



Nutrition

Growing Mathletes

Nutrition Lesson Overview

Key Ideas in this Session:

Youth learn the relationship between nutrition and athletic performance, including how to interpret a nutritional label and compare different snacks' nutritional values. Youth also learn about the value of effort and critical thinking when making informed choices between snack options.

Driving Questions:

1. How do athletes get the nutrients they need to be successful?
2. How can you use nutritional labels to make informed snack choices?

Math Standards:

3.NF.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

6.RP.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.

6.RP.3b Solve unit rate problems including those involving unit pricing and constant speed.

6.RP.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent.

Activity	Time	Description
Activity 1	50 minutes	Youth are introduced to nutritional labels through a video about food labels. Youth then compare the nutritional labels and taste of different snack bars to develop a simple mathematical argument for which snack is the healthiest choice.
Activity 2	10 minutes	Youth brainstorm and discuss how they can make better informed choices when choosing and consuming snacks.

Materials

- Pencils
- Snack bars with nutrition labels containing protein, carb, and fat count (ex: Kind bars, Costco Nut Bars, Clif bars)
- Model line plots
- Post-it notes, two colors
- **Worksheet 1**

Set-Up

For Activity 1, distribute workbooks, sticky notes, and pencils to each youth. Divide youth into small groups with 3 to 4 youth per group. When it's time, distribute 3 different snack bars to each group of 3-4 youth.

For Activity 2, distribute a few of each color Post-it notes to each youth.

Growth Mindset Connections

The importance of effort and persistence in making informed, healthy choices

Nutrition Introduction

Start the session by providing youth with an overview of the key activities.

Nutrition and Informed Choices

Activity	Time	Description
Activity 1	50 minutes	Youth are introduced to nutritional labels through a video about food labels. Youth then compare the nutritional labels and taste of different snack bars and develop a simple mathematical argument for which snack is the best choice.
Activity 2	10 minutes	Youth brainstorm and discuss how they can make better informed choices when choosing and consuming snacks.

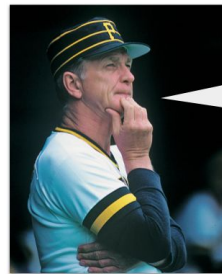


Nutrition Youth Slides, Slide 1

Next, share and discuss this quote.

“What you have to remember is that baseball isn’t a week or a month but a season—and a season is a long time.”
– Chuck Tanner

Nutrition and Informed Choices



“What you have to remember is that baseball isn’t a week or a month but a season—and a season is a long time.”
– Chuck Tanner

What does this quote mean to you?
What message is Chuck Tanner trying to send?

Activity 1

Nutrition Youth Slides, Slide 2

Activity 1 - Nutrition for Athletic Performance (1 of 7)

Description: Youth are introduced to nutritional labels through a video about food labels. Youth then compare the nutritional labels of different snack bars and develop a mathematical argument for which bar is the best snack choice.

Math Ideas: Percent Daily Value Nutritional values are often represented on food labels as percent daily value. **Percent Daily Value (%DV)** is the percentage of the daily value for each nutrient in a serving of the food, typically based on a 2,000 Calorie per day diet. For example, when a serving contains 10% daily value of carbohydrates per serving, it contains 10% of the amount of carbohydrates a typical adult will need in a given day.

Math Ideas: Line Plots Youth use line plots to compare the nutrients included in different snack bar options. A **line plot** is a number line that includes the range in values in the data set. The number line is labelled in equal increments. Youth use these line plot graphs to compare nutrient values of different snack bar options to develop their argument.

LAUNCH: Connecting to Prior Knowledge

Pose these questions for discussion:

- What are some of your favorite snacks to eat after school or before/after playing sports?
- Do you know what's in them (the ingredients or the nutrients)?

For each question ask youth to:

- 1) think individually,
- 2) then write their answer on a sticky note, and
- 3) then share their answer with a partner.

Then ask several youth to share with the whole group. You could invite them to snap, clap twice, or show a thumbs up if someone says a snack they also like.

Activity 1: Nutrition for Athletic Performance



- What are some of your favorite snacks to eat after school or before/after playing sports?
- Do you know what's in them (the ingredients or the nutrients)?

Activity 1

Nutrition Youth Slides, Slide 3



- Think (to yourself)
- Write (on the sticky note)
- Share (with a partner or small group)

Activity 1

Nutrition Youth Slides, Slide 4

Activity 1 - Nutrition for Athletic Performance (2 of 7)

Demonstrate: Interpreting Nutrition Labels

Share video video about reading a nutrition label. Explain that a 2,000 calorie diet is what the FDA recommends for adults. (Optional extra info: Facilitators can learn more about the FDA history of this choice here: <https://www.theatlantic.com/health/archive/2011/08/why-does-the-fda-recommend-2-000-calories-per-day/243092/>)

VIDEO: [How To Read Food Labels Nutrition Facts](#)



Activity 3

Nutrition Youth Slides, Slide 5

Heads up...

It is possible that during the upcoming activity, two different bars could have the same of grams of one macronutrient yet could represent a different % of DV, probably because the DV recommendation it's based on is different (for example, if it's a DV for youth rather than adults)

If a student notices and asks, celebrate it!

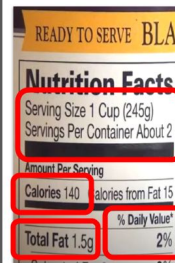
VIDEO: Food Labels/Nutrition Labels [3:34]

<https://www.youtube.com/watch?v=AHbQ5ts8UcU>

After watching the video, **discuss the black bean vegetable soup label** (seen at 0:25 in video, shown in Slide 6):

- If there are 2 servings in the can, what portion of the can is one serving? ($\frac{1}{2}$ of the can)
- How can we represent this as a fraction, decimal, and percent? (1 serving is $\frac{1}{2}$, or 0.5, or 50%)
- How many Calories are in one serving? (140)
- How many Calories are in the entire can? (280)
- What percent daily value of fat is in one serving? (2%)

Demonstrate Interpreting Nutrition Labels



- If the can contains 2 cups of soup, what portion of the can is one serving? How can this be represented as a fraction, decimal, and percent?
- How many calories are in the entire can?
- How many grams of fat are in the entire can?
- What percent daily value of fat is in the entire can?

Activity 3

Nutrition Youth Slides, Slide 6

Calories in Action

Engage you in a brief activity to **help understand calories usage and sports**. Share the fun fact, then ask them to talk with a partner to make a prediction about which team sport uses the most calories per hour. Go through each sport, asking them to put a thumbs up to vote, and ask for other ideas. Then reveal the answers by forwarding the slide.

Calories in action!

Fun Fact: 9-13 year olds with an active lifestyle will need 1800-2600 calories a day.
SOURCE: https://www.kidsandnutrition.co.uk/fun-facts-how-many-calories-does-child-burn.html#google_vignette

Which team sport do you think burns most calories per hour?

- | | |
|-------------------------|--------|
| 1. Football? | 1. 580 |
| 2. Baseball/Softball? | 2. 290 |
| 3. Soccer? | 3. 652 |
| 4. Basketball? | 4. 507 |
| 5. Ice Hockey? | 5. 507 |
| 6. An other sport? Why? | |

Turn and talk!

With your partner, make a prediction about which sport burns the most calories. Get ready to vote with a thumbs up for your choice!



Activity 3

Nutrition Youth Slides, Slide 7

Activity 1 - Nutrition for Athletic Performance (3 of 7)

Calories in Action (Cont.)

Students may wonder or disagree about the calories listed related to different sports. Encourage them to reflect on their own perspective and give evidence that supports their claim. For example, someone might argue that the calories burned will depend what position you play or what aspect of the sport you are doing. Example: the goalie in soccer may not burn as many calories as a baseball/softball left fielder who covers a lot of area in the field also hits three homeruns in one game.

Understanding Macronutrients

Tell the youth: Our bodies need energy to perform, especially if we are playing sports or being active! Food energy (Calories) comes from fats, carbohydrates, and proteins, which are known as macronutrients. **Then share this VIDEO:**

Macronutrients 101 [What Macros Are and Why They're Important] [8:23]

<https://www.youtube.com/watch?v=UgZi2nDglmA>

NOTE: Stop video at 1:08

Discuss:

- What did you learn from the video?
- Turn and tell your partner one thing you learned.

For more info about micronutrients, you can also share this **VIDEO: Short Intro to Macro Nutrients [1:30]**

<https://www.youtube.com/watch?v=724AXGqQj6k>

Discuss:

- What did you learn from the video?
- Turn and tell your partner one thing you learned.


Calories in action!

Fun Fact: 9-13 year olds with an active lifestyle will need 1800-2600 calories a day.
SOURCE: https://www.kidsandnutrition.co.uk/fun-facts-how-many-calories-does-child-burn.html#google_vignette

Which team sport do you think burns most calories per hour?

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3. Soccer?	3. 652
4. Basketball?	4. 507
5. Ice Hockey?	5. 507
6. An other sport? Why?	

Turn and talk!
 With your partner, make a prediction about which sport burns the most calories.
 Get ready to vote with a thumbs up for your choice!



Activity 1

Nutrition Youth Slides, Slide 7

VIDEO Macronutrients 101 [What Macros Are and Why They're Important] [8:23]
<https://www.youtube.com/watch?v=UgZi2nDglmA>



What did you learn from the video?
 Turn and tell your partner one thing you learned.

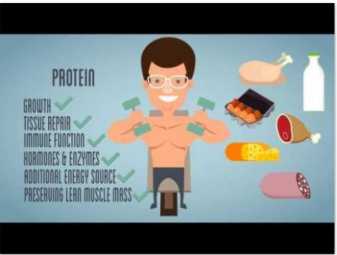
[STOP VIDEO AT 1:08. Video embedded in slideshow is set to stop at this time]

Activity 1

Nutrition Youth Slides, Slide 8

OPTIONAL ADDITIONAL VIDEO: For more information on micronutrients

VIDEO: Macro Nutrients Explainer Video[1:30]
<https://www.youtube.com/watch?v=724AXGqQj6k>



What did you learn from the video?
 Turn and tell your partner one thing you learned.

Activity 1

Nutrition Youth Slides, Slide 9

Activity 1 - Nutrition for Athletic Performance (4 of 7)

Demonstrate Interpreting Nutrition Labels:





Show slide with Blue Takis Nutrition Label. **Ask youth:**


- What do you notice about the nutritional label?
- What questions do you have?
- What is a serving size? (12 pieces)
- How many servings are in the container? (about 4)
- Which nutrients listed on the label are sources of energy? (fat, carbs, protein)

Takis Nutrition Inquiry

- What do you notice about the nutritional label? What questions do you have?
- What is a serving size? How many servings are in the container?
- Which nutrients listed on the label are sources of energy?







Activity 1

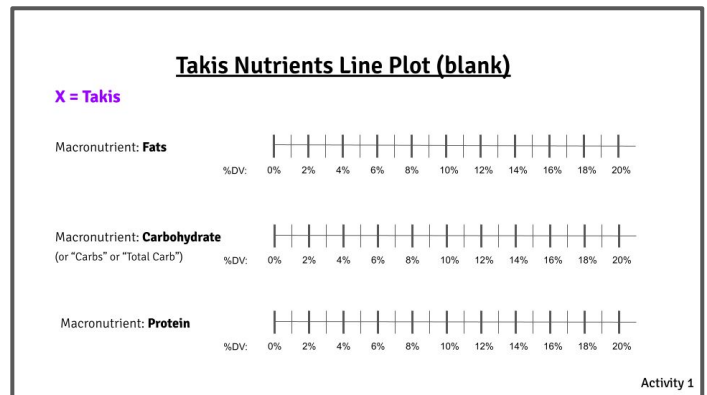
Nutrition Youth Slides, Slide 10

Introduce Small Group Activity: Line Plot Demo

To compare the **percent daily value** of macronutrients in different snack options, youth will use information on nutrition labels to create line plots.

Give an example, using the nutrition label from Blue Takis.

- Show the Blue Takis nutrition label.
- Ask youth: What percent of daily **Fat** is in one serving of Takis? (10%)
- Use the “% Daily Value Fat” line plot and draw an X above the “10%” mark on the plot to show that 1 serving takis has 10% of daily value of fat.
- Ask youth: What percent of daily **Carbohydrates** is in one serving of Takis? (6%)



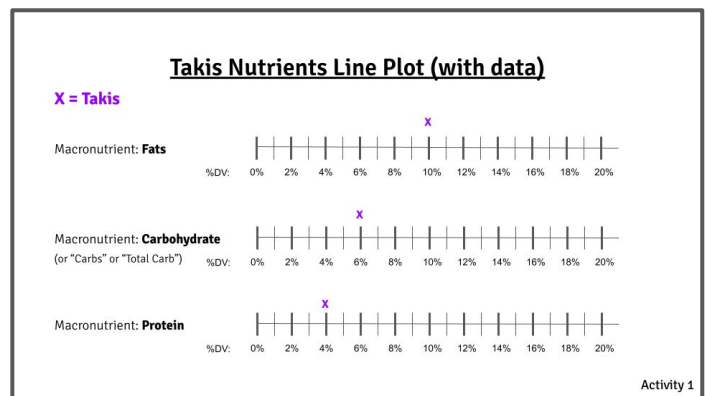
Nutrition Youth Slides, Slide 11

TIP: if you can't write on your display, you can draw an X on a sticky-note and it above the 10% mark instead

Activity 1 - Nutrition for Athletic Performance (5 of 7)

Introduce Small Group Activity: Line Plot Demo (Cont.)

- Use the “% Daily Value Carbohydrates” line plot and draw an X above the “6%” mark on the plot to show that 1 serving of Takis has 6% of daily value of carbohydrates.
- Ask youth: What percent of daily **Protein** is in one serving of Takis? (4%) *[let them know that some snacks do not include the %DV for protein, only the grams, but 50g of protein is recommended for a 2,000 calorie diet]*



Nutrition Youth Slides, Slide 12

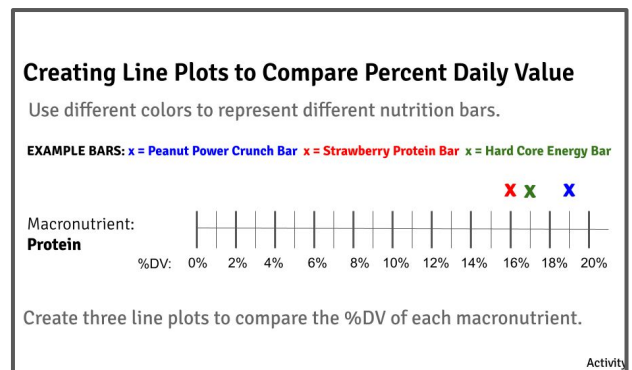
- Use the “% Daily Value Protein” line plot and draw an X above the “X%” mark on the plot to show that 1 serving takis has X% of daily value of protein.
- Ask youth if they have any questions about using nutrition labels to make line plots.

Small Group Activity: Plotting & Making an Argument

Form small groups of 2-3 youth and pass out 3 different snack bars to each group.

Tell youth they will determine which snack bar is the best for an athlete to consume to support their performance. They will use information from the nutritional labels to develop a mathematical argument to support their claim.

Youth should focus on energy nutrients, or macronutrients - **fats, carbohydrates, and proteins**. Tell youth that they will create three line plots, one for each macronutrient. Youth will use a different color to plot the data from each snack, as modeled on Youth Slide 12.



Nutrition Youth Slides, Slide 13

Activity 1 - Nutrition for Athletic Performance (6 of 7)

Small Group Activity: Plotting & Making an Argument (Cont.)

Youth can also taste the bars and rate the “tastiness”. Youth can use both the nutrients in the bars and the tastiness to make their argument for the best snack bar for an athlete. Youth will use a rating scale of 1-5: 1 is not tasty at all, and 5 is extremely tasty (this is explained on their worksheet, too.)

A simple mathematical argument should include a **claim** and **evidence**. A **claim** is an answer to the question or problem - in this case, “Which sports snack is the best for an athlete to consume to support their performance?”

This claim is supported by **evidence**, which can include:

- information from nutrition labels, data tables and line plots made to compare the nutrients in each snack bar
- the “tastiness” rating of each snack bar

Youth will record their work and develop their argument on **Worksheet 1**.

Mathematical Argument

Question: Which sports snack is the best for an athlete to consume to support their performance?

Claim: An **answer** to the question, for example, “The best nutrition bar is _____.”

Evidence: Information used to **support** the claim, such as from *nutrition labels, line plots* made to compare snacks, and any *other* information, such as taste.

Activity

Nutrition Youth Slides, Slide 14

In your group of 3-4 youth:

1. Compare the percent daily value of macronutrients in each nutrition bar by creating line plots.
2. Create three line plots, with data from each snack represented by a different color.
3. Use these line plots to decide which nutrition bar is the best (develop your claim).
4. List 3 reasons that support your claim. Use information from the line plots and nutrition labels.

Worksheet 1 - Which snack bar is the best for athletic performance?

1. Use the nutrition labels of your snack bars to create three line plots, one for each macronutrient (fat, carbohydrate, and protein). The number line shows the percent daily value (%DV) of the macronutrient in one bar. Use a different color to plot the numbers for each bar and list the color in the key.

KEY: Bar #1 _____ Bar #2 _____ Bar #3 _____
Color _____ Color _____ Color _____

Macronutrient: **Fat** %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

Macronutrient: **Carbohydrate** (or "Carbs" or "Total Carb") %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

Macronutrient: **Protein** %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

2. Taste each bar rate its "tastiness" on a scale of 1 to 5: 1 is not tasty at all, and 5 is extremely tasty.

Bar #1 _____ Tastiness Rating (circle your rating): 1 2 3 4 5
Bar #2 _____ Tastiness Rating (circle your rating): 1 2 3 4 5
Bar #3 _____ Tastiness Rating (circle your rating): 1 2 3 4 5

CLAIM:
The best snack bar is _____.

EVIDENCE:
List 3 reasons this is the best snack bar. Use information from the line plots, the nutrition labels, and your "tastiness" ratings.

1)
2)
3)

Nutrition Youth Slides, Slide 15

Worksheet 1 - Which snack bar is the best for athletic performance?

1. Use the nutrition labels of your snack bars to create three line plots, one for each macronutrient (fat, carbohydrate, and protein). The number line shows the percent daily value (%DV) of the macronutrient in one bar. Use a different color to plot the nutrients for each bar and list the color in the key.

KEY: Bar #1 _____ Bar #2 _____ Bar #3 _____
Color _____ Color _____ Color _____

Macronutrient: **Fat** %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

Macronutrient: **Carbohydrate** (or "Carbs" or "Total Carb") %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

Macronutrient: **Protein** %DV: 0% 2% 4% 6% 8% 10% 12% 14% 16% 18% 20%

2. Taste each bar rate its "tastiness" on a scale of 1 to 5: 1 is not tasty at all, and 5 is extremely tasty.

Bar #1 _____ Tastiness Rating (circle your rating): 1 2 3 4 5
Bar #2 _____ Tastiness Rating (circle your rating): 1 2 3 4 5
Bar #3 _____ Tastiness Rating (circle your rating): 1 2 3 4 5

CLAIM:
The best snack bar is _____.

EVIDENCE:
List 3 reasons this is the best snack bar. Use information from the line plots, the nutrition labels, and your "tastiness" ratings.

1)
2)
3)

Worksheet 1

Activity 1 - Nutrition for Athletic Performance (7 of 7)

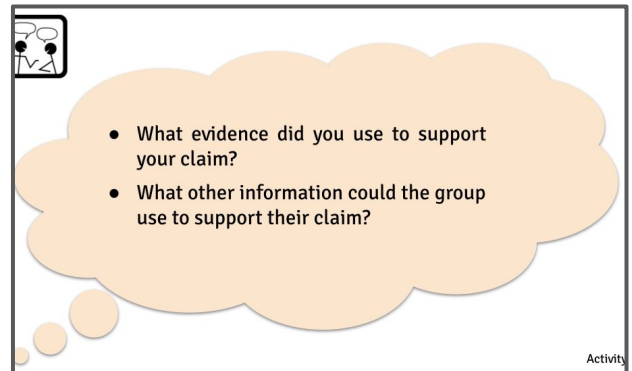
Whole Group Discussion

Ask youth to share out which snack bar their group decided was the best option (their claim) and why (their evidence).

- What evidence did you use to support your claim?

(Youth responses might include: information from the nutrition label and/or line plots, the tastiness rating)

- What other information could the group use to support their claim? *(Youth responses might include: cost, energy provided from different macronutrients, vitamins and minerals in the bar, etc.)*

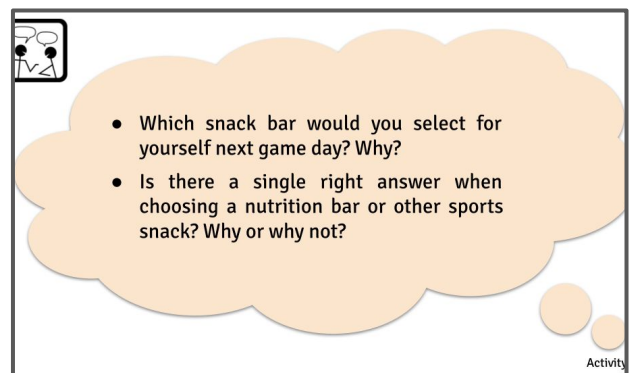


Nutrition Youth Slides, Slide 16

Reflection Questions:

Wrap up the activity with a reflective discussion about the concepts in the activity and the driving questions for the lesson.

- Which snack bar would you select for yourself next game day? Why? *(Youth responses might include most protein, least sugars, best taste, etc.)*
- Is there a single right answer when choosing a snack bar or other sports snack? Why or why not?



Nutrition Youth Slides, Slide 17

Activity 2 - Informed Choices (1 of 1)

Description: Youth will brainstorm and discuss how they can make better informed choices when choosing and consuming snacks and the effort and persistence it might take to do so.

Growth Mindset: Effort & persistence

Whole Group Discussion

Ask youth to brainstorm how what they learned in Activity 1 can influence their snack choices in the future.

Next have them review what they wrote on their Post-it from the lesson launch.

Then, **on a different color Post-it**, ask youth to answer the following question: What is one NEW THING you will consider or look for when picking out snacks for after school or sports?

Youth will post these ideas on a whiteboard or poster divided into before and after answers.

Read some (or all) responses out loud before moving on to reflection.



Reflection Questions:

Wrap up the activity with a reflective discussion about the concepts in the activity and the driving questions for the lesson.

- How has your thinking about snacks changed?
- How could effort and persistence be helpful as you make choices for healthy snacks?

Activity 2: Informed Choices, Effort & Persistence

Brainstorm how what you learned in Activity 1 can influence your snack choices in the future.


What kind of snacks we chose	New things we will consider
	


Write on a Post-it:
What is one NEW THING you will consider or look for when picking out snacks for after school or sports?

Post your ideas!


Activity

Nutrition Youth Slides, Slide 18





- How has your thinking about snacks changed?
- How could effort and persistence be helpful as you make choices for healthy snacks?



Activity

Nutrition Youth Slides, Slide 19

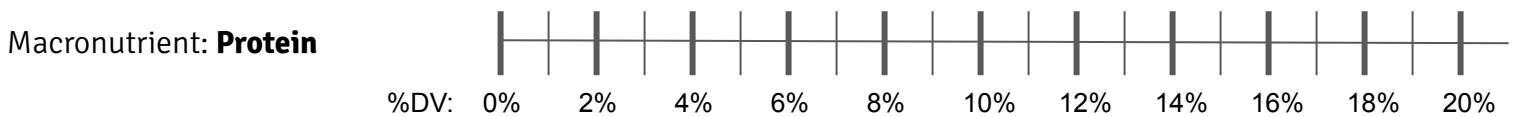
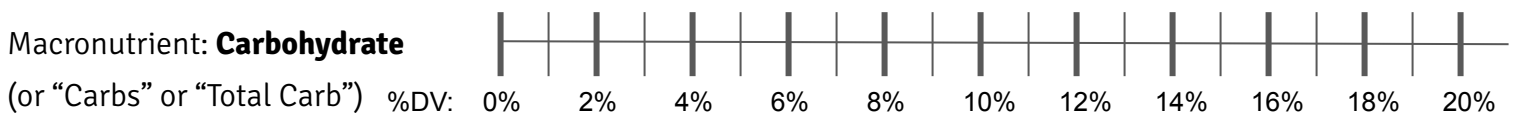
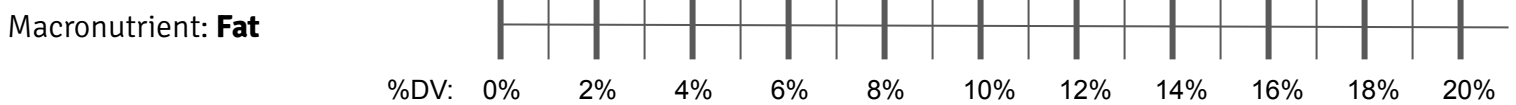
Worksheet 1 - Which snack bar is the best for athletic performance?

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KEY: Bar #1 _____
Color _____

Bar #2 _____
Color _____

Bar #3 _____
Color _____



2. Taste each bar rate its "tastiness" on a scale of 1 to 5: 1 is not tasty at all, and 5 is extremely tasty.

Bar #1 _____	Tastiness Rating (circle your rating):	1	2	3	4	5
Bar #2 _____	Tastiness Rating (circle your rating):	1	2	3	4	5
Bar #3 _____	Tastiness Rating (circle your rating):	1	2	3	4	5

CLAIM:

The best snack bar is _____.

EVIDENCE:

List 3 reasons this is the best snack bar. Use information from the line plots, the nutrition labels, and your "tastiness" ratings.

- 1)
- 2)
- 3)