



Activity Station: Sodium Analyzer

Activity Description

Students will be able to determine the amount of sodium (salt) in processed foods compared to the recommended daily intake.

Key Messages

- Salt contains sodium. We need sodium for our bodies to work properly, but most Canadians eat too much salt. Eating too much sodium or salt can increase risk for health problems such as high blood pressure.
- There is sodium in many foods. Some sodium is found naturally in foods but most of the sodium in foods is added during processing. The amount added to foods at home represents less than 20% of the sodium Canadians consume.
- The tolerable upper limit for sodium intake is 2300 mg sodium per day. This is the amount of sodium in 1 teaspoon (5 mL) of salt.

Materials

- Station Title (print x 1)
- Station Instructions (print x 1)
- Worksheet: Sodium Analyzer (print x 1 per student)
- Display items: 1 box of salt, and food packages
- Printable Appendix: Sample Food Labels, print and laminate
- Measuring spoons, clear plastic cups or re-sealable plastic bag to hold salt (1 per nutrition label)
- Calculator (optional)

Set-Up

- Place station title, instructions, worksheets, handouts, display items and printed food labels at the station.
- Place measuring spoons, clear plastic cups or re-sealable plastic bag to hold salt (1 per nutrition label).
- Students should develop a good understanding of the difference between reference serving size on a label and the actual amount of food eaten before completing this activity.
 - Encourage students to review background information on the [Using Food Labels](http://www.alberta.ca/using-food-labels) webpage and watch a short video online here: www.youtube.com/watch?v=vKYdgETc_PI

Answer Key for Worksheet

Health Canada is improving food labels. The labels in this module reflect products in the marketplace as of August 2019.

Food	Amount of Food Eaten	Amount of Sodium Eaten (mg)	% Daily Value	Is it a Little (< 5 %) Yes/No
Breakfast				
Glazed Cinnamon Bun	1 bun (105 g)	340	14%	No
Snack				
The Original Potato Chips	Whole bag (250 g)	1650	70%	No
Lunch				
Chili Fire Hot Sauce	2 teaspoon (10 mL)	280	12%	No
Hot Hot Chicken Instant Noodle Cup	1 noodle cup (64 g)	740	31%	No
Snack				
Chicken Nuggets	4 nuggets (67 g)	330	14%	No
Dinner				
Ready-Bake Frozen Pepperoni Pizza	2 slices ($\frac{1}{3}$ of pizza or 176 g)	1100	46%	No
Total for the day		4393 mg	186%	No

2300 mg of sodium = 1 tsp of salt

4393 mg of sodium = approximately 2 tsp of salt

Discussion Questions and Answers

Students can reflect on their answers and discuss as a class.

1. What do these high sodium foods have in common?

All of the food examples are highly processed convenience-type foods. Processing a food may involve adding ingredients that contain sodium for flavour, texture, or shelf life.

2. Think about the sources of processed food in your diet. Do you think you are eating more or less sodium than the tolerable upper limit?

Individuals over the age of 14 should consume less than 2300 mg of sodium per day for good health. Children aged 9-13 should consume less than 2200 mg per day. This is called the tolerable upper limit. The Canadian Community Health survey in 2004 showed that 85% of men and 60-80% of women ate more than the tolerable upper limit of sodium.

Some common examples of processed foods include:

- Canned and dried soup
- French fries
- Canned vegetables and tomato sauces
- Canned pasta products
- Processed cheese slices and cheese spreads
- Condiments such as ketchup, mustard, and soy sauce
- Fast food, pizza
- Processed meats
- Snack foods such as salted chips, nachos, pretzels, popcorn and crackers
- Seasoning mixes with added salt

3. How does the % Daily Value (%DV) on the Nutrition Facts table help us make lower sodium choices?

The % Daily Value (DV) on the Nutrition Facts label can help you decide if there is a little or a lot of a nutrient in a food.

- Foods with 5 % or less % DV of a nutrient have **a little**.
- Foods with 15 % or more % DV of a nutrient have **a lot**.

Nutrients you want more of are:

- Fibre
- Calcium
- Iron

Nutrients you want less of are:

- Sodium
- Sugar
- Saturated and Trans Fat

For example, if a serving of food provides 3% DV of sodium, it is providing only 'a little' sodium. This makes it a lower sodium choice. We want to choose more foods that provide 'a little' of sodium (<5% DV).

4. How can you decrease the amount of sodium you eat?

- Eat less processed snack foods. Choose more fresh fruits and vegetables as snacks instead.
- Cook more foods at home so that you can limit the amount of salt and condiments added during food preparation.
- Use herbs, spices, lemon or lime juice, hot peppers or garlic to flavour foods instead of salt or seasoning salts.
- Choose packaged foods that are lower in sodium. Look for nutrient claims such as “free of,” “low,” “reduced,” “lower,” or “no added” sodium or salt.
- You can compare the milligrams of sodium on Nutrient Facts tables or the % Daily Value of sodium of different products and choose the product with lower milligrams of sodium or lower % DV.
- Use small portions of condiments.

Supplementary Information and Resources

- Handout: [Cooking Without Salt](#)
- Handout: [Hold the Salt](#)
- Webpage: [Sodium Detector](#)

Appendix: Sodium Analyzer Sample Food Labels

Health Canada is improving food labels. The labels in this module reflect products in the marketplace as of August 2019.

6 Food Labels Provided:

- Chicken Nuggets
- Chili Fire Hot Sauce
- Glazed Cinnamon Bun
- Hot Hot Chicken Instant Noodle Cup
- Ready-Bake Frozen Pepperoni Pizza
- The Original Potato Chips

Chicken Nuggets

Nutrition Facts	
Per 4 nuggets (67 g)	
Amount	% Daily Value
Calories 180	
Fat 12 g	18 %
Saturated 2 g + Trans 0 g	10 %
Cholesterol 30 mg	
Sodium 330 mg	14 %
Carbohydrate 11 g	4 %
Fibre 1 g	4 %
Sugars 0 g	
Protein 10 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 4 %



INGREDIENTS

CHICKEN:

BONELESS SKINLESS CHICKEN BREAST MEAT, WATER, 100% VEGETABLE OIL (CANOLA OIL, CORN OIL, SOYBEAN OIL, HYDROGENATED SOYBEAN OIL [TBHQ], CITRIC ACID, DIMETHYLPOLYSILOXANE), WHEAT FLOUR, YELLOW CORN FLOUR, MODIFIED CORN STARCH, RICE STARCH, SALT, BAKING POWDER, SEASONING (WHEAT STARCH, YEAST EXTRACT, SALT, NATURAL FLAVOUR, SAFFLOWER OIL, DEXTROSE, CITRIC ACID, ROSEMARY), SPICES, CANOLA OIL, SODIUM ALUMINUM PHOSPHATE, DEXTROSE, WHEAT STARCH, CORN STARCH.

CONTAINS WHEAT.

Chili Fire Hot Sauce

Nutrition Facts			
Per 1 tsp (5 mL)			
Amount		% Daily Value	
Calories 5			
Fat 0 g		0 %	
Saturated 0 g + Trans 0 g			
Cholesterol 0 mg			
Sodium 140 mg		6 %	
Carbohydrate 1 g		0 %	
Fibre 0 g		4 %	
Sugars 1 g			
Protein 0 g			
Vitamin A	2 %	Vitamin C	10 %
Calcium	0 %	Iron	0 %



INGREDIENTS

CHILI, SUGAR, SALT, GARLIC, FISH EXTRACTIVES (ANCHOVY, SALT)
ACETIC ACID, ASCORBIC ACID.

CONTAINS: FISH EXTRACTIVES (ANCHOVY).

Glazed Cinnamon Bun

Nutrition Facts			
Per 1 bun (105 g)			
Amount		% Daily Value	
Calories 410			
Fat 22 g		34 %	
Saturated 11 g + Trans 0 g		55 %	
Cholesterol 0 mg			
Sodium 340 mg		14 %	
Carbohydrate 49 g		16 %	
Fibre 2 g		8 %	
Sugars 14 g			
Protein 4 g			
Vitamin A	0 %	Vitamin C	0 %
Calcium	0 %	Iron	0 %



INGREDIENTS

CINNAMON ROLL:

ENRICHED WHEAT FLOUR, WATER, SHORTENING (PALM OIL, MODIFIED PALM OIL, WITH TBHQ AS PRESERVATIVE), YEAST, CORN STARCH, SUGAR, CINNAMON, WHEY POWDER (MILK), WHEAT GLUTEN, LEAVENING (SODIUM ACID PYROPHOSPHATE, SODIUM BICARBONATE), SKIM MILK POWDER, EMULSIFIERS [MONO AND DIGLYCERIDES (WITH BHT AND CITRIC ACID AS PRESERVATIVES), SODIUM STEAROYL-2-LACTYLATE, DIACETYL TARTARIC ACID ESTER OF MONO AND DIGLYCERIDES], POTATO FLOUR, SALT, CORN FLOUR, SOYBEAN FLOUR, DEXTROSE, VEGETABLE OIL (CANOLA OIL AND/OR SOYBEAN OIL, WITH TBHQ AS PRESERVATIVE), SILICON DIOXIDE (FREE FLOW AGENT), ASCORBIC ACID, ARTIFICIAL FLAVOUR, COLOUR (YELLOW #5 AND #6), L-CYSTEINE HYDROCHLORIDE, TRICALCIUM PHOSPHATE, GUAR GUM, ENZYMES (AMYLASE, XYLANASE, WHEAT FLOUR, SALT, DEXTRIN), SUNFLOWER OIL.

GLAZE:

SUGAR, WATER, GUAR GUM, MODIFIED POTATO STARCH, POTASSIUM SORBATE (PRESERVATIVE), CITRIC ACID (PH CONTROL) AGAR, XANTHAN GUM.

Hot Hot Chicken Instant Noodle Cup

Nutrition Facts			
Per 1 container (64 g)			
Amount	% Daily Value		
Calories 280			
Fat 10 g	15 %		
Saturated 5 g + Trans 0 g	25 %		
Cholesterol 0 mg			
Sodium 740 mg	31 %		
Carbohydrate 42 g	14 %		
Fibre 2 g	8 %		
Sugars 1 g			
Protein 7 g			
Vitamin A 2 %	Vitamin C 0 %		
Calcium 2 %	Iron 15 %		



INGREDIENTS

NOODLE:

ENRICHED WHEAT FLOUR, PALM OIL, MODIFIED STARCH, SUGAR, SALT, GUAR GUM, GARLIC POWDER.

VEGETABLES:

TEXTURED SOY PROTEIN, DEHYDRATED CABBAGE, DEHYDRATED GREEN ONION, DEHYDRATED CARROTS, FREEZE DRIED CORN, FREEZE DRIED PEAS.

SOUP BASE:

ARTIFICIAL CHICKEN FLAVOUR, SALT, MONOSODIUM GLUTAMATE, SUGAR, SOY SAUCE POWDER (SOYBEANS, SALT, WHEAT), YEAST EXTRACT POWDER (DRIED BREAD YEAST, WATER), DISODIUM INOSINATE AND DISODIUM GUANYLATE, PAPRIKA EXTRACT, WHITE PEPPER POWDER, DRIED LEEK, CARAMEL.

CONTAINS WHEAT, SOY.

Ready-Bake Frozen Pepperoni Pizza

Nutrition Facts			
Per 1/6 pizza (88 g)			
Amount		% Daily Value	
Calories 220			
Fat 9 g		14 %	
Saturated 3.5 g + Trans 0 g		18 %	
Cholesterol 20 mg			
Sodium 550 mg		23 %	
Carbohydrate 26 g		9 %	
Fibre 1 g		4 %	
Sugars 2 g			
Protein 9 g			
Vitamin A	2 %	Vitamin C	0 %
Calcium	10 %	Iron	15 %



INGREDIENTS

CRUST:

WHEAT FLOUR, WATER, EXTRA-VIRGIN OLIVE OIL, SALT, SUGAR, YEAST, MALTED BARLEY FLOUR).

TOPPING:

MOZZARELLA CHEESE (MILK, BACTERIAL CULTURES, SALT, MICROBIAL ENZYMES, CELLULOSE), SAUCE (WATER, TOMATO PASTE, BASIL, EXTRA-VIRGIN OLIVE OIL, GARLIC PURÉE, SALT, SUGAR, OREGANO, VINEGAR, THYME, SPICES, SOY OIL), PEPPERONI (PORK, SALT, SPICES, [MUSTARD]), DEXTROSE, LACTIC ACID STARTER CULTURE, FLAVOURS, SODIUM ASCORBATE, GARLIC POWDER, SODIUM NITRITE, PORK STOCK, CITRIC ACID), EXTRA-VIRGIN OLIVE OIL, DEHYDRATED PARSLEY.

The Original Potato Chips

Nutrition Facts			
Per 36 chips (50 g)			
Amount		% Daily Value	
Calories 280			
Fat 18 g		28 %	
Saturated 2 g + Trans 0 g		10 %	
Cholesterol 0 mg			
Sodium 330 mg		14 %	
Carbohydrate 26 g		9 %	
Fibre 1 g		4 %	
Sugars 0 g			
Protein 3 g			
Vitamin A	0 %	Vitamin C	20 %
Calcium	0 %	Iron	4 %



INGREDIENTS

SPECIALLY SELECTED POTATOES, VEGETABLE OIL, SALT.

Activity Station:

Sodium Analyzer

Activity Station:

Sodium Analyzer

Instructions:

- Using the example food labels, fill in the worksheet starting with the *Amount of Sodium Eaten* for each food.
- Next record the *% Daily Value (DV)* based on the amount of food eaten. You may need a calculator for both of these steps. The amount of food eaten may be different than the serving size on the Nutrition Facts table.

< 5% DV is a little of a nutrient. > 15% DV is a lot of a nutrient.

- Add up the total mg of sodium for everything eaten that day.
- Convert the mg into teaspoons (tsp).
2300 mg of sodium = 1 tsp of salt.
- Compare this amount to the tolerable upper limit of 2300 mg of sodium daily.
- Using the tsp measure, estimate how many tsp. of salt are consumed when eating all of these foods in one day. How does this compare to the tolerable upper limit of 2300 mg of sodium daily?

Station 8: Sodium Analyzer – Worksheet

Food	Amount of Food Eaten	Amount of Sodium Eaten (mg)	% Daily Value	Is it a Little (< 5 %) Yes/No
Breakfast				
Glazed Cinnamon Bun	1 bun (105 g)			
Snack				
The Original Potato Chips	Whole bag (250 g)			
Lunch				
Chili Fire Hot Sauce	2 teaspoon (10 ml)			
Hot Hot Chicken Instant Noodle Cup	1 noodle cup (64 g)			
Snack				
Chicken Nuggets	4 nuggets (67 g)			
Dinner				
Ready-Bake Frozen Pepperoni Pizza	2 slices ($\frac{1}{3}$ of pizza or 176 g)			
Total for the day				