Health and the Inner City

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Index:

Overview

Students will explore health ailments such as heart disease, cancer, diabetes and lung disease in two parts. Part one involves students surveying friends and family members to obtain information including age, type of illness, onset/death of illness and sex. In this way, students will become more aware of how close some of these diseases are. Students will use the ages of onset or death obtained to organize this data into tables, find statistical landmarks and graph the data. In part two, students will research a disease that they feel most impacts their community or family. They will find information regarding this disease including causes, prevalence, symptoms and prevention. This will culminate into a project each student will present to the class which will include the above information and their own personal plan for prevention.

Rationale

It is a well-known fact that many in the African-American community suffer from many preventable health ailments such as diabetes and heart disease. Recently, these ailments have trickled down to our youth. Risk factors occurring early in life are believed to play a major role in the eventual development of these conditions (Rolland-Cachera, Deheeger, Maillot, Bellisle, p. s11).

Of all risk factors, the most predictive risk for these diseases is obesity. Childhood obesity plays a large role in diabetes risk in childhood and diabetes and heart disease in adulthood. A high BMI (Body Mass Index), or relationship between weight and height, level at the age of 6 years is significantly associated with later high BMI (Rolland-Cachera, Deheeger, Maillot, Bellisle, p. s13).

Children and adolescents have increasingly become the victims of the poor habits of our society. At the end of growth, subjects born in 1985 were taller, heavier and fatter than those born in 1955 (Rolland-Cachera, Deheeger, Maillot, Bellisle, p. s14). Recently, there has been an increased incidence of type 2 diabetes in obese adolescents (Pietrobelli, Flodmark, Lissau, Moreno and Widhalm, p. s1).

Another risk factor for these diseases is the lack of physical activity. Physical activity has been shown to reduce the morbidity and mortality of adults from many of the chronic diseases that are a focus of this curriculum. Exercise has been shown to reduce the risk of developing or dying from heart disease, diabetes, and high blood pressure. (PAFPD, p. 2)

Despite the fact that millions of Americans suffer from chronic illnesses that can be prevented or improved through regular physical activity, many adults and children continue to live sedentary lifestyles. According to a National Health Interview Survey, in 1997-98, nearly four in 10 (38.3 percent) adults reported no participation in any leisure time physical activity. (PAFPD, p.2)

In addition to sedentary adults, more than one-third of young people in grades 9-12 do not regularly engage in vigorous physical activity as well. Almost half of all children in this age group also reported that they watch television more than two hours per day. The level of physical activity then declines dramatically over the course of adolescence, with girls being significantly less likely than boys to participate regularly in vigorous physical activity. Barely active children grow into barely active, obese adults. (PAFPD, p.3). Minimally active, obese adults suffer from the above mentioned diseases.

The obesity/physical activity link to disease becomes more alarming when it is noted that women of lower socioeconomic status (those having an income less than 130% of the poverty threshold) are approximately 50% more likely to be obese and minimally active than those with higher socioeconomic status (those having an income greater than 130% of the poverty threshold). In many cases, women are the primary caretakers for the students we service; obesity and physical inactivity significantly increase the likelihood that they will be unhealthy. (PAFPD, p.13)

Lastly, teaching students not to smoke leads to a very obvious prevention of lung disease. Sadly, each day 3,000 children smoke their very first cigarette, leading to 6 million teens in the United States today who continue to smoke despite the knowledge that it is addictive and leads to disease. (TSF)

In addition to smoking leading to an increased prevalence of cancers and lung disease, children who smoke have significant health problems, including cough and phlegm production, decreased physical. (TSF)

Cigarette smoke contains over 4,800 chemicals, a percentage of which are known to cause cancer. Smoking is directly responsible for roughly 90 percent of lung cancer deaths and approximately 80-90 percent of COPD (emphysema and chronic bronchitis) deaths. Smoking also causes coronary heart disease, stroke, abdominal aortic aneurysm, acute myeloid leukemia, cataracts, pneumonia, periodontitis, and bladder, esophageal, laryngeal, lung, oral, throat, cervical, kidney, stomach, and pancreatic cancers. (GFAS)

Prevention becomes more and more important in the fight against these diseases (Pietrobelli, Flodmark, Lissau, Moreno, Widhalm, p. s2). Increasing fruit and vegetable consumption, reducing sweet drink intake, reducing portion sizes and exercise have been found to be the best preventative factors (Pietrobelli, Flodmark, Lissau, Moreno, Widhalm, p.s1).

Researchers have also highlight the importance of school as one of the tools for preventing these diseases (Pietrobelli, Flodmark, Lissau, Moreno, Widhalm, p.s1). Schools, when able, are a stable source of nutritional education and can infuse healthy lifestyles to children through constant modeling. Sadly, many are not receiving the message at home.

However, as important as proper nutrition and health are to learn at an early age, because of staffing issues and budget cuts, students may not be getting this important information. For example, in many schools, classroom teachers are no longer required to teach health. Even if they want to, with the emphasis being placed on math, reading and science for testing purposes, there is no time available. Gym teachers often don't have time to either, especially at the elementary school level. Nutrition grants, which allow someone to come in to discuss healthy eating, are sometimes available but this is approximately once per month and is no longer than 45 minutes. This is also subject to the schedule of the presenter, some months they may not be able to come at all.

If disease education, especially as it relates to healthy eating, can be infused into one of the core subjects, then it is a benefit to all. Students have their important subjects covered while at the same time they learn how to prevent future illnesses by becoming healthier individuals.

This unit is intended to complement the School District of Philadelphia's pre-existing math curriculum (Everyday Math). The allotted time for this unit is a week in the spring during a "re-teach week", a week when teachers have a chance to review strategies with alternate materials. The first lesson will need to be conducted a week before, however, so that the students will have time to collect their data. Students will gather data regarding common illness and use that data to further explore math concepts.

Objectives

This unit is intended for an audience of fifth grade students in a low to mid-income urban Philadelphia neighborhood. Their day consists of being self-contained in a classroom, with the exception of lunch, recess and specialist (art, gym, etc.) classes. Each period is 45 minutes, with the exception of Reading which is 120 minutes and Math being a double period.

The objectives for the unit will be as follows:
• Students will gain knowledge of preventable diseases
• Students will be provided experience with collecting and organizing (charting, graphing) data.
• Students will create data landmarks for the information they gathered.
• Students will use the data to make predictions based on intervention or continued scenarios.
• Students will map out a plan for their own prevention of the illnesses.

Strategies

Students will perform much of this unit individually or working with a partner. They will answer the questions: "How old are people when they die from preventable illnesses?", "In what ways can I prevent a potentially fatal disease?" and, "What are the most common illnesses in my community? In males? In females?" After a brief discussion on the health issues that claim the lives of urban African-Americans, students will be tasked with interviewing caregivers for the known causes of death for all (known) deceased or ill family members. Once the data is collected, they will then partner with someone in the classroom, graph their data, create statistical landmarks (mean, median, mode, range) with it and then draw conclusions based on it. The conclusions will be based on analyzing individual, partnership and pooled class information.

   Once the leading causes of (disease-related) deaths are determined, students will choose one disease to research. They will be asked to create a summary of the disease chosen, including a description, prevention/causes, symptoms and its implications. After some class discussion, students will be asked to map out a realistic plan for prevention of their disease based on their findings and tailored to their own situation. The culminating activity will be a report/poster that includes their summaries, data, conclusions and their own plan for healthy living.

Classroom Activities:

Lesson Plan #1- Part I-(This lesson is to be done at least one week prior to Lesson Two)
The Survey

Objectives:

- The students will gain a general understanding of diseases that affect their community, will be given an overview of the unit and will be introduced to the activities involved in Part I of this unit.

Materials:

- A teacher created survey (in the Appendix B).
- Teacher summary sheet of the diseases covered in this unit (in Appendix C).

Plans:

1. Introduction (5 minutes)

   a. Teacher asks students if they are familiar with the most common preventable health issues in their community, students respond.
   b. Teacher fills in information regarding the top four- lung disease, heart disease, cancer and diabetes.
   c. Teacher gives an overview of the unit, pointing out what the students will be responsible for.
   d. Teacher introduces the survey, its components and purpose.
   e. Teacher introduces the questions, students will answer: "How old are people when they die from preventable illnesses?", "In what ways can I prevent a potentially fatal disease?" and, "What are the most common illnesses in my community? In males? In females?"

2. Model (10 minutes)

   a. Teacher models filling out the survey with a fictitious relative. Students are told that they will need to ask relatives and known adults that they come in contact with about any illnesses they feel comfortable sharing information about themselves. The survey will be composed of a table in which they can record the information needed and any other that the person feels comfortable sharing. They will gather information that includes their sex, if the person is living with the disease or died from it and the age of death. Students are told that the person's information will only be included if their illness is one of the four being studied. It

is emphasized to the students that names are not needed and that they should stress to the participants that their information will be kept confidential. Students are prepped on what confidentiality means and how it is practiced.

3. Guided Practice (15 minutes)
      a. Teacher fields any questions students may have regarding how the survey should be filled out.

4. Independent Practice (15 minutes)
      a. There is no independent practice for this lesson.
.
5. Wrap up (15 minutes)
      a. Teacher reviews the survey assignment for the students and reminds them that they have one week to gather as much information as possible. They are also reminded of the questions they are to answer with their own data and with the class data. Students are reminded daily to collect information.

Lesson Plan #2
Data Analysis Part I
(This lesson may be combined with Lesson Plan #3, Data Analysis Part II if desired)

Objectives:

- The students will collect and organize survey data as a group and then as a class.

Materials:

- Teacher created survey that students have completed.
- Chart paper

Plans:
1. Introduction (5 minutes)

      a. Teacher will review the previous lesson and the goals of the first part of the unit.
      b. Students will be instructed on the activities included in the day's lesson: they will chart the information they collected in groups of 2-3, using a larger table on chart paper that is similar to the survey. They will answer the questions

based on their group data. Once that is completed, all charts will be collected from each group and data will be compiled, questions will be answered as a class.

2. Model (10 minutes)

   a. Teacher models on a sheet of chart paper how each group will compile their information (using a table that has the headings from the survey, however is larger and allows for more entries).

3. Guided Practice (15 minutes)

   a.   Teacher will use one group's information to show the students what is expected from them as they work.

4. Independent Practice (15 minutes)

   a. Students will compile their information in groups.
.
5. Wrap up (15 minutes)

   a. Teacher will ask for each group to bring up each chart paper which will be used as the class data.

Lesson Plan #3
Data Analysis Continued

Objectives:

- Students will use the data collected from the previous lesson to create statistical landmarks.
- Students will also graph aspects of the data that they collected.

Materials:
- Data compiled from the previous lesson
- Health notebook

Plans:

1. Introduction (5 minutes)

    a. Teacher reviews previous lessons with students.
    b. Teacher give an overview of the coming lesson, reviews mean, median, minimum, maximum, range and mode.

2. Model (10 minutes)

    a. Teacher uses one group's data to model, finding the above landmarks with the ages of death. Teacher reviews forming bar graphs with the students. Teacher models using the mean age of death for each illness to create a bar graph as shown below. (Please note- the graph is approximated due to the constraints of this word processing software and the ability of the author. The numbers to the left on the Y axis represent the mean ages. The "x"s represent colored bars.)

65				
60				
55	Xxxxxx		xxxxx	
50	Xxxxxx		xxxxx	xxxxx
45	Xxxxxx		xxxxx	xxxxx
40	Xxxxxx	xxxxxxx	xxxxx	xxxxx
35	Xxxxxx	xxxxxxx	xxxxx	xxxxx
30	Xxxxxx	xxxxxxx	xxxxx	xxxxx
25	Xxxxxx	xxxxxxx	xxxxx	xxxxx
20	Xxxxxx	xxxxxxx	xxxxx	xxxxx
15	Xxxxxx	xxxxxxx	xxxxx	xxxxx
10	Xxxxxx	xxxxxxx	xxxxx	xxxxx
5	Xxxxxx	xxxxxxx	xxxxx	xxxxx
0	Xxxxxx	xxxxxxx	xxxxx	xxxxx
	Diabetes	Lung Disease	Heart Disease	Cancer

3. Guided Practice (15 minutes)

    a. Students complete data landmarks for their age of death data and then graph the data with a bar graph Teacher moves around room as students work and demonstrates any item with students that they may have trouble with.

4. Independent Practice (15 minutes)

        a.. Students are then asked to decide with their partner how to graph the answer to research question number two," What are the most common illnesses in my community? In males? In females?"

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5. Wrap up (15 minutes)

        a. Students are asked to draw conclusions on their data. Students are asked, with their partner, to look for any trends, anything of interest that they notice. Students are also asked to revisit the questions asked at the beginning of the research and to notice any differences or similarities between their data and the class data. After some time given for this, partnerships share out what they found to the class. Teacher reviews what students could/should have for all of their graphs. Students will also log their conclusions in their health notebooks.

Lesson Plan #4- Part II
Research

Objectives:

- The students will be able to gain a general understanding of diseases that affect their community by researching information on a disease of their choosing.

Materials:
- Data from the previous lessons.
- Computers with internet access.
- Health notebook

Plans:
1. Introduction (5 minutes)

    a. Teacher asks students if they remember the illnesses that were discussed in previous lessons. They are reminded that many aspects of these disease are preventable yet some chose not to do this or don't know how.

    b. Students are given an overview of the coming lesson-that they will research an illness, choosing from those discussed.

2. Model (10 minutes)

a. Teacher models researching information on the computer (using a computer that everyone can see) using the student-friendly sites listed in the appendix (or others of the teacher's choosing). Teacher explains that not everything on each site is going to be what the student will need, they will need to read through to find the information they want. The teacher also explains that they will be looking for what the disease is, symptoms, causes and ways to prevent it (when applicable). They will be taking notes in their health notebook.

3. Guided Practice (15 minutes)
    a. Teacher assists students as they work on the computer to find information.

4. Independent Practice (15 minutes)
    a. Students work on computers looking up and taking notes on the information discussed above in their health notebooks.
.
5. Wrap up (15 minutes)
    a. Students share out information they have found. This lesson may continue for a few days depending on computer availability and length of time needed to find information.

Lesson Plan #5-Part III
Prevention Plan

Objectives:
- Students will develop a plan for prevention that is tailored to their lifestyle and sets realistic goals for themselves.

Materials:
- Information students have gathered from their research.
- Health notebook.

Plans:
1. Introduction (5 minutes)

    a. Teacher reviews what has been learned so far in this unit.
    b. Teacher asks, "What could have prevented some of these illnesses". Teacher listens to students responses, noting those that are common between all of the illnesses.
    c. Students are given the directions for this activity.

2. Model (10 minutes)

a. Teacher models a plan for prevention based on his/her own lifestyle. This plan will address ways diet can be changed, smoking can be avoided and regular exercise can be woven into the student's routine in order to lessen the likelihood of developing the illness that was researched. For example, the teacher may say "I know I don't eat a lot of fruits and vegetables. So, in order to prevent diabetes, I will plan to finish every meal with a fruit 'dessert' instead of always having ice cream. I am not able to get fresh fruit often, so I will get frozen fruit from the market. I also don't have a lot of time for exercise, so I will do ten minutes up and down the stairs when I get to work." Students will be asked to develop three ways to change/add to their diet and to incorporate more activity into their lives in their plan.

3. Guided Practice (15 minutes)
a. Teacher starts the plan, first in bullet form, then in narrative form with the students. They then complete their plan with a partner.

4. Independent Practice (15 minutes)
a. Students continue to work on a bulleted format and narrative of their Prevention Plan. Each plan will contain the following headings: Diet, Exercise, Things I will Have More Of, Things I Will Try My Best to Avoid.

5. Wrap up (15 minutes)
a. Students share out their information, the emphasis is on how changes can be realistically added to a student's every day routine.

Lesson Plan #6-Part IV
Final Project

Objectives:
- Students will use all of the information acquired during this unit to create a final project showcasing what has been learned and their plans for a healthy lifestyle.

Materials:
- Information students have gathered from their research.
- Health notebook.
- All information used and create during this unit

Plans:

1. Introduction (5 minutes)

    a. Teacher reviews what has been learned so far in this unit.
    b. Teacher tells student that they will be creating a project that shows what they have learned from this unit.

2. Model (10 minutes)

    a. Teacher models a possible project. Teacher shows students using poster board (or a drawing of a poster board). Teacher shows how the data from their researched illness written in narrative form or bulleted, their Prevention Plan, graphs and numerical data can be arranged to create an informative display. If power point or any other computer based presentation program is something students are familiar with, they can also be encouraged to display their information in that way. Students will also be reminded that they will be assessed on their learning and participation in this unit with this project.
    b. It is suggested that students be assessed in the following manner (although teachers may adjust as they see fit)

      4/100-90
- Student shows an exceptional understanding of the disease chosen and material learned.
  Student's work is neat; creativity and clarity of information is observed.
  Student incorporates all of the topics covered in this unit (Landmark data, Graphs, Disease Information and Prevention Plan).

      3/89-80
- Student shows a satisfactory understanding of the disease chosen and the material learned.
  Student work is neat and information is presented in a fairly clear method.
  Student has incorporated at least three of the topics covered from the unit.

      2/79-70
- Student shows some understanding of the disease chosen and the material learned.
  Student work may not be neat or clear.

Student has incorporated only two of the topics covered in this unit.

1/ 69 and Below
- Student shows little understanding of the unit information.
  Student work is messy and confusing.
  Student has incorporated less than two topics from the unit.

3. Guided Practice (15 minutes)
   a. Students are asked to begin designing what their project will look like and laying out a sketch of how their information will be presented. Teacher circulates as students work, fielding questions and assisting with layout ideas.

4. Independent Practice (15 minutes)
   a. Students continue to work on the above on their own.

5. Wrap up (15 minutes)
   a. Students share out their ideas of what they plan to do.

Lesson Plan #7-Part IV
Final Project

Objectives:
- Students will use all of the information acquired during this unit to create a final project showcasing what has been learned and their plans for a healthy lifestyle.

Materials:
- Information students have gathered from their research.
- Health notebook.
- All information used and create during this unit

Plans:
1. Introduction (5 minutes)

   a. Teacher reviews what has been learned so far in this unit.
   b. Teacher tells student that they will be continuing their project.

2. Model (10 minutes)
      a. Teacher reviews model from prior day's lesson.

3. Guided Practice (15 minutes)
      a. Teacher circulates again as students continue working on their final project.

4. Independent Practice (15 minutes)
      a. Students continue to work on the above on their own.

5. Wrap up (15 minutes)
      a. Students are given an additional day if needed to complete their projects.

Annotated Bibliography/Resources

A. Pietrobelli, C.E. Flodmark, I. Lissau, L.A. Moreno, and K. Widhalm."From birth to adolescence: Vienna 2005 European Childhood Obesity Group International Workshop." *International Journal of Obesity* (2005). Volume 29,

http://www.smoking-facts.net/Teen-Smoking-Facts.html (TSF)

http://www.lung.org/stop-smoking/about-smoking/facts-figures/general-smoking-facts.html (GFAS), American Lung Association, June 2011

M.F. Rolland-Cachera, M. Deheeger, M. Maillot, F. Bellisle. "Early Adiposity Rebound: Causes and Consequences for Obesity in Children and Adults." *International Journal of Obesity* (2006).Vol. 30.

"Physical Activity Fundamental to Preventing Disease" (PAFPD), U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, June 20 2012.

Classroom Materials

For these lessons, chart paper, computers with internet access, a notebook (or a constant supply of writing paper), and poster board (which can be supplied by the student) is needed.

Appendix A

State Standards

●*2.6.5 Statistics and Data Analysis*
A. Students will organize and display data using pictures, tallies, tables, charts, bar graphs and circle graphs.
B. Students will describe data sets using mean, median, mode and range.
D. Students will predict the likely number of times a condition will occur based on analyzed data.
E. Students will construct and defend simple conclusions based on data.

●*10.1.5 Concepts of Health*
C. Students will analyze nutritional concepts that impact health including caloric content of foods the relationship of food intake and physical activity (energy output) and healthful food selections.
E. Students will identify health problems that can occur throughout life and describe ways to prevent them including diseases (e.g., cancer, diabetes, cardiovascular disease preventions (i.e. do not smoke, maintain proper weight, eat a balanced diet, be physically active)

Appendix B

Student Name_____   Date_____

Urban Health Student Survey

Place a check for each disease a person has or has had:

Initials Of the Subject	Male or Female (M,F)	*Cancer*	*Heart Disease*	*Lung Disease*	*Diabetes*	Is this Person still alive?	Age of Death	Notes:

1. How old are people when they die of preventable illnesses?

2. What disease is most common in my community?

3. Which gender suffers the most from these studied illnesses?

Appendix C

Teacher Illness Briefing Sheet

Heart Disease-This term is often used interchangeably with "cardiovascular disease." Both terms refer to conditions that involve narrowed or blocked blood vessels that can lead to a heart attack, chest pain or stroke. Other forms of heart disease, are infections and conditions that affect your heart's muscle, valves or beating rhythm. (http://www.mayoclinic.com/health/heart-disease/DS01120).

Cancer-Cancer refers to any one of a large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to invade and destroy normal body tissue. Cancer cells have the ability to spread throughout the entire body. Cancer is the second-leading cause of death in the United States. Survival rates are improving for many types of cancer, however, thanks to improvements in cancer screening and cancer treatment. (http://www.mayoclinic.com/health/cancer/DS01076

Lung Disease- Any disease or disorder that occurs in the lungs or that prohibits the lungs from working correctly. There are three main types, however many diseases occur with combinations of these types:

1. Airway diseases -- These diseases affect the tubes (airways) that carry oxygen and other gases into and out of the lungs. These diseases usually cause a narrowing or blockage of the airways. They include asthma, emphysema, and chronic bronchitis. People with airway diseases sometimes describe the feeling as "trying to breathe out through a straw."

2. Lung tissue diseases -- These diseases affect the structure of the lung tissue. Scarring or inflammation of the tissue makes the lungs unable to expand fully ("restrictive lung disease"). This makes it hard for the lungs to breathe in oxygen and release carbon dioxide. Pulmonary fibrosis and sarcoidosis are examples of lung tissue diseases. People sometimes describe the feeling as "wearing a too-tight sweater or vest" that won't allow them to take a deep breath.

3. Lung circulation diseases -- These diseases affect the blood vessels in the lungs. They are caused by clotting, scarring, or inflammation of the blood vessels. They affect the ability of the lungs to take up oxygen and to release carbon dioxide. (http://www.umm.edu/ency/article/000066.htm)

Diabetes-Diabetes is a group of diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or the cells in the body do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of frequent urination, increased thirst and increased hunger.

The three main types of diabetes are:

- Type 1 results from the body's failure to produce insulin, and presently requires the person to inject insulin. (Also referred to as insulin-dependent diabetes mellitus (IDDM) or "juvenile" diabetes)

- Type 2 results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. (Formerly referred to as noninsulin-dependent diabetes mellitus (NIDDM) or "adult-onset" diabetes)

- Gestational diabetes is when pregnant women, who have never had diabetes before, have a high blood glucose level during pregnancy. It may precede development of type 2 DM. (http://en.wikipedia.org/wiki/Diabetes_mellitus)

Appendix D

Kid friendly websites

Information on the diseases discussed in this unit
http://kidshealth.org/kid/grownup/conditions/heart_disease.html

Interactive Nutrition Labels
http://www.mayoclinic.com/health/nutrition-facts/NU00293

Healthy Eating
http://www.mayoclinic.com/health/healthy-diet/NU00200

Nutrition Information
http://www.nourishinteractive.com/healthy-living/family-nutrition-exercise-facts/healthy-family-nutrition-websites-links

Information on Disease, Food and Nutrition and Physical Exercise
http://www.bam.gov/index.html