Essential Key Performance Indicators for School Nutrition Success

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Participant's Workbook

Essential Key Performance Indicators for School Nutrition Success

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PURPOSE

Improve the operation of child nutrition programs through research, education and training, and information dissemination.

VISION

Lead the nation in providing research, education, and resources to promote excellence in child nutrition programs.

MISSION

Provide relevant research-based information and services that advance the continuous improvement of child nutrition programs.

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Introduction

Welcome to the Institute of Child Nutrition's (ICN) *Essential Key Performance Indicators for School Nutrition Success*. The purpose of this training is to provide school nutrition professionals with an easy-to-use reference for identifying and applying the key performance indicators (KPIs) that focus on the most critical aspects of a school nutrition program's performance to achieve success.

Performance measurement is an essential managerial function. It exposes the gaps between current and desired performance, and provides evidence that progress has been made toward closing the gaps. Key performance indicators are measures that focus on the most critical aspects of an organization's performance. These measures provide a rigorous, numbers-oriented approach to specific areas of emphasis, and assess results in an objective manner. Key performance indicators allow users to set standards of expectation, identify problem areas, and measure progress in correcting these problems. KPIs can be used to identify where resources should be invested to have the most positive impact, such as equipment or labor. They can be used to track the progress of major initiatives, for example, breakfast in the classroom, salad bars, and farm to school, on a program's participation, cost, and revenue.

There are 12 key performance indicators grouped into three general areas.

Meal Counts and Participation

1. Meal Equivalents (MEQ)
2. Average Daily Participation (ADP)

Financial and Inventory Management

3. Revenues
4. Expenditures
5. Revenue Per Meal Equivalent
6. Cost Per Meal Equivalent
7. Cost as a Percentage of Revenue
8. Break-Even Point (BEP)
9. Inventory Turnover Rate

Productivity and Labor

10. Meals Per Labor Hour (MPLH)
11. Staff Turnover Rate
12. Absenteeism Rate

Functional Area and Competencies for School Nutrition Directors

Functional Area 2: Financial Management

Competency 2.1: Develops financial management guidelines that support school nutrition program operational goals and comply with regulations.

Knowledge Statements:

- Knows basic principles of accounting and the application of those principles.
- Knows the impact of changing demographics and enrollment trends on the school nutrition program budget.

Competency 2.2: Establishes cost control goals to effectively manage the school nutrition program.

Knowledge Statements:

- Knows the importance of appropriate staffing and scheduling to control labor cost.
- Knows the role of the menu in controlling costs.

Source: Institute of Child Nutrition. (2009). *Competencies, knowledge, and skills for district-level school nutrition professionals in the 21st century.* University, MS: Author.

Functional Area and Competencies for School Nutrition Managers

Functional Area 7: Financial Management and Accountability

Competency 7.1: Ensures compliance with Federal, State, and local regulations, policies, and procedures for financial accountability in the school nutrition program.

Knowledge Statements:

- Knows financial elements of the school nutrition program (i.e., average daily participation [ADP] and food costs).
- Understands school nutrition program financial goals and objectives.

Competency 7.4: Organizes effective business operations to ensure all records and management techniques are maintained in accordance to Federal, State, and local regulations and policies.

Knowledge Statements:

- Knows procedures for documenting and evaluating amounts of food planned, prepared, and served.
- Knows the importance of operating a financially sound program.
- Knows school nutrition program financial goals and objectives.

Competency 7.5: Follows cost controls for the school nutrition program.

Knowledge Statements:

- Knows the importance of meal costs on the financial status of the school nutrition program.
- Knows cost-effective techniques relevant to school nutrition operations.
- Knows the financial impact of cost saving production techniques.
- Knows how to calculate meals per labor hour and the significance of the results.

Source: Institute of Child Nutrition. (2009). *Competencies, knowledge, and skills for district-level school nutrition professionals in the 21st century.* University, MS: Author.

Professional Standards

Financial Management – 3300

Employee will be able to manage procedures and records for compliance with Resource Management with efficiency and accuracy in accordance with all Federal, State, and local regulations, as well as the Administrative Review.

3340 – Financial Analysis

Key Area 3: Administration

Training Objectives

At the end of the training, participants will be able to accomplish the following objectives:

Lesson 1: Meal Equivalents (MEQ)
- Calculate meal equivalents (MEQ) and apply the information to measure the performance of school nutrition programs.

Lesson 2: Average Daily Participation (ADP)
- Calculate average daily participation (ADP) and apply the information for forecasting and making decisions pertaining to labor, food purchasing, and menu planning.

Lesson 3: Revenues
- Interpret and analyze revenues on a monthly report to monitor trends of the current period, the previous period, and year-to-date of the school nutrition program.

Lesson 4: Expenditures
- Interpret and analyze expenditures on a monthly report to monitor and identify monthly and annual trends.

Lesson 5: Revenue Per Meal Equivalent
- Calculate revenue per meal equivalent to determine if there is sufficient revenue to cover meal costs.

Lesson 6: Cost Per Meal Equivalent
- Calculate cost per meal equivalent to ensure the costs to produce a meal does not exceed the revenue per meal equivalent.

Lesson 7: Cost as a Percentage of Revenue
- Calculate the cost as a percentage of revenue or operating ratios to analyze food cost or labor cost.

Lesson 8: Break-Even Point (BEP)
- Calculate break-even point (BEP) to determine financial feasibility of a new program, make better financial decisions, and create annual benchmark goals.

Lesson 9: Inventory Turnover Rate
- Calculate and analyze the efficient monthly and annual use of inventory to control food and supply costs.

Lesson 10: Meals Per Labor Hour (MPLH)
- Calculate Meals Per Labor Hour (MPLH) and apply the information to measure the productivity and production efficiency of the school nutrition program.

Lesson 11: Staff Turnover Rate

- Calculate staff turnover rate to determine how often positions must be filled.

Lesson 12: Absenteeism Rate

- Calculate and analyze the time employees miss work in order to control labor cost.

Ground Rules

ICN has developed Ground Rules to help the class run smoothly and allow all participants to benefit from the course instruction and information.

- **Show up on time and come prepared.** Be prompt in arriving and in returning from breaks. Come with a positive attitude.
- **Stay mentally and physically present.** Be present and stay on task. Listen attentively to others and avoid disruptive side conversations.
- **Let everyone participate.** Be patient when listening to others speak. Treat all participants with the same respect that you would want from them.
- **Listen with an open mind.** Stay open to new ways of doing things, and listen for understanding. You can respect another person's point of view without agreeing with them.
- **Think before speaking.** Seek first to understand, then to be understood. Avoid using idioms, three letter acronyms, and phrases that can be misunderstood.
- **Attack the problem not the person.** Respectfully challenge the idea, not the person. Honest and constructive discussions are necessary to get the best results.

Lesson 1: Meal Equivalents (MEQ)

Objective: Calculate meal equivalents and apply the information to measure the performance of school nutrition programs.

Meal equivalents (MEQ) are the conversion of different meal services (i.e., breakfast, supper, and snacks) and nonprogram food sales to the equivalent of one federally reimbursable student lunch for comparison purposes. In school nutrition (SN) programs, a federally reimbursable student lunch is the standard unit of measurement most often used to gauge the effectiveness and efficiency of a program. Converting food sales to meal equivalents allows the SN professional to calculate three key performance indicators (KPIs): revenue per meal equivalent, cost per meal equivalent, and Meals Per Labor Hour.

Meal equivalents (MEQ) are used to measure how well the program is operating. They can be calculated weekly, monthly, and annually.

The meal count and sales data that is collected at the point-of-sale is the information used to calculate meal equivalents. This data can be found in reports such as end of day sales reports, edit check worksheets, and/or deposit reports.

Some states may use different conversion factor numbers to figure meal equivalents. If you are not sure what your state uses, please contact your State agency. The formula is the same, the numbers may be different.

Meal Equivalents

Meal Service	Conversion Factor	Rationale
1 Lunch or 1 Supper (Student or Adult)	= 1.00	All student reimbursable lunches, student reimbursable suppers, and full-paid adult lunches are counted as one MEQ. If a student purchases more than one lunch on a given day, the second lunch is considered non-reimbursable and is reported as a nonprogram food sale. The category for reporting is determined by State agency requirements. Lunches eaten by SN employees at no charge are considered "in-kind" meals and should not be counted as a meal equivalent.
1 Breakfast	= 0.67	The most common calculation for determining breakfast MEQs specifies that three breakfast meals count as two MEQs (2/3=0.67). However, it is important to note that the MEQ ratio used for calculating breakfast MEQs varies from state to state, and SN administrators should check with their State agencies for guidance. Once a ratio is selected, it should remain consistent for the entire reporting period (year) for comparison and benchmarking purposes.
1 Snack	= 0.33	National School Lunch Program (NSLP) snacks are served to children and youth in after-school care programs that are eligible for United States Department of Agriculture (USDA) reimbursement. While there are no current research studies to support the meal equivalency ratio, a survey of selected State agencies indicated most states use a 3-to-1 ratio of snacks to MEQs. Using this equivalency, snacks can be converted to MEQs as follows: MEQ=Number of snacks served x conversion factor (1/3 = 0.33).
Nonprogram Food Sales	= Dollar amount of nonprogram food sales / (current free lunch reimbursement rate + current USDA Food value [which changes annually])	The MEQ calculations for all other SN program categories are based on the annual Federal reimbursement rate for a free lunch plus the USDA Foods value. $\frac{\text{Nonprogram Food Sales}^{1}}{\text{Free lunch reimbursement rate}^{2} + \text{USDA Foods value}^{3}}$ The same formula would apply for other school nutrition program events, such as catered meals or special school functions.

[1] Nonprogram Food Sales: Food other than a reimbursable meal sold in an SN program participating in a USDA Child Nutrition Program (i.e., NSLP, School Breakfast Program [SBP], etc.). This food is purchased using funds from the school food authority of the school, including food that is sold in competition with the SN program.
[2] Free Lunch Reimbursement Rate: This rate changes annually. This rate can be found on the USDA Food and Nutrition Service (FNS) website at the following link: https://www.fns.usda.gov/school-meals/rates-reimbursement.
[3] Value of USDA Foods: This value changes annually. The value can be found on the USDA FNS website at the following link: https://www.fns.usda.gov/fdd/value-donated-foods-notices. For states such as Kansas that receive cash in lieu of USDA Foods, please contact your State agency to determine what figure to use.

Calculating Meal Equivalents

The school nutrition director at ABC School District has gathered end of the month data from each school in the district. One of the reports submitted to the superintendent ask for meal equivalents each month.

Instructions: Using the following data, determine what the meal equivalents are for ABC School District.

Based on reimbursement rates (3.33) and the USDA Foods value (0.2350) effective beginning July 1, 2018, for school year 2018-2019. Reimbursement rates should be updated annually because these amounts will change every July.

Given data:

Meal Categories	Conversion Factors			Meal Equivalents
11,000 student reimbursable breakfasts	×	0.67	=	
400 adult non-reimbursable breakfast	×	0.67	=	
24,000 student reimbursable lunches	×	1.00	=	
700 adult lunches	×	1.00	=	
8,000 student reimbursable suppers	×	1.00	=	
20,000 after-school snacks	×	0.33	=	
$9,000 dollars in nonprogram food sales	×	($3.33 + .2350) 3.565	=	
Total Meal Equivalents				

Lesson 2: Average Daily Participation (ADP)

Objective: Calculate average daily participation (ADP) and apply the information for forecasting and making decisions pertaining to labor, food purchasing, and menu planning.

Average daily participation is the average number of student reimbursable meals served in a school nutrition program on a daily basis. Average daily participation (ADP) can assist you in forecasting and decision-making. Other benefits of calculating ADP will allow you to monitor and make informed decisions on labor requirements, food purchasing, and non-food purchasing projections.

Calculating ADP will strengthen the program's resources through cost control. The data you gather will allow you to establish participation goals and to create objectives for meeting those goals. When this data is collected over several years, it can help you identify trends and project future needs. Average daily participation can be used to assess the popularity of menu options, evaluate productivity, and gauge customer satisfaction. Average daily participation is not calculated on supper because that meal is outside the school day. Average daily participation (ADP) can be calculated daily, weekly, monthly, or as often as needed.

To calculate average daily participation (ADP), divide the number of student meals served during the month by the number of operating days in that month. The meal count data is usually captured electronically or manually at the point-of-sale system.

To determine the ADP for breakfast and lunch, you will need the meal count for each meal. The formula for calculating the different meals are as follows:

$$\text{ADP Breakfast} = \frac{\text{Number of Breakfasts Served in a Month}}{\text{Number of Operating Days in that Month}}$$

$$\text{ADP Lunch} = \frac{\text{Number of Lunches Served in a Month}}{\text{Number of Operating Days in that Month}}$$

Average daily participation (ADP) rate is the ratio of students eating a school meal to the average number of students attending school. The daily attendance comes from the school office. USDA calculates ADP rates based on average daily attendance rather than enrollment. Calculating ADP this way is considered fairer to schools because the calculation does not include students who are absent or do not eat lunch or breakfast.

To calculate the average daily participation (ADP) rates, use the following formulas:

$$\text{ADP Rate Breakfast} = \frac{\text{Breakfast ADP}}{\text{Average Daily Attendance}}$$

$$\text{ADP Rate Lunch} = \frac{\text{Lunch ADP}}{\text{Average Daily Attendance}}$$

Average daily participation can be used as a major forecasting tool. It can be used in the following ways:

- Prevent waste in excess labor hours and overproduction of food
- Monitor participation trends over time
- Monitor customer satisfaction and address customer concerns
- Identify opportunities for increasing meal participation
- Determine labor needs and assignments
- Create food production schedules
- Evaluate menu items
- Measure program growth

Calculating Average Daily Participation

Instructions: ABC School District served 11,400 reimbursable student breakfasts and 24,700 reimbursable student lunches during a month with 21 operating days. Using the formulas just discussed, calculate the ADP for breakfast and lunch and the ADP rate for breakfast and lunch.

ADP Breakfast = _____ = _____

ADP Lunch = _____ = _____

For the current reporting period, an average of 2,200 students attended school in the district on a daily basis. (The information was obtained from the school district office.) However, 100 students did not have access to lunch because they were half-day kindergarten students and an average of 147 students were absent in the district the whole day.

ADP Rate Breakfast = _____ = _____

ADP Rate Lunch = _____ = _____

Lesson 3: Revenues

Objective: Interpret and analyze revenues on a monthly report to monitor trends of the current period, the previous period, and year-to-date of the school nutrition program.

It is important to monitor financial trends for the current period, the previous period, and year-to-date of the school nutrition program to determine if the school nutrition program is making a profit, losing money, or breaking even.

School nutrition (SN) program revenues are all monies received by or accruing to the nonprofit food service account. The management of a program's revenue is critical to the financial stability of a SN program. A successful SN director must ensure there is enough revenue to meet expenditure obligations. According to Federal guidelines, a SN program cannot show a deficit (negative ending balance). Therefore, the goal of a SN program should be to end each fiscal year with a positive (minimum of zero) balance.

Revenues are listed on a revenue and expenditures statement, sometimes called an income statement or statement of activities. This report is usually prepared at the end of the month by the SN office or the school business office.

Revenue Terms and Definitions

Federal Sources	Payments received from Federal funds for reimbursable meals, after-school snacks, and suppers, as well as the value of USDA Foods received, cash received in lieu of USDA Foods, Federal grants, and funds for other Federal nutrition programs.
State Sources	Funds received by the SN program from the State government (i.e., “state matching” funds).
Local Sources	Funds received from sources such as local government aid, grants, or contributions. Student and adult meal sales, contract meal sales, other food sales, and interest on bank deposits are considered local sources. This does not include local funds transferred into an SN program that must be paid back to the school district (i.e., loans to an SN program).
Student Meal Sales	Funds identified as revenue received from the sale of reimbursable meals to students. This includes monies received from full-paying and reduced price students.
Adult Meal Sales	All revenue received from the sale of meals to adults. Meals sold to school employees, parents, and guests of the school district should be included in this category.
Contract Meal Sales	Funds received from the sale of meals prepared/served for an agreed price to an agency, organization, business, or group who have entered into a contractual agreement with the SN program.
Nonprogram Food Sales	Funds received from food sales such as á la carte, extra meal components (milk), snacks, and special school or catered meals. Some states and districts record adult meal sales in this category.
Miscellaneous/Other Revenue	Other revenue not classified or included elsewhere, such as rebates, sale of surplus equipment, lease or rental of equipment, grant funds (i.e., “No Kid Hungry”, Dairy Council breakfast grants, Federal equipment grants, etc.), and concession sales.
Interest	Money earned on bank deposits, investments, etc.
Fund Transfer-In	Funds transferred to the SN program from other Board of Education funds. (This does not include “loans to an SN program” that must be repaid to the district.)

Statement of Activities

School Nutrition Program Ending _____ **(Month) (Year)**

Revenue Source	Current Month	Previous Month	YTD
Local Sources			
Student Meal Sales	$24,978	$23,025	$96,150
Adult Meal Sales	2,376	2,175	9,102
Other Food Sales	11,326	10,785	44,222
Contract Meals	1,575	1,560	6,250
Interest	260	255	1,030
State Sources	18,831	0	18,831
Federal Sources (includes USDA Foods value)	186,639	182,220	737,718
Miscellaneous	0	8,010	8,010
Fund Transfer-In	0	0	0
Total Revenue	$245,985	$228,030	$921,313
Expenditures	**Current Month**	**Previous Month**	**YTD**
Salaries and Wages	$65,875	$63,900	$259,550
Employee Benefits	28,975	25,364	108,678
Purchased Services	375	326	1,402
Property Services	305	280	1,170
Purchased Food/USDA Foods	96,190	90,183	372,746
Supplies	24,750	21,360	92,220
Miscellaneous	625	0	950
Capital Assets	0	55,000	70,000
Indirect Costs	5,835	5,830	23,330
Fund Transfer-Out	0	0	0
Total Expenditures	$222,930	$262,243	$930,046
Net Excess/Deficit	$23,055	$(34,213)	$(8,733)

Notes:
(1) School Nutrition Program directors should modify the Statement of Activities to meet the local and State requirements.

(2) The dollar amounts shown in this statement are for a hypothetical school district and are illustrative only.

Classification of Revenues

Instructions: Link the revenue category described in Column A with the best source provided in Column B. Sources in Column B may be used more than one time.

Column A	Column B
Revenue Received	**Revenue Source**
_____ Money earned on bank deposits and investments	A. Local
_____ Monetary value of food donated to schools by USDA	B. State
_____ Cash rebates from food companies received by the school nutrition program after the fiscal year has closed	C. Federal
_____ Revenue received from students for the purchase of nonprogram food items	D. Miscellaneous
_____ Grant money awarded to school districts who submit successful proposals for special projects and activities	E. Fund Transfer
_____ Money received from the sale of surplus equipment	
_____ Revenues paid to school districts by the State for eligible breakfast meals	
_____ Cash payment received for free meals that meet Federal standards and are served to eligible students	
_____ Revenue received from contract meals provided to a charter school	
_____ Funds transferred to the school nutrition program from the school district's general fund	

Lesson 4: Expenditures

Objective: Interpret and analyze expenditures on a monthly report to monitor and identify monthly and annual trends.

Expenditures are those allowable costs that can be identified specifically with the production and service of meals to school children. It is important to monitor expenditures to identify monthly and annual trends.

Analyzing expenditures can provide valuable information. For example, significant changes in cost categories are a red flag to monitor spending in a specific area. Deviations from goals (budget) indicate the need for further investigation. Other reasons to monitor expenditures are to identify transaction/accounting errors/discrepancies, and to identify monthly and annual trends.

Expenditures are listed on a revenue and expenditures statement, sometimes called an income statement or a statement of activities. This report is usually prepared at the end of the month by the SN office or the school business office.

Expenditure Terms and Definitions

Major Expenditure Categories

Salaries and Wages	Expenses that include regular pay, extra time, overtime pay, vacation pay, severance pay, holiday pay, substitute pay, administrative salaries, and other salaries and wages paid from school nutrition (SN) program funds.
Employee Benefits	Expenses that include social security, health/life insurance, workers' compensation, and unemployment insurance. This item may include employee meals, job-related medical expenses not covered by insurance, and other expenses, such as uniforms.
Purchased Food	The amount expended for the purchase of all food sold in the SN program, charges for processing USDA Foods from bulk or raw form to ready-to-use end products, and the cost of USDA Foods delivery fees to school districts. (Some states may require USDA Foods processing fees under purchased services.)
USDA Foods	Nutritious foods produced by American agricultural producers and purchased by USDA for distribution in Federal feeding programs including the National School Lunch Program (NSLP).
Paper Goods and Cleaning Supplies	The cost of disposable paper goods and supplies, such as dish machine and other chemicals used for production and service of food at the school site.

Other Expenditure Categories

General Operating Supplies	The cost of general supplies necessary for the operation of the SN program, including office supplies.
Purchased Services	Fees expended for professional and technical services, including accounting, legal advice, and training. Architects, consultants, computer specialist, food service management fees, and other similar services are also included. (Some states may require USDA Foods processing fees under purchased food.)
Maintenance	Property service, such as maintenance and upkeep of property. This includes energy costs, payments to other agencies for repairs and maintenance of SN program equipment, and repair or upkeep of cafeteria facilities. (These may be a direct cost or an indirect cost, but cannot be both.)
Miscellaneous	Expenditures not classified or included elsewhere.

Other Expenditure Categories

Capital Assets	Costs for acquiring fixed assets, such as initial equipment or replacement of equipment. Expenditures for technology hardware and software and vehicles are also recorded here. Unit cost (capitalization threshold) and useful life may be specified by the business entity.
Non-Capitalized Assets	Equipment under the capital threshold, such as small wares.
Indirect Cost	General school district overhead attributable to the SN program, including SN activities and support services provided by other district departments that are recovered through an approved cost allocation plan.
Fund Transfer-Out	Funds transferred to another district fund and/or repayment of loans to the district.

Statement of Activities

School Nutrition Program Ending _____ **(Month) (Year)**

Revenue Source	Current Month	Previous Month	YTD
Local Sources			
Student Meal Sales	$24,978	$23,025	$96,150
Adult Meal Sales	2,376	2,175	9,102
Other Food Sales	11,326	10,785	44,222
Contract Meals	1,575	1,560	6,250
Interest	260	255	1,030
State Sources	18,831	0	18,831
Federal Sources (includes USDA Foods value)	186,639	182,220	737,718
Miscellaneous	0	8,010	8,010
Fund Transfer-In	0	0	0
Total Revenue	$245,985	$228,030	$921,313
Expenditures	**Current Month**	**Previous Month**	**YTD**
Salaries and Wages	$65,875	$63,900	$259,550
Employee Benefits	28,975	25,364	108,678
Purchased Services	375	326	1,402
Property Services	305	280	1,170
Purchased Food/USDA Foods	96,190	90,183	372,746
Supplies	24,750	21,360	92,220
Miscellaneous	625	0	950
Capital Assets	0	55,000	70,000
Indirect Costs	5,835	5,830	23,330
Fund Transfer-Out	0	0	0
Total Expenditures	$222,930	$262,243	$930,046
Net Excess/Deficit	$23,055	$(34,213)	$(8,733)

Notes:
(1) School Nutrition Program directors should modify the Statement of Activities to meet the local and State requirements.

(2) The dollar amounts shown in this statement are for a hypothetical school district and are illustrative only.

Classifying Expenditures

Instructions: Link the revenue category described in Column A with the best source provided in Column B. Sources in Column B may be used more than one time.

Column A	Column B
Expenditures	**Category**
_____ Cost of supplies necessary for the operation of the school nutrition program	A. Miscellaneous
_____ Purchased foods with a commodity letter of credit and cash in lieu of	B. Maintenance
_____ Expenditures not classified or included elsewhere	C. General Operating Supplies
_____ Expenses that include social security, health/life insurance, workers' compensation, and unemployment insurance	D. Capital Assets
_____ Equipment under the capital threshold, such as small wares	E. Paper Goods and Cleaning Supplies
_____ Cost of disposable paper goods and other supplies, such as chemicals used for production and service of food	F. USDA Foods
_____ Amount expended for the purchase of all food sold in the SN program	G. Employee Benefits
_____ Property service, such as maintenance and upkeep of property	H. Non-Capitalized Assets
_____ Costs for acquiring fixed assets	I. Purchased Foods

Total SN program revenues should meet or exceed total expenditures, thus making a program self-supporting. The goal for labor cost plus benefits should be kept at or below 40% of total revenues. The following are not industry standards but some benchmarks observed in the School Lunch and Breakfast Cost Study-II Final Report (2008):

- Food costs = 38% of total cost
- Labor costs = 46% of total cost
- Other costs = 16% of total cost

Lesson 5: Revenue Per Meal Equivalent

Objective: Calculate revenue per meal equivalent to determine if there is sufficient revenue to cover meal costs.

Revenue per meal equivalent is a revenue management tool to help manage and analyze trends and project revenues. It is important to calculate and compare revenue per MEQ to costs per MEQ to ensure there is sufficient revenue to cover meal costs. This calculation simplifies the analysis of revenue by source. Trends and directions for improvement can be identified so that better financial decisions are made.

Revenue is found on the revenue and expenditure statement or you can obtain the information from the business office. The revenue and expenditure statement is sometimes called an income statement or statement of activities. This report identifies revenues, expenditures, and fund balance for the current period, the previous period, and year-to-date. It is usually prepared at the end of the month by the SN office or the school business office.

The best way to use revenue per meal equivalent is to compare it to the cost per meal equivalent to ensure that costs are lower than revenues and the SN program is self-supporting. This key performance indicator (KPI) can be used to determine areas where revenue can be increased. Better financial decisions can be made, such as whether to increase prices (especially for adult meals, contracted sales, and nonprogram food sales). Revenue per meal equivalent can be compared to budget projections, to the previous month's revenue per meal equivalent, and to the previous year's figures. Trends and directions for improvement can be identified so that effective financial decisions are made. Revenue per meal equivalent should meet or exceed the Federal reimbursement rate for a meal (breakfast, lunch, snack, or supper).

The equation to calculate revenue per meal equivalent is

Revenue ÷ Total Meal Equivalents (MEQs) = Revenue Per Meal Equivalent

Calculating Revenue Per Meal Equivalent

Instructions: Anywhere School District is spending $2.87 on each meal served. Calculate the revenue per meal equivalent to determine if the school district is making a profit, breaking even, or losing money and the amount. Carry out the individual answers 4 places behind the decimal.

Revenue Source	Revenues	÷	Total MEQs	=	Revenue per Meal Equivalent
Student Meal Sales	$18,250	÷	49,463	=	
Adult Meal Sales	$1,250	÷	49,463	=	
Nonprogram Food Sales	$5,140	÷	49,463	=	
Contract Food Sales	$640	÷	49,463	=	
Federal Reimbursement	$96,740	÷	49,463	=	
USDA Foods	$7,180	÷	49,463	=	
State Reimbursement	$850	÷	49,463	=	
Interest	$140	÷	49,463	=	
Miscellaneous	$260	÷	49,463	=	
Totals	$130,450	÷	49,463	=	

Is Anywhere School District making a profit, breaking even, or losing money?

How much?

The following is a list of some factors that can influence revenue per meal equivalent:

- Average daily participation (ADP)
- Average daily attendance (ADA)
- Pricing of meals and á la carte items
- Use of USDA Foods
- The percentage of students eligible for free and reduced price meals
- Open or closed campus
- Method of food service delivery

Lesson 6: Cost Per Meal Equivalent

Objective: Calculate cost per meal equivalent to ensure the costs to produce a meal does not exceed the revenue per meal equivalent.

Cost per meal equivalent is the dollar amount utilized by a school nutrition (SN) program to produce one meal equivalent. It is essential to calculate this key performance indicator (KPI) to measure the performance of the SN program. When the cost to produce a meal exceeds the revenue per meal equivalent, action must be taken.

You will need to obtain expenditures by source and meal count data to calculate cost per meal equivalent. The expenditure information can be found on the revenue and expenditure statement or you can obtain the information from the business office. This report identifies revenues, expenditures, and fund balance for the current period, the previous period, and year-to-date. It is usually prepared at the end of the month by the SN office or the school business office.

Cost per meal equivalent can be compared to budget projections, to the previous month's cost per meal equivalent, and to the previous year's figures. Trends and directions for improvement can be identified so that better financial decisions are made. Cost per meal equivalent should be compared to revenue per meal equivalent to ensure costs are lower than revenues to ensure a SN program is self-supporting.

The equation to calculate cost per meal equivalent is

Expenditure ÷ Total Meal Equivalents (MEQ) = Cost Per Meal Equivalent

Calculating Cost Per Meal Equivalent

Instructions: Anywhere School District receives $2.64 per MEQ. Using the information in the table, calculate the cost per meal equivalent to determine if the school district is making a profit, breaking even, or losing money and the amount. Carry the answers out 4 places behind the decimal.

Expenditure (Cost) Source	Costs/ Expenditures	÷	Total MEQs	=	Cost Per Meal Equivalent
Salaries and Wages	$40,000	÷	49,463	=	
Employee Benefits	$15,000	÷	49,463	=	
Purchased Food	$40,000	÷	49,463	=	
USDA Foods	$12,000	÷	49,463	=	
Food Production/Cleaning Supplies	$22,000	÷	49,463	=	
Total Expenditures	$129,000	÷	49,463	=	

Is Anywhere School District making a profit, breaking even, or losing money?

How much?

The following is a list of some factors that can influence cost per meal equivalent:

- Type of meal preparation system
- Availability of labor
- School “start-up” expenses
- Seasonal price changes (e.g., fresh fruit and other market driven items)
- One-time purchases (e.g., equipment)

- Unplanned expenses (e.g., repair bills, food loss due to power failure

Lesson 7: Cost as a Percentage of Revenue

Objective: Calculate cost as a percentage of revenue or operating ratios to analyze food cost or labor cost.

Cost as a percentage of revenue is often referred to as operating ratios. When calculating operating ratios, cost is usually analyzed in terms of food cost or labor cost.

Operating ratios help school nutrition (SN) directors evaluate and monitor their operations. These ratios are useful to management because they allow comparison of actual results against anticipated operational plans. Some examples are food cost percentage and labor cost percentage.

Food cost percentage: School nutrition directors rely on this ratio to determine whether expenditures for purchased food are reasonable and consistent with benchmarks.

Labor cost percentage: This percentage is useful to SN directors as a benchmark for making comparisons from school-to-school within a district, or from district-to-district within a State or region.

The goal for labor cost plus benefits should be kept at or below 40% of total revenues. The following are not industry standards but some benchmarks observed in the School Lunch and Breakfast Cost Study-II Final Report (2008):

- Food costs = 38% of total cost
- Labor costs = 46% of total cost
- Other costs = 16% of total cost

Cost as a percentage of revenue is an important tool in annual budget development and monthly operations monitoring. When expenditures are calculated as a percentage of total revenue, they can be compared to budget projections, to the previous month's percentages, to a previous year's figures, to industry standards, and to similar schools for the same period. Trends and directions for improvement can be identified so that better financial decisions are made. All expenditures can be calculated as a percentage of total revenue.

Using the following formula, we can determine the relationship of food cost to total revenue.

$$\frac{\text{Cost of Purchased Food}}{\text{Total Revenue}} = \text{Food Cost Percentage}$$

You can determine the relationship of labor cost to total revenue using the following formula:

$$\frac{\text{Payroll, Benefits, and Other Related Labor Expenses}}{\text{Total Revenue}} = \text{Labor Cost Percentage}$$

Calculating Cost as a Percentage of Revenue

Instructions: Using the information in the table, calculate the cost as a percentage of revenue for Anywhere School District to determine how the school district is doing. Carry the answers out 4 places behind the decimal.

Expenditure (Cost) Source	Costs/ Expenditures	÷	Revenue	×	100	=	Percentage of Revenue
Salaries and Wages	$40,000	÷	$130,450	×	100	=	
Employee Benefits	$15,000	÷	$130,450	×	100	=	
Purchased Food	$40,000	÷	$130,450	×	100	=	
USDA Foods	$12,000	÷	$130,450	×	100	=	
Food Production/Cleaning Supplies	$22,000	÷	$130,450	×	100	=	
Total Expenditures	$129,000	÷	$130,450	×	100	=	

Factors That Influence Cost Percentages

There are many factors that can influence costs percentage to revenue. A higher than expected food costs percentage may occur due to:

- incorrect portion control;
- overproduction and food waste;
- inaccurate inventories due to counting or valuation errors;
- not fully utilizing USDA Foods allotments;
- theft;
- high food costs;
- inefficient menu planning;
- use of pre-prepared and packaged foods versus “scratch” ingredients;
- inaccurate meal counting and claiming; or
- unexpected expenses (such as fuel surcharges) due to the differences between states and/or regions.

A lower than expected food cost percentage should be investigated. While it may mean cost control methods are working better than expected, it could also indicate:

- inaccurate inventories,
- inaccurate reporting,
- inadequate portion sizes, or
- unpaid invoices.

A higher than expected labor cost percentage may occur due to:

- the differences in labor expenditures between states and/or regions, or
- excess labor hours being allocated for the number of meals served.

A lower than expected labor cost percentage may occur due to:

- inadequate staffing, which leads to poor service.

Lesson 8: Break-Even Point

Objective: Calculate break-even point (BEP) to determine financial feasibility of a new program, make better financial decisions, and create annual benchmark goals.

Break-even point (BEP) is the point at which revenues and expenditures are equal. BEP is the amount of revenue (sales or income) needed to cover fixed and variable costs. When revenues exceed expenditures, excess revenue or an increase in fund balance occurs. When expenditures exceed revenues, a loss or a decrease in fund balance occurs.

Knowing the status of the school nutrition (SN) program regarding the BEP allows a SN director to gauge whether the program is self-sufficient and to make changes as needed. The BEP can be used to determine if starting an initiative (i.e., a supper program, an after-school snack program, etc.) will be financially feasible.

Fixed costs are those that do not vary with sales volume or number of customers served but stay fixed over time. The most common fixed costs are central office costs, manager's salary, basic telephone charges, core staff (not including substitute cost), and trash removal (unless by weight).

Variable costs are those that change with sales volume or number of customers served. The most common variable costs are food, supplies, paper goods, and some labor (temporary and part-time).

Contribution margin is the percent of revenue that can be used to cover fixed costs. For example, if the contribution margin is 46%, then 46 cents of every dollar in revenue goes to pay the fixed costs.

Use the following formulas to calculate break-even point*:

$$\text{BEP} = \frac{\text{Fixed Costs}}{\text{Contribution Margin}} = \frac{\text{Fixed Costs}}{1 - (\text{Variable Cost} / \text{Revenue})}$$

$$= \frac{\text{Fixed Costs}}{1 - \text{Variable Cost \%}}$$

Note: When you have an operation within parentheses, do that calculation first. Then complete the remaining calculation.

*Charter and non-public schools that participate in the National School Lunch Program (NSLP) may use vended food service management companies, and this would not be calculated the same way. Please consult with your State agency child nutrition authorities for guidance.

Calculating Break-Even Point

Instructions: Using the information in the following table, calculate BEP using the formulas previously discussed. Answer the three questions.

Item	Revenues	Fixed Costs	Variable Costs
Revenue for the period	$130,450		
Food Cost			$52,000
Labor Cost (Core Staff)		$40,000	
Benefit Cost		$15,000	
General supplies/Paper supplies cost			$22,000
Totals	$130,450	$55,000	$74,000

$$\text{BEP} = \frac{\text{Fixed Costs}}{1 - (\text{Variable Costs} / \text{Revenue})}$$

What is the break-even point? _____

What is the contribution margin? _____

What does the contribution margin mean? _____

_____

_____

Factors That Influence Break-Even Point

Changes in Revenue:

- Federal sources
- State sources
- Local sources
- Student meal sales
- Adult meal sales
- Contract meal sales
- Nonprogram food sales
- Miscellaneous other revenue
- Interest
- Fund transfer-in
- Uncollected revenue

Changes in Expenditures:

- Food production supplies
- Salaries and wages
- Employee benefits
- Purchased food products
- USDA Foods used
- General operating supplies
- Purchased services
- Property operation
- Miscellaneous other expenditures
- Capital assets
- Indirect costs
- Fund transfer-out

Lesson 9: Inventory Turnover Rate

Objective: Calculate and analyze the efficient monthly and annual use of inventory to control food and supply costs.

Inventory turnover is a measure of inventory efficiency. Specifically, it is the number of times inventory is utilized in a period. Calculating inventory turnover each month allows the manager and director a way to control food and supply investments. Inventory turnover rate provides an indication of a school nutrition (SN) program's ability to control inventory levels. Inventory turnover rate can be calculated monthly and annually.

The information to calculate inventory turnover rate can be gathered from the:

- revenue and expenditure report (to show monthly purchases),
- point-of-sale inventory system, and
- inventory records from the beginning and end of a period.

The following formula is used to determine inventory turnover rate.

$$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory Value}} = \frac{\text{(Beginning Inventory + Purchases During Period) – Ending Inventory}}{\text{(Beginning Inventory + Ending Inventory) / 2}}$$

Let's look at an example.

Beginning inventory	$6,600
Purchases during the month	$11,400
Ending inventory	$5,400
Cost of food used during the month	$12,600

$$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory Value}} = \frac{\text{(\$6,600 + \$11,400) – \$5,400}}{\text{(\$6,600 + \$5,400) / 2}} = \frac{\text{\$12,600}}{\text{\$6,000}} = 2.1$$

The ending inventory of $5,400 is the beginning inventory amount for the next month.

Calculating Inventory Turnover Rate

Instructions: Calculate inventory turnover rate using the information in the following chart. Then answer the question after you have completed the calculations.

Step # 1: Determine the beginning inventory for the month of February		**$**
Month	**End of Month Inventory Value**	**Value of Food Purchases**
January	$8,496	$24,021
February	$7,144	$18,677
March	$9,297	$21,583
Step # 2: Add the food purchases for the month of February.		**$**
Equals food available in February		**$**
Step # 3: Less ending February inventory		**$**
Cost of Food Used in February		**$**

What is the beginning inventory amount for the month of March? _____

Inventory turnover benchmarks or standards should be established for each school in a district. When inventory turnover rate is low (or high inventory levels), it presents a number of problems. It is difficult to keep track of what products are on hand, more storage space is required, money is tied up, and it is harder to control waste or pilferage than when inventory turnover rate is high (or inventory levels are low).

A school that receives a weekly delivery for most products should have a turnover rate of once every 7-10 days or 2-3 times a month.

There are many factors that influence inventory turnover rate some of which include:

- Forecasting,
- Inventory loss due to waste, theft, spoilage, and other product loss,
- Secure and safe storage practices reduce inventory loss and ensure shelf life is maximized,
- Frequency of deliveries,
- Storage space,
- Use and number of weeks of cycle menus,
- Minimizing menu substitutions,
- Large bids,
- Order procedures (centrally placed orders allow for review and revision),
- Meals and meal counts,
- Meal service interruptions where there is a loss of food service opportunity (i.e., snow days), and
- Non-compliance with regulations.

Lesson 10: Meals Per Labor Hour (MPLH)

Objective: Calculate Meals Per Labor Hour (MPLH) and apply the information to measure the productivity and production efficiency of the school nutrition program.

Meals Per Labor Hour (MPLH) is the measure of productivity and production efficiency for school nutrition (SN) programs. MPLH can help to determine how many employees or how many scheduled hours per employee are needed daily. The MPLH index is compared with labor because labor is dependent on the type of production. Examples of production systems used in the school nutrition program include conventional, cook-chill, and assembly-serve. Another type of production system used in the school nutrition program is distribution/service systems that include satellite, on-site, and a combination of the two.

The MPLH index is calculated on the actual productive, paid labor hours assigned to a site-level school nutrition (SN) program.

MPLH can be determined for a school site by dividing the total meal equivalents for a given time period by the total number of productive paid labor hours for the same time period.

Planned productive labor hours include the amount of labor planned by a SN program, for managers/supervisors, kitchen staff, and cashiers. Paid hours for substitutes are included, but not paid hours for sick, personal, or holiday leave.

Calculating MPLH can help to determine how many employees or how many scheduled hours per employee are needed in a single production unit or throughout the district. The MPLH index most effectively compares labor utilization within a system because labor is dependent on the type of production systems (i.e., conventional, cook-chill, and assembly-serve) and distribution/service systems (satellite, on-site, and combination) used in a school nutrition program. The MPLH can be used to compare productivity between different school sites. Calculating MPLH can be completed in three steps.

Calculating MPLH can be completed in three steps.

Step 1: Calculate total MEQ for the period.
Step 2: Calculate total hours of labor paid monthly, including all SN employees and managers/supervisors.
Step 3: Divide the total MEQ by the total paid labor hours (excluding sick, personal, and holiday pay).

The formula to calculate MPLH is

$$\text{MPLH} = \frac{\text{Number of Meals or Meal Equivalents}}{\text{Number of Planned Productive Labor Hours}}$$

Calculating Meals Per Labor Hour

Instructions: Calculate and fill in the table below. When you have completed the calculation in the table, calculate MPLH using 8,465 MEQs.

Number of Staff Members That Work the Same Number of Hours Daily	×	Hours Worked Daily	=	Total Hours Worked Daily	×	Days in the Period	=	Total Staff Hours Planned for the Period
1	×	7	=		×	21	=	
3	×	6	=		×	21	=	
2	×	4	=		×	21	=	
						21		

What is the Meals Per Labor Hour? _____

There is a method that can be used to determine the number of labor hours needed for the desired productivity level.

- Decide the desired number of MPLH for the district for a month. This can also be calculated for each school site. Assume 14 MPLH is based on the type of meal service offered for the example calculation.
- Divide the total MEQ by the desired number of MPLH to determine the total labor hours needed per month. Divide that number by the number of serving days in a month to determine the number of labor hours needed per day.

Example: $\frac{8{,}465 \text{ (Total MEQs)}}{14 \text{ (Desired MPLH)}} = 604.64$ or 605 (Total labor hours needed per month)

605 ÷ 21 = 28.81 or 29 hours per day

What would you need to do to achieve a desired 14 MPLH? _____

_____

Staffing Guidelines for On-Site Production

Number of Meal Equivalents	Meals Per Labor Hour for Low and High Productivity			
	Conventional System MPLH		Convenience System MPLH	
	Low	High	Low	High
Up to 100	8	10	10	12
101 – 150	9	11	11	13
151 – 200	10-11	12	12	14
201 – 250	12	14	14	15
251 – 300	13	15	15	16
301 – 400	14	16	16	18
401 – 500	14	17	18	19
501 – 600	15	17	18	19
601 – 700	16	18	19	20
701 – 800	17	19	20	22
801 and up	18	20	21	23

Source: Pannell-Martin, D. & Boettger, J. (2014). *School food & nutrition service management for the 21st century* (6th ed.). Aiken, South Carolina: Author.

- A conventional system is the preparation of some foods from raw ingredients on premises (e.g., using some baked goods, prepared pizza, and washing the dishes).
- A convenience system is using maximum amount of processed foods (e.g., using all baked goods, precooked chicken, ready-to-serve raw fruits and vegetables, portion-packed condiments, and washing only trays and using disposable dinnerware).

Lesson 11: Staff Turnover Rate

Objective: Calculate staff turnover rate to determine how often positions must be filled.

Staff turnover rate is the rate at which staff members leave employment, either voluntary or involuntary, and are replaced by new employees. The timing of recruiting efforts can affect a school nutrition (SN) program's ability to hire and train new employees to be ready for work when needed. It is extremely important to calculate this in areas with low unemployment rates. Hiring and training new employees is a costly process, and high turnover rates are indicative of internal problems, such as poor work environment, lack of opportunities for professional development and advancement, and poor supervision.

Staff turnover rate allows a SN director to determine how often positions must be filled, and at what times of the year. This allows directors to plan recruiting and new staff training activities. Annual calculation of this key performance indicator (KPI) can help in determining supervisory management issues and potential areas for supervisory staff development. High turnover rates can be indicative of internal problems, for example, poor work environment, lack of opportunities for professional development and advancement, poor supervision, etc. An investigation of these areas should be initiated to determine and address the specific issues. It is difficult for management to keep trained employees when the staff turnover rate exceeds 10%.

The information you need to calculate staff turnover rate will come from payroll records, school nutrition records, and the school district human resource department. Once you have gathered the information the calculation for staff turnover rate is as follows:

$$\text{Staff Turnover Rate} = \frac{\text{The number of employees terminated during a period}}{\text{The number of employees at the end of the month}} \times 100$$

For example:

A SN program had two employees terminated during a month (voluntary or otherwise). At the end of the month, the SN program has a total of 22 full-time and part-time employees. Therefore, the staff turnover rate for the SN program is as follows:

What is the staff turnover rate? _____

It is difficult for management to keep trained employees when the staff turnover rate exceeds 10%.

Factors that influence staff turnover rate include geographic location, population, labor pool, and state of the economy.

Employees often seek new employment for the following reasons:

- poor hiring practices,
- lack of professional development opportunities,
- better opportunities elsewhere,
- poor treatment,
- inadequate pay,
- poor job satisfaction,
- poor morale,
- illness/family illness,
- relocation, and
- retirement.

Employee retention can be increased by:

- careful hiring practices,
- providing routine training for all non-managerial employees,
- providing continuous training for managers to improve their supervisory skills,
- providing development opportunities for all salaried employees, and
- seeking to understand and improve employee satisfaction through staff surveys, performance appraisals, and exit interviews.

Calculating Staff Turnover Rate

Instructions: Calculate staff turnover rate using the information in the following chart. Then, answer the questions after you have completed the calculations.

Staff Turnover Rate for September							
School	**Number of Employees Terminated During September**	**÷**	**Number of Employees**	**×**	**100**	**=**	**Staff Turnover Rate**
Elementary	2	÷	7	×	100	=	
Middle	1	÷	6	×	100	=	
High	0	÷	8	×	100	=	
District Totals	3	÷	21	×	100	=	

If the SN director wanted to maintain a staff turnover rate of 10%, what if anything can be concluded from the staff turnover rates in this activity?

Lesson 12: Absenteeism Rate

Objective: Calculate and analyze the time employees miss work in order to control labor cost.

Absenteeism rate is the rate at which employees miss work due to personal illness, personal business, or other reasons (excluding paid vacation). These absences may be avoidable or unavoidable. This rate includes paid and unpaid leave. Absenteeism rate is the percentage of hours missed versus hours scheduled over a specific period of time.

High absenteeism rates can increase labor costs and drain an organization's bottom line. As absenteeism rates increase, the following cost increases affect the school nutrition program:

- increased labor costs associated with sick leave pay,
- pay of replacement employees,
- overtime pay, and
- a reduction in production quality and productivity.

The data may be broken down by week, month, quarter, year, school/site, or district. Data from this calculation can be observed over time to determine trends, and to improve management decisions that affect absenteeism.

The information to calculate absenteeism rate can be found on the staff schedules, time sheets, attendance records, payroll reports, or other human resource documentation that is available.

The formula for absenteeism rate is as follows:

Absenteeism Rate =

$$\frac{\text{The number of lost hours in a month (absences other than paid vacation)}}{\text{The total hours planned for the month (hours that would have been worked if there were no absences other than vacations)}} \times 100$$

An example:
In the month of October, a school district had the following:

- 83 lost hours due to absences other than paid vacation
- 2,772 total hours planned

The absenteeism rate for the month of October was calculated as follows:

$$\frac{83}{2{,}772} \times 100 = \_\_\_\_\_$$

There is not an industry standard for absenteeism rate. However, the United States absenteeism rate for full-time wage and salary workers for 2017 (Bureau of Labor Statistics, 2018) was ≤ 2.9%.

There are several factors that can influence absenteeism rate. The following are a few of these factors:

- Employee/family illness,
- District employee benefit plan,
- Absenteeism policy and procedures,
- Staff morale/satisfaction,
- Quality of available workforce/recruiter hiring practices, and
- Site manager skill/management style.

Calculating Absenteeism Rate

Instructions: Calculate the absenteeism turnover rate using the information in the following chart. Then answer the question after you have completed the calculations.

Absenteeism Turnover Rate for September							
School	**Number of Lost Hours due to Absences Other Than Paid Vacation**	**÷**	**Total Planned Hours**	**×**	**100**	**=**	**Absenteeism Rate**
Elementary	20	÷	693	×	100	=	
Middle	15	÷	798	×	100	=	
High	30	÷	693	×	100	=	
District Totals	65	÷	2184	×	100	=	

If the SN director wanted to maintain a ≤ 2.9% rate at each school, what is your conclusion about this school district?

ABC School District Case Study

You are the new school nutrition (SN) director at ABC School District. It is the first of October, and you want to analyze the performance of the three schools in the district to catch any problems the schools may have and take corrective action. The analysis will allow you to compare the results from each school and compare the results to industry standards, when available. Once you have completed the case study, you can use the results of these calculations to develop goals for the SN program.

Tips for completing the case study

- When rounding, be consistent, if the number is less (<) than five, round down. If the number is greater than or equal to (≥) five, round up.
- Be sure you understand the calculations before moving on to the next section.
- When you have an operation within parentheses, do that calculation first. Then complete the remaining calculation.

The background information begins on the next page.

Case Study Background Information

Period	September
Days in the Period	21
Days in the School Year	180
School Nutrition Management Type	Self-operated
Number of Schools in the District	3 (1 Elementary School, 1 Middle School, and 1 High School)
District Student Enrollment	1300
Average Daily Attendance: Elementary School Middle School High School	 425 475 400
Students Approved for Free/Reduced Price Meals	43%
Meal Service Description	Traditional cafeteria service at breakfast and lunch
Menu Planning	1-month cycle menus, the same for all schools
Food Preparation	Combination convenience and scratch, food prep at each school
Meal Prices	Lunch $3.20, Breakfast $1.75 (for all three schools)
School Nutrition Staffing Elementary School Middle School High School	1 manager at 8 hours daily and 5 kitchen staff at 5 hours daily = 25 hours 1 manager at 8 hours daily and 6 kitchen staff at 5 hours daily = 30 hours 1 manager at 8 hours daily and 5 kitchen staff at 5 hours daily = 25 hours
Storage – Food and Supplies	Storage at each school where products are received from vendors
Inventory for September Elementary School Middle School High School	Beginning $ 7,500 Ending $ 8,000 Beginning $10,500 Ending $10,000 Beginning $10,500 Ending $11,000

Meal Counts and Participation

The first KPI you will look at are the meal equivalents (MEQs) for each school. Look at the worksheet below and determine the appropriate conversion factor and calculate the MEQs for each school. If you need help with the conversion factor, review Lesson 1.

Meal Equivalents (MEQ) for Each School					
Meal Category	**Total Meals Served & Nonprogram Sales**	**×**	**Conversion Factor**	**=**	**Total MEQ**
Elementary School					
Student Lunch	5,343	×	1	=	
Adult Lunch	312	×	1	=	
Student Breakfast	3,015	×	.67	=	
Snacks	2,231	×	.33	=	
Nonprogram Food Sales	$900	÷	$3.33 + .2350 (3.565)	=	
Total MEQs – Elementary School					
Middle School					
Student Lunch	5,224	×	1	=	
Adult Lunch	250	×	1	=	
Student Breakfast	2,304	×	.67	=	
Snacks	2,429	×	.33	=	
Nonprogram Food Sales	$3,987	÷	$3.33 + .2350 (3.565)	=	
Total MEQs – Middle School					
High School					
Student Lunch	4,046	×	1	=	
Adult Lunch	435	×	1	=	
Student Breakfast	924	×	.67	=	
Snacks	0	×	.33	=	
Nonprogram Food Sales	$8,000	÷	$3.33 + .2350 (3.565)	=	
Total MEQs – High School					
Total MEQ - District					

Reimbursement Rate of $3.33 and USDA Foods Value of $0.235 effective beginning July 1, 2018.
Reimbursement rates should be updated annually.

NOTE: USDA Reimbursement Rates and USDA Foods Value can be found on the USDA Food and Nutrition Service (FNS) Website at the following links: www.fns.usda.gov/school-meals/rates-reimbursement and www.fns.usda.gov/fdd/value-donated-foods-notices respectfully. Some states such as Kansas choose to receive cash in lieu of USDA Foods. If you are one of the states that receive the cash, contact your State agency to determine what figure to use.

What is the total MEQs for the Elementary School? _____

What is the total MEQs for the Middle School? _____

What is the total MEQs for the High School? _____

You have completed the MEQ calculations. Now, you want to calculate the average daily participation (ADP) and the ADP Rate. Use the following worksheets to calculate the ADP and ADP Rate for each school, then compare them to the industry standards.

Average Daily Participation (ADP) for Each School						
Schools	**Meal Served**	**Number of Meals Served**	**÷**	**Number of Serving Days**	**=**	**ADP**
Elementary	Breakfast	3,015	÷		=	
	Lunch	5,343	÷		=	
Middle	Breakfast	2,304	÷		=	
	Lunch	5,224	÷		=	
High	Breakfast	924	÷		=	
	Lunch	4,046	÷		=	

Average Daily Participation (ADP) Rate for Each School							
Schools	**Meal Served**	**ADP**	**÷**	**Average Daily Attendance**	**=**	**ADP Rate**	**Industry Standard**
Elementary	Breakfast		÷	425	=		35%
	Lunch		÷	425	=		75%
Middle	Breakfast		÷	475	=		35%
	Lunch		÷	475	=		75%
High	Breakfast		÷	400	=		25%
	Lunch		÷	400	=		65%

How does the Elementary School ADP Rate compare to the industry standard?

How does the Middle School ADP Rate compare to the industry standard?

How does the High School ADP Rate compare to the industry standard?

Financial and Inventory Management

The district business office has sent you the Statement of Activities Report (also known as an Income Statement) that you requested. This report will show you how each school is performing financially.

Statement of Activities (Revenues and Expenditures) for Each School				
Revenue Source	**Elementary School**	**Middle School**	**High School**	**District Totals**
Student Meal Sales	$15,300	$16,700	$8,300	$40,300
Adult Meal Sales	1,000	800	700	2,500
Other Food Sales	900	4,400	8,000	13,300
Contract Meals	400	400	400	1,200
Interest	100	100	100	300
State Sources	1,000	2,000	1,000	4,000
Federal Sources (Includes USDA Food Value)	21,600	15,200	11,900	48,700
Total Revenue	$40,300	$39,600	$30,400	$110,300
Expenditures	**Elementary School**	**Middle School**	**High School**	**District Totals**
Salaries and Wages	$6,800	$7,800	$6,800	$21,400
Employee Benefits	7,000	7,500	7,000	21,500
Purchased Services	200	200	200	600
Property Services	300	300	300	900
Purchased Food/USDA Foods	17,400	18,800	14,600	50,800
Supplies	1,800	2,000	2,500	6,300
Miscellaneous	300	400	400	1,100
Capital Assets	0.00	0.00	0.00	0.00
Indirect Costs	600	1,000	1,200	2,800
Total Expenditures	$34,400	$38,000	$33,000	$105,400
Net Excess/Deficit	$5,900	$1,600	$(2,600)	$4,900

Based on the Statement of Activities Report, what do you observe about the financial stability of each of the schools?

Looking at the Statement of Activities, calculate the revenue per MEQ and cost per MEQ to determine how much plate cost is for each school. Remember, to calculate revenue per MEQ divide revenue by total MEQ, and to calculate cost per MEQ divide expenditures by total MEQ. Use the following worksheets for your calculations.
MEQ: Elementary 8,863
Middle 8,938
High 7,344

Revenue Per Meal Equivalent (MEQ) for Each School			
Revenue Source	**Elementary School**	**Middle School**	**High School**
Student Meal Sales	$1.73		
Adult Meal Sales	.11		
Other Food Sales	.10		
Contract Meals	.05		
Interest	.01		
State Sources	.11		
Federal Sources (Includes USDA Foods Value)	2.44		
Total Revenue Per MEQ	$4.55		

MEQ: Elementary 8,863
Middle 8,938
High 7,344

Cost Per Meal Equivalent (MEQ) for Each School			
Expenditures	**Elementary School**	**Middle School**	**High School**
Salaries and Wages		$.87	
Employee Benefits		.84	
Purchased Services		.02	
Property Services		.03	
Purchased Food/USDA Foods		2.10	
Supplies		.22	
Miscellaneous		.04	
Capital Assets		.00	
Indirect Costs		.11	
Total Cost Per MEQ		$4.23	

Looking at the totals in the worksheets you just completed, compare the revenue per MEQ to the Cost per MEQ for the three schools.

What do you conclude about the cost of a meal at the Elementary School?

What do you conclude about the cost of a meal at the Middle School?

What do you conclude about the cost of a meal at the High School?

You learned that salaries and wages should be no more 40% of revenues. The same holds true for food costs. Based on the figures in the worksheets you just completed, you want to look at the cost as a percentage of revenue. Complete the next worksheets and compare the figures for each school.

Cost as a Percentage of Revenue for Each Expense Category for Each School			
Expenditures	**Elementary**	**Middle**	**High**
Salaries and Wages			22.4%
Employee Benefits			23.0%
Purchased Services			.7%
Property Services			1.0%
Purchased Food/USDA Foods			48.0%
Supplies			8.2%
Miscellaneous			1.3%
Capital Assets			0
Indirect Costs			3.9%
Total Expenditures			108.5%

What have you learned about the cost as a percentage of revenue for each school?

Are there changes that can be made? If so, where do the changes need to be made?

The next KPI you want to calculate is the break-even point (BEP) for each school. In the following worksheets, calculate break-even point for each school. The numbers you need for these calculations will come from the Statement of Activities. (Remember to calculate the figures in the parentheses first and carry the decimal out 4 places.) The following formula is used to calculate BEP:

$$\frac{\text{Fixed Costs}}{\text{Contribution Margin (\%)}} = \frac{\text{Fixed Costs}}{\text{1 – (Variable Cost / Revenue)}} = \frac{\text{Fixed Costs}}{\text{1 – Variable Costs \%}}$$

Break-Even Point for Elementary School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$40,300		
Expenditures			
Salaries and Wages		$6,800	
Employee Benefits		7,000	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			17,400
Supplies			1,800
Miscellaneous			300
Capital Assets			
Indirect Costs			600
Totals			

Break-Even Point for Middle School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$39,600		
Expenditures			
Salaries and Wages		$7,800	
Employee Benefits		7,500	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			18,800
Supplies			2,000
Miscellaneous			400
Capital Assets			
Indirect Costs			1,000
Totals			

Break-Even Point for High School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$30,400		
Expenditures			
Salaries and Wages		$6,800	
Employee Benefits		7,000	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			14,600
Supplies			2,500
Miscellaneous			400
Capital Assets			
Indirect Costs			1,200
Totals			

What is the break-even point for the Elementary School? _____

What is the break-even point for the Middle School? _____

What is the break-even point for the High School? _____

Are all of the schools breaking even? If not, which one(s) are not breaking even?

Next, you want to look at each school's inventory. You can learn much from the inventory on hand and the inventory rate. When inventory levels are high (the turnover rate is low), it is difficult to keep track of what products you have on hand, more storage space is required, money is tied up, and it is harder to control waste or pilferage. The first thing you want to do is determine the cost of goods sold; then, calculate the inventory turnover rate for each school. Using the following worksheets, calculate the cost of goods sold and the inventory turnover rate.

Cost of Goods Sold for Each School					
Schools	**Beginning Inventory**	**+**	**Food Purchases + USDA Foods**	**=**	**Inventory Available During the Month**
Elementary	$7,500	+	$17,400	=	
Middle	10,500	+	18,800	=	
High	10,500	+	14,600	=	
District Totals				=	

Cost of Goods Sold for Each School (cont.)					
Schools	**Inventory Available During the Month**	**–**	**Ending Inventory**	**=**	**Cost of Goods Sold**
Elementary	$24,900	–	$8,000	=	
Middle	29,300	–	10,000	=	
High	25,100	–	11,000	=	
District Totals					

Inventory Turnover Rate for Each School					
Schools	**Cost of Goods Sold**	**÷**	**Average Inventory Value**	**=**	**Inventory Turnover Rate**
Elementary		÷	$7,750	=	
Middle		÷	$10,250	=	
High		÷	$10,750	=	

Based on the industry standards for inventory turnover rate of 2-3 times per month, what do you conclude from each of the school's calculations?

Productivity and Labor

The next KPIs you want to look at are productivity and labor. Calculating the planned production hours, Meals Per Labor Hour (MPLH), and desired labor hours needed to produce meals can give you a great deal of information about each school. The following worksheet will guide you through these calculations.

Planned Productive Hours for Each School								
Schools	**# of Staff That Work the Same # of Hours Daily**	**×**	**Hours Worked Daily**	**×**	**Days in a Period**	**=**	**Total Hours for the Period**	**Absenteeism Rate**
Elementary	1	×	8	×	21	=		
	5	×	5	×	21	=		
Middle	1	×	8	×	21	=		
	6	×	5	×	21	=		
High	1	×	8	×	21	=		
	5	×	5	×	21	=		

After determining the planned productive hours for each school, you need to calculate MPLH. Complete the following worksheet.

Meals Per Labor Hour (MPLH) for Each School					
Schools	**MEQ**	**÷**	**Planned Productive Hours**	**=**	**Meals Per Labor Hour**
Elementary	8,863	÷		=	
Middle	8,938	÷		=	
High	7,344	÷		=	

Based on the staffing guidelines for onsite preparation discussed in Lesson 10, how do these productivity numbers look? Are you satisfied with the production of each school, or do you think they could do better?

You have decided that you want each school to achieve a goal of 14 MPLH. To determine the number of labor hours needed to meet this goal, you will need to use the following formulas to determine the number of labor hours needed daily:

$$\frac{\text{Total MEQs}}{\text{Desired MPLH}} = \text{Total labor hours needed per month}$$

$$\frac{\text{Total labor hours needed per month}}{\text{\# of serving days}} = \text{\# of labor hours needed daily}$$

Complete the following worksheet to determine the number of labor hours needed daily for each school.

Total Labor Hours Needed to Achieve Desired MPLH									
Schools	**MEQs**	**÷**	**Desired MPLH**	**=**	**Total Labor Hours Needed Per Month**	**÷**	**# of Serving Days in the Period**	**=**	**Total Labor Hours Needed Daily**
Elementary	8,863	÷	14	=		÷	21	=	
Middle	8,938	÷	14	=		÷	21	=	
High	7,344	÷	14	=		÷	21	=	

What can calculating the total number of hours needed daily tell you?

The last two KPIs you want to determine are staff turnover rate and absenteeism rate. In the next worksheet, you will calculate the staff turnover rate for each school and the district totals.

Staff Turnover Rate for Each School							
Schools	**# of Employees Terminated During the Period**	**÷**	**Number of Employees**	**×**	**100**	**=**	**Staff Turnover Rate**
Elementary	1	÷		×	100	=	
Middle	0	÷		×	100	=	
High	2	÷		×	100	=	
District Totals	3	÷		×	100	=	

The final KPI you need to calculate before you can do an overall assessment is the absenteeism rate. In the next worksheet, calculate the absenteeism rate for each school and the district totals.

Absenteeism Rate for Each School							
Schools	**# of Lost Hours Due to Absences Other Than Paid Leave**	**÷**	**Total Planned Employees**	**×**	**100**	**=**	**Absenteeism Rate**
Elementary	20	÷		×	100	=	
Middle	15	÷		×	100	=	
High	30	÷		×	100	=	
District Totals	65	÷		×	100	=	

Based on the industry standard of ≤ 2.9%

- How does the elementary school compare?

- How does the middle school compare?

- How does the high school compare?

Developing SMART Goals and an Action Plan

You have completed all of the KPI calculations and have interpreted the data for each school. The next steps are to propose action plans and communicate the findings to the people it will affect. Encourage these people to talk about and ask questions that will help them to understand why the actions you plan to take are necessary.

- Prioritize the results, and weigh the relative merit of possible solutions. School nutrition (SN) programs must continue to look for new answers to old problems.
- Develop improvement goals that are "SMART" (Specific, Measurable, Achievable, Realistic, and Time-bound).
  - Specific – Goals should be simplistically written and clearly define what you are going to do.
  - Measurable – Goals can be quantified to a determined amount of a specified unit; indicator of progress.
  - Achievable – Goals state what results can realistically be achieved, given available resources but may stretch the team.
  - Relevant – Goals must be ones that you are willing and able to work on and must be based on current or forecasted needs.
  - Time-bound – Goals should be linked to a time frame that creates a practical sense of urgency.
- When creating an action plan, consider the following steps:
  - Outline the actions or steps that need to occur.
  - Identify the person(s) who will be responsible for implementing the steps.
  - List indicators of completion or progress.
  - Set a target date for achieving each step.
  - Specify the resources that will be required, such as staff, money, or materials.
- Another approach to formulating action plans is to focus on these questions:
  - What does the data tell us?
  - What does it not tell us?
  - What else would we need to know?
  - What are we doing well?
  - What needs for the SN program improvement might arise from this data?
  - SMART goals and an action plan template can be found on the next page.
- Once the decision to act has been made and implemented, new data can be collected to assess the effectiveness of those actions, leading to a continuous cycle of collection, organization, and synthesis of data in support of decision making.

Developing Goals Based on the Key Performance Indicators

Based on the key performance indicators, list five goals you want to achieve by the end of the month and/or year. An example has been created for you.

Goal: By the end of the school year, we will increase breakfast participation at the high school by 20%.

Goal 1: _____

_____

_____

_____

Goal 2: _____

_____

_____

_____

Goal 3: _____

_____

_____

_____

Goal 4: _____

_____

_____

_____

Goal 5: _____

_____

_____

_____

SMART Goals and Action Plan Templates

Does the Goal Meet the Following Criteria?			SMART Goal
	Yes	No	
Specific			
Measurable			
Achievable			
Realistic			
Time-bound			

Action Plan

Plan steps you will take to achieve the goal.	Person Responsible	Measure of Success	Target Date	Date Complete
1.				
2.				
3.				
4.				
Resources Needed to Achieve the Goal:				

Appendices

Meal Counts and Participation

The first KPI you will look at are the meal equivalents (MEQs) for each school. Look at the worksheet below and determine the appropriate conversion factor and calculate the MEQs for each school. If you need help with the conversion factor, review Lesson 1.

Meal Equivalents (MEQ) for Each School					
Meal Category	**Total Meals Served & Nonprogram Sales**	**×**	**Conversion Factor**	**=**	**Total MEQ**
Elementary School					
Student Lunch	5,343	×	1	=	**5,343**
Adult Lunch	312	×	1	=	**312**
Student Breakfast	3,015	×	.67	=	**2,020**
Snacks	2,231	×	.33	=	**736**
Nonprogram Food Sales	$900	÷	$3.33 + .2350 (3.565)	=	**252**
Total MEQs – Elementary School					**8,663**
Middle School					
Student Lunch	5,224	×	1	=	**5,224**
Adult Lunch	250	×	1	=	**250**
Student Breakfast	2,304	×	.67	=	**1,544**
Snacks	2,429	×	.33	=	**802**
Nonprogram Food Sales	$3,987	÷	$3.33 + .2350 (3.565)	=	**1,118**
Total MEQs – Elementary School					**8,938**
High School					
Student Lunch	4,046	×	1	=	**4,046**
Adult Lunch	435	×	1	=	**435**
Student Breakfast	924	×	.67	=	**619**
Snacks	0	×	.33	=	**0**
Nonprogram Food Sales	$8,000	÷	$3.33 + .2350 (3.565)	=	**2,244**
Total MEQs – Elementary School					**7,344**
Total MEQ - District					**24,945**

Reimbursement Rate of $3.33 and USDA Foods Value of $0.235 effective beginning July 1, 2018.
Reimbursement rates should be updated annually.

What is the total MEQs for the Elementary School? **8,863**

What is the total MEQs for the Middle School? **8,938**

What is the total MEQs for the High School? **7,344**

Average Daily Participation (ADP) for Each School						
Schools	**Meal Served**	**Number of Meals Served**	**÷**	**Number of Serving Days**	**=**	**ADP**
Elementary	Breakfast	3,015	÷	21	=	**144**
	Lunch	5,343	÷	21	=	**254**
Middle	Breakfast	2,304	÷	21	=	**109**
	Lunch	5,224	÷	21	=	**249**
High	Breakfast	924	÷	21	=	**44**
	Lunch	4,046	÷	21	=	**193**

Average Daily Participation (ADP) Rate for Each School							
Schools	**Meal Served**	**ADP**	**÷**	**Average Daily Attendance**	**=**	**ADP Rate**	**Industry Standard**
Elementary	Breakfast	**144**	÷	425	=	**34%**	35%
	Lunch	**254**	÷	425	=	**60%**	75%
Middle	Breakfast	**109**	÷	475	=	**23%**	35%
	Lunch	**249**	÷	475	=	**52%**	75%
High	Breakfast	**44**	÷	400	=	**11%**	25%
	Lunch	**193**	÷	400	=	**48%**	65%

How does the Elementary School ADP Rate compare to the industry standard?
The elementary school ADP Rate for breakfast is almost the same as the industry standard. For lunch it is below industry standards.

How does the Middle School ADP Rate compare to the industry standard?
The middle school ADP Rate for breakfast and lunch is below industry standards.

How does the High School ADP Rate compare to the industry standard?
The high school ADP Rate for both breakfast and lunch are below industry standards.

Financial and Inventory Management

The district business office has sent you the Statement of Activities Report (also known as an Income Statement) that you requested. This report will show you how each school is performing financially.

Statement of Activities (Revenues and Expenditures) for Each School				
Revenue Source	**Elementary School**	**Middle School**	**High School**	**District Totals**
Student Meal Sales	$15,300	$16,700	$8,300	$40,300
Adult Meal Sales	1,000	800	700	2,500
Other Food Sales	900	4,400	8,000	13,300
Contract Meals	400	400	400	1,200
Interest	100	100	100	300
State Sources	1,000	2,000	1,000	4,000
Federal Sources (Includes USDA Food Value)	21,600	15,200	11,900	48,700
Total Revenue	$40,300	$39,600	$30,400	$110,300
Expenditures	**Elementary School**	**Middle School**	**High School**	**District Totals**
Salaries and Wages	$6,800	$7,800	$6,800	$21,400
Employee Benefits	7,000	7,500	7,000	21,500
Purchased Services	200	200	200	600
Property Services	300	300	300	900
Purchased Food/USDA Foods	17,400	18,800	14,600	50,800
Supplies	1,800	2,000	2,500	6,300
Miscellaneous	300	400	400	1,100
Capital Assets	0.00	0.00	0.00	0.00
Indirect Costs	600	1,000	1,200	2,800
Total Expenditures	$34,400	$38,000	$33,000	$105,400
Net Excess/Deficit	$5,900	$1,600	$(2,600)	$4,900

Based on the Statement of Activities Report, what do you observe about the financial stability of each of the schools? **The elementary and middle schools have a net excess, but the high school is losing money.**

Revenue Per Meal Equivalent (MEQ) for Each School			
Revenue Source	**Elementary School**	**Middle School**	**High School**
Student Meal Sales	$1.73	**$1.88**	**$1.13**
Adult Meal Sales	.11	**.09**	**.10**
Other Food Sales	.10	**.49**	**1.09**
Contract Meals	.05	**.04**	**.05**
Interest	.01	**.01**	**.01**
State Sources	.11	**.22**	**.14**
Federal Sources (Includes USDA Foods Value)	2.44	**1.70**	**1.62**
Total Revenue Per MEQ	$4.55	**$4.43**	**$4.14**

Cost Per Meal Equivalent (MEQ) for Each School			
Expenditures	**Elementary School**	**Middle School**	**High School**
Salaries and Wages	**$.77**	$.87	**$.93**
Employee Benefits	**.79**	.84	**.95**
Purchased Services	**.02**	.02	**.03**
Property Services	**.03**	.03	**.04**
Purchased Food/USDA Foods	**1.96**	2.10	**1.99**
Supplies	**.20**	.22	**.34**
Miscellaneous	**.03**	.04	**.05**
Capital Assets	**.00**	.00	**.00**
Indirect Costs	**.07**	.11	**.16**
Total Cost Per MEQ	**$3.87**	$4.23	**$4.49**

Looking at the totals in the worksheets you just completed, compare the revenue per MEQ to the Cost per MEQ for the three schools.

What do you conclude about the cost of a meal at the Elementary School?
The elementary school is making $0.68 per MEQ.

What do you conclude about the cost of a meal at the Middle School?
The middle school is making $0.20 per MEQ.

What do you conclude about the cost of a meal at the High School?
The high school is losing $0.35 per MEQ.

Cost as a Percentage of Revenue for Each Expense Category for Each School			
Expenditures	**Elementary**	**Middle**	**High**
Salaries and Wages	**16.9%**	**19.7%**	22.4%
Employee Benefits	**17.4%**	**18.9%**	23.0%
Purchased Services	**.5%**	**.5%**	.7%
Property Services	**.7%**	**.8%**	1.0%
Purchased Food/USDA Foods	**43.2%**	**47.5%**	48.0%
Supplies	**4.5%**	**5.1%**	8.2%
Miscellaneous	**.7%**	**1.0%**	1.3%
Capital Assets	**0**	**0**	0
Indirect Costs	**1.5%**	**2.5%**	3.9%
Total Expenditures	**85.4%**	**96%**	108.5%

What have you learned about the cost as a percentage of revenue for each school?
The elementary and middle schools cost percentage is below the revenue or they are making money. The high school cost percentage is over 100%. Therefore, they are losing money.

Are there changes that can be made? If so, where do the changes need to be made?
The high school needs to use the food they have in inventory and as personnel leave, do not rehire to get the salaries and wages and benefits down to around 40%.

$$\frac{\text{Fixed Costs}}{\text{Contribution Margin (\%)}} = \frac{\text{Fixed Costs}}{\text{1 – (Variable Cost / Revenue)}} = \frac{\text{Fixed Costs}}{\text{1 – Variable Costs \%}}$$

Break-Even Point for Elementary School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$40,300		
Expenditures			
Salaries and Wages		$6,800	
Employee Benefits		7,000	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			17,400
Supplies			1,800
Miscellaneous			300
Capital Assets			
Indirect Costs			600
Totals	**$40,300**	**$13,800**	**$20,600**

Break-Even Point for Middle School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$39,600		
Expenditures			
Salaries and Wages		$7,800	
Employee Benefits		7,500	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			18,800
Supplies			2,000
Miscellaneous			400
Capital Assets			
Indirect Costs			1,000
Totals	**$39,600**	**$15,300**	**$22,700**

Break-Even Point for High School			
Categories	**Revenues**	**Fixed Costs**	**Variable Costs**
Total Revenue	$30,400		
Expenditures			
Salaries and Wages		$6,800	
Employee Benefits		7,000	
Purchased Services			$200
Property Services			300
Purchased Food/USDA Foods			14,600
Supplies			2,500
Miscellaneous			400
Capital Assets			
Indirect Costs			1,200
Totals	**$30,400**	**$13,800**	**$19,200**

What is the break-even point for the Elementary School? **$28,232**
What is the break-even point for the Middle School? **$35,848**
What is the break-even point for the High School? **$37,459**

Are all of the schools breaking even? If not, which one(s) are not breaking even?
No. The high school is not breaking even. It lost $7,059 during the current month.

Cost of Goods Sold for Each School					
Schools	**Beginning Inventory**	**+**	**Food Purchases + USDA Foods**	**=**	**Inventory Available During the Month**
Elementary	$7,500	+	$17,400	=	**$24,900**
Middle	10,500	+	18,800	=	**29,300**
High	10,500	+	14,600	=	**25,100**
District Totals	**$28,500**	+	**$50,800**	=	**$79,300**

Cost of Goods Sold for Each School (cont.)					
Schools	**Inventory Available During the Month**	**–**	**Ending Inventory**	**=**	**Cost of Goods Sold**
Elementary	$24,900	–	$8,000	=	**$16,900**
Middle	29,300	–	10,000	=	**19,300**
High	25,100	–	11,000	=	**14,100**
District Totals	**$79,300**	–	**$29,000**	=	**$50,300**

Inventory Turnover Rate for Each School					
Schools	**Cost of Goods Sold**	**÷**	**Average Inventory Value**	**=**	**Inventory Turnover Rate**
Elementary	**$16,900**	÷	$7,750	=	**2.18**
Middle	**$19,300**	÷	$10,250	=	**1.88**
High	**$14,100**	÷	$10,750	=	**1.31**

Based on the industry standards for inventory turnover rate of 2-3 times per month, what do you conclude from each of the school's calculations?

Possible answer: The middle and high schools could be over ordering and not using the food they have. When inventory ratios are low, it indicates that the school is carrying too much inventory. This could indicate poor inventory management.

Productivity and Labor

The next KPIs you want to look at are productivity and labor. Calculating the planned production hours, Meals Per Labor Hour (MPLH), and desired labor hours needed to produce meals can give you a great deal of information about each school. The following worksheet will guide you through these calculations.

Planned Productive Hours for Each School								
Schools	**# of Staff That Work the Same # of Hours Daily**	**×**	**Hours Worked Daily**	**×**	**Days in a Period**	**=**	**Total Hours for the Period**	**Absenteeism Rate**
Elementary	1	×	8	×	21	=	**168**	**693**
	5	×	5	×	21	=	**525**	
Middle	1	×	8	×	21	=	**168**	**798**
	6	×	5	×	21	=	**630**	
High	1	×	8	×	21	=	**168**	**693**
	5	×	5	×	21	=	**525**	

After determining the planned productive hours for each school, you need to calculate MPLH. Complete the following worksheet.

Meals Per Labor Hour (MPLH) for Each School					
Schools	**MEQ**	**÷**	**Planned Productive Hours**	**=**	**Meals Per Labor Hour**
Elementary	8,863	÷	**693**	=	**12.8**
Middle	8,938	÷	**798**	=	**11.2**
High	7,344	÷	**693**	=	**10.6**

Based on the staffing guidelines for onsite preparation discussed in Lesson 10, how do these productivity numbers look? Are you satisfied with the production of each school, or do you think they could do better?

Possible answer: The answer will depend on

- **if offer vs. serve is offered,**
- **how many different entrees are offered,**

- **if á la carte food items are sold,**
- **if most of the food items are self-serve**

Are you satisfied with the production of each school, or do you think they could do better?
The numbers could be higher especially at the high school depending on the number of students available to eat at school.

Total Labor Hours Needed to Achieve Desired MPLH									
Schools	**MEQs**	**÷**	**Desired MPLH**	**=**	**Total Labor Hours Needed Per Month**	**÷**	**# of Serving Days in the Period**	**=**	**Total Labor Hours Needed Daily**
Elementary	8,863	÷	14	=	**633**	÷	21	=	**30**
Middle	8,938	÷	14	=	**638**	÷	21	=	**30**
High	7,344	÷	14	=	**525**	÷	21	=	**25**

What can calculating the total number of hours needed daily tell you?
The elementary school is working 33 hours per day.
The middle school is working 38 hours per day.
The high school is working 33 hours per day.
To produce 14 MPLH, work hours will need to be cut at each school.

Staff Turnover Rate for Each School							
Schools	**# of Employees Terminated During the Period**	**÷**	**Number of Employees**	**×**	**100**	**=**	**Staff Turnover Rate**
Elementary	1	÷	**6**	×	100	=	**17%**
Middle	0	÷	**7**	×	100	=	**0%**
High	2	÷	**6**	×	100	=	**33%**
District Totals	3	÷	**19**	×	100	=	**16%**

Absenteeism Rate for Each School							
Schools	**# of Lost Hours Due to Absences Other Than Paid Leave**	**÷**	**Total Planned Employees**	**×**	**100**	**=**	**Absenteeism Rate**
Elementary	20	÷	**693**	×	100	=	**2.9%**
Middle	15	÷	**798**	×	100	=	**1.9%**
High	30	÷	**693**	×	100	=	**4.3%**
District Totals	65	÷	**2,184**	×	100	=	**3.0%**

Based on the industry standard of ≤ 2.9%

- How does the elementary school compare? **They are equal to the standard – good**
- How does the middle school compare? **They are below the standard – good**
- How does the high school compare? **They are above the standard – not good**

As a district, they are just above the industry standard.

References

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