<u>**LESSON 9: NEIGHBORHOOD HEALTH AND WEALTH**</u>

<u>**OVERVIEW**</u>**:**

The purpose of this lesson is to explore the relationship between neighborhood wealth - as determined by median income as well as the quality of the built environment – and the overall health of the inhabitants. Recent studies have shown that great health disparities do exist within cities, often along lines of race and poverty. Furthermore, unhealthy neighborhoods can greatly influence individual health, either for the better or for the worse. In this lesson, students will conduct an investigation in a similar way that public health officials would, by examining three sets of data from New York City that look at the rate of diabetes and asthma rates in all of the neighborhoods of the boroughs of Brooklyn, Bronx, Manhattan, Staten Island and Queens in relation to the median income of those neighborhoods. By the end of the lesson students will have come to an initial correlation between health and wealth and identify areas for further investigation that might also support the proposed correlation.

<u>**SUB-QUESTION**</u>**:**
How can a range of data be used to show public health trends?

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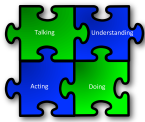
		Students will…
	<u>***Understand***</u>	• Understand that there is a relationship between neighborhood wealth and health. *(ecosystem state and structure, ecosystem change, forces and drivers)*
	<u>***Talk***</u>	*No specific goals connected with talking about urban ecology in this lesson.*
	<u>***Do***</u>	• Summarize data and make correlations between neighborhood wealth and public health issues.
	<u>***Act***</u>	*No specific goals connected with acting on urban ecology in this lesson.*

<u>**PREPARATION**</u>**:**
<u>**Time**</u>**:**
Two 45-minute class periods

<u>**Materials**</u>**:**

Day 1:

       Activity 9.1

       PowerPoint and projector (or overheads of slides and projector)
       Student Handout: "New York's Asthma Rates" article and questions

       Activity 9.2
       PowerPoint and projector (or overheads of slides and projector)

Student Handout: "New York's Neighborhoods: Health and Wealth" data tables

Day 2:

    Activity 9.3
    PowerPoint and projector (or overheads of slides and projector)
    Student Handout: "New York's Neighborhoods: Health and Wealth- Further
    Investigations"

    Activity 9.4 (optional)
    Student Handout "Comparing two neighborhoods; additional factors to explore"

INSTRUCTIONAL SEQUENCE

Activity 9.1:

1. Begin the lesson with the question: "What Makes a Neighborhood Healthy?" If
   students find it difficult, try something more nuanced: "What features of a
   neighborhood promote individuals to live healthy lives?" and, "What features of a
   neighborhood are good for human health?" Finally, ask the students what diseases or
   health issues might affect individuals living in an unhealthy neighborhood. After
   sufficient discussion, hand out the article to read in class.
2. Read the article out loud, pausing to define words as needed (asthma, preventative, air
   filters, hypo-allergenic, respiratory, correlation). Lead students through a discussion
   using the questions at the bottom of the article as a guide.
   Lead the discussion so that students begin to think more broadly about these factors
   and their effects on human health. For example ask, "What sorts of effects might air
   pollution have on a neighborhood other than increased asthma?" Have the students
   think back to the past lessons, including water and use of green space. This will lead
   to the tie in for diabetes.

Activity 9.2:

1. Hand out packet of tables and graphs, "New York City Neighborhoods: Health
   and Wealth. This handout should be used as a way of looking at the information
   that is displayed in the PowerPoint so that individual students can examine the
   data as it is being discussed with the class.
2. Begin the lesson by presenting the power point presentation. There is a slide that
   first presents the table of information on Diabetes. Before asking the students to
   examine the data, explain that the data represented in this chart, as well as all
   subsequent charts comes from the U.S. Census Bureau and the New York City
   Public Health Office. The information in the tables are always organized by the
   Borough and its' neighborhoods. The median household income stays constant
   throughout the tables as well. The variables in the tables and charts are the public
   health issue at question. By examining the data, the students are doing exactly
   what public health officials do – they are trying to find relationships and
   correlations with sets of data. After each slide, you may want to have students

write a sentence or two about their observations in regards to the data and what is tells us about the relationship of wealth and health.

3. The second slide is the same data in a scatter form for the students to examine the patterns and correlations a little deeper. Before delving into the graph make sure students understand what they are looking at: each dot on the graph represents a different neighborhood on the spreadsheet. It is placed according to two scales: Its median household income (the average of all the household incomes in a neighborhood), and the rate of the particular illness.

4. After explaining the graph to the students, ask, "What does the graph show? How does it relate to what we just discussed with the data table?" You may want to have students write a sentence describing the correlation between wealth and health in the graph.

5. Repeat this process for the tables and graphs on Childhood Asthma Hospitalization.

6. As a class, what statement can you make about the correlation between neighborhood wealth and public health based on the data that was examined in class? (ex. Neighborhood wealth affects public health by _____ and _____data supports this statement). Have the students record this statement as it will be reexamined during the second class.

Activity 9.3:

1. The Further Investigations handout and discussion are meant to delve into the nuances of public and wealth a little more deeply as well as provide a deeper examination of initial statement from the last class. Students can work individually, in small groups, or as a class to answer the questions posed on the handout.

2. Question 3 in the first section has the students looking at a linear trend line for the data on diabetes. The last slide of the Power Point is a graph of the diabetes data with a general linear trend line that the students are being asked to compare with their plot line. This should help students who may be struggling to see the comparisons.

3. Wrap up the lesson with having the students revisit the class statement on neighborhood wealth and public health. How confident do they feel about this statement? What other information would be helpful to know in order to determine whether this statement is true?

4. Spend some time discussing the last question on the student sheet. Ask students – Does someone's income cause certain diseases? For example, does having a low income cause someone to have asthma or diabetes? Or does having a low income tend to correlate with other factors, which are actually the causes of those diseases?

   - *Encourage students to think about some of the other characteristics of healthy cities that have been discussed throughout the module like air quality, healthy food and available green space. Neighborhoods with lower incomes are less likely to have healthy food, less likely to have green space and more likely to have poor air quality. These other factors are what actually causes the various health problems.*

Activity 9.4: Extending the lesson

There is an additional activity with this lesson if time permits. The activity asks students to compare two neighborhoods and to think of some of the other factors aside from median income that may affect the public health concerns of asthma and diabetes, including the diversity of the neighborhood. More information can be found at the U.S. Census homepage at http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml