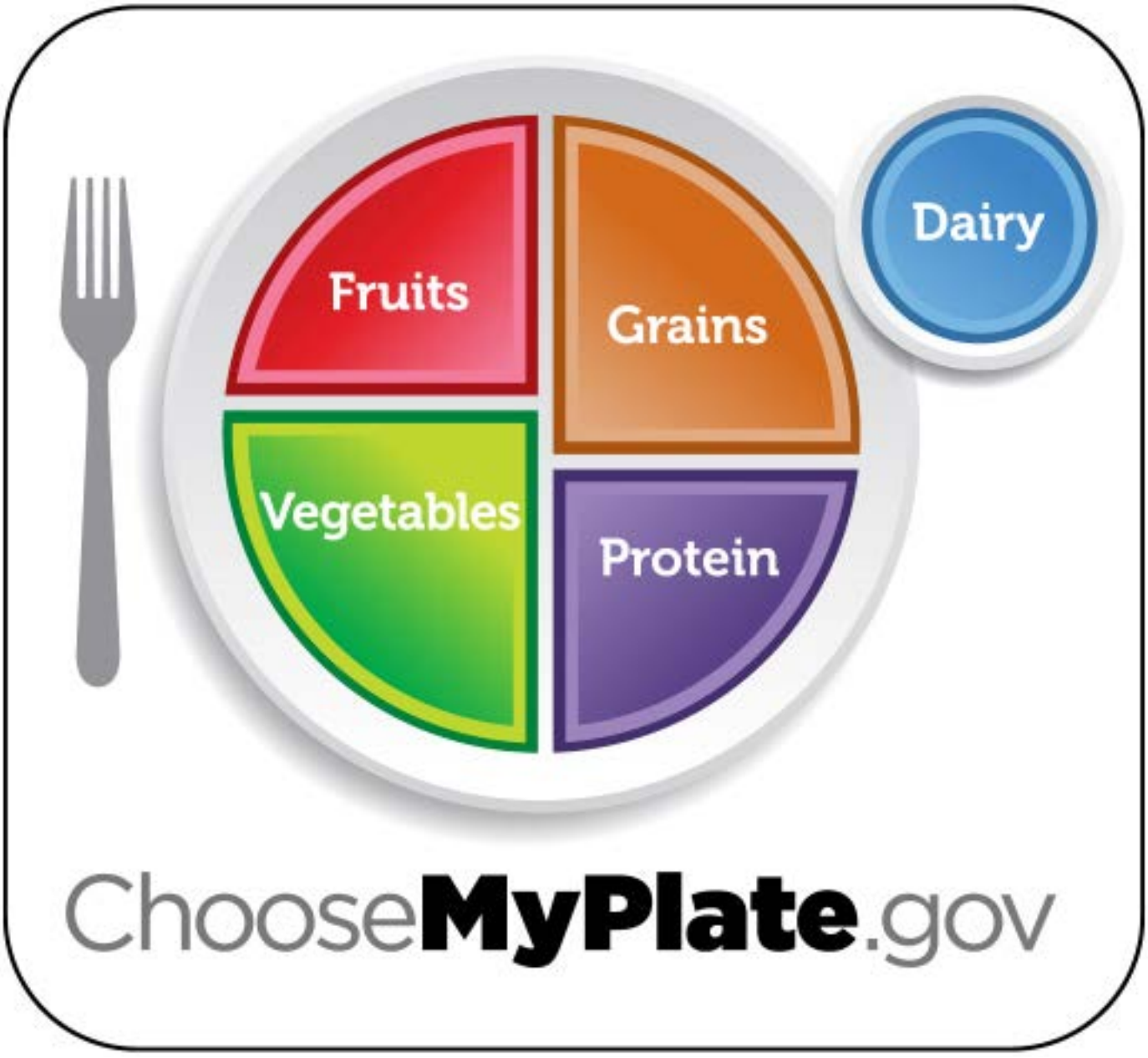
MyPlate

Lesson 2: Calories Count



10 tips

Nutrition Education Series

choose MyPlate

10 tips to a great plate

Making food choices for a healthy lifestyle can be as simple as using these 10 Tips. Use the ideas in this list to *balance your calories*, to choose foods to *eat more often*, and to cut back on foods to *eat less often*.

1 balance calories

Find out how many calories YOU need for a day as a first step in managing your weight. Go to www.ChooseMyPlate.gov to find your calorie level. Being physically active also helps you balance calories.

2 enjoy your food, but eat less

Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you've had enough.

3 avoid oversized portions

Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.

4 foods to eat more often

Eat more vegetables, fruits, whole grains, and fat-free or 1% milk and dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.

5 make half your plate fruits and vegetables

Choose red, orange, and dark-green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.

6 switch to fat-free or low-fat (1%) milk

They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.

7 make half your grains whole grains

To eat more whole grains, substitute a whole-grain product for a refined product—such as eating whole wheat bread instead of white bread or brown rice instead of white rice.

8 foods to eat less often

Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats, not everyday foods.

9 compare sodium in foods

Use the Nutrition Facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled "low sodium," "reduced sodium," or "no salt added."

10 drink water instead of sugary drinks

Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar, and calories, in American diets.

USDA Center for Nutrition Policy and Promotion

Go to www.ChooseMyPlate.gov for more information.

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Daily Activity Log

Lesson 2: Calories Count

6:00–6:15	6:15–6:30	6:30–6:45	6:45–7:00	7:00–7:15	7:15–7:30
7:30–7:45	7:45–8:00	8:00–8:15	8:15–8:30	8:30–8:45	8:45–9:00
9:00–9:15	9:15–9:30	9:30–9:45	9:45–10:00	10:00–10:15	10:15–10:30
10:30–10:45	10:45–11:00	11:00–11:15	11:15–11:30	11:30–11:45	11:45–12:00
12:00–12:15	12:15–12:30	12:30–12:45	12:45–1:00	1:00–1:15	1:15–1:30
1:30–1:45	1:45–2:00	2:00–2:15	2:15–2:30	2:30–2:45	2:45–3:00
3:00–3:15	3:15–3:30	3:30–3:45	3:45–4:00	4:00–4:15	4:15–4:30
4:30–4:45	4:45–5:00	5:00–5:15	5:15–5:30	5:30–5:45	5:45–6:00
6:00–6:15	6:15–6:30	6:30–6:45	6:45–7:00	7:00–7:15	7:15–7:30
7:30–7:45	7:45–8:00	8:00–8:15	8:15–8:30	8:30–8:45	8:45–9:00

Daily Activity Log

Lesson 2: Calories Count

Name:_____ **Date:**_____

The chart on the next page will help you get a picture of how active you are during the day. Each box represents 15 minutes of time, starting with the time on the left side of the box.

Place one poker chip into each box to represent how active you were during that 15-minute block of time. A different colored poker chip will represent each of the 4 activity levels:

Sitting (in class, on the bus) – White

Light (playing catch, walking) – Yellow

Moderate (bike riding, shooting baskets) – Orange

Intense (running, playing soccer) – Red

For example: If you had math class from 10AM to 10:40 and then Gym class from 10:40 to 11:10 fill in each of the 10AM, 10:15, and 10:30 boxes with a White chip for sitting and the 10:45 and 11AM boxes with the appropriate activity level colored chip. If you were sleeping during any of the 15-minute blocks, leave them blank. We are only interested in measuring the calories burned while awake and active.

Once you have completed the chart, count up the number of each color chip you used and record those on the Daily Activity Totals on the back of this worksheet. Be sure to include the date of each recording.

Daily Activity Log

Lesson 2: Calories Count

Name:__________________________

Daily Activity Total

☐	Sitting	# of Chips __________	X 15 Calories	=	__________
☐	Light	# of Chips __________	X 30 Calories	=	__________
☐	Moderate	# of Chips __________	X 75 Calories	=	__________
☐	Intense	# of Chips __________	X 100 Calories	=	__________
Date: __________			Total Calories Burned		__________

☐	Sitting	# of Chips __________	X 15 Calories	=	__________
☐	Light	# of Chips __________	X 30 Calories	=	__________
☐	Moderate	# of Chips __________	X 75 Calories	=	__________
☐	Intense	# of Chips __________	X 100 Calories	=	__________
Date: __________			Total Calories Burned		__________

☐	Sitting	# of Chips __________	X 15 Calories	=	__________
☐	Light	# of Chips __________	X 30 Calories	=	__________
☐	Moderate	# of Chips __________	X 75 Calories	=	__________
☐	Intense	# of Chips __________	X 100 Calories	=	__________
Date: __________			Total Calories Burned		__________

☐	Sitting	# of Chips __________	X 15 Calories	=	__________
☐	Light	# of Chips __________	X 30 Calories	=	__________
☐	Moderate	# of Chips __________	X 75 Calories	=	__________
☐	Intense	# of Chips __________	X 100 Calories	=	__________
Date: __________			Total Calories Burned		__________

Your Built Environment

Lesson 3: Built Environment

Name:_____ **Date:**_____

Your Built Environment: Opportunities for Energy In & Energy Out within walking distance of your home.

OPPORTUNITIES FOR ENERGY IN

-
-
-
-
-
-
-
-
-
-
-

OPPORTUNITIES FOR ENERGY OUT

-
-
-
-
-
-
-
-
-
-
-

Investigations in Nutrition, Diet, and Activity

24-Hour Food Log

Lesson 4: Daily Portions

Name:_____ **Date:**_____

List all the foods and drinks you consumed in the last 24-hours below.

BREAKFAST	LUNCH	DINNER	SNACKS/OTHER

For each food listed above, break it up into its components and place those in the appropriate food group column. For example, a cheeseburger may include the bun (grains), the patty (protein), cheese (dairy), lettuce and tomato (vegetables). You may find some foods you ate are not part of one of the five food groups and will not be included below.

GRAINS	VEGETABLES	FRUITS	DAIRY	PROTEIN

Serving Size Equivalents

Lesson 4: Daily Portions

ONE OUNCE OF GRAINS	1 cup cereal 1 slice of bread 1 mini bagel 8 animal crackers	5 whole wheat crackers 1 packet instant oatmeal ½ cup cooked rice/pasta 2 graham crackers	7 snack crackers (saltines) 1 pancake 1 small tortilla 3 cups of popcorn
OTHER GRAIN EQUIVALENTS	1 bagel = 4 oz 1 large tortilla = 2 oz	1 muffin = 2 oz Large movie popcorn = 8 oz	Cinnamon bun = 3 oz

1/2 CUP OF VEGETABLES	1 cup uncooked greens ½ sweet/baked potato 1 large celery stalk	1 medium carrot 2 broccoli spears 1 small pepper	6 baby carrots ½ cup vegetable juice 1 small tomato

1/2 CUP OF FRUITS	½ of an apple 16 grapes 1 small peach ½ slice of watermelon	1 snack size applesauce ½ of a grapefruit 1 kiwi ¼ cup of dried fruit	1 small banana ½ of an orange 4 strawberries 12 cherries

1/2 CUP OF DAIRY	½ of a yogurt container 1.5 slices of American cheese	1 slice of hard cheese (parmesan, cheddar, swiss, mozzarella)	1 cup cottage cheese

ONE OUNCE OF PROTEIN	1 sandwich slice of cold cuts 1 tbsp. of peanut butter	1 egg ¼ cup of baked beans	12 almonds ½ cup of bean/pea/lentil soup
OTHER PROTEIN EQUIVALENTS	1 small steak = 4 oz 1 veggie burger = 2 oz	1 hamburger patty = 4 oz 1 can tuna = 4 oz	1 small chicken breast = 3 oz 1 piece fried chicken = 3 oz

Daily Portions Tracker

Lesson 4: Daily Portions

Name:_____ **Date:**_____

Use the chart below to determine your recommended daily caloric intake. On the inside of this worksheet, match your calorie requirement with the corresponding column on the Daily Portions chart. Enter the values for each of the five main food groups in the appropriate spot on the graph.

USDA CALORIE LEVELS

MALES			
AGE	SEDENTARY	MOD. ACTIVE	ACTIVE
9	1600	1800	2000
10	1600	1800	2200
11	1800	2000	2200
12	1800	2200	2400
13	2000	2200	2600
14	2000	2400	2800
15	2200	2600	3000

FEMALES			
AGE	SEDENTARY	MOD. ACTIVE	ACTIVE
9	1400	1600	1800
10	1400	1800	2000
11	1600	1800	2000
12	1600	2000	2200
13	1600	2000	2200
14	1800	2000	2400
15	1800	2000	2400

Sedentary = less than 30 minutes of moderate physical activity in addition to daily activities

Mod. Active = at least 30 minutes up to 60 minutes of moderate physical activity in addition to daily activities.

Active = 60 or more minutes of moderate physical activity in addition to daily activities

Daily Portions Tracker

Lesson 4: Daily Portions

Name:__________________________ **Date:**_______________

Enter your recommended daily portions for each food group in the top row of the chart below. For each day you track your food consumption, record the date in the first column and the amount of each food group you actually ate in the box labeled "Amount Eaten". If the amount you ate for a food group is more than your recommended portion record the difference with a "+" in front in the box labeled "Difference + or –". If you ate less than the recommended amount, write a "-" before the number. After you last daily entry, record your total "+"or "-" value in the last row.

YOUR DAILY PORTIONS →	GRAINS	VEGETABLES	FRUITS	DAIRY	PROTEIN
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
DATE:	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN	AMOUNT EATEN
	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -	DIFFERENCE + OR -
TOTAL + OR -					

Daily Portions Tracker

Lesson 4: Daily Portions

8 OZ.	4 CUPS	4 CUPS	4 CUPS	8 OZ.
7 OZ.	3.5 CUPS	3.5 CUPS	3.5 CUPS	7 OZ.
6 OZ.	3 CUPS	3 CUPS	3 CUPS	6 OZ.
5 OZ.	2.5 CUPS	2.5 CUPS	2.5 CUPS	5 OZ.
4 OZ.	2 CUPS	2 CUPS	2 CUPS	4 OZ.
3 OZ.	1.5 CUPS	1.5 CUPS	1.5 CUPS	3 OZ.
2 OZ.	1 CUP	1 CUP	1 CUP	2 OZ.
1 OZ.	.5 CUP	.5 CUP	.5 CUP	1 OZ.
GRAINS	VEGETABLES	FRUITS	DAIRY	PROTEIN
OZ.	CUPS	CUPS	CUPS	OZ.

↑↑ Enter your MyPlate Daily Portions for each Food Group in the row above. ↑↑

USDA MYPLATE DAILY PORTIONS

CALORIE LEVEL	1400	1600	1800	2000	2200	2400	2600	2800	3000
GRAINS	5 oz.	5 oz.	6 oz.	6 oz.	7 oz.	8 oz.	9 oz.	10 oz.	10 oz.
VEGETABLES	1.5 cups	2 cups	2.5 cups	2.5 cups	3 cups	3 cups	3.5 cups	3.5 cups	4 cups
FRUITS	1.5 cups	1.5 cups	1.5 cups	2 cups	2 cups	2 cups	2 cups	2.5 cups	2.5 cups
DAIRY	2 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups
PROTEIN	4 oz.	5 oz.	5 oz.	5.5 oz.	6 oz.	6.5 oz.	6.5 oz.	7 oz.	7 oz.

Snack Serving Size

Lesson 5: What does 200 Calories look like?

Name:_____ **Date:**_____

Place the amount of your snack item that you think contains 200 Calories onto a plate. Weigh the sample and record below (remember to first zero the scale with an empty plate):

_____ grams
Line A

Use the label from your snack food to find the Calories per serving and the grams per serving. Enter below:

_____Calories
Line B

_____ grams
Line C

To find the Calories in the sample you placed on the plate, first multiply the weight of your sample (line A) by the Calories per serving (Line B). Then, divide that total by the grams per serving (Line C). The result will be the total number of Calories in the food on your plate. Use the space below to show your work and record the result in the box.

TOTAL CALORIES

Build-A-Meal

Lesson 6: Build-A-Meal

Name:_____ **Date:**_____

In groups, decide how many Calories you should typically eat for each meal/ snack to meet the 2000 Calories/day requirement. Fill in your results below.

BREAKFAST	LUNCH	DINNER	SNACK 1	SNACK 2	DESSERT/OTHER

In your group, use the list of foods to put together a typical breakfast, lunch, or dinner. Do not forget to include beverages. Once you have chosen all of your food items use the Calorie Counter dials to determine the Calories in each item. Remember to check the serving size. If you typically eat more than the listed serving you must increase the Calories accordingly.

Foods and Calories for_____(meal)

FOOD/DRINK	CALORIES
TOTAL CALORIES	

Build-A-Meal

Lesson 6: Build-A-Meal

Name:_____ **Page 2**

1. How did the actual Calories compare with the recommendations you decided on as a class?

2. What substitutions or changes could you make to increase/decrease the number of Calories in your meal?

3. What substitutions or changes could you make to the meal to make it healthier?

Calorie Counter Dial Foods

Lesson 6: Build-A-Meal

BREADS & CRACKERS
Bagel
Bran Muffin
Danish Pastry
Doughnut, Plain
English Muffin
French Toast
Graham Cracker
Hamburger Roll
Hard Roll
Pancakes
Saltines
White or Raisin Bread
Whole Wheat or Rye Bread

CEREALS, GRAINS & PASTA
Bran Flakes
Corn Flakes
Grits
Lasagna
Macaroni
Noodles
Oatmeal
Rice
Spaghetti
Wheat Germ
Wheat, Puffed or Shredded

DAIRY PRODUCTS
American Cheese
Blue Cheese
Cream Cheese
Cheddar Cheese
Cottage Cheese
Cream, Heavy Whipping
Cream, Light
Egg, Boiled
Ice Cream
Milk, Skim
Milk, Whole
Parmesan Cheese
Sour Cream
Yogurt, Plain

DESSERTS & SWEETS
Angel or Pound Cake
Apple or Berry Pie
Brownies, with nuts
Candy, Chocolate Bar
Cheesecake
Chocolate Cake
Chocolate Chip Cookie
Fig Bar
Gelatin, Plain
Fudge
Lemon Meringue Pie
Marshmallows
Pumpkin Pie
Sugar

FAST FOOD
Fish Sandwich
French Fries
Fried Chicken
Hamburger w/ Roll
Pizza
Quarter Pound Hamburger

FISH & SHELLFISH
Crabmeat
Fish Sticks
Haddock
Bluefish
Scrod
Lobster
Mackerel
Salmon, baked
Shrimp
Tuna Fish

BEVERAGES
Hot Chocolate
Lemonade
Soft Drink

VEGETABLES
Asparagus
Beans, Green
Beans, Snap
Beans, Wax
Broccoli
Brussels Sprouts
Cabbage, cooked
Cauliflower, cooked
Celery, raw
Coleslaw
Corn on Cob
Cucumber, raw
Eggplant
Lettuce
Peas, Green
Potato, baked
Spinach
Squash, Summer
Squash, Winter
Tomato, raw

Calorie Counter Dial Foods

Lesson 6: Build-A-Meal

FRUITS & FRUIT JUICES
Apple
Banana
Pear
Cranberry Juice
Fruit Cocktail
Grapes
Cherries
Grape Juice
Apple Juice
Grapefruit
Orange
Orange Juice
Peach
Raisins
Tomato Juice

MEATS
Bacon
Beef Liver
Beef, over roast
Beef, Pot Pie
Beef Stew
Chicken, white meat
Turkey, white meat
Chicken, Drumstick
Corned Beef Hash
Frankfurter
Ham
Hamburger Patty
Lamb Chop
Lamb, Leg
Bologna
Salami
Pork Chop
Sausage, Link
Steak, Sirloin
Veal Cutlet

SNACK FOODS
Corn Chips
Peanuts
Popcorn w/ Oil
Potato Chips
Pretzels

SOUPS
Beef, Vegetable
Bouillon
Chicken, Gumbo or Rice
Chicken Noodle
Clam Chowder
Cream of Chicken
Cream of Mushroom
Minnestrone
Split Pea
Tomato

SPREADS, FATS, & DRESSINGS
Blue Cheese Dressing
Butter/Margarine
Cranberry Sauce
Honey
Italian Dressing
French Dressing
Jam/Jelly
Mayonnaise
Pancake Syrup
Peanut Butter
Vegetable Oil

Developing a Good Question

Lesson 7: Designing Your Research Project

Group Members:_____ **Date:**_____

1. **BIG IDEAS**: List all the possible research questions and ideas that members of your group have come up with during the unit. Use the back if more space is needed. Circle the question you plan to investigate.

2. **STATE YOUR HYPOTHESIS**: What 2 concepts do you think are related and hope to investigate? State that relationship as a hypothesis. A hypothesis often takes the form of "X causes Y", or "X is related to Y"

3. **SELECTING VARIABLES:** How will you measure that?

4. **DATA COLLECTION:** When and how will you gather your data? Develop a research tool to record your data (use a separate paper).

5. **SAMPLE:** Who/what group will you be investigating?

Calorimeter Lab

Bonus Lab: Calorimeter

Name:_____ **Date:**_____

In this laboratory exercise we will determine the energy values of different snack foods. Small samples of each food will be burned under a container of water. The change in temperature of the water will allow us to determine the amount of heat energy (calories) released by the food.

A calorie is a unit of energy. A calorie is the amount of energy (heat) it takes to raise the temperature of one gram of water by one degree Celsius.

MATERIALS

- Calorimeter (Aluminum can)
- Ring stand & support
- Weighing boat (2)
- Scale
- Distilled Water
- Wire & stand
- Pipette
- Thermometer, digital
- Food samples
- Tweezers

PROCEDURE

1. Use the scale to weigh 100 grams of water into the aluminum can. Gently pour the water into the can until you get close to 100 grams. Use the pipette to precisely add the final few grams.

2. Weigh the food sample to be tested. Record the starting mass of the food on your data table.

3. Mount the food sample onto the coiled wire on the stand and place onto the base of the ring stand.

4. Hang the cans with the S-hooks from the ring stand support. Position the support so the top of the food sample is roughly ½ inch from the can.

5. Measure the starting temperature of the water in the can and record on your data table.

6. Have a teacher ignite the food sample.

7. After the sample has burned completely, record the temperature of the water. (Keep the thermometer in the water for about one minute because the temperature will continue to rise after the flame goes out.) Be careful, the can will be hot!

8. Carefully transfer the burned sample into a weigh boat and record the final mass on your data table.

Working With Our Data

Bonus Lab: Calorimeter

Name:_____ **Date:**_____

Record your measurements on the tables below.

FOOD SAMPLE _____

STARTING MASS OF FOOD (IN GRAMS)	
FINAL MASS OF FOOD (IN GRAMS)	
SUBTRACT THE FINAL MASS FROM THE STARTING MASS TO FIND THE CHANGE IN MASS	BOX A

STARTING TEMPERATURE OF WATER (IN °C)	
FINAL TEMPERATURE OF WATER (IN °C)	
SUBTRACT THE STARTING TEMPERATURE FROM THE FINAL TEMPERATURE TO GET THE CHANGE IN TEMPERATURE	BOX B

Energy Yield – How many calories are in the food sample?

We measured the amount of energy released from the food by the change in temperature of the water.

To find out how many heat calories were released, multiple the total mass of the water (100g) by the change in temperature of the water (Box B):

100 x _____ = _____ calories

Next, divide the number of calories by the change in mass of the food (Box A):

_____ ÷ _____ = _____ calories/gram

Remember, a food calorie is 1000 calories. To find of the food calories per gram divide the previous answer by 1000.

_____ ÷ 1000 = _____ Food Calories per gram

Understanding Our Data

Bonus Lab: Calorimeter

Name:_____ **Date:**_____

Write the values your class calculated for Food Calories per gram of each food sample:

FOOD 1	
FOOD CALORIES PER GRAM	

FOOD 2	
FOOD CALORIES PER GRAM	

Using the food labels for the foods you tested, find out how many calories are in one serving and how many grams are in one serving. Divide the number of calories in one serving by the number of grams to find the actual Food Calories per gram.

FOOD 1: _____

_____ ÷ _____ = _____

Calories/serving Grams/Serving Food Calories/gram

FOOD 2: _____

_____ ÷ _____ = _____

Calories/serving Grams/Serving Food Calories/gram

1. How do the values you calculated compare to the actual values?

2. Why do you think they are different?

3. Is there anything you could change about the experiment to make the calculated values more accurate?