

THE POWER OF A TEMPERATURE LOG

**“Sometimes, a simple temperature reading
can change the way we think about
things...”**

Mac McKay

Director of Sales – Education, SMART Temps

WHAT CHANGES HAVE YOU SEEN IN CHILD NUTRITION?

- Meal patterns
- Deliveries
- Preparation
- Serving styles
- Dining room décor
- Perceptions
- Technology
- HACCP and other regulations
- Training



CONSTANTS IN CHILD NUTRITION

- There will always be hungry kids!
- Personnel management
- Portion change
- Operating a financially sound School Nutrition Program

You're still making a difference!



QUESTIONS TO ASK YOURSELF BEFORE WE START?

What does your Food Safety Command Center look like?

What are your current KPIs (Key Performance Indicators)?

Why has your participation decreased?

Where did all your time go?



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**WHAT DOES
THE AGE OF
DATA MEAN?**

**FOOD
SAFETY TIPS
TO HELP
YOUR STAFF**

**HOW TO
BETTER
UNDERSTAND
TEMPERATURE
LOGS**

**HELP YOU
BECOMING
PROACTIVE
INSTEAD
OF
REACTIVE**

**HELP YOU
MANAGE BY EXCEPTION
STANDARDIZE KITCHEN OPERATIONS
INCREASE PARTICIPATION
AND HELP YOU GET BACK TO THE REASON
YOU STARTED**



WHY I KNOW TEMPERATURES

- 10,000+ schools across the country
- 21,000+ pieces of equipment being monitored at one time
- 1.8 billion equipment temperatures recorded
- 3.2 million high temperature alerts received
- 1.3 million low temperature alerts received
- 5,000+ schools recording temperatures throughout the flow-of-food process currently
- 49 million flow-of-food temperatures taken
- 10 million flow-of-food corrective actions taken



BIG DATA

- Google processes 34 petabytes of data per day, 1500x the quantity of all the printed materials in the Library of Congress
- Before 2000, Only 1/4th of information was in digital form
- Today, less than .5% of information is not in digital form

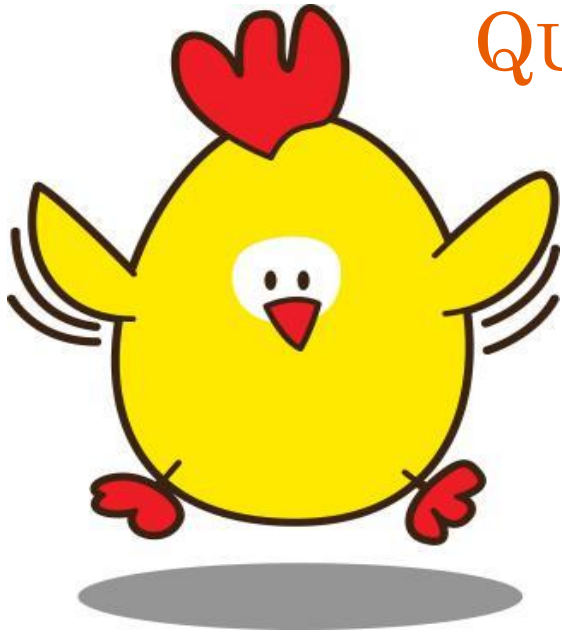


POSSIBLE OPPORTUNITIES BASED OFF OF YOUR DATA

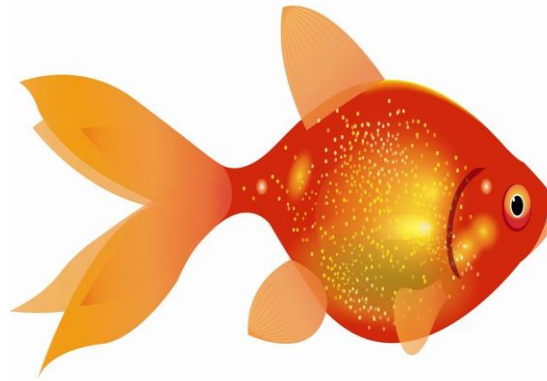
- Quality control
- Specific training
- Proactive maintenance
- Identifying new items/ equipment/ interfaces/
partnerships



QUICK FOOD SAFETY TIPS



IF IT FLYS 165



If It Crawls or Swims

145



IF GROUND
ROUND IT UP 10



41- 135 is Danger



Parasites
require hosts to live
and reproduce



Between 70 – 125
bacteria grows
quickest

COOLER AND FREEZER DATA

ON AVERAGE 10% OF EQUIPMENT FAILS EACH YEAR

THE AVERAGE HANDWRITTEN EQUIPMENT PAPER LOG HAS AT LEAST 1.2 TEMPERATURES ABOVE HACCP PARAMETERS

THE AVERAGE TEMPERATURE OF A WALK IN COOLER IS 39.1 DEGREES

THE AVERAGE TEMPERATURE OF A WALK IN FREEZER IS 5.1 DEGREES



Refrigerator & Freezer Temperature Log

Month/Year JUNE 2015

Refrigerator needs to be at +36° to 46° F (2° to 8° C)

+40° F is the ideal temperature.

Freezer needs to be at +5° F (-15° C) or colder

0° F or colder is ideal.

Record the Time, Temperatures & Initials two times (2) each business day, upon arrival (morning) and when closing the office at the end of the day (evening).

Circle the F or C below to identify whether temperatures are taken in Fahrenheit or Celsius

DAY	TIME	REFRIG	FREEZER	INITIALS	DAY	TIME	REFRIG	FREEZER	INITIALS
	8 am	38 °F°C	-10 °F°C	MM	17 th	8 am	44 °F°C	34 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	44 °F°C	34 °F°C	MM
2 nd	8 am	38 °F°C	-10 °F°C	MM	18 th	8 am	45 °F°C	34 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	34 °F°C	MM
3 rd	8 am	38 °F°C	-10 °F°C	MM	19 th	8 am	45 °F°C	34 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	32 °F°C	MM
4 th	8 am	38 °F°C	-10 °F°C	MM	20 th	8 am	45 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	-10 °F°C	MM
5 th	8 am	38 °F°C	-10 °F°C	MM	21 st	8 am	45 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	-10 °F°C	MM
6 th	8 am	38 °F°C	-10 °F°C	MM	22 nd	8 am	45 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	-10 °F°C	MM
7 th	8 am	38 °F°C	-10 °F°C	MM	23 rd	8 am	45 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	45 °F°C	-10 °F°C	MM
8 th	8 am	38 °F°C	-10 °F°C	MM	24 th	8 am	45 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	50 °F°C	-10 °F°C	MM
9 th	8 am	38 °F°C	-10 °F°C	MM	25 th	8 am	50 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-10 °F°C	MM		6 pm	50 °F°C	-10 °F°C	MM
10 th	8 am	38 °F°C	-10 °F°C	MM	26 th	8 am	50 °F°C	-10 °F°C	MM
	6 pm	38 °F°C	-15 °F°C	MM		6 pm	50 °F°C	-10 °F°C	MM
11 th	8 am	38 °F°C	-15 °F°C	MM	27 th	8 am	50 °F°C	5 °F°C	MM
	6 pm	38 °F°C	-15 °F°C	MM		6 pm	50 °F°C	5 °F°C	MM
12 th	8 am	38 °F°C	-15 °F°C	MM	28 th	8 am	50 °F°C	5 °F°C	MM
	6 pm	38 °F°C	-15 °F°C	MM		6 pm	43 °F°C	5 °F°C	MM
13 th	8 am	38 °F°C	32 °F°C	MM	29 th	8 am	43 °F°C	5 °F°C	MM
	6 pm	38 °F°C	32 °F°C	MM		6 pm	43 °F°C	5 °F°C	MM
14 th	8 am	38 °F°C	30 °F°C	MM	30 th	8 am	43 °F°C	5 °F°C	MM
	6 pm	38 °F°C	30 °F°C	MM		6 pm	43 °F°C	5 °F°C	MM
15 th	8 am	38 °F°C	30 °F°C	MM	31 st	8 am	43 °F°C	5 °F°C	MM
	6 pm	38 °F°C	32 °F°C	MM		6 pm	43 °F°C	5 °F°C	MM
16 th	8 am	38 °F°C	32 °F°C	MM					
	6 pm	38 °F°C	32 °F°C	MM					



TRENDS OF A REAL TEMP LOG

Refrigerator & Freezer Temperature Log

Month/Year June 2015

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DAY	TIME	REFRIG	FREEZER	INITIALS	DAY	TIME	REFRIG	FREEZER	INITIALS
1 st	7:40 am	38 °C	9 °C	MM	17 th	8:27 am	40 °C	-21 °C	MM
	6:02 pm	35 °C	10 °C	ST		7:42 pm	40 °C	-27 °C	EB
2 nd	7:15 am	39 °C	8 °C	MM	18 th	7:02 am	41 °C	-29 °C	MM
	6:21 pm	39 °C	8 °C	ST		8:42 pm	40 °C	-35 °C	EB
3 rd	7:20 am	40 °C	8 °C	MM	19 th	7:20 am	41 °C	-30 °C	MM
	7:02 pm	41 °C	7 °C	ST		9:02 pm	41 °C	-29 °C	EW
4 th	8:02 am	42 °C	9 °C	MM	20 th	9:14 am	42 °C	-1 °C	MM
	7:02 pm	39 °C	10 °C	ST		8:37 pm	42 °C	5 °C	
5 th	8:20 am	42 °C	11 °C	MM	21 st	7:10 am	41 °C	20 °C	GS
	7:21 pm	43 °C	9 °C	ST		9:04 pm	41 °C	34 °C	MG
6 th	7:12 am	45 °C	9 °C	EB	22 nd	8:02 am	41 °C	33 °C	GS
	7:21 pm	48 °C	9 °C	ST		9:04 pm	41 °C	36 °C	JM
7 th	7:42 am	46 °C	9 °C	EB	23 rd	7:10 am	41 °C	32 °C	PW
	8:01 pm	52 °C	10 °C	EB		8:27 pm	41 °C	36 °C	JM
8 th	6:45 am	48 °C	9 °C	MM	24 th	6:45 am	41 °C	34 °C	MM
	7:14 pm	52 °C	9 °C	ST		7:32 pm	41 °C	36 °C	MW
9 th	7:02 am	47 °C	9 °C	MM	25 th	7:21 am	41 °C	37 °C	PW
	6:42 pm	51 °C	7 °C	EW		6:47 pm	41 °C	40 °C	SW
10 th	7:42 am	47 °C	9 °C	MM	26 th	6:42 am	41 °C	42 °C	MM
	7:42 pm	50 °C	6 °C	EW		6:23 pm	41 °C	35 °C	PW
11 th	6:45 am	47 °C	5 °C	MM	27 th	7:02 am	41 °C	35 °C	
	7:10 pm	50 °C	5 °C	PW		6:59 pm	41 °C	20 °C	QF
12 th	7:21 am	56 °C	7 °C	MM	28 th	5:12 am	41 °C	5 °C	MM
	8:04 pm	52 °C	6 °C	PW		7:10 pm	42 °C	5 °C	QF
13 th	9:00 am	53 °C	4 °C	MM	29 th	7:01 am	42 °C	5 °C	GS
	7:42 pm	55 °C	4 °C	PW		8:32 pm	42 °C	5 °C	PS
14 th	6:10 am	56 °C	3 °C	MM	30 th	6:42 am	41 °C	6 °C	PW
	7:42 pm	56 °C	2 °C	GW		9:12 pm	42 °C	3 °C	SW
15 th	7:12 am	57 °C	-1 °C	GS	31 st	7:02 am	41 °C	5 °C	MM
	8:02 pm	58 °C	-2 °C	EB		9:07 pm	42 °C	4 °C	SW
16 th	6:24 am	43 °C	-2 °C	GS					
	7:31 pm	42 °C	-10 °C	EB					

Low Temp Excursion

Steady Increase in Temperatures

High Temp Excursion



EXTRACTING DATA

Refrigerator & Freezer Temperature Log

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5 th	8:20 am	42 °C	11 °C	MM	21 st	7:10 am	41 °C	20 °C	GS
	7:21 pm	43 °C	9 °C	ST		9:04 pm	41 °C	34 °C	MG
6 th	7:12 am	45 °C	9 °C	EB	22 nd	8:02 am	41 °C	33 °C	GS
	7:21 pm	48 °C	9 °C	ST		9:04 pm	41 °C	36 °C	JM
7 th	7:12 am	46 °C	9 °C	EB	23 rd	7:10 am	41 °C	32 °C	PW
	8:01 pm	52 °C	10 °C	EB		8:27 pm	41 °C	36 °C	JM
8 th	6:15 am	48 °C	9 °C	MM	24 th	6:45 am	41 °C	34 °C	MM
	7:14 pm	52 °C	9 °C	ST		7:32 pm	41 °C	36 °C	MM
9 th	7:02 am	47 °C	9 °C	MM	25 th	7:21 am	41 °C	37 °C	PW
	6:42 pm	51 °C	7 °C	EW		6:47 pm	41 °C	40 °C	SW
10 th	8:01 am	47 °C	9 °C	MM	26 th	6:42 am	41 °C	42 °C	MM
	7:12 pm	50 °C	6 °C	EW		6:23 pm	41 °C	35 °C	PW
11 th	6:45 am	47 °C	5 °C	MM	27 th	7:02 am	41 °C	35 °C	MM
	7:10 pm	50 °C	5 °C	PW		6:59 pm	41 °C	20 °C	QF
12 th	7:21 am	56 °C	7 °C	MM	28 th	5:12 am	41 °C	5 °C	MM
	8:04 pm	52 °C	6 °C	PW		7:10 pm	42 °C	5 °C	QF
13 th	9:00 am	53 °C	9 °C	MM	29 th	7:01 am	42 °C	5 °C	GS
	7:12 pm	55 °C	4 °C	PW		8:32 pm	42 °C	5 °C	PS
14 th	6:10 am	56 °C	3 °C	MM	30 th	6:42 am	41 °C	6 °C	PW
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15 th	7:12 am	57 °C	-1 °C	GS	31 st	7:02 am	41 °C	5 °C	MM
	8:21 pm	58 °C	-2 °C	EB		9:07 pm	42 °C	4 °C	SW
16 th	6:24 am	43 °C	-2 °C	GS					
	7:51 pm	42 °C	-10 °C	EB					



LOOKING AT DATA DIFFERENTLY

Week 1	Cooler	Freezer
	38	9
	35	10
	39	8
	39	8
	40	8
	41	7
	42	9
	39	10
	42	11
	43	9
	45	9
	48	9
	46	9
	52	10
Week 2		
	48	9
	45	9
	47	9
	51	9
	47	7
	60	9
	47	6
	50	5
	56	7
	52	6
	53	9
	55	4
	56	3
	56	2

Week 3	57	-1
	58	-2
	43	-2
	42	-10
	40	-21
	40	-27
	41	-29
	40	-35
	41	-30
	41	-29
	42	-1
	42	5
	41	20
	41	34
Week 4		
	41	33
	41	36
	41	32
	41	36
	41	34
	41	36
	41	37
	41	40
	41	42
	41	35
	41	35
	41	20
	41	5
	42	5
Left Over Days		
	42	5
	42	5
	41	6
	42	3
	41	5
	42	4

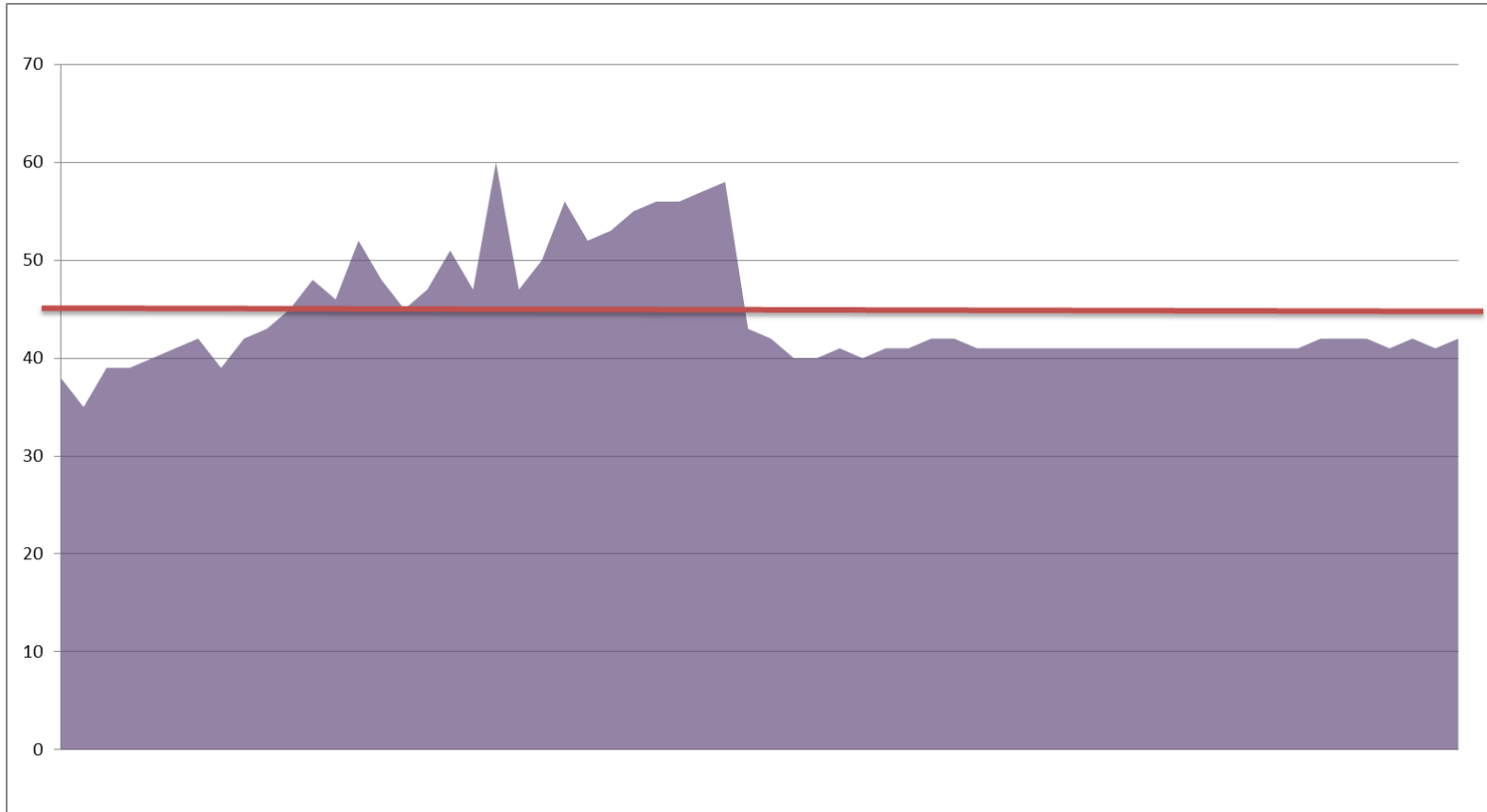
Average Temperature		
Time Frame	Cooler	Freezer
Week 1	42.1	9
Week 2	51.6	6.7
Week 3	43.5	-9.1
Week 4	41.1	30.4
Last 3 days	41.7	4.7
1st - 15th	47.6	7.2
16th - 31st	41.2	-10.4
TOTAL	44.3	9.3



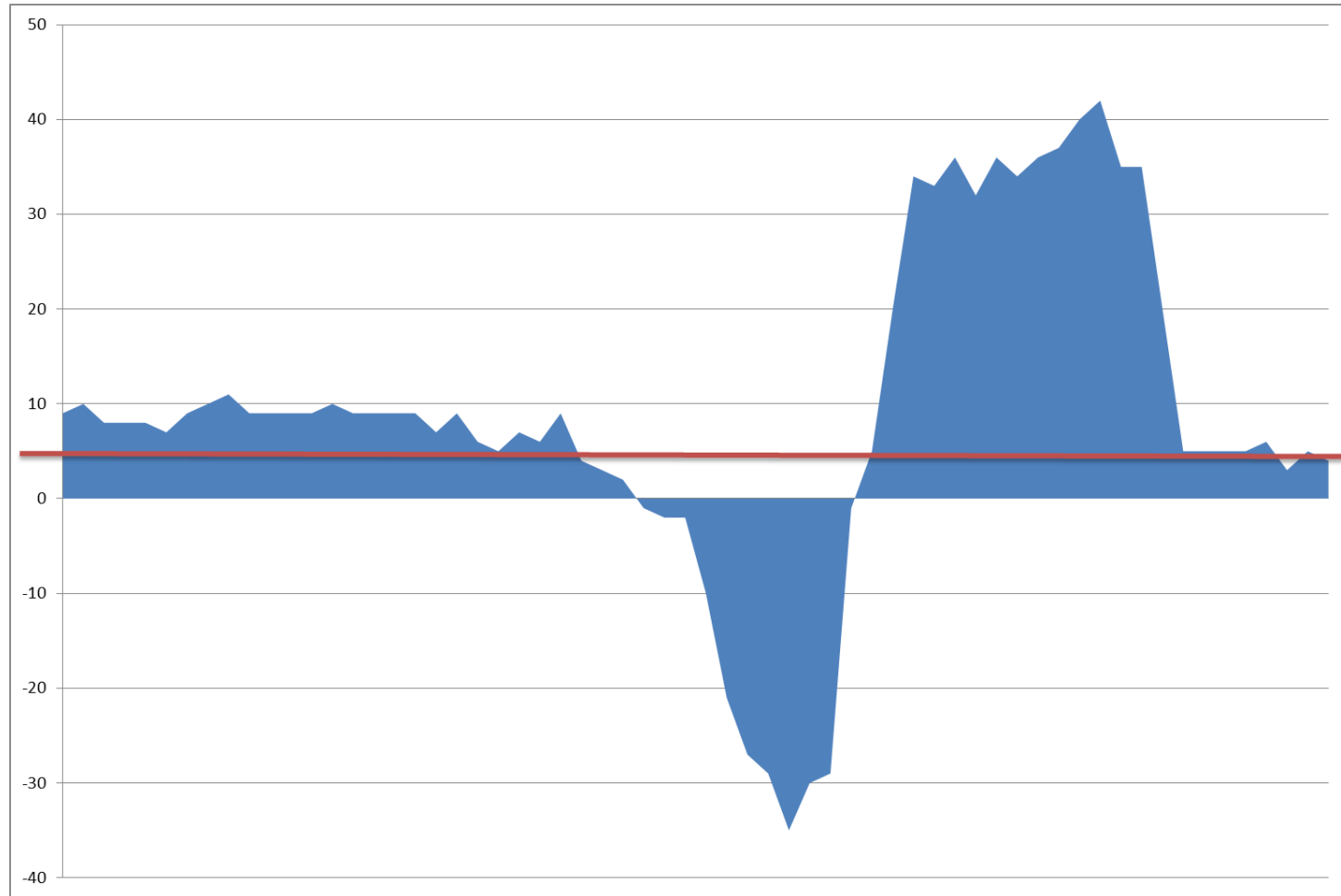
Differences		
Time Frame	Cooler	Freezer
Week 1 to 2	9.6	-2.3
Week 2 to 3	-8.1	-15.9
Week 3 to 4	-2.4	39.6



WALK-IN COOLER



WALK-IN FREEZER



WHAT DID THIS TELL US?

- We need someone from maintenance to come out and tweak the equipment
- Are equipment is about to fall
- Adjust times we are recording temperatures
- Need to change our defrost cycles
- We should move the inventory before we have a problem.



FOOD TEMPERATURES FACTS

- Chicken is the most commonly overcooked item in every kitchen.
- The average time an item is held before serving is 47 minutes.
- Broccoli is the most commonly overcooked vegetable.



HANDWRITTEN LOGS

Cooking Temperature Log

Instructions: Record date, product name, time, and temperature of each batch, and any corrective action taken on this form. Foodservice manager will verify that foodservice employees have taken the required cooking temperatures by visually monitoring employees and preparation procedures during the shift and reviewing, initialing, and dating this log weekly. Maintain this log for a minimum of one year.

School:	Date	Product	Time Temp	Time Temp	Time Temp	Time Temp	Time Temp	Time Temp	Corrective action	Initials	Verified by/ Date
	2/10	Breakfast PZ	16:45							EL	2/10/15
	2/10	Taco Meat	17:30							EL	2/10/15
		Refried Beans	17:45							EL	2/10/15
		Tenders	18:05							EL	2/10/15
		Chesse	18:00							EL	2/10/15
		Taco Meat	18:12							EL	2/10/15
		Tenders	18:24							EL	2/10/15
		Taco Meat	18:57							EL	2/10/15
		Tenders	19:04							EL	2/10/15
		Tenders	20:00							EL	2/10/15

Hot / Cold Holding Temperature Log

Instructions:

Cooked food product: Must be hot held at 135° or above. If below, product must be reheated to 165° for 15 seconds

Cold food product: Must be held at 41° or below. If above 41° product must be refrigerated immediately.

Take and record the temperature every 15 minutes.

Date	Product	Time Temp	Time Temp	Time Temp	Time Temp	Time Temp	Time Temp	Corrective action	Initials	Verified by/ Date
2/10	BREAKFAST PZ	7:45							EL	2/10/15
2/10	TACO MEAT	10:45							EL	2/10/15
	REFRIED BEANS	11:40							EL	2/10/15
	TENDERS	11:52							EL	2/10/15
	CHESSE	11:55							EL	2/10/15
	TACO MEAT	11:55							EL	2/10/15
	TENDERS	12:01							EL	2/10/15
	TACO MEAT	14:5							EL	2/10/15
	TENDERS	18							EL	2/10/15
	TACO MEAT	200							EL	2/10/15
	TENDERS	1:35							EL	2/10/15
	TENDERS	201							EL	2/10/15
	TENDERS	1:35							EL	2/10/15

Elementary Cooking / Reheating Temperature Log

Instructions: Record product name, time, and temperature of each batch(line) cooked, and the temperature at the end of each serving line. Record corrective action, and the reheat temperature (at least 165°) if food temperature has dropped below 135° during serving.

Manager will monitor preparation procedures during the shift and review, initial, and date this log weekly.

Maintain this log for a minimum of one year.

3/27/2009

School:	Date	Time	Food Item	Line #	Internal Temperature	End of line Temperature	Reheat Temperature	Corrective Action	Initials	Verified By/ Date
	2/10	9:00	BKFAST PZ	1	135°	165°	167°	HEAT UP TO 165°	EL	2/10
	2/10	11:25	TACO MEAT	1	165°	165°			EL	2/10
	2/10	12:00	REFRIED BEANS	1	210°	165°		COOL DOWN TO 165°	EL	2/10
	2/10	12:00	TENDERS	1	180°	165°			EL	2/10
	2/10	12:00	CHESSE	1	221°	170°		COOLED DOWN	EL	2/10
	2/10	12:00	TACO MEAT	1	165°	165°			EL	2/10
	2/10	1:45	TENDERS	1	210°	200°	165°	COOLED DOWN	EL	2/10
	2/10	2:00	TACO MEAT	1	120°	142°		REFRIGERATED	EL	2/10
	2/10	2:00	TENDERS	1	184°			THREW AWAY	EL	2/10
	2/10	2:15	TENDERS	1	225°			THREW AWAY	EL	2/10



WHAT A QUICK HIGHLIGHT SHOWED US

- 30 temperatures were taken
- 11 of those registered higher than the proper temperature for that stage
- 3 items temped were lower
- 7 corrective actions needed
- 4 items were held for more than 2 hours



HOW DOES THIS TRANSLATE INTO HELP FOR ME?

- Manage by exception
- Standardize kitchen operations
- Increase participation
- Make sure your kitchens are going above food safety standards and expectations!



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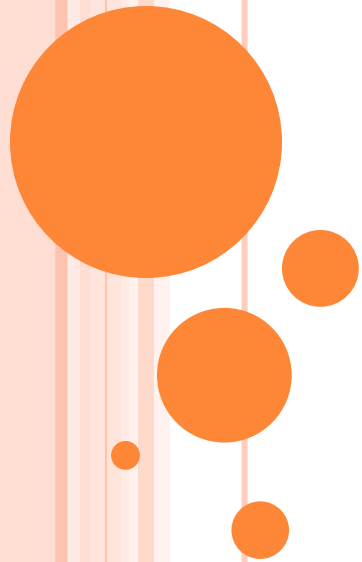
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QUESTIONS?



Mac McKay

mac@smart-temps.com

(877) 272-3111 ext.156

SOURCES

- Centers For Disease Control and Prevention
- www.OSHA.gov
- Congressional
- Marler Clark – www.marlerclark.com
- Serv Safe Essential - 6th Edition
- SFS Pac®
- SMART Systems™
- SMART Temps®
- Google Images
- FDA Food Code 2009

