

# A Performance Based Learning and Assessment Task

## *The Next Big Thing*

### **I. ASSESSMENT TASK OVERVIEW & PURPOSE:**

Students will assume they are part of a marketing team that develops items to be sold at school athletic events. They will design, carry out and analyze the results of a marketing research experiment focused on the product. Finally they will communicate their results to the class. Students need to develop problem solving skills and to become fluent in experimental procedures and vocabulary.

### **II. UNIT AUTHOR:**

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### **III. COURSE:**

AFDA

### **IV. CONTENT STRAND:**

Algebra I, Data Analysis

### **V. OBJECTIVES:**

Students will use problem solving and reasoning skills to make value decisions and apply their knowledge of sampling techniques to the population of Patrick Henry High School.

### **VI. REFERENCE/RESOURCE MATERIALS:**

Students will have access to computers and should go to [khanacademy.org](https://www.khanacademy.org) and search for the following: random samples, stratified groups and cluster sampling if they wish to review the materials presented in class. They will also have class notes covering: random samples, stratified groups and cluster sampling.

### **VII. PRIMARY ASSESSMENT STRATEGIES:**

The task includes an assessment component that performs two functions: (1) for the student it will be a checklist and provide a self-assessment and (2) for the teacher it will be used as a rubric. Skills assessed include problem solving, ability to both apply sampling techniques to real life situations and to communicate the results of this application.

### **VIII. EVALUATION CRITERIA:**

Please see attached.

### **IX. INSTRUCTIONAL TIME:**

The following timeline will guide the pacing of a typical class.

- Product development - 30 minutes
- Marketing research - 90 minutes
- Summary of results and recommendations - 30 minutes

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## Strand

AFDA, Data Analysis

## Mathematical Objective(s)

Students will design, conduct and communicate the results from an experiment.

## Related SOL

- ADFA.8 (The student will design and conduct an experiment/ survey.)
- AFDA.5 (The student will determine optimal values in problem situations by identifying constraints and using linear programming techniques.)
- EPF.2 (The student will demonstrate knowledge of the role of producers and consumers in a market economy by describing how costs and revenues affect profit and supply.)

## NCTM Standards

- Apply and adapt a variety of appropriate strategies to solve problems
- Communicate mathematical thinking coherently and clearly to peers, teachers, and others

## Materials/Resources

- Classroom set of computers
- Classroom set of graphing calculators
- Student worksheet for activity

## Assumption of Prior Knowledge

- It is assumed that the students will be familiar with the following concepts and processes: sample size, sampling technique, controlling sources of bias and experimental error, data collection and data analysis and reporting.
- It is assumed that students will be familiar with random samples, stratified groups and cluster sampling.

## Introduction: Setting Up the Mathematical Task

- The timeline will include. Think, pair, share as an introduction, group work time, a time to present conclusion to other groups and a summary activity.
- The Think, pair, share activity will focus on a brainstorming session on the next big thing.

## **Student Exploration**

- You are a member of the Marketing Team at Patrick Henry High School. We want to add a new product to sell at the athletic events. We have brainstormed some ideas but we don't know which would be the best new product to include in our current list of items. Your marketing team is tasked to identify the new product that will produce the greater profit margins. The new product will be introduced to the student body at an assembly next semester.
- Students will use the student worksheet (attached) to guide their exploration.
- Each group will share their presentation with the class.

## **Monitoring Student Responses**

- Once students have finished their project they will extend their learning by thinking of marketing strategies for the item they have chosen
- The summary activity is a journal entry addressing the benefits and risk associated with the item they have chosen as the next big thing.

## **Assessment List and Benchmarks**

- See attached

## Assessment List

			Earned Assessment	
Num.	Element	Point Value	Self	Teacher
1.	The marketing research is reasonable and complete	2		
2.	The data collected was appropriate	2		
3.	The data analysis was appropriate	2		
4.	The conclusions were appropriate for the data collected	2		
5.	Work is neat and attractive.	2		
6.	The PowerPoint is complete	2		
7.	The PowerPoint clearly conveys the analysis	2		

## Evaluation

#	Element	0	1	2
1.	The marketing research is reasonable and complete	The marketing research not reasonable and is incomplete	Some of the marketing research is reasonable and complete	The marketing research is reasonable and complete
2.	The data collected was appropriate	The data collected was inappropriate	The data collected was somewhat appropriate	The data collected was appropriate
3.	The data analysis was appropriate	The data analysis was inappropriate	The data analysis was somewhat appropriate	The data analysis was appropriate
4.	The conclusions were appropriate for the data collected	The conclusions were inappropriate for the data collected	The conclusions were somewhat appropriate for the data collected	The conclusions were appropriate for the data collected
5.	Work is neat and attractive.	Work is not neat or attractive.	Work is somewhat neat and attractive.	Work is neat and attractive.
6.	The PowerPoint is complete	The PowerPoint is incomplete	The PowerPoint is somewhat complete	The PowerPoint is complete
7.	The PowerPoint clearly conveys the analysis	The PowerPoint does not convey the analysis	The PowerPoint conveys some of the analysis	The PowerPoint clearly conveys the analysis

