Name _____ Date _____

Introduction to Production: *Use with projects 1.1 - 1.5*

Helmets to the Rescue

About Us

Helmets to the Rescue began manufacturing helmets for a very narrow market decades ago. Individuals working in service industries, police, fire, etc., were the original consumers. As medical research expanded to identify the terrible consequences of head injuries, the potential market exploded. The whole culture shifted to adjust to the latest information. One of the most visible reminders of the shift has been extensive laws that require helmets for all ages in lots of different settings. Our company rode the wave of the fast turnaround required to deliver products to retailers who wanted to take advantage of the ongoing spikes in consumer demand. Our strategy was originally to get the basic products out the door, attending carefully to safety features and paying less attention to fashion and appearance. Over time, we have moved with the market to recognize that certain market segments, especially children and teenagers who often comply with laws reluctantly, have product expectations other than safety.

Our Challenge

Helmets to the Rescue is proud of our safety record. We want to keep that image of dependable quality and also explore ways to grow our product lines by taking advantage of supply chain integration. The current focus is on bicycle helmets because of the huge consumer demand. In order to capture the most opportunities, we need to attend to the following:

- Analyze current designs to identify opportunities to improve the image while keeping the safety features.
- Provide detailed costs of equipment failure to every member of the production team to enlist broad-based cooperation.
- Suggest ways to create a consumer-friendly image.
- Explore ways to reduce inventory stored in warehouses.
- Examine the production process to maintain clean, organized and efficient work areas.

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Name _____ Date _____

Student Sheet 1.1.1 – Customers Rule

Project Topic: Customer Relationships

1. Work with your teacher to set up and number the bicycle helmets that you and your classmates brought to school.
2. Use the following chart as an example to set up your own, using an appropriate software program. Use the same column headings, adding a number of rows equal to the number of helmets in your class.
3. Begin by listing the appropriate helmet numbers in column 1.
4. Rate each of the features in columns 2-6 according to the following rating scale: 5 = Outstanding, 4 = Excellent, 3 = Average, 2 = Below average, 1 = Unsatisfactory. Write your rating number in the appropriate column.
5. Total the results for each helmet.
6. Contribute your results to a class total.
7. Discuss how your ratings compare with the class totals.
8. Work with a group of your classmates to rank the features to prioritize them for a designer.
9. Compare your priorities with those of other groups. Discuss reasons for different opinions.

1. Helmet Number	2. Aerodynamics (Speed)	3. Appearance (Color)	4. Appearance (Shape)	5. Surface Finish	6. Comfort	TOTALS

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INTEGRATED STANDARDS

Cluster Knowledge and Skills
- Describe the value of using problem-solving and critical-thinking skills to improve a situation or process.
- Explain how manufacturing businesses manage customer relationships.
- Develop plans to improve performance.

Communication Arts
- Interpret tables that display textual information and data in visual formats.
- Choose and analyze information sources for individual, academic and functional purposes.
- Take notes, conduct interviews, organize and report information in oral, visual and electronic formats.

Entrepreneurship
- Demonstrate problem-solving skills.
- Participate as a team member.
- Determine customer/client needs.

Mathematics
- Construct, read and interpret tables, graphs and charts to organize and represent data.
- Compare the mean, median, mode and range, with and without the use of technology.
- Formulate questions, devise and conduct experiments or simulations, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies.

(continued)

Project 1.1 – Customers Rule

Project Topic: Customer Relationships

1. Read the **Student Information Sheet,** Helmets to the Rescue, on page 8, to establish how a specific manufacturing company would be concerned about customer relationships. Be prepared to frame that context with and for students.
2. Read **Student Sheet 1.1.1** on page 11.
3. Introduce the project.
   - Helmets to the Rescue cares about its customers. Those customers pay the bills. The features that are important to the thousands of riders who grab a helmet before they hop on their bikes are the ones that matter.
   - Give your students a chance to observe and evaluate features of bicycle helmets by asking them to bring in a helmet and evaluate the features. If some students don't have a helmet, suggest that they borrow one or reduce the sample size accordingly.
   - Discuss storage issues and provide a secure storage place for the time the helmets are in the classroom.
   - Organize a procedure to display and number the helmets.
   - Discuss the rating procedure and find a consensus by using examples of another product in order to achieve more consistent results. Make sure that the process doesn't become personal. Keep the focus on helmet features rather than, "Your helmet is pitiful," or other disparaging remarks. If you or your students want to add more features to the evaluation process, increase the number of columns accordingly.
   - Decide on and share with students the process you want them to use for gathering class totals. (See step 6 on **Student Sheet 1.1.1.)**
   - At this point, a statistical analysis might be interesting and appropriate. It would provide an objective basis for discussing how the mean of a set of data can ignore outlying results. Whether you do the statistics or discuss informally, help students to understand that manufacturers have a dilemma. They want to satisfy 100 percent of customers' needs and wants, and they also have to make money.

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Science

- Identify an actual design problem and establish criteria for determining the success of a solution.
- Identify and explain ways that scientific knowledge and economics drive technological development.
- Describe how occupations use scientific and technological knowledge and skills.

Technology

- Requirements for design are made up of criteria and constraints.
- Modeling, testing, evaluating and modifying are used to transform ideas into practical solutions.
- The manufacturing process includes the designing, development, making and servicing of products and systems.

Notes:

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