

WHAT TO PRODUCE?

Performance Standard 10B.I

Create a critical question and design an instrument to gather the needed data:

- *Mathematical knowledge*: create and conduct a survey and analyze data to draw conclusions.
- *Strategic knowledge*: follow systematic process to develop clear, unbiased survey and conclusions.
- *Explanation*: explain completely what was done and why it was done.

Procedures

1. ***In order to formulate questions, design data collection methods, gather and analyze data and communicate findings (10B)***, provide students with sufficient learning opportunities to develop the following:

- Decide if a survey was “successful” in gathering the intended data and justify the decision.

Career and technical education student organization members often need to raise money to attend the state or national conference or finance other activities. This often involves manufacturing an item and selling it. The first step in the manufacturing process is to decide what to manufacture. These same skills are valuable in the workplace as decisions are made that ensure long term profitability and well being of the business.

2. Students are given the following task to complete both inside and outside of class and to bring the results back for analysis and presentation.

Your Technology Student Association (TSA) advisor, James Kent, wants the student organization members to manufacture an item to sell as a fundraiser. Rather than choosing an item himself, he wants to survey the student organization members to determine their preferences. Create a critical question he might like answered, and design a set of questions that might get the desired data. Administer the survey. Write a report of the results with possible reasons for good or inadequate results for each data item. Make suggestions for improving questions that did not yield good data.

3. Evaluate the work using the mathematics rubric:

- A 4 in mathematics knowledge would require the completion of the survey, accurate and appropriate summary of results and conclusions/predictions based on the data.
- A 4 in strategy would require a clear critical question and a set of unbiased questions that support the gathering of data relative to the critical question. A 3 may be awarded for strategy if the questions did not elicit the data desired but the student can describe how they should be changed to improve the quality of the data.
- A 4 in explanation would require a detailed written summary of the results and analysis of the success of each question with suggestions for improvement of questions.

Examples of Student Work

- [Meets](#)
- [Exceeds](#)

Time Requirements

- One or more class periods devoted to developing the questions
- Two or three days to collect the data
- One week to analyze and present results and conclusions

Resources

- Copies of the “What to Produce?” student task sheet
- Access to a TSA membership list
- Mathematics Rubric

NAME _____ DATE _____

WHAT TO PRODUCE?

Student Task Sheet

Your Technology Student Association (TSA) advisor, James Kent, wants the student organization members to manufacture an item to sell as a fundraiser. Rather than choosing an item himself, he wants to survey the student organization members to determine their preferences. In order to help him with this decision, you will need to:

1. Create a critical question Mr. Kent might like answered, and design a set of questions that might get the desired data.
2. Administer the survey.
3. Write a report of the results with possible reasons for good or inadequate results for each data item.
4. Make suggestions for improving questions that did not yield good data.

MATHEMATICS RUBRIC

NAME _____ DATE _____

- Exceeds standard (must receive a 4 in each area)
- Meets standard (must receive all 3's or a combination of 3's and 4's)
- Approaches standard (must receive all 2's or any combination which may include a 3 or a 4)
- Begins standard (has no 3's or 4's but not all 1's)
- Absent (has all 1's and 0's)

	Mathematical Knowledge	Strategic Knowledge	Explanation
4	<ul style="list-style-type: none"> • Wrote the right answer. • Used math words correctly to show understanding of how math works. • Worked it out with no mistakes. • Used the right math words and labeled the answers. 	<ul style="list-style-type: none"> • Identified all the important parts of the problem, and knew how they went together. • Showed all the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote what was done and why it was done. • If a drawing was used, all of it was explained in writing.
3	<ul style="list-style-type: none"> • Knew how to do the problem, but made small mistakes. 	<ul style="list-style-type: none"> • Identified most of the important parts of the problem. • Showed most of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote mostly about what was done. • Wrote a little about why it was done. • If a drawing was used most of it was explained in writing.
2	<ul style="list-style-type: none"> • Understood a little, but made a lot of big mistakes. 	<ul style="list-style-type: none"> • Identified some of the important parts of the problem. • Showed some of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote some about what was done or why it was done but not both. • If a drawing was used, some of it was explained in writing.
1	<ul style="list-style-type: none"> • Tried to do the problem, but didn't understand it. 	<ul style="list-style-type: none"> • Identified almost no important parts of the problem. • Showed almost none of the steps used to solve the problem. 	<ul style="list-style-type: none"> • Wrote or drew something that didn't go with the answer. • Wrote an answer that was not clear.
0	<ul style="list-style-type: none"> • No answer attempted. 	<ul style="list-style-type: none"> • No strategy shown. 	<ul style="list-style-type: none"> • No written explanation.
Score			