GET SERVED (NUTRIENTS)!

Thunder players are incredible athletes at the peak of physical health and wellness. They have fine-tuned their bodies to the optimum level of performance. They achieve this physical strength through rigorous exercise, adequate sleep, and of course, a well-balanced diet. Food, after all, is the fuel that runs every body, and knowing how the different parts of food serve you best throughout your day can help you perform at your physical peak, too!

HERE'S WHAT YOU'LL NEED:

- **An internet-enabled computer or tablet**
- **Pencil and paper**
- **Nutrition information sheet (included at end of document)**
- **Comparison chart printable (included at end of document)**

WARMUPS

You know how important food is to keeping you alive, strong, and healthy.

There are three essential nutrients that provide the fuel or energy your body needs to function properly: proteins, carbohydrates, and fats. We measure the energy they provide in calories. While the amount of energy in each calorie is the same, how your body uses or stores the energy from each nutrient is very different.

To begin with, you're going to concentrate on two of those nutrients – protein and carbohydrates. When a Thunder player carefully chooses his diet, he wants food that will both fill him up and give him long-lasting energy so he can be his best for each game.

Do some research on your computer or tablet to find out what roles protein and carbohydrates both play in how food affects you. Which one gives you energy? Which one helps you feel full for longer? Which one helps build muscle and repairs cells?

Once you've researched how protein and carbs factor into food choices, it's time for your first challenge! You're going to compare the nutrition in two different breakfasts that have roughly the same amount of calories. You'll need the nutrition sheet provided on the last page of this activity and you'll also need your pencil and paper.

You're going to compare the grams of protein and carbohydrates in two toaster pastries versus the grams of protein and carbohydrates in a breakfast sandwich. At the end of this activity you'll find a table to help you fill in the information to compare the nutrients in these two breakfast choices. Use the nutrition sheet to fill in this chart.

Once you've completed the table, add up the total number of carbohydrates, proteins, and calories for the sandwich. Compare these three totals to the calories and amount of protein and carbs found in the two toaster pastries. Based on the knowledge you gained from your earlier research, which breakfast do you think will give you more energy? Which one do you think will keep you feeling full longer?

GAME TIME

Now that you're acquainted with the different functions calories, protein, and carbs serve in the food that you eat, it's time to apply this knowledge to the nutrition a Thunder player needs. For this part of the activity, you'll need to research the nutritional information of different foods. Your task is to plan out a day's worth of food for our imaginary new Thunder player, Max Hustle. You need to feed him breakfast, lunch, dinner, and maybe even two or three snacks thrown in between meals! Below you'll find all of the stats on Max.

For this challenge, you have to stay within Max's dietary parameters. Think of his caloric intake and grams of protein and carbs needed as you budget his food intake. You can't spend more than what you're given, but you also need to spend all of it (or else Max might get too hungry!). And remember—not all calories are created equal; while technically you could plan a day's meals of nothing but different flavors of potato chips for him and still reach his intended caloric intake, his teammates might not be super stoked with his performance and energy for the day.

MAX HUSTLE

Height: 6'7" **Weight: 217 lbs**

Calories needed: 3,500

Protein: 127 grams **Carbs: 588 grams**

What sort of energy does a Thunder player need to be at his physical peak? Does he need food that will give him quick bursts of energy, or does he need something that will keep him content and release a slow-burning energy? Write down and add the calories and grams of protein and carbohydrates for all the foods you choose for Max as you do your research so you can make sure you're fulfilling his nutritional needs.

PRO TIP: There are two ways you can research food and plan Max Hustle's meals. If time is an issue, then you can just use the Nutrition Information sheet you used in the first challenge. There are a wide enough variety of foods included on it that you'll be able to choose a variety different from all your classmates. However, if you have the time, then you can go to a calorie counting website and enter in any food you can possibly think of to gain the nutritional information. A good one to use is CalorieKing—it has many types of food, including lots of popular restaurant and packaged foods!

ANALYZE THE REPLAY
What happened?

After you've chosen all of Max Hustle's food and planned out his meals, take turns with your classmates sharing your justification for why you picked the foods that you did. Explain how you used your knowledge of proteins and carbs to choose your foods. Share what you think the expected results of Max's physical performance will be based on the meals you gave him.

How did the foods you chose for Max's meals compare to the foods your classmates chose?

Once everyone in the class has shared their meal choices, were there any patterns of food choices that appeared? Were certain foods more commonly chosen over others? Make a chart together documenting the most popular frequently chosen foods by the class as a whole. What might this evidence suggest about foods that will better fuel a professional athlete?

Max Hustle's height, weight, and nutritional needs are obviously entirely made up for this challenge. Some NBA players eat far more calories per day than 3,500, and some even eat less. However, most nutritional experts recommend that for high-energy professional athletes (like Thunder players), their protein intake should be about 1.2-2 grams per 1 kilogram of body weight, and their daily carbohydrate intake should be between 5-8 grams per 1 kilogram of body weight. (These are, of course, much higher recommendations than for an average non-athlete!)

OVERTIME
Let's take it further

You've explored what sort of nutrition a Thunder player might need to perform at his very best. What about other athletes? What sort of a diet do you think a football player might need? How does a football player's energy output differ from an NBA player's (if at all)? How about a swimmer? Professional swimmers use an enormous amount of oxygen to fuel their aerobic activity, and the more oxygen top athletes expend, often the more calories they burn. What sort of diet do you think figure skaters or gymnasts need? They require the same endurance and quick bursts of energy that Thunder players do, but there's also pressure on them to look a certain way.

Research what kinds of energy different professional athletes need (endurance, quick bursts of energy, high aerobic output, etc.) and see if you can create a day's worth of meals for them that will fuel them to their fullest potential!

COACH'S CORNER
Additional information and explanations for parents and educators

This activity introduced some very basic principles of nutrition and how different types of foods fuel the body. Students were introduced to the concept of calories, or the measurement of energy that it takes to burn foods. They also researched what protein and carbohydrates in food do for you. Protein is the building block of the body. Your body uses it to build and repair tissue, fight infection, and for extra energy. Carbohydrates are the powerhouse of energy for your body. They can fill you up (especially when paired with fiber), though proteins are often what will keep you feeling full for longer periods of time.

There are of course dozens of more components to nutrition besides just calories, carbs, and protein. Many people consider the sodium, fat, and fiber content of the foods they eat as well. The purpose of these challenges were mainly to introduce students to different nutrients found in food, and to get them thinking critically of how foods give short-term energy, long-term energy, and can fill you up for a little or long time. In the "Take It Further" section they were asked to consider how different body types of different athletes (a massive football player; a lean, muscular swimmer; a compact, powerful gymnast; and any others) might need different types of fuel to keep them going compared to NBA players. This activity is not intended to be nutritional advice, as necessary and successful dietary plans differ from person to person, and any changes should be discussed with a doctor.

DO YOU WANT TO LEARN MORE?

Research: calories, carbohydrates, micronutrients, nutrition, nutrition facts labels, protein, vitamins

OKLAHOMA ACADEMIC STANDARDS

STANDARD	3rd Grade	4th Grade	5th Grade	6th Grade
MATH				
4.D.1.3 Data & Probability		●		
SCIENCE				
PS3-1 Energy			●	
HEALTH				
1.5.1 Concepts related to health	●	●	●	
5.5.3 Decision skills to enhance health	●	●	●	
5.8.2 Decision skills to enhance health				●
5.5.4 Decision skills to enhance health				●
5.8.6 Use decision ability to enhance health				●
5.8.7 Use decision ability to enhance health				●

BREAKFAST COMPARISON CHALLENGE

	CALORIES	PROTEIN (GRAMS)	CARBOHYDRATES (GRAMS)
TOASTER PASTRY (2)			

	CALORIES	PROTEIN (GRAMS)	CARBOHYDRATES (GRAMS)
ENGLISH MUFFIN (1)			
PAT OF BUTTER			
CANADIAN BACON (1 SLICE)			
FRIED EGG (1)			
AMERICAN CHEESE (1 SLICE)			
BREAKFAST SANDWICH TOTAL			

NUTRITION INFORMATION SHEET

FOOD	CALORIES	CARBOHYDRATES	PROTEIN
Almonds, raw (23 pieces)	159	5.4 g	5.9 g
American cheese (1 slice)	94	2.4 g	5.6 g
Apple	93	24.7 g	0.5 g
Applesauce, sweetened (1 cup)	194	50.8 g	0.5 g
Bacon (2 medium slices)	92	0.2 g	6.3 g
Baked beans (1 cup)	283	53.4 g	13.4 g
Banana	89	22.8 g	1.1 g
Bean burrito	380	55 g	14 g
Broccoli (1 cup, boiled)	55	11.2 g	3.7 g
Butter (1 pat)	36	0 g	0 g
Canadian Bacon (1 slice)	43	0.3 g	5.7 g
Carrots (12 baby sized)	42	9.9 g	0.8 g
Cheddar cheese (1 slice)	113	0.4 g	7 g
Cheerios (1 cup)	100	20 g	3 g
Cheese pizza (1 slice)	272	33.6 g	12.3 g
Cheese stick (String cheese)	80	1 g	7 g
Chicken breast, grilled	142	0 g	26.7 g
Chicken nuggets (10)	440	26 g	24 g
Chocolate bar (1.5 oz)	210	26 g	3 g
Chocolate cake (1 slice)	506	75.3 g	5.7 g
Chocolate chip cookie	48	6.7 g	0.5 g
Chocolate milk (8 oz)	207	25.9 g	7.9 g
Chocolate protein bar	179	16.7 g	20.5 g
Cocoa Pebbles (1 cup)	120	25 g	1 g
Cola (12 oz)	140	39 g	0 g
Corn dog	210	25 g	6 g
Cucumber (1 cup of slices)	16	3.8 g	0.7 g
Donut (glazed)	242	26.6 g	3.8 g
Egg (fried)	92	0.4 g	6.3 g
English Muffin	134	26.2 g	4.4 g
French fries (medium order)	421	51.5 g	5 g
Grapes (1 cup)	104	27.3 g	1.1 g
Grape jelly (2 tablespoons)	100	26 g	0 g
Guacamole (2 tablespoons)	50	3 g	1 g
Gummy worms (1.5 oz)	140	34 g	2 g
Ham lunch meat (6 thin slices)	45	1 g	9 g
Ham & cheese omelet	154	1.1 g	12.1 g

Hamburger bun	117	21.1 g	4.1 g
Hamburger patty	290	0 g	23 g
Hot dog	165	2 g	5.6 g
Hot dog bun	117	21.2 g	4.1 g
Ice cream cookies and cream (1/2 cup)	180	20 g	3 g
Ketchup (2 tablespoons)	29	7.5 g	0.5 g
Milk (8 oz)	146	12.8 g	7.8 g
Oatmeal (with brown sugar)	220	44 g	8 g
Orange	86	21.6 g	1.7 g
Orange juice (8 oz)	110	26 g	2 g
Pancakes (2 medium sized)	172	21.8 g	5.2 g
Pasta sauce (1 cup)	129	19.9 g	3.7 g
Peanuts, dry roasted (1 oz)	166	6.1	6.7
Peanut butter (2 tablespoons)	188	6.3 g	8 g
Pepperoni pizza (1 slice)	298	34 g	13.3 g
Popcorn (1 cup)	55	6.3 g	1 g
Popcorn shrimp (19 pieces)	210	22 g	8 g
Potato chips (1 oz)	155	14.1 g	1.9 g
Queso dip (2 tablespoons)	40	5 g	0.5 g
Rice (1 cup)	205	44.5 g	4.3 g
Ribs (Full rack)	452	0 g	32.3 g
Salmon (4 oz)	233	0 g	25 g
Spaghetti (1 cup)	212	41.4 g	7.8 g
Sports drink (20 oz)	140	36 g	0 g
Steak (4 oz)	207	0 g	34.5 g
Taco (ground beef)	170	13 g	8 g
Toaster pastries (2)	424	76.8 g	5.1 g
Tortilla chips (1 oz)	138	18.5 g	2.2 g
Trail mix (2 tablespoons)	87	8.4 g	2.6 g
Turkey lunch meat (6 thin slices)	50	1 g	9 g
White bread (1 slice)	79	14.7 g	2.7 g
Wheat bread (1 slice)	78	14.3 g	3 g
Yogurt (6 oz)	150	25 g	6 g