

# BALTIMORE COUNTY PUBLIC SCHOOLS

## OFFICE OF MATHEMATICS

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SAMPLE PERFORMANCE TASK

### 6TH GRADE CELEBRATION

Written by:

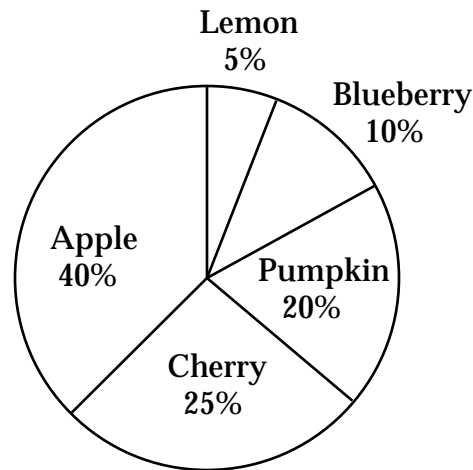
Jen Bomboy  
Tami Wunder  
Nicole Tabachneck

## 6TH GRADE CELEBRATION

### ACTIVITY 1

The sixth grade team has decided to have a fund raiser for an end-of-the-year celebration. One way they have decided to raise money is to sell pies. The circle graph below shows the percent of each type of pie sold last year at the fund raiser.

1998 FUND RAISER PIE SALES



- A. If they are estimating that 1200 people will attend the fund raiser, use the circle graph to determine how many of each type of pie listed below to make for this year's fund raiser.

Apple \_\_\_\_\_

Cherry \_\_\_\_\_

- B. Explain how you found the number of apple pies needed for this year's fund raiser.

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## ACTIVITY 2

Mr. May and Mrs. Wunder have agreed to participate in the fund raiser by having a pie-tossing contest. Both have bad aims. The probability that Mr. May hits Mrs. Wunder on any one throw is  $\frac{1}{10}$ ; the probability that Mrs. Wunder hits Mr. May on any one throw is  $\frac{1}{5}$ . Mr. May really would not like to get whipped cream on his good clothes, so he thinks that tossing pies might be a bad idea. He would like you to help him decide if this is a fair contest.

A. If Mr. May has a  $\frac{1}{10}$  probability of hitting Mrs. Wunder with a pie, what percent would this be?

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B. If Mrs. Wunder has a  $\frac{1}{5}$  probability of hitting Mr. May with a pie, what percent would this be?

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C. Which teacher is more likely to get hit with a pie? Explain your answer using the information you obtained in questions A and B.

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### ACTIVITY 3

You decide to simulate the pie-tossing challenge to help Mr. May decide if this contest is fair and if he should participate.

A. Circle the tool you would use to simulate Mrs. Wunder tossing a pie at Mr. May.

Coin    Die    Spinner    Random-Number generator    Other \_\_\_\_\_

Explain your choice and remember to include:

- why your choice works
- why the other choices may not be the best tool to use for this situation.

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B. What tool would you use to simulate Mr. May tossing a pie at Mrs. Wunder?

Tool: \_\_\_\_\_

Explain your choice and remember to include:

- why your choice works
- why the other choices may not be the best tool to use for this situation.

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C. Write the steps you will follow to simulate the pie-tossing challenge between Mrs. Wunder and Mr. May. Remember to include:

- how you will use the tool(s) you selected
- how you will collect and record your data
- how you will know that your simulation is over.

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D. Perform your simulation. Make a table or chart to record and display your results. Be sure to conduct an appropriate number of trials.

E. Based on the results of your simulation, what is the probability that Mrs. Wunder hits Mr. May with a pie? Express your answer as a fraction.

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Explain how you arrived at your answer.

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What percent of Mrs. Wunder's throws are hits?

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Explain how you arrived at your answer.

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F. Based on the result of your simulation, what is the probability that Mr. May hits Mrs. Wunder with a pie? Express your answer as a fraction.

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Explain how you arrived at your answer.

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What percent of Mr. May's throws are hits?

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#### ACTIVITY 4

Now that you have completed the simulation, write a letter to Mr. May explaining if the pie-tossing challenge is fair. Use the results of your simulation to explain your answer.

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#### ACTIVITY 5

Mr. May decides to recruit another teacher with better aim to take his place. He is considering the three teachers listed below. Their chances of tossing a hit are listed next to their name. Circle the teacher you think Mr. May should recruit.

Mrs. Segall       $1/4$

Mrs. Pavlo       $2/3$

Ms. Hein       $5/6$

Explain your answer. Remember to include your calculations to support your decision.

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## SCORING TOOL FOR 6TH GRADE CELEBRATION

### ACTIVITY 1

- 1A.     2     Answers for both cherry and apple are correct  
          1     One of the two answers is correct  
          0     Both answers are incorrect
- 1B     2     Explanation correct  
          1     Explanation somewhat correct  
          0     Explanation incorrect or missing

### ACTIVITY 2

- 2A     1     Correct answer  
          0     Incorrect answer
- 2B     1     Correct answer  
          0     Incorrect answer
- 2C     2     Explanation correct  
          1     Explanation somewhat correct  
          0     Explanation incorrect or missing

### ACTIVITY 3

- 3A     3     Tool circled and explanation includes both bulleted items  
          2     Tool circled and explanation includes one bulleted item  
          1     Tool circled and explanation incorrect or missing  
          0     No tool circled and explanation incorrect or missing
- 3B     3     Tool circled and explanation includes both bulleted items  
          2     Tool circled and explanation includes one bulleted item  
          1     Tool circled and explanation incorrect or missing  
          0     No tool circled and explanation incorrect or missing
- 3C     3     Steps listed include all three bulleted items  
          2     Steps listed include two of the three bulleted items  
          1     Steps listed include one of the three bulleted items  
          0     Steps listed do not include any of the three bulleted items
- 3D     1     Reasonable simulation results displayed in a table or chart  
          0     Results are not reasonable or are missing

3E (PART 1)

- 3 Answer given and expressed as a fraction and explanation correct
- 2 Answer given and expressed as a fraction and explanation somewhat correct
- 1 Answer given and expressed as a fraction, but explanation incorrect
- 0 Incorrect or missing answer and incorrect or missing explanation

(PART 2)

- 3 Answer given and expressed as a fraction and explanation correct
- 2 Answer given and expressed as a fraction and explanation somewhat correct
- 1 Answer given and expressed as a fraction, but explanation incorrect
- 0 Incorrect or missing answer and incorrect or missing explanation

3F (PART 1)

- 3 Answer given and expressed as a fraction and explanation correct
- 2 Answer given and expressed as a fraction and explanation somewhat correct
- 1 Answer given and expressed as a fraction, but explanation incorrect
- 0 Incorrect or missing answer and incorrect or missing explanation

(PART 2)

- 1 Answer correct
- 0 Answer incorrect

ACTIVITY 4

- 4A 3 Explanation correct and results of simulation used to support answer
- 2 Explanation correct
- 1 Explanation somewhat correct
- 0 Explanation incorrect or missing

ACTIVITY 5

- 5A 2 Explanation correct
- 1 Explanation somewhat correct
- 0 Explanation incorrect