	WASHINGTON STATE MATHEMATICS COUNCIL 2012 MIDDLE SCHOOL MATH OLYMPIAD Session I: FIFTH GRADE PROBLEM SOLVING	5

The Ice Cream Parlor Problem

You are the new manager at an ice cream parlor. The corporate office is requesting that you submit a report on your plans for the parlor. They are open to your ideas but first want you to do some initial research based on data from the previous year that they are providing you. They are intending on promoting the parlor heavily and are expecting to help you increase sales by 10% over the summer season, June - August.

Data from the previous year are contained in the tables on the following page.

Your tasks: These represent the first stage of your research.

1) What are the 3 most popular year round flavors? Explain your reasoning. These top three flavors will be available year round.
2) Corporate requires you to select a different "flavor of the month" for each month to promote that flavor. The flavor of the month must be chosen from the 6 least popular flavors for the season that month is in. What will be your flavors of month? List them by month and explain how you chose them.
3) During the summer season, find the daily average number of scoops that were sold during the weekend (Friday, Saturday and Sunday) and the daily average number of scoops that were sold during the week (Monday through Thursday). The number of days in June – August is 92. Explain how you can estimate how many of those are weekdays and how many of those are weekend days. Then explain how to use those estimations to determine the two averages.
4) Convert the daily average scoop numbers from (3) to daily average number of gallons of ice cream. Express your answers to the nearest whole number rounded up to prevent running short of ice cream. You should have one answer for during the week and one answer for the weekend. Explain your calculations.
5) For ordering: How many scoops are in a 3 gallon tub? How many tubs of the three most popular flavors you found in (1) were needed the previous year? Explain your calculations.
6) If sales do increase by 10% from last summer to this summer, how many gallons of each of the three top selling flavors (use your answers from #1) will you need for this summer season? Explain your thinking.

Each tub of ice cream is 3 gallons. Each gallon is 128 oz., and each scoop is 5 oz.

Your work will be evaluated on:

- Your Problem Solution.
- Your Understanding of the Problem.
- Your Strategies Used.
- Your Communication.
- Your Reasonableness/Reasoning

Data to Base your research on:

Number of Scoops of Ice Cream by Flavor and by Season				
	Mar.- May	Jun.- Aug.	Sep.- Nov.	Dec.- Feb.
Vanilla	8120	9785	8265	6815
Chocolate	3200	3025	2540	2190
Butter Pecan	2125	3480	2750	990
Strawberry	1560	1120	940	775
Mint Chocolate Chip	325			1580
Coffee	1240	680	925	380
Cookies and Cream	1145	1225	1575	1010
Moosetracks	1980	2560	2400	2150
Pistachio		545	290	
Mocha Chip		1045	780	
Vanilla Butter Almond	784	955	800	890
Brownie Fudge Swirl	1190	3220	2980	1425
Cherry Vanilla		460		
English Toffee Crunch	1197			1240
Pralines and Cream		535		
Double Dutch Chocolate	2485	2075	2600	1935
Rum Raisin	469			745
Chocolate Chip Cookie Dough	1540	1295	1185	1055
Peach Sorbet		980	300	
Raspberry Sorbet	765	1015	325	185
Total	28125	34000	28655	23365

Summer Season Scoop Tally By Day Of The Week

Scoops by Day Tally							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June	720	894	1275	1358	1768	1986	1957
July	1568	1206	1498	1679	2173	2489	1933
August	996	1578	1362	2003	2245	1754	1558