Performance Task: Sports Team Manager (Tour De France) ( Grade 11 )



Understandings (Big Ideas)

* A technological world requires that humans develop capabilities to solve technological challenges and improve products for the way we live.
* Physical processes shape patterns of the Earth's surface, including the characteristics and spatial distribution of ecosystems.



Essential Questions

* What are the physical characteristics of place?
* How would you apply technological design and problem-solving methods to the development of inventions and innovations?

**Goal**

A Fortune 500 company who wishes to sponsor a bicycle team in next year's Tour De France has asked you to be the team's manager. This job will involve many decisions that will require a great deal of problem-solving skills. You will need to choose bicycle frames that will be used as the templates for all of your team's bikes. Your team will be comprised of nine riders at the Tour de France. Each of these riders will be a different height and weight, so you will need to be sure that each bike has the ability to be built to specific standards. Also, you will need to research any differences that may result for the bike frames based upon different stages. Many are flat and many involve climbing high mountains.

**Role**

You have worked with numerous bike teams over the years, and your teams have had success. This is the first time you have been asked to start a team from the beginning and your reputation will be put to the test. You will need to research a number of bike frames from different companies before you choose the ones that can bring you and your team glory in the Tour de France.

**Audience**

The audience is made up of executives of a Fortune 500 company and potential star riders who may consider joining this team. The executives need to be sure that you have done the appropriate research, and have chosen the frames that will help riders sprint and ride up and down mountains through the Alps and Pyrenees. They want to be sure that the frames selected are light and strong enough to make it to the last day in Paris.

**Situation**

Your new bike team has one goal, and that is to be competitive in the Tour De France next year. The first decision you must make is the design for the frames for your team's bikes. Many riders who may consider joining the team will make their decision based upon your selections. The sponsor's executives will be assessing your research and decision-making processes to ensure you are the correct person for this task. To help with your research, it may be worth your time to investigate some of the elite teams, as well as the bikes they use and previous stages of previous tours.   
  
Your team has targeted one elite rider who would have an excellent chance of winning the Tour and would serve as a strong spokesperson. This individual is 5 foot 7 inches tall and 140 pounds. He is typically a strong rider in the mountains. These characteristics will be important, as the frames you decide upon should be designed to help him succeed.

Following are a few resources that may be beneficial in your research:  
Elite Bike Teams

[Team Astana](http://astanaproteam.kz/)

[Team Sky](http://www.teamsky.com/teamsky/home#0j8pQsSihjM07pwp.97)

[Cannondale Garmin](http://slipstreamsports.com/)

[BMC Racing](http://www.bmc-switzerland.com/us-en/experience/racing-teams/bmc-racing-team/)  
  
Bike Information  
[Trek Bikes](http://www.trekbikes.com/us/en/)

[Cannondale Bikes](http://www.cannondale.com/gbr/eng/design)

[Canyon AEROAD](https://www.canyon.com/en/road/aeroad/)

Tour de France Information and Routes

[2014 Tour de France Route](http://www.letour.com/le-tour/2014/us/overall-route.html)

[2015 Tour de France Route](http://www.letour.com/le-tour/2015/us/overall-route.html)

**Products**

* **This report** will provide vital information relating to the chosen bicycle. Included should be a drawing of the frame chosen as the foundation for your team's bikes. This report should include a well-designed data table that includes vital information relating to the bike. This data should include but does not need to be limited to the dimensions of the frame and the composition of the frame. This data table should be followed by a brief narrative explaining the importance of these specifications.
* It will be important to understand the various **geographical features** of the Tour de France for several reasons. Each year the tour chooses a different route, but it always involves the same general types of racing. Review the latest route for the Tour de France and **provide a 2-3 page narrative that discusses the climate, topography, and other environmental factors** that may affect the riders during the race. Please use data tables and charts as a means of demonstrating the geography.

As a team based in the United States you will need to choose a U.S. location for training that can best simulate the geography of the Tour de France. Use the atlas you created for the tour as a guide for selecting your U.S. location.

* **Create a 1:30 -2:30 minute news report** that shares the unveiling of the new bike frame and the new team. Please share the reasons why the frame will be successful including the engineering design features that will make it successful at the Tour de France and add any other information that you believe will help make the team successful.
* **An electronic portfolio** should be created using PowerPoint or another type of presentation software. The portfolio should contain pictures of a number of frames that have been used in the Tour de France and other major bicycle races. Some of the companies that have built and raced bikes in the race include Trek, Cervelo, Cannondale, Specialized, Scott, and Canyon. Be sure to gather data related to these frames including weight and various dimensions. Remember this data will affect the rider's ability to be successful in the mountains.
* **Create a virtual field trip of** the Tour de France that highlights the various roads, towns and climates that will affect the riders on their journey. Be sure to include the geographical features such as the mountains that riders will need to navigate, and how the geographical features will impact the final outcome of the race. Also, share any regional or historical significance to these areas to help the riders understand the importance of these areas.
* **Photostory -** Create a slide show using technology to create a history of the Tour de France featuring the bicycles that were utilized back in the early 1900's through today. Share how these vehicles have changed over time based upon science and engineering. Discuss how the size and fitness of these riders has evolved.

Source: DesignedSTEM website