Childhood Obesity

OVERVIEW:

The obesity epidemic has reached staggering proportions in the United States. Urban and rural children are suffering from this epidemic as well. Can you uncover risk factors linked to childhood obesity and target them with an intervention in order to help put an end to this epidemic?

GOAL:

Identify risk and protective factors using evidence-based and credible sources from the Internet. Propose a creative intervention aligned to evidence.

ROLE:

The mayor of your town has put together a task force on childhood obesity. Your team of health professionals is assigned to evaluate potential risk factors for childhood obesity and offer your recommendations about which ones to target and how to intervene.

OBJECTIVE:

Obj. 2.12: Use credible information from valid and reliable sources to provide evidence for a conclusion

DELIVERABLES:

1) Research paper

ASSESSMENT:

Your research paper will be evaluated on a rubric based on analysis of sources, identification of risk and protective factors, and quality of conclusion, and components of writing.

Case Introduction:

Childhood Obesity Facts

from the CDC (Source: http://www.cdc.gov/healthyyouth/obesity/facts.htm)

- Childhood obesity has **more than doubled** in children and tripled in adolescents in the past 30 years. [1,2]
- The percentage of children aged 6–11 years in the United States who were obese increased from **7%** in 1980 to nearly **18%** in 2010. Similarly, the percentage of adolescents aged 12–19 years who were obese increased from **5% to 18%** over the same period. [1,2]
- In 2010, **more than one third** of children and adolescents were overweight or obese. [1]
- *Overweight* is defined as having excess body weight for a particular height from fat, muscle, bone, water, or a combination of these factors.[3] *Obesity* is defined as having excess body fat. [4]
- Overweight and obesity are the result of **"caloric imbalance"**—too few calories expended for the amount of calories consumed—and are affected by various **genetic, behavioral, and environmental factors.** [5,6]
- Childhood obesity has both **immediate and long-term effects** on health and well-being.

Immediate Health Effects:

- Obese youth are more likely to have risk factors for cardiovascular disease, such as high cholesterol or high blood pressure. In a population-based sample of 5- to 17-year-olds, 70% of obese youth had at least one risk factor for cardiovascular disease. [7]

- Obese adolescents are more likely to have prediabetes, a condition in which blood glucose levels indicate a high risk for development of diabetes. [8,9]

- Children and adolescents who are obese are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems such as stigmatization and poor self-esteem. [5,6,10]

Long-Term Health Effects:

- Children and adolescents who are obese are likely to be obese as adults [11-14] and are therefore more at risk for adult health problems such as heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis. [6] One study showed that children who became obese as early as age 2 were more likely to be obese as adults.[12]

- Overweight and obesity are associated with increased risk for many types of cancer, including cancer of the breast, colon, endometrium, esophagus, kidney, pancreas, gall bladder, thyroid, ovary, cervix, and prostate, as well as multiple myeloma and Hodgkin's lymphoma.[15]

(See references, compiled by CDC, in Appendix)

Explore the Problem:

1. **Brainstorm** risk factors and protective factors for childhood obesity in the first row of the table below:
2. **Read** the scholarly journal article, "Obesity and related risk factors among low socio-economic status minority students in Chicago" (Wang et. al 2007) and add any risk and protective factors in the second row.
3. **Find** one (or more) other sources from the internet to add additional factors to the third row. Be sure the source is credible and document the source.

	Risk Factors	Protective Factors
Brainstorm		
Journal article *(Wang et. al 2007)*		
Other sources *(list author, name of site, date, and URL below)*		

Place a star (*) next to any risk or protective factors that appear multiple times.

Research:

1. Decide which of your risk or protective factors seem to be **most related** to your problem.
2. Decide **who** will research each risk or protective factor.
3. Decide **what** information you hope to find when you research each risk factor. (*This is the most important step. You MUST think about the relationship between the risk/protective factor, problem, and intervention)
4. Using **credible** sources, research your risk factor.
5. **Complete** your research guide on the next page.
6. Share your most important findings with your team, recording the key information from each teammate.

| Risk or Protective Factor	Owner & Source	New Information

Research Guide:

What to look for:	Information:
Source *(title, author, name of site, date, and URL below)*	
Important Evidence #1 *(statistic, results of research, etc.)*	
Based on the evidence above, what solutions for reducing childhood obesity might work?	
Important Evidence #2 *(statistic, results of research, etc.)*	
Based on the evidence above, what solutions for reducing childhood obesity might work?	
Summary of Article	

Identify Solutions:

1. Review the evidence for the four risk factors or protective factors your team researched.
2. Select the ONE risk or protective factor that seems most supported by evidence. (If two or more risk factors are very related, you may choose more than one).
3. Brainstorm possible interventions (solutions) related to that risk or protective factor in the shape below. Be creative!
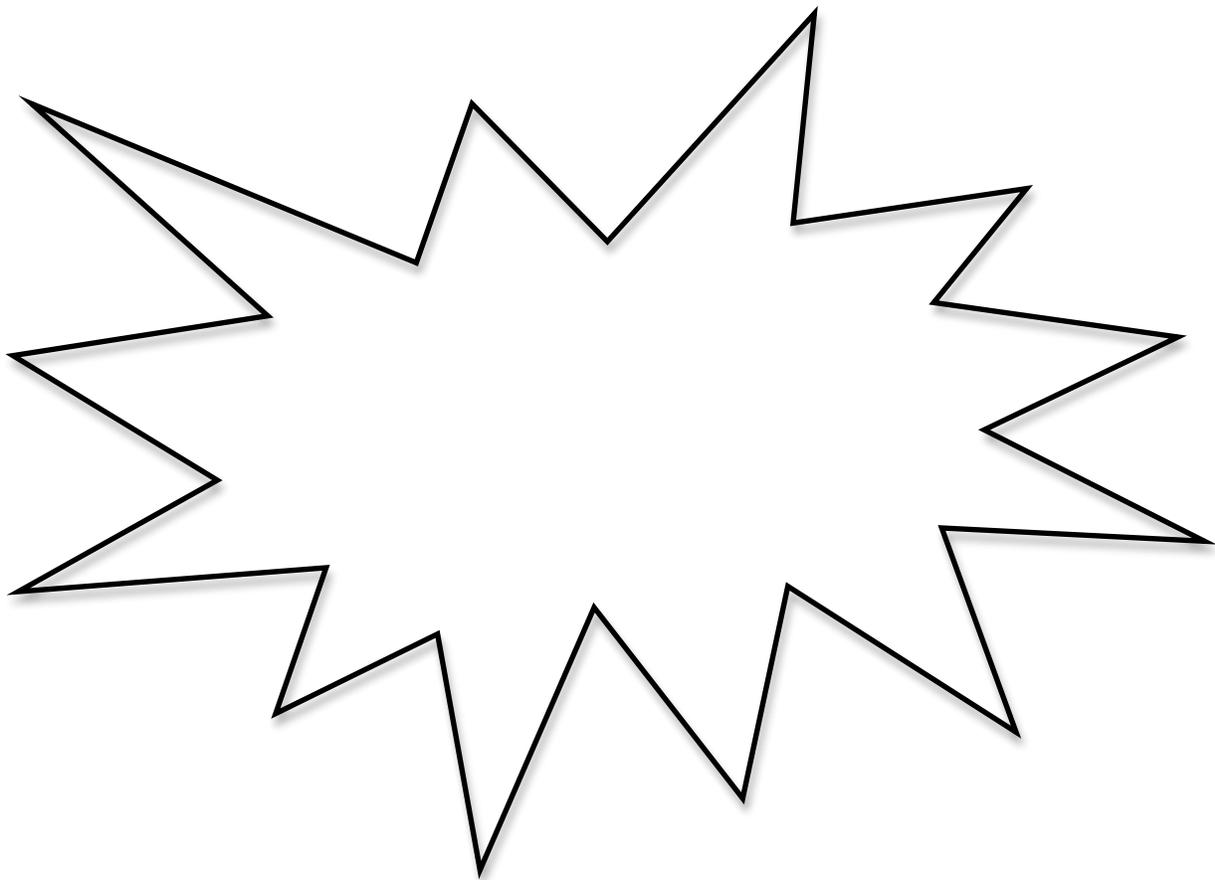
Review your ideas in the shape above. Choose <u>one</u> intervention that is evidence-based and creative. Be sure it is aligned specifically to the risk or protective factor you chose to prioritize.

Final Paper:

Use the journal article "Obesity and related risk factors among low socio-economic status minority students in Chicago" to write a 5-paragraph research essay on the risk factors of obesity.

Phase 1: Organize Information

Risk Factor	Supporting Statistics or Evidence *(need at least 3 per risk factor)*
Example: *Inadequate Physical Activity (not enough exercise)*	*- 66.1% with 20 mins vigorous exercise or 30 mins light exercise in 1 week* *- 62.1% with >3hrs per day of screen time*
1	
2	
3	

Phase 2: Make an argument

A thesis statement (argument) needs to include 4 parts in science: A. The Problem. B. The Population (people). C. The location of the problem. D. The 3 Risk Factors. Identify yours below.

    A. The Problem:

    B. The Population:

    C. The Location:

    D. The 3 Risk Factors:

Now, put the 4 parts together into 1 complete sentence:

Thesis:_____

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1. Put a box around the problem in your thesis.
2. Circle the population identified in your thesis.
3. Underline the location identified in your thesis.
4. **Label** the risk factors with **1, 2, and 3** in your thesis.
5. Circle any of the above if they were missing from your thesis.
6. Revise your thesis (if needed) and rewrite one that includes parts 1-4 below.

Revised Thesis: _____

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Switch theses with your partner. Repeat steps 1-5 for your partner's **revised** thesis.

1. Put a box around the problem in your partner's thesis.
2. Circle the population identified in your partner's thesis.
3. Underline the location identified in your partner's thesis.
4. **Label** the risk factors with **1, 2, and 3** in your partner's thesis.
5. Circle any of the above if they were missing from your thesis.

Phase 3: Outline your Thoughts *(does NOT need to use complete sentences).*

Introduction

Background information on Obesity:
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Intro to the Journal Article:
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Thesis:_____
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Body Paragraph 1

Risk Factor 1:
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3 pieces of Evidence (statistics, specific facts, etc):
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Explanation (how does the RF connect to obesity?):
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Body Paragraph 2

Risk Factor 2:
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3 pieces of Evidence (statistics, specific facts, etc):
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Explanation (how does the RF connect to obesity?):
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Body Paragraph 3

Risk Factor 3:

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3 pieces of Evidence (statistics, specific facts, etc):

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Explanation (how does the RF connect to obesity?):

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Conclusion

Restate Thesis:

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Propose 1 possible solution to obesity:

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Explanation of how solution would decrease obesity rates in Chicago.

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Checklist for your outline: Did you Include…

- ◆ Background information?
- ◆ Correctly stated thesis?
- ◆ Enough evidence (3 pieces) for each RF?
- ◆ A connection for each RF to the problem (obesity)?
- ◆ A possible solution?
- ◆ An explanation of how the solution might solve the problem?
- ◆ Do you have enough material so that each paragraph is at least 5 sentences long?

Phase 4: Draft your Paper

Sample Rockstar Introduction:

<u>Obesity is the medical condition that occurs when a person has a body mass index at or above the 95th percentile for their height and age. In other words, obesity occurs when someone is extremely overweight. A growing problem in Chicago and many other cities, obesity effects many children and teens as well as adults.</u> **In fact, Wang et al. conducted a study in urban public middle schools "Obesity and related risk factors among low socio-economic status minority students in Chicago" to investigate what is actually leading to rising obesity rates.** *Unhealthy snacking behavior, inadequate physical activity, and excessive screen time are all factors that put Chicago middle school students at risk for obesity.*

<u>A. Background information</u>
B. Introduction to Study, including the author (refer to the authors as Wang et al. in your paper or use the title in quotation marks)
C. Thesis

Your turn: Write a rock star introduction! Make sure you include A, B, and C with a minimum of 5 sentences. Use your outline as a guide.

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Sample Awesome Body Paragraph:

One thing that might increase the risk of obesity in Chicago teens is inadequate exercise. According to "Obesity and related risk factors among low socio-economic status minority students in Chicago," 100% of students surveyed had a television in their homes. In addition, only 36% of students had at least 20 minutes of hard exercise for 5 or more days in the past week. Finally, about 33% of Chicago teens experienced more than 5 hours of screen time every day. *Because of the high amount of time spent inactive in front of screens, and the low amount of time spent exercising, it's clear that Chicago students are not getting enough physical activity, which could lead to excess calories stored as fat and eventually obesity.*

> A. **Topic Sentence: Do not use the phrase "risk factors."**
> B. 3 Pieces of Evidence/Statistics: State them in complete sentences, as facts.
> C. *Link Evidence to Obesity: Give an explanation as to how the facts might lead to people becoming overweight/obese.*

Your turn: Write an awesome body paragraph below using 1 of your RFs. Make sure you include A, B, and C with a minimum of 5 sentences. Use your outline as a guide.

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Sample Incredible Conclusion:

Overall, poor snacking behavior, not enough exercise, and too much screen time all contribute to the rising obesity rate of adolescents in Chicago. <u>One possible way to reduce the rates of obesity might be to increase sports opportunities through schools and park districts</u>. *If there are more chances to participate in athletics, then more teens will get regular exercise. In addition, if students are involved in organized sports, they're left with less time to snack on unhealthy foods. Added physical activity and decreased unhealthy snacking would definitely work to reverse the rising obesity rates for teens in Chicago.*

> **A. Restate Thesis: Try rearranging words to make it sound fresh.**
> B. <u>Propose 1 Solution: Be creative!</u>
> C. *Explain Your Solution: How would it help decrease the obesity rates? It should target at least 1 of the RFs you used.*

Your turn: Write an incredible conclusion. Make sure you include A, B, and C with a minimum of 5 sentences. Use your outline as a guide.

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Phase 5: Format your Paper

Grammar and Punctuation:
- o First letter of each sentence is capitalized
- o Each sentence ends with a period or proper punctuation; no run-ons
- o There are 5 paragraphs
- o There are NO first person pro-nouns (I, we, me, my, etc.)
- o Verbs and subjects agree

MLA Formatting for Science:

General Guidelines
- Double-space the text of your paper, and use a legible font (e.g. Times New Roman). The font size should be 12 pt.
- Set the margins of your document to 1 inch on all sides (should happen automatically).
- Use the tab key to indent the first line of all paragraphs.
- Create a header that numbers all pages consecutively in the upper right-hand corner.

Formatting the First Page of Your Paper
- In the upper left-hand corner of the first page, list your name, your instructor's name, the course, and the date (Day Month Year). Again, be sure to use double-spaced text for the heading. The heading should only appear on the 1st page.
- Double space again and center the title. Do not underline, italicize, or place your title in quotation marks; write the title in Title Case (standard capitalization), not in all capital letters.
- Do not add extra space between the title and the first line of the text.

Sample of the first page of a paper in MLA style:

Student Name   1

Instructor Name

Course Name

9 December 2013

                         Risk Factors Lead to Rising Obesity Rates in Chicago

Obesity is the medical condition that occurs when a person has a Body Mass Index at or above the 95th percentile for their height and age. A growing problem in Chicago, obesity effects many children and teens

Rubric:

Your final research paper will be graded using the rubric below.

Obj. 2.12: Use credible information from valid and reliable sources to provide evidence for a conclusion				
	Needs Improvement	**Emerging Mastery**	**Partial Mastery**	**Mastery**
RFs: Identifies aligned risk factors.	No aligned and evidence-based risk factors	1 aligned and evidence-based risk factors	2 aligned and evidence-based risk factors	3 aligned and evidence-based risk factors
Evidence: Provides compelling evidence to support the conclusion	All evidence lacks credibility	1 pieces of evidence present for each RF; OR some evidence is not credible	2 pieces of evidence present for each RF; OR some evidence is not credible	3 pieces of evidence present for each RF; all evidence is credible
Writing: Writes clearly, using appropriate vocabulary, spelling, and grammar	Many spelling, grammar, and vocabulary errors.	Some spelling, grammar, & vocabulary errors.	Very few spelling, grammar, and vocabulary errors.	Easily read & understood; almost perfect grammar, spelling & vocabulary

Appendix (Case Introduction):

References compiled by CDC:

1. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. *Journal of the American Medical Association* 2012;307(5): 483-490.

2. National Center for Health Statistics. Health, United States, 2011: With Special Features on Socioeconomic Status and Health. Hyattsville, MD; U.S. Department of Health and Human Services; 2012.

3. National Institutes of Health, National Heart, Lung, and Blood Institute. Disease and Conditions Index: What Are Overweight and Obesity? Bethesda, MD: National Institutes of Health; 2010.

4. Krebs NF, Himes JH, Jacobson D, Nicklas TA, Guilday P, Styne D. Assessment of child and adolescent overweight and obesity. *Pediatrics* 2007;120:S193–S228.

5. Daniels SR, Arnett DK, Eckel RH, et al. Overweight in children and adolescents: pathophysiology, consequences, prevention, and treatment. *Circulation* 2005;111;1999–2002.

6. Office of the Surgeon General. The Surgeon General's Vision for a Healthy and Fit Nation. [pdf 840K]. Rockville, MD, U.S. Department of Health and Human Services; 2010.

7. Freedman DS, Zuguo M, Srinivasan SR, Berenson GS, Dietz WH. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. *Journal of Pediatrics*2007;150(1):12–17.

8. Li C, Ford ES, Zhao G, Mokdad AH. Prevalence of pre-diabetes and its association with clustering of cardiometabolic risk factors and hyperinsulinemia among US adolescents: NHANES 2005–2006. *Diabetes Care* 2009;32:342–347.

9. CDC. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011 [pdf 2.7M]. Atlanta, GA: U.S. Department of Health and Human Services.

10. Dietz WH. Overweight in childhood and adolescence. *New England Journal of Medicine* 2004;350:855-857.

11. Guo SS, Chumlea WC. Tracking of body mass index in children in relation to overweight in adulthood.*American Journal of Clinical Nutrition* 1999;70:S145–148.

12. Freedman DS, Kettel L, Serdula MK, Dietz WH, Srinivasan SR, Berenson GS. The relation of childhood BMI to adult adiposity: the Bogalusa Heart Study. *Pediatrics*2005;115:22–27.

13. Freedman D, Wang J, Thornton JC, et al. Classification of body fatness by body mass index-for-age categories among children. *Archives of Pediatric and Adolescent Medicine* 2009;163:801–811.

14. Freedman DS, Khan LK, Dietz WH, Srinivasan SA, Berenson GS. Relationship of childhood obesity to coronary heart disease risk factors in adulthood: the Bogalusa Heart Study. *Pediatrics* 2001;108:712–718.

15. Kushi LH, Byers T, Doyle C, Bandera EV, McCullough M, Gansler T, et al. American Cancer Society guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. *CA: A Cancer Journal for Clinicians* 2006;56:254–281.