School Lunches are the Best!

A Document-based Case Study in the Effects of Sodium Chloride on the Human Body

Josh Mangler, Dallas Center-Grimes CSD
Michael Pettengill, Central Springs Schools
Summer 2014
INTRODUCTION

You are about to begin an activity that is designed to measure your skills in critical thinking, reasoning and problem solving and written communications. In addition to the “think-like-a-scientist” skills, you will be applying your understanding about matter and its properties.

You will be preparing a written response to a hypothetical, but realistic situation. This activity contains a series of documents that includes a range of information sources. While your personal values and experiences are important, you should base your response on the evidence provided in these documents.

SCENARIO

Morgan just arrived home from a long day of school. She throws her bag onto the couch and walks into the kitchen where her mom is getting supper ready. She went to the pantry to grab some food, but her mom pipes up and says, “No, you can wait for supper.”

“Oh mom, come on?!?! I am so hungry!”

“You can wait. How was your day at school?”

Thinking to herself, she realized that she should have just went upstairs to avoid mom’s bombardment of questions.

“Fine…”

“There has to be something that was fun.”

The only thing that was on her mind was food. Man, I am hungry. “Well actually, lunch was good today for once. We had crispitos, my favorite!”

Mom looked a little puzzled. “What is that?”

“It is a small rolled up burrito with taco meat inside and nacho cheese drenched on top of it. It is absolutely amazing! It is the only thing that is good that the school serves.”

Mom replied in a confused tone, “Interesting…”

“What?”

“Well the school just sent out their monthly newsletter, and it had something about getting rid of certain foods with high salt content due to a push to healthier meals in the school. I suppose the government is pushing the schools to change their lunches to be a little healthier? Which is a good thing, right?” Thinking to herself, what is mom talking about? “Also they listed some foods that they are getting rid of and that cris…. crispitos? was on the list of foods.”

“Say WHAT?!?!?” she yelled. “You have to be kidding me! That is not fair!” She stomped off upstairs and started to tweet her frustrations.

Role: You are a parent and must investigate the reason behind getting rid of certain foods, specifically crispitos.

QUESTION-PRODUCT

As a parent the health, care, and happiness of the children at your school is a priority. Your task is to review the documents presented, utilize the decision-making matrix, and determine if crispitos should in fact be taken off of the school lunch menu. You will then have a conversation with your own child about the decision to remove crispitos from the school lunch menu. Your job is to write the new conversation between Morgan and her mom and much include the following:

1) A complete description of the chemical compound salt, its physical and chemical properties, and its use in the body.
2) A claim either supporting or opposing the removal of the high salt content food, crispitos.
3) Specific evidence from the documents provided that supports your claim.
Build a healthy plate

Before you eat, think about what goes on your plate or in your cup or bowl. Foods like vegetables, fruits, whole grains, low-fat dairy products, and lean protein foods contain the nutrients you need without too many calories. Try some of these options.

Make half your plate fruits and vegetables.
- Eat red, orange, and dark-green vegetables, such as tomatoes, sweet potatoes, and broccoli, in main and side dishes.
- Eat fruit, vegetables, or unsalted nuts as snacks—they are nature’s original fast foods.

Switch to skim or 1% milk.
- They have the same amount of calcium and other essential nutrients as whole milk, but less fat and calories.
- Try calcium-fortified soy products as an alternative to dairy foods.

Make at least half your grains whole.
- Choose 100% whole-grain cereals, breads, crackers, rice, and pasta.
- Check the ingredients list on food packages to find whole-grain foods.

Vary your protein food choices.
- Twice a week, make seafood the protein on your plate.
- Eat beans, which are a natural source of fiber and protein.
- Keep meat and poultry portions small and lean.

Keep your food safe to eat—learn more at www.FoodSafety.gov.

Cut back on foods high in solid fats, added sugars, and salt

Many people eat foods with too much solid fats, added sugars, and salt (sodium). Added sugars and fats load foods with extra calories you don’t need. Too much sodium may increase your blood pressure.

Choose foods and drinks with little or no added sugars.
- Drink water instead of sugary drinks. There are about 10 peckets of sugar in a 12-ounce can of soda.
- Select fruit for dessert. Eat sugary desserts less often.
- Choose 100% fruit juice instead of fruit-flavored drinks.

Eat fewer foods that are high in solid fats.
- Make major sources of saturated fats—such as cakes, cookies, ice cream, pizza, cheese, sausages, and hot dogs—occasional choices, not everyday foods.
- Select lean cuts of meats or poultry and fat-free or low-fat milk, yogurt, and cheese.
- Switch from solid fats to oils when preparing food.

Look out for salt (sodium) in foods you buy—it all adds up.
- Compare sodium in foods like soup, bread, and frozen meals—and choose the foods with lower numbers.
- Add spices or herbs to season food without adding salt.

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<table>
<thead>
<tr>
<th>Solid Fats</th>
<th>Oils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef, pork, and chicken fat</td>
<td>Canola oil</td>
</tr>
<tr>
<td>Butter, cream, and milk fat</td>
<td>Corn oil</td>
</tr>
<tr>
<td>Coconut, palm, and palm kernel oils</td>
<td>Cottonseed oil</td>
</tr>
<tr>
<td>Hydrogenated oil</td>
<td>Olive oil</td>
</tr>
<tr>
<td>Partially hydrogenated oil</td>
<td>Peanut oil</td>
</tr>
<tr>
<td>Shortening</td>
<td>Safflower oil</td>
</tr>
<tr>
<td>Stick margarine</td>
<td>Sunflower oil</td>
</tr>
<tr>
<td></td>
<td>Tub (solid) margarine</td>
</tr>
<tr>
<td></td>
<td>Vegetable oil</td>
</tr>
</tbody>
</table>
Salt and high blood pressure

Sailesh Mohan and Norm R. C. Campbell

Departments of Medicine and Community Health Sciences, University of Calgary, 3330 Hospital Drive NW, Calgary, Alberta, Canada T2N 4N1

Key words: cardiovascular disease, high blood pressure, hypertension, salt, salt reduction, sodium

Abbreviations: BP, blood pressure, CHD, coronary heart disease, DASH, Dietary Approaches to Stop Hypertension, DBP, diastolic BP, HBP, high BP, SBP, systolic BP, TOHP, Trials of Hypertension Prevention, WHO, World Health Organization

Correspondence: Dr Norm R. C. Campbell (email: ncampbel@ucalgary.ca).

HBP (high blood pressure) is the leading risk of death in the world. Unfortunately around the world, blood pressure levels are predicted to become even higher, especially in developing countries. High dietary salt is an important contributor to increased blood pressure. The present review evaluates the association between excess dietary salt intake and the importance of a population-based strategy to lower dietary salt, and also highlights some salt-reduction strategies from selected countries. Evidence from diverse sources spanning animal, epidemiology and human intervention studies demonstrate the association between salt intake and HBP. Furthermore, animal studies indicate that short-term interventions in humans may underestimate the health risks associated with high dietary sodium. Recent intervention studies have found decreases in cardiovascular events following reductions in dietary sodium. Salt intake is high in most countries and, therefore, strategies to lower salt intake could be an effective means to reduce the increasing burden of HBP and the associated cardiovascular disease. Effective collaborative partnerships between governments, the food industry, scientific organizations and healthcare organizations are essential to achieve the WHO (World Health Organization)-recommended population-wide decrease in salt consumption to less than 5 g/day. In the milieu of increasing cardiovascular disease worldwide, particularly in resource-constrained low- and middle-income countries, salt reduction is one of the most cost-effective strategies to combat the epidemic of HBP, associated cardiovascular disease and improve population health.

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**FLINN SCIENTIFIC, INC.**
Material Safety Data Sheet (MSDS)

**SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Sodium Chloride**

Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 (800) 452-1261

CHEMTREC Emergency Phone Number: (800) 424-9300

**SECTION 2 — COMPOSITION, INFORMATION ON INGREDIENTS**

Sodium chloride

Synonym: Table salt

CAS#: 7647-14-5

**SECTION 3 — HAZARDS IDENTIFICATION**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>FLINN AT-A-GLANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>-</td>
</tr>
<tr>
<td>Flammability</td>
<td>-</td>
</tr>
<tr>
<td>Reactivity</td>
<td>-</td>
</tr>
<tr>
<td>Exposure</td>
<td>-</td>
</tr>
<tr>
<td>Storage</td>
<td>-</td>
</tr>
</tbody>
</table>

0 = low hazard, 3 = high hazard

**SECTION 4 — FIRST AID MEASURES**

Call a physician and seek medical attention for further treatment, observation, and support after first aid.

Inhalation: Remove to fresh air at once. If breathing has stopped, give artificial respiration immediately.

Eye or External: Immediately flush with fresh water for at least 15 minutes. Internal: Rinse mouth. Give large quantities of water for dilution.

**SECTION 5 — FIRE FIGHTING MEASURES**

Noncombustible solid.

When heated to decomposition, emits toxic fumes of Cl and Na₂O.

Fire Fighting Instructions: Use triclass, dry chemical fire extinguisher. Firefighters should wear PPE and SCBA with full facepiece operated in positive mode.

**SECTION 6 — ACCIDENTAL RELEASE MEASURES**

Restrict unprotected personnel from area. Sweep up, place in sealed bag or container and dispose. Ventilate area and wash spill site after material pickup is complete. See Sections 8 and 13 for further information.

**SECTION 7 — HANDLING AND STORAGE**

Flinn Suggested Chemical Storage Pattern: Inorganic #2. Store with acetates, halides, sulfates, sulfites, thiosulfates and phosphates. Store in a cool dry place. Keep container tightly closed.

**SECTION 8 — EXPOSURE CONTROLS, PERSONAL PROTECTION**

Avoid contact with eyes, skin, and clothing. Wear chemical splash goggles, chemical-resistant gloves, and chemical-resistant apron.

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Adolescents’ salt intake correlates with obesity, inflammation

Date: February 3, 2014

Source: Medical College of Georgia at Georgia Regents University

Most adolescents consume as much salt as adults -- some more than twice the recommended daily allowance -- and that high sodium intake correlates with fatness and inflammation regardless of how many calories they consume, researchers report.

In a study of 766 healthy teens, 97 percent self-reported exceeding the American Heart Association’s recommendation of consuming less than 1,500 milligrams of sodium daily, according to a study in the journal Pediatrics.

“The majority of studies in humans show the more food you eat, the more salt you consume, the fatter you are,” said Dr. Hadong Zhu, molecular geneticist at the Medical College of Georgia and Institute of Public and Preventive Health at Georgia Regents University.

“Our study adjusted for what these young people ate and drank and there was still a correlation between salt intake and obesity,” Zhu said.

These high-sodium consumers also had high levels of tumor necrosis factor alpha, which is secreted by immune cells and contributes to chronic inflammation as well as autoimmune diseases like lupus and arthritis. Additionally, the adolescents had high levels of leptin, a hormone produced by fat cells that normally suppresses appetite and burns fat, but at chronically high levels can have the opposite effects.

“Losing weight is difficult, but hopefully more people can be successful at reducing their sodium intake,” said Zhu, the study’s corresponding author. Reductions would result from not automatically adding salt to food and choosing fresh fruits and vegetables over French fries and processed meats and snacks.

“We hope these findings will reinforce for parents and pediatricians alike that daily decisions about how much salt children consume can set the stage for fatness, chronic inflammation and a host of associated diseases like hypertension and diabetes,” said study co-author Dr. Gregory Harshfield, Director of the Georgia Prevention Center at the GRU institute.

High sodium intake has been linked to higher weight, possibly because of increased water retention. While the new study does not prove a causal effect, it contributes to mounting evidence that high sodium could be a direct cause of obesity and inflammation, Zhu and her colleagues report. Longitudinal or randomized clinical trials are needed to clarify the relationships, the researchers said.

“Obesity has a lot of contributing factors, including physical inactivity,” Zhu said. “We think that high sodium intake could be one of those factors.” Evidence suggests one direct cause may be increasing the size of fat cells.

The MCG study appears to be the first to use several robust measures of fatness to improve accuracy, including magnetic resonance imaging and dual-energy X-ray absorptiometry, which also measures bone density. Study participants were Augusta-area teens whose fitness and fatness were being assessed by Dr. Bernard Gutin, exercise physiologist and Emeritus Professor of Pediatrics at MCG. Data was collected from 2001-05.

Story Source:
The above story is based on material provided by Medical College of Georgia at Georgia Regents University. Note: Materials may be edited for content and length.

Journal Reference:
V. Ader
August 9 at 08:48am

They are getting rid of Crispitos! That is not fair! If we can have enough support that oppose this, then they will listen!

Like · Comment · Share

V. Lad, G. Khan and 559 others like this.

V. Lad
August 9 at 09:15am · Like · 212

I love Crispitos! The crunchy burrito and meat and cheese is to die for!

S. H. Redder
August 11 at 09:15am · Like · 273

I will shred anybody that does not love crispitos! I will make them turtle meat!

S. M. Others
August 12 at 10:23am · Like · 76

I cannot live without Crispitos! It taste good so it must be good for you! I know what is best!
Sodium chloride, also known as salt, common salt, table salt or halite, is an ionic compound with the formula NaCl, representing equal proportions of sodium and chlorine. Sodium chloride is the salt most responsible for the salinity of the ocean and of the extracellular fluid of many multicellular organisms. In the form of edible or table salt it is commonly used as a condiment and food preservative. Large quantities of sodium chloride are used in many industrial processes, and it is a major source of sodium and chlorine compounds used as feedstocks for further chemical syntheses. A second major consumer of sodium chloride is deicing of roadways in sub-freezing weather.

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1 Chemistry
2 Uses
   2.1 Industry
   2.2 Food/agriculture
   2.3 Other
3 Biological Functions
4 Material Safety Data Sheet
5 Structure and Properties

Structure and properties

<table>
<thead>
<tr>
<th>Chemical Formula</th>
<th>NaCl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound Type</td>
<td>Ionic solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>White to colorless crystals</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Density</td>
<td>2.165 g/cm³</td>
</tr>
<tr>
<td>Melting Point</td>
<td>801 °C</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>1,413 °C</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>349 g/L</td>
</tr>
<tr>
<td>Structure</td>
<td>Crystalline solid</td>
</tr>
</tbody>
</table>

Material safety data sheet

The handling of this chemical may incur notable safety precautions. It is highly recommended that you seek the material safety data sheet (MSDS) for this chemical from a reliable source such as MSDS Search Engine, and follow its direction.
INTRODUCTION
Sodium is a mineral element that the body needs to function properly. It is involved in transmitting nerve impulses and in maintaining blood volume and cellular osmotic pressure.

The Dietary Reference Intakes for Sodium (Institute of Medicine, National Academies of Science, 2005) established a Tolerable Upper Intake Level (UL), which is the highest daily nutrient intake level that is likely to pose no risk of adverse health effects. As the UL increases, so does the risks of adverse effects. For sodium, the adult UL is 2,300 milligrams (mg). Intakes above this level are associated with increased blood pressure. It is estimated that most people take in an average of 2,300 to 6,900 milligrams (about 1 to 3 teaspoons or 6 to 17 grams of salt) per day.

The following table lists some typical food items served at school lunches and their per-serving sodium content.

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Sodium Content (mg/serving)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Upper Limit</td>
<td>2,300 mg</td>
</tr>
<tr>
<td>Cheese pizza (1 slice)</td>
<td>447</td>
</tr>
<tr>
<td>Cheeseburger (1 sandwich)</td>
<td>709</td>
</tr>
<tr>
<td>French fries (2.5 oz)</td>
<td>146</td>
</tr>
<tr>
<td>Crispito (1)</td>
<td>1,319</td>
</tr>
<tr>
<td>Chicken Nuggets (5 pieces)</td>
<td>985 mg</td>
</tr>
<tr>
<td>Spaghetti with meat sauce (1 cup)</td>
<td>842 mg</td>
</tr>
<tr>
<td>Cheesy bread (1 slice)</td>
<td>140 mg</td>
</tr>
<tr>
<td>Turkey club sandwich (1)</td>
<td>276 mg</td>
</tr>
<tr>
<td>Macaroni and cheese (1 cup)</td>
<td>673 mg</td>
</tr>
<tr>
<td>Swiss steak and gravy (6 oz)</td>
<td>1,007 mg</td>
</tr>
<tr>
<td>Foot long hotdog</td>
<td>834 mg</td>
</tr>
<tr>
<td>Prompt</td>
<td>Analysis</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Document Description:</td>
<td></td>
</tr>
<tr>
<td>Document Summary:</td>
<td></td>
</tr>
<tr>
<td>Who was it written by:</td>
<td></td>
</tr>
<tr>
<td>Who is the document’s audience:</td>
<td></td>
</tr>
<tr>
<td>Question that the document addresses:</td>
<td>☐ Description of salt&lt;br&gt;☐ Supports or opposes the removal of high salt content foods.</td>
</tr>
<tr>
<td>Key information:</td>
<td></td>
</tr>
<tr>
<td>• What does it say related to the question it addresses?</td>
<td></td>
</tr>
<tr>
<td>• What makes it a good/reliable source of information</td>
<td></td>
</tr>
<tr>
<td>• What makes it a bad/non-reliable source of information</td>
<td></td>
</tr>
<tr>
<td>• How is the information presented relevant/not relevant to the overall question?</td>
<td></td>
</tr>
<tr>
<td>What critical thinking skills did you use to analyze the document?</td>
<td></td>
</tr>
<tr>
<td>How well do you trust the document’s reliability (1-10)?</td>
<td></td>
</tr>
</tbody>
</table>
# School Lunches are the Best!

**Joshua Mangler** [joshua.mangler@gmail.com](mailto:joshua.mangler@gmail.com)  
**Michael Pettengill** [pettmi02@luther.edu](mailto:pettmi02@luther.edu)

## Intended Audience

Check all that apply...  
☐ 9th grade  
☐ 10th grade  
☐ 11th grade  
☐ 12th grade  
☐ general audience  
☐ advanced

Check all that apply...  
☐ general science  
☐ biology  
☐ earth science  
☐ chemistry  
☐ physics/phys sci  
☐ biotechnology  
☐ environmental science  
☐ _________

## Time Required

Be careful to describe in minutes – stay away from the words, “periods or blocks”.  
This specific DCBS should take about 90 - 120 minutes

## Introduction/Background

Where in the semester is this case best suited, and what type of background do the students have when they encounter the case?  
This specific DCBS should be presented in the beginning of a physical science/chemistry class, preferably after the "Matter and Property" unit. Students should have a basic understanding of what matter is, how it is measured, and the difference between physical and chemical properties.

## Objectives of the Case

List exactly what the students should know and be able to do after they have finished the case that they didn't know and couldn't do before they went through the case.  
The students should know that all substances have properties, and take consideration of those properties when consuming or purchasing.

## Major Issues

Identify the major issues in the case that the students should analyze. Indicate which issues you think will (should) come up and what information you expect students to extract from each document.  
Students should see the connection between health and sodium content. They should also see the connection between chemical compounds and how they relate to everyday life. They should understand that decisions like this are often made based on an emotional reaction and not a rational one. In the end, students should conclude it is better for the ‘whole’ of the population greatly unhealthy options with little nutritional value like crispitos should be removed.  
See attached for information related to each document

## Classroom Management

Tells the reader just how the case should be used in a classroom situation. The explanation must be presented in detail. What to do first, second, and last? How long do certain activities take? Indicate any pre-class assignments and follow-up assignments that might be used after a  
This case study should be used as a formative assessment.  
- Before presenting this case study:  
  - First - Be familiar with the school lunches and students opinions  
  - Second – Correct or change any documents so that the case study fits your school  
  - Third – In the unit before allow the student be familiar with a variety of physical and chemical properties, and skills to look up different substances and their properties. Also know the chemical formula of salt  
  - Fourth - Morning of presenting the case study, spread a rumor that they are getting rid of the students’ favorite entrée.
### Discussion of the Case

Include study questions and questions you will be asking in the classroom throughout the case. Include what you write on the board to direct and guide students throughout the case. Provide closure for students – how do you wrap up this activity up?

- (Optional) – If this is your students’ first case file experience, analyzing a couple documents may help the students get a good understanding on what you are asking for and go through the “Guided Document Questionnaire.”
  - When presenting this case study (15-20 minutes)
    - Ask the students about the school's lunch and what they like and dislike about school lunch. Break the students in small groups, 2 or 3 is perfect.
    - Handout the case file and ask them to read the introduction, scenario, and questions-answer portion.
    - Once completed, have the students discuss in their opinions in the small groups and then bring it to the larger group to talk about the scenario.
    - Then talk about what you are expecting from the students and reiterate the role of the student.
  - After discussion: (90 – 100 minutes)
    - Allow the students to work in their groups for 90 – 100 minutes.
      - After the first day, see how far the students are and set the due date.
    - **If this is the students’ first DBCS, allow the students to work in class so you can assist with any questions they may have.
    - **If this is the students’ first DBCS, hand out the “Guided Document Questionnaire”
  - When the students hand: (20 – 30 minutes)
    - After the students hand in their “new conversation”, have the students talk about what they decided on and what documents helped them make their claim.
    - ***After grading the papers, allow the students to “act out” their scenario as bell ringers.

### References & Resources

Include a list of references to follow up particular lines of thought or included in your documents. May also include online resources & associated URLs.

**“Fake Status” Generator**
- [http://statusclone.com/](http://statusclone.com/)
- [http://simulator.com/generator/facebook/status](http://simulator.com/generator/facebook/status)

**Government Pamphlet** –

**Science Daily Article** -
[http://www.sciencedaily.com/releases/2014/02/140203122743.htm](http://www.sciencedaily.com/releases/2014/02/140203122743.htm)


### Assessment of Product

Identify the product that students will produce as a result of this DBCS. Do you evaluate class discussions? Do you have students complete peer evaluations? What are students expected to complete? Do you have a rubric to evaluate the final product? Include as many tools for this element as possible.

The product they will produce is a conversation dialogue between their role (parent) and their choice of partner (student, other parent, school board member). This would most simply be recreated by taking the original introduction conversation and explaining to the high school student why Crispitos were taken off the menu, whether they support that decision, and their justification.

The product we originally intended to be a conversation piece within the classroom. No summative assessment was planned. As this is intended to be at the beginning of the year, focus on learning how to write a 'claim' and support that claim with 'evidence' is the intention.

Peer evaluations, discussion, and providing exemplars (student generated) are encouraged.
<table>
<thead>
<tr>
<th>Document</th>
<th>Document Summary</th>
<th>Key Information</th>
<th>High Order Thinking Skills</th>
</tr>
</thead>
</table>
| A Build A Healthy Plate | FCS brochure giving nutrient guidelines and information | ● Guides for healthy choices  
 ● Focuses mostly on fats and sugars and not salts  
 ● No source references  
 ● No scientific study reference | ● Determine relevance of information present.  
 ● Categorize, summarize information  
 ● Ask questions as a result of having limiting information |
| B Journal Article Abstract | Peer removed journal abstract connecting salt with high blood pressure | ● Sodium content is related to high blood pressure.  
 ● Lowering sodium intake can greatly reduce HBP risk  
 ● Peer reviewed article lends credibility  
 ● Written at high reading level to challenge students reading ability | ● Evaluate quality of a document’s source/author  
 ● Exam evidence collected from an experiment  
 ● Recognize the difference between correlation and causation |
| C Salt MSDS | Flinn Scientific MSDS for sodium chloride | ● Introduces MSDS  
 ● Gives scientific name of salt  
 ● Information given is not relevant to the decision they’re making  
 ● MSDS always makes chemicals seem more dangerous than they may be | ● Determine that evidence from one situation may not apply to another.  
 ● Determine the Relevance of the information presented. |
| D Wikipedia page | Wikipedia page containing information on sodium chloride | ● Gives basic chemical information on what salt is, what it’s used for, and some information in its biological function.  
 ● Wikipedia pages are overused as sources credibly or otherwise  
 ● Presents terms and chemistry concepts that students may or may not be familiar with i.e. ionic compounds | ● Generalize and summarize information.  
 ● Determine relevance of information presented. |
| E Facebook post | Social media post related to the decision of removing Crispitos | ● Student’s opposition to the decision.  
 ● Freedom of choice  
 ● Does not give any relevant information | ● Recognize bias  
 ● Determine credibility  
 ● Make logical inferences |
| F Research information | Texas A & M post related to salt content in foods and recommended guidelines | ● Provides dietary information  
 ● Introduces term ‘Upper Limit’  
 ● Introduces units ‘mg’  
 ● Provides sodium content comparisons. | ● Determine Credibility  
 ● Analyze Data from tables.  
 ● Evaluate the quality of the source  
 ● Compare and contrast information. |
| G Science Daily | Science article relating adolescents’ salt intake with obesity | ● Provides a different connection of salt and health other than HBP  
 ● Provides sources, interviews, and research  
 ● Introduces major. | ● Examine evidence presented from scientific studies  
 ● Differentiate between correlation and causation  
 ● Evaluate quality of document source |
## Objectives and Rubric

**Overall Goal:** Students will be able to make a claim based upon documents or evidence in a Document Base Case Study

<table>
<thead>
<tr>
<th></th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Able to look at a document and explain what the document is presenting</td>
</tr>
<tr>
<td>2</td>
<td>Able to look at a document and explain how it relates to the scenario</td>
</tr>
<tr>
<td>3</td>
<td>Able to look at a document and understands the limits of the document</td>
</tr>
<tr>
<td>4</td>
<td>Able to write a claim with supporting evidence based on the documents</td>
</tr>
<tr>
<td>5</td>
<td>Able to write a clear and concise assessment (grammar, punctuation)</td>
</tr>
</tbody>
</table>

### Rubric

<table>
<thead>
<tr>
<th>4 (Mastery)</th>
<th>3.5 (Experienced)</th>
<th>3 (Competent)</th>
<th>2.5 (Developing)</th>
<th>2 (Emerging)</th>
<th>1 (Not Yet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All objectives are fulfilled</td>
<td>Must fulfill 4 of the 5 objectives</td>
<td>Must fulfill 3 of the 5 objectives</td>
<td>Must fulfill 2 of the 5 objectives</td>
<td>Must fulfill 1 of the 5 objectives</td>
<td>Have been assessed but failed to fulfill standard’s minimum requirements</td>
</tr>
</tbody>
</table>

### Note on the Rubric

This rubric is based upon the objectives and fits to a Standard Base Grading. The rubric can be altered to a specific grading system.

### Example

<table>
<thead>
<tr>
<th>A</th>
<th>A-</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
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