth section of the [Description](#). A breakthrough is a discovery or an advanced technology that will change your current technology to something new. The breakthroughs would be the reason the new technology does not exist and what is needed to for the new technology to exist in the future. Teams research possible changes to their current technology that are needed for the future new technology that do not exist today. Research should include making sure the new technology is not already developed. This section will also include describing a research investigation that could be used to test the new technology.

*“**Breakthroughs:** Research and describe breakthroughs that are necessary to make the future technology design a reality. Why doesn’t this future technology exist today? Choose one of your required breakthroughs and describe a research project that would have to be planned and carried out to test your ExploraVision project. If possible, include the kind of data or measurements that would be collected in the investigation.”*

RUBRIC

This section is worth 17% of the entire project. It will be worth seventeen points based on the following criteria

- Did the team describe the breakthroughs that are needed for the future technology to be a reality? (6 pts)
- Did the team explain why this technology does not exist today? (3 pts)
- Did the team choose one of the breakthroughs and describe an investigation that could be used to test the future technology? (6 pts)
- Did the team describe the kind of data or measurements that would need to be collected in the investigation? (2 pts)

STEPS

Below are suggested steps teams can use when writing about the Breakthroughs needed for the future technology.

1. Conduct research about advances that have been made to the current technology; the team may already have some of these in the History section.
2. Research ideas the team came up with to improve the current technology. If any of these ideas are not currently being used with the current technology, these would be considered breakthroughs.
3. Ask why the future technology (with the breakthrough) does not exist today.
4. Think about an investigation to test the future technology (with the breakthrough chosen). Possible items to include in the investigation:
 - a. What is the future technology that is being tested?
 - b. How will the technology be tested?
5. What type of data or measurements would need to be collected in the investigation?
 - a. Think about what evidence would be needed to show the future technology works.

6. Write about the Breakthroughs needed for the future technology to become a reality under the heading of Breakthroughs in the chosen description format.
7. Any research that is used must be cited in the bibliography. Keep adding to the list of resources throughout working on the sections rather than waiting until the end of the project.