

**TIES**  
2002

Teachers in Industry for Educational Support

## **CANCER PREVENTION**

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## Table of Contents

	<u>Page</u>
Curriculum Unit Overview – narrative	3
Summary Chart	4-5
Section One (Wo)Man In The Mirror Health	6-11
Section Two (Wo)Man In The Mirror Math	12-17
Section Three (Wo)Man In The Mirror English	18-23
Transfer Activity (Wo)Man In The Mirror	24-25
Appendix	26

# Cancer Prevention Curriculum Unit Overview

## Summary

Cancer is one of the leading causes of death in the United States. Treatment of different types of cancer comes in different forms, is expensive, and not always effective. Cancer is undefeated. The most promising approach to control this disease is through national awareness and steps for prevention. There is more time in a person's life to prevent cancer than the time cancer is detected for treatment. This 4-week unit is designed to familiarize high school students with effective cancer prevention education and their strengths & weaknesses in nutrition, exercise, and behavior. Students will also gain knowledge on services of the American Cancer Society, American Institute for Cancer Research, and the Department of Health and Human Services.

## Big Picture

The hook activity will be a series of self-assessment surveys' on the "cornerstones of good health". Self-assessment could include the following areas:

- Good nutrition
- Controlling stress
- Regular exercise
- Avoidance of all types of drugs
- Safe behavior

Examples may be found in Appendix. (Hook, 1,2,3) A speaker from the Hipple Cancer Research Center with a power point presentation on prevention vs. detection /treatment of cancer may be arranged.

## Preparation for the Unit

Two weeks in the information/technology center will be arranged between the classroom teacher and the media specialist. Teacher will secure a contact person at the Department of Health and Human Services and notify the ACS, and AICR that, students will be contacting them. Principal will be asked to notify the Superintendent of the target area to be used for the student questionnaire/interview. Teacher will supply markers, floppy disks, scissors, and magazines. Teacher will schedule use of LCD projector if needed for speaker.

## Overview

A summary of the unit, found on the next page will provide an overview of the **nine ALTs**. This table provides an overview of the tasks in the unit sections and demonstrates how activities in the different teaching areas relate to each other.

# Cancer Prevention

A 4-Week Cross-Discipline Unit

<b>(Wo)Man In The Mirror HEALTH</b>	<b>(Wo)Man In The Mirror MATH</b>	<b>(Wo)Man In The Mirror ENGLISH</b>
<p><b>ALT 1 – Big Brother Is Watching</b></p> <p>Research one of three organizations: ACS, AICR, Dept. of Health &amp; Human Services using print/non-print, and electronic resources</p>	<p><b>ALT 1 – Pyramid Of Success</b></p> <p>Using the five food groups in the food pyramid, incorporate alternative measuring devices and graph food consumption for a day</p>	<p><b>ALT 1 – The Heart Of The Matter</b></p> <p>Read fiction/non fiction books with a cancer theme</p>
<p><b>ALT 2 – Display Your Knowledge</b></p> <p>Construct a display on a cancer organization</p>	<p><b>ALT 2 – Who’s #1</b></p> <p>Assess statistical data and elaborate on their organization, distinguishing its role</p>	<p><b>ALT 2 – Stick To The Facts</b></p> <p>Prepare a 20 question interview or questionnaire which will be used to find facts about cancer awareness in a selected area in the school district</p>
<p><b>ALT 3 – Give Them The Business</b></p> <p>Investigate local businesses to see if any of the organizations (ACS, AICR, or Dept. of Health &amp; Human Services) can be applied or are already incorporated within their business</p>	<p><b>ALT 3 – It All Adds Up</b></p> <p>Develop graphs by deciphering statistical data</p>	<p><b>ALT 3 – Make That Change</b></p> <p>Write a formal data report with parenthetical documentation, information on organization, the 20 question interview/questionnaire, statistical assessments, and bibliography</p>

## **TRANSFER ACTIVITY**

Working together, the pre-determined groups upon completion, will present their findings on cancer prevention to their classmates. If so desired, groups may approach PTO or community groups to “educate” on cancer prevention. Each group presentation will last 20 – 25 minutes. The presentations should include some type of visual aid (charts, displays, or graphs). A choice of a power point presentation or a handout will be used in the survey results and how information was researched. Groups may use both of these methods for presentation. Each member of the group will evaluate the other class presentations using a rubric.

## **(Wo)Man In The Mirror Health**

### **ALT 1: Big Brother Is Watching**

#### **Summary**

The students will work in collaborative groups of four students per group. Each group will research one of three cancer educational prevention organizations. They are:

- A. The American Cancer Society (ACS)
- B. American Institute for Cancer Research (AICR)
- C. Department of Health & Human Services

Research can be print/non-print. This could include internet/ CD-ROM sources too.

#### **Competencies**

1. Investigate information about different types of educational programs and services.
2. Distinguish five types of cancer and their causes
3. Incorporate risk factors that can increase chances of getting chosen type of cancer
4. Explain how different cancer organizations work with all age groups.

#### **TIME**

Communication with organization -	3 hours
Organization of acquired information -	1-½ hours
Group presentation -	15 minutes per group

#### **Materials**

1. Information technology center
2. Computer floppies
3. Internet URL's for chosen organization (H ALT 1 Handout 1A, 1B, 1C)
4. Paper, pens/pencils

#### **Instructions**

##### **Teacher**

1. Divide class into respective groups.
2. Check to see if all three organizations will be covered.

##### **Students**

1. Personalize group
2. Chose a organization from either the ACS, AICR, or Dept. of Health & Human Services.

3. Choose task assignments, i.e. who will be the reporter, facilitator, recorder, and timekeeper within the group.
4. Assign organization areas, nutrition/labeling, exercise, risk factors and services provided by organization.
5. Define which types of cancer will be studied.
6. Clarify age groups targeted.
7. Locate URL of organization and print out homepage. H ALT 1 Handout 1A, 2B, 1C)
8. Research individual topic within group using both print/non-print materials, other Internet sites, and CD-ROM's.
9. Accumulate researched data on organization.
10. Conduct a brief, oral presentation to inform rest of class on chosen organization.

### **Evaluation**

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

1. Teamwork of group	1	2	3	4	5
2. Group researched selected organization	1	2	3	4	5
3. Group member's completed assigned task	1	2	3	4	5
4. Each topic within group covered	1	2	3	4	5
5. Data collected reliable and efficient	1	2	3	4	5
6. Group delivery of presentation	1	2	3	4	5
7. Group provided sufficient coverage of organization	1	2	3	4	5

### **Closure**

Each group will give a 15-minute presentation about the selected organization. The presentation will help inform the class on each organization. This activity will be used for H ALT 2 in creating a display comparing the similarities and differences of the three organizations.

## **(Wo)Man In The Mirror Health**

### **ALT 2: Display Your Knowledge**

#### **Summary**

Students will work in the same groups from H ALT 1.

Students will use their organization's data to assemble a display.

The display will be set-up in the classroom and will be used as part of E ALT 1 and 3, and the Transfer Activity.

#### **Competencies**

1. Assess data concerning the organization chosen.
2. Construct a display with emphasis on major points of nutrition/labeling, exercise, risk factors, selected types of cancer, and services provided by organization.
3. Elaborate on major points of display.

#### **Time**

Collecting needed items for display -	2 ½ hours
Assembling display -	3 hours

#### **Materials**

1. Data from H ALT 1
2. Markers/color pencils
3. Pictures from periodicals
4. Scissors
5. Construction paper
6. Poster paper
7. Tape/glue stick
8. Show items, models, assemble materials

#### **Instructions**

1. Analyze data of organization from H ALT 1.
2. Group input on assembling of display.
3. Assign different divisions of display to group members.
4. Display should include title of organization and its location, topic labeling on specific parts of the major themes/types of cancer. Models, drawings, and pictures.
5. Display should be creative and neat, as it will be used by other ALT's.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

1. Teamwork of group	1	2	3	4	5
2. Group members completed assigned tasks	1	2	3	4	5
3. Group constructed display	1	2	3	4	5
4. Display meets predetermined requirements	1	2	3	4	5
5. Display is neat	1	2	3	4	5
6. Display is creative	1	2	3	4	5

## Closure

Each group's display will be left in the classroom so students can visually associate with the organizations. The display will be used with presentations of E ALT 1 and 3. Display will also be used in Transfer Activity.

## **(Wo)Man In The Mirror Health**

### **ALT 3: Give Them The Business**

#### **Summary**

Students will use the 20-question interview/questionnaire from E ALT to interview local businesses and see if any of the organizations, ACS, AICR, Dept. of Health & Human Services can be applied or are already incorporated within their business. The final interview results will be used with E ALT 3 and the Transfer Activity.

#### **Competencies**

1. Understanding how different organizations serve the community in a variety of ways.

#### **Time**

First contact (possibly by phone) - 10 minutes  
Interview (possibly by phone) - 30 minutes  
Organize notes on interview - 45 minutes

#### **Materials**

1. 20 question interview /questionnaire from E ALT 2
2. Questionnaire guideline sheet E ALT 2 Handout 1
3. Phone book
4. Access to phone
5. Paper
6. Pen/pencil
7. List of possible contacts within business
8. Information Technology Center
9. Thank you note

#### **Instructions**

1. Review 20 -question interview/questionnaire from E ALT 2.
2. Prepare a list of possible contacts within business.
3. Initial call/meeting to set up interview.
4. Decide on face-to-face or phone interview.
5. Do interview.
6. Follow-up thank you note to person who was interviewed.
7. Prepare results of interview in a word document.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

1. Student used interview script	1	2	3	4	5
2. Student made contact and arranged interview	1	2	3	4	5
3. Interview was conducted	1	2	3	4	5
4. Follow-up thank you note sent	1	2	3	4	5
6. Notes from interview made into word document and submitted	1	2	3	4	5

## Closure

This activity allows students to extend the facts they have learned about their organization into application into the reality of the business world. The student also discovers, through this process, the outreach of organizations to the community. The summarize results will be used in E ALT 3 and with the Transfer Activity.

## **(Wo)Man In The Mirror Math**

### **ALT 1: Pyramid of Success**

#### **Summary**

Students will work individually within groups as assigned in H ALT 1, to demonstrate the concepts learned in class to the application of the real weights & measurements of the five food groups in the food guide pyramid. Next, the students will incorporate methods to be used between numerical and size of servings/portions, when a standard food scale or measuring tools are not available. The teacher will be able to advise the individuals as needed. Each student will then construct a graph to show consumption of food in the five food groups, over a one-day period.

#### **Competencies**

1. Examine weights and sizes that make up servings/food portions.
2. Devise alternatives to measuring sizes/portions.
3. Prepare a graph on personal food consumption in the five foods groups in a day.

#### **Time**

Class time -	1 hour
Home consumption measuring -	4, 15 minute analysis
Design of graph -	30 minutes

#### **Materials**

1. Paper
2. Pens/pencils
3. Graph paper
4. Food scale
5. Measuring cups/spoons
6. Items/things as needed to be used as alternative measuring devices
7. Copy of Food Guide Pyramid (printed copy or internet site:  
<http://www.anal.usda.gov/fnic/Fpyr/pyramid.gif> (M ALT Handout 1)

#### **Instructions**

##### **Teacher**

1. Restate assignment.
2. Advise individuals as needed.

## Students

1. Review Food Guide Pyramid sheet.
2. Devise alternative measuring methods.
3. Record food consumption over a day.
4. Produce graph of the food consumption over a day.
5. Discuss with class alternative measuring methods that were used.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

Individuals:

1. Followed directions	1	2	3	4	5
2. Class time used efficiently	1	2	3	4	5
3. Completion of assignment	1	2	3	4	5
4. Creation of graph	1	2	3	4	5
5. Graph neat and legible	1	2	3	4	5
6. Participation in class discussion	1	2	3	4	5

## Closure

The individual will discuss:

- The alternative measuring methods used.
- Clarify understanding of realistic measurements of food portion/servings.
- One-day food consumption of food in the five food groups.
- Judge personal nutritional habits by assessing their personal graph.

This activity can be used as a companion to M ALT 2 and M ALT 3.

## **(Wo)Man In The Mirror Math**

### **ALT 2: Who's # 1**

#### **Summary**

The students will work in groups assigned in H ALT 1, to find statistical data that distinguish their selected organization (ACS, AICR, or Dept.of Health & Human Services).

#### **Competencies**

1. Integrate a mathematical relationship using a table, graph, symbols, and words, then explain how a disruption in the value of one factor affects the value of a related factor.
2. Incorporate, devise and/or diagram tables, charts, and graphs involving data.
3. Translate mathematical solutions, ideas, and reasoning through the use of applicable mathematical definitions, notations, and models.

#### **Time**

Research - 2 hours  
Decipher data/planning - 2 hours  
Group discussion upon conclusion - 45 minutes

#### **Materials**

1. M ALT 2: Data sources 1,2,3/Activity Sheet
2. Access to Information Technology Center
3. Paper/graph paper
4. Pens/Pencils
5. Calculators
6. Floppy disks

#### **Instructions**

1. Assign roles within group which include: reporter, computer person, recorder, and facilitator.
2. Compile data on group's organization.
3. Decide on pertinent statistical analyses, then method that will be used in M ALT 3.
4. Turn in written paragraph that supports the data chosen and connection to group's organization.
5. Turn in bibliographical information of data sources.
6. Develop a plan which will communicate data to other groups and allow for critique time for all group plans in the closing session with class.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest

1. Teamwork of group	1	2	3	4	5
2. Group members complied assigned tasks	1	2	3	4	5
3. Data collected reliable and efficient	1	2	3	4	5
4. Chose appropriate statistical representation	1	2	3	4	5
5. Delivered method (form) acceptable	1	2	3	4	5
6. Incorporate data to connect with organization	1	2	3	4	5
7. Group produces bibliography	1	2	3	4	5
8. Group presentation	1	2	3	4	5
9. Group involvement in closing session with class	1	2	3	4	5

## Closure

Group will submit finished product to the class and gather feedback.  
This project will be used to finish M ALT 3.

## **(Wo)Man In The Mirror Math**

### **ALT 3: It All Adds Up**

#### **Summary**

The students will use the data from M ALT 2 to develop appropriate graphs, to produce statistical analysis, and complete task with a written explanation that will be added with the finished report for E ALT 3.

#### **Competencies**

1. Apply M ALT 2 to add, produce, and assess graphs of linear/nonlinear functions
2. Calculate any mean, medians, or mode models.
3. Apply possible variability, range/visual display of data.

#### **Time**

Activity - 2 hours  
Group discussion upon conclusion - 45 minutes

#### **Materials**

1. M ALT 2: Data sources 1,2 3/Activity Sheet
2. M ALT 3 Handout
3. Access to Information Technology Center
4. Paper
5. Pens/pencils
6. Calculators
7. Floppy disks

#### **Instructions**

1. Assign roles within group that include, reporter, computer person, recorder, and facilitator
2. Submit data
3. Produce statistical outcomes
4. Summarize through an oral presentation, statistical results.
5. Create graphs/tables/charts.
6. Collect/analyze all data in a written report.
7. Turn in written report.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest

1. Teamwork of group	1	2	3	4	5
2. Group members completed assigned tasks	1	2	3	4	5
3. Data collected reliable and efficient	1	2	3	4	5
4. Group stayed on task	1	2	3	4	5
5. Oral presentation was clear	1	2	3	4	5
6. Proper construction of any graph, table, chart	1	2	3	4	5
7. Final presentation understandable and applicable	1	2	3	4	5

## Closure

Group will discuss best methods to apply and combine materials

Group will discuss concerns/questions on methods used.

This project will be added to and finish the E ALT 3 and to the Transfer Activity.

## **(Wo)Man In The Mirror English**

### **ALT 1: The Heart Of The Matter**

#### **Summary**

The students will work in groups established in H ALT 1. Each group will decide on a book/biography, which in some way correlates with the activities of the organization of study chosen in H ALT 1. Each student will read the book and the group will construct a storyboard.

#### **Competencies**

1. Follows directions and guidelines.
2. Identifies author's perspective and reasoning.
3. Display information that supports an interpretation.
4. Identify parts of book (setting, plot, theme, protagonists)
5. Recognize different writing styles of books.

#### **Time**

Classroom reading -	1 hour
Home reading -	5 hours
Construction of storyboard	2 hours

#### **Materials**

1. Book choices (E ALT 1, list of books)
2. Pencils, pens, markers, rulers, poster board, glue/tape, scissors
3. Periodicals/newspapers

#### **Instructions**

1. Form groups of 4, one person being a presenter, a researcher, a designer (storyboard) and a writer.
2. Chose book(s)
3. Read so as to interpret book.
4. Construct storyboard. Include main characters (with descriptions), settings, themes, Favorite parts/passages, plot, and list of related terms associated to cancer.

## Evaluation

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

<u>Team</u>					
1. Teamwork	1	2	3	4	5
2. Time efficiency used	1	2	3	4	5
3. Individuals share responsibility	1	2	3	4	5
4. Team project meets requirements	1	2	3	4	5

<u>Storyboard</u>					
1. Neat/legible	1	2	3	4	5
2. Define Character(s)	1	2	3	4	5
3. Describe settings	1	2	3	4	5
4. Acceptable theme	1	2	3	4	5
5. Passages imaginative	1	2	3	4	5
6. Accurate plot	1	2	3	4	5
7. Descriptive terms	1	2	3	4	5

## Closure

The student will use the storyboard, the research (from H ALT 1) for an oral book report.

**(W0)Man In The Mirror  
English**

**ALT 2: Stick To The Facts**

**Summary**

The students will work in selected groups from H ALT 1.  
Each group will prepare a 20-question interview/questionnaire, which will be used to find out cancer awareness in a selected area of the school district.

**Competencies**

1. Ability to follow a variety of directions.
2. Investigate different selection of methods for gathering information.
3. Select best, specific and supporting, information.
4. Determine exact word/sentence structure.

**Time**

Work in classroom - 1 hour  
Work in selected area for gathering data - 2 hours

**Materials**

1. Directions
2. Questionnaire/interview tip sheet (E ALT 2 Handout 1)
3. Paper
4. Pens/pencils
5. Access to word processor in lab or Information Technology Center
6. Transportation, if needed, to conduct interview/questionnaire in select area.
7. School ID.

**Instructions**

1. Create a 20-question interview or questionnaire about cancer awareness in selected Area in school district
2. Each question should provide room for written comments or notes.
3. Use required style, i.e., question number, question, blank (for answer).
4. First five questions should be used for data-helpful information, ex., male/female age group, etc.
5. Use questions that require short reply (yes/no)
6. Word process into most user-friendly form.
7. Make 50 copies.
8. Use/show School ID upon first contact.

9. Target selected area, distributing and collecting questions.
10. Tabulate the data.

**Evaluation**

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

1. The questionnaire/interview should follow guidelines	1	2	3	4	5
2. Clear, sentence structure	1	2	3	4	5
3. Final product useful	1	2	3	4	5
4. Questionnaire was distributed/collected	1	2	3	4	5
5. Student ID were used	1	2	3	4	5
6. The data was processed	1	2	3	4	5

**Closure**

This activity can be matched with the H ALT 3 and incorporated in the research paper.

## **(Wo)Man In The Mirror English**

### **ALT 3: Make That Change**

#### **Summary**

The students will work in groups set up in H ALT 1. Each group will create a formal data report with parenthetical documentation along with a bibliography. This paper will include the data about the organization, the questionnaire/interview, and the statistical assessments.

#### **Competencies**

1. Follow directions & guidelines.
2. Determine the best methods for acquiring data.
3. Support fact-finding feedback with reliable sources.
4. Comply to MLA writing style with spelling, word usage, and mechanics of grammar.

#### **Time**

Classroom writing -           3 ½ hours  
Homework -                   4 hours

#### **Materials**

1. Paper
2. Pens/pencils
3. Computer with word processor
4. Directions
5. Example of an acceptable research paper
6. A MLA current handbook.
7. Rubrics for correction (E ALT 3 Handout 1, 2 and 3).

#### **Instructions**

1. Organize needed materials.
2. Create a graphic organizer, which indicates a formal five-paragraph essay to inform.
3. Rough draft on each paragraph.
4. Members of group should proofread, using rubric (E ALT 3 Handout 2 and 3).
5. Type final copy that will be turned in.

6. Prepare an appendix that includes:
  - Data researched
  - Mathematical analysis
  - 20-question interview/questionnaire

### **Evaluation**

Use evaluation rubric where 1 equals the lowest and 5 equals the highest.

1. A “hook” introduction (creative not bland)	1	2	3	4	5
2. Statement of purpose is clear	1	2	3	4	5
3. Elaboration of themes and data	1	2	3	4	5
4. The close relates to the statement of purpose	1	2	3	4	5
5. Resource data should be of all types (print/non-print, internet, CD-ROM’s)	1	2	3	4	5
6. Sources should be accurate, current, non-bias	1	2	3	4	5
7. Proper documentation	1	2	3	4	5
8. Use of MLA style is consistent through entire assignment	1	2	3	4	5

### **Closure**

This activity will be in union with the M ALT 3 and the H ALT 3. Together these will form the heart of the public presentation.

## **(Wo)Man In The Mirror Transfer Activity**

### **Summary**

The pre-determined groups upon completion will present their findings on cancer prevention to their classmates. If so desired, groups may approach PTO or community groups to “educate” on cancer prevention. Each group presentation will last 20 – 25 minutes. The presentations should include some type of visual aid (charts, displays, or graphs). A choice of a power point presentation or a handout will be used in the survey results and how information was researched. Groups may use both of these methods for presentation. Each member of the group will evaluate the other class presentations using a rubric.

### **Competencies**

1. Accumulate reliable, acceptable data.
2. Analyze information in a well-devised manner.
3. Incorporate and scrutinize ideas.
4. Use of storyboard, graphs, displays, and models effectively.
5. Proper speech delivery.
6. Catch group/public’s “ear”.
7. Adequate use of allowed time.

### **Materials**

1. Podium (if available)
2. Sound system (if available)
3. Props, i.e. storyboard, models, charts, display
4. Screen
5. LCD projector
6. Computer
7. VCR/TV combo
8. Video tape
9. Evaluation sheets

### **Instructions**

1. All group member present, in front of class/audience for presentation.
2. Leader of group main speaker
3. Designer/assembler person of group will interpret all visuals

4. Each class member will evaluate.

### **Evaluation**

Evaluation sheet (TA –2)

### **Closure**

Each group will assess and scrutinize their group evaluation from the others. Afterwards, they are welcomed to respond.

# Appendix

## **Deciphering Data On Cancer Activity Guide Student Directions – 100 points**

**Materials needed:**

1. Activity Guide
2. Data
3. Floppy Disk

**Directions:**

1. Answer questions and complete all tasks in this activity guide.
2. Print specified material (see below).
3. Feedback should be logical and clear.
4. Share information with class through discussion.

Section 1 is worth 50 points

Section 2 is worth 50 points

**TOTAL POINTS 100**

**\*\*\*MAKE SURE THAT YOU PRINT THE FOLLOWING:**

**SECTION # 1 A and H**

**SECTION # 2 A and D**

## Deciphering Data On Cancer Activity Guide

### SECTION # 1: QUALITATIVE ANALYSIS OF DATA – 50 POINTS

- A. Enter your data on Excel and PRINT. (5 points)
- B. What type of cancer causes the highest mortality rate for males? What do you think are the reasons for this? (5 points)
- C. What type of cancer has the lowest mortality rate for males? What do you think are the reasons for this? (5 points)
- D. What type of cancer causes the highest mortality rate for females? What do you think are the reasons for this? (5 points)
- E. What type of cancer has the lowest mortality rate in females? What do you think are the reasons for this? (5 points)
- F. What type of cancer causes the highest mortality rate in your age group? Were you surprised? Why or Why not? (5 points)
- G. What type of cancer causes the lowest mortality rate in your age group? Were you surprised? Why or why not? (5 points)
- H. Now sort the data from lowest mortality to the highest mortality and PRINT DATA. (see below) Was it easier to understand in this format? (15 points)

#### \*\* TO SORT DATA

- Select all columns of data by clicking on the gray column heading bar. Please BE SURE all columns are selected so that data for each cancer remains consistent across the rows.
- Under the Data menu, choose Sort.
- In the Sort By window, choose a variable to sort by. (We Want to use “descending” order)

### SECTION # 2: CAN YOU FIND A RELATIONSHIP? – 50 POINTS

A scatterplot may provide a visual picture of data in order to analyze any patterns or trends. This is done graphically.

- A. Create a scatterplot. Which variable (age or sex) should be the Independent variable (x)? PRINT the scatterplot and EXPLAIN. (10 points)
- B. Does this graph show any trends? What are they? Do you see any relationships? (5 points)

## IS THER A RELATIONSHIP (continued)

- C. One way to measure the strength of a relationship between two Variables is to calculate the Pearson product-moment correlation coefficient, or  $r$ , between them. As a reminder, use your math Book (page 145), to refresh your mind on the meaning of a Correlation coefficient. Now calculate the correlation coefficient ( $r$ ) for the variables. Based on the meanings of these indices, interpret the value of  $r$ . ( 5 points)
- D. Looking at the scatterplot of the data, use the Line tool to place a “best fit” line through the data points to approximate the trend you observe and help with making predictions. PRINT this. (20 points) \*See below.

\*\*To draw a line on a scatterplot using the Line tool:

- Select the Draw tools and notice the icons on the toolbar at the bottom of the screen.
- Choose the Line tool. Move the mouse pointer over the scatterplot so the pointer turns into a crosshair. Click the mouse to anchor the line at an appropriate point on the graph, then drag the line forward and click to end the line segment.
- You can change the slope of the line by grabbing one of the white end handles. You can move the position of the line by selecting it and then dragging the line.

- E. One way to accurately calculate a line of best fit is by using a least squares regression line. Excel allows the user to add several types of treadlines (regression) to a graph. Add a linear trendline to the graph. (5 points) \*See below.

\*\*To add a trendline to a graph:

- Select the graph of the data. Under the Chart menu, Choose Add Trendline.
- Select the type of regression, in this case linear.
- Click on the Options tab. Make sure to select the Option to display the equation.
- Click OK.

- F. Interpret the linear equation for this data. (5 points)