

# **Math & Chemistry Exhibition**

Math Requirements

## Driving Question

Are human rights violations justified if they contribute to scientific progress?

Does the end justify the means?

# Essential Skills

1. Conduct research to find data that will help you justify your answer to the driving question.
2. Create a visually appealing infographic, chart, table, and/or graph that will demonstrate your data in an easy to read manner.
3. Answer the driving question by analyzing the data you collected.

# **Deliverable #1**

1. The 4 C's of design packet.
2. Make sure to complete every section. This will help you organize the information you collected and answer the driving question.

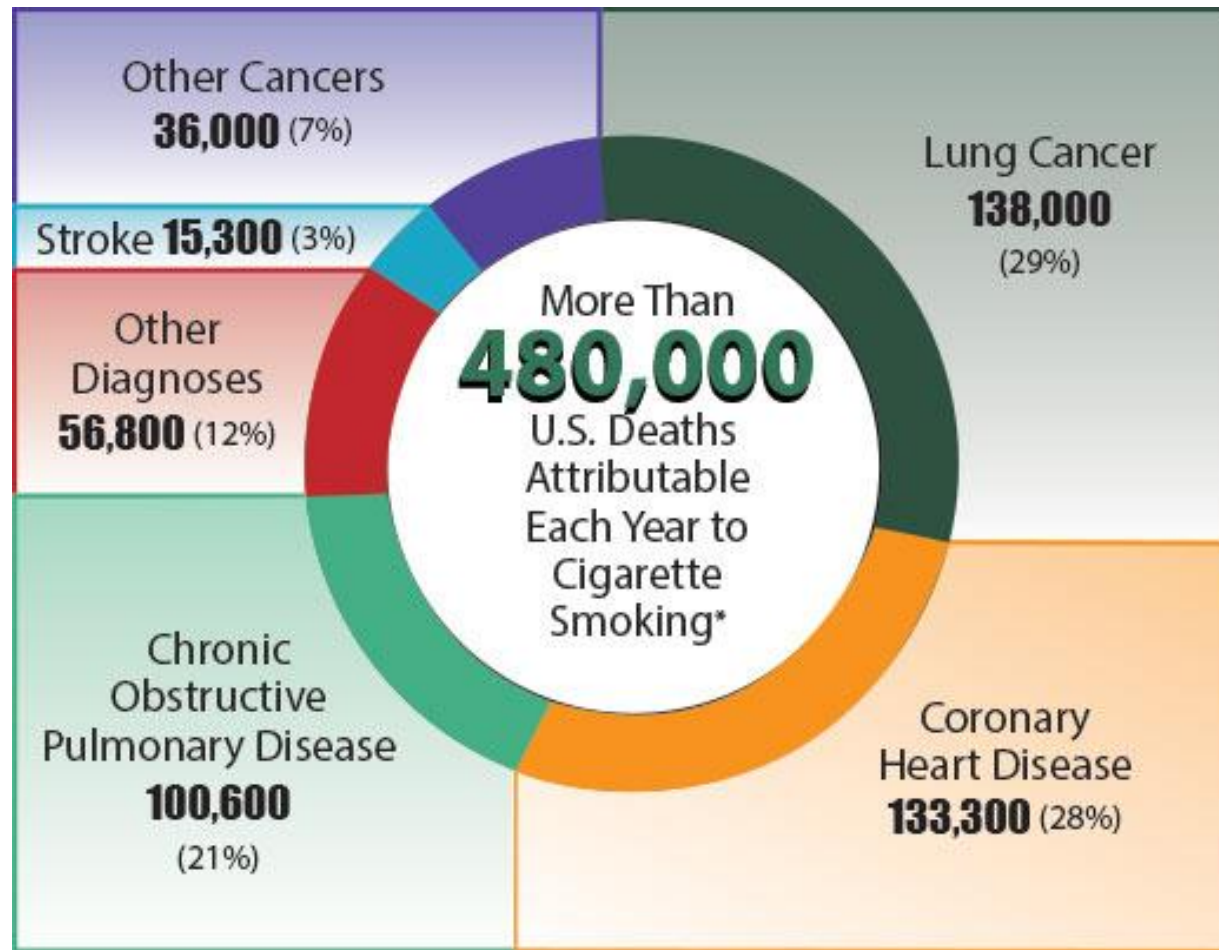
## **Deliverable #2**

1. You will compile a list of resources you used for this project.
2. You will write down all the information you found.
3. You will analyze the data you found and come up with a conclusion to the driving question.

# **Deliverable #3**

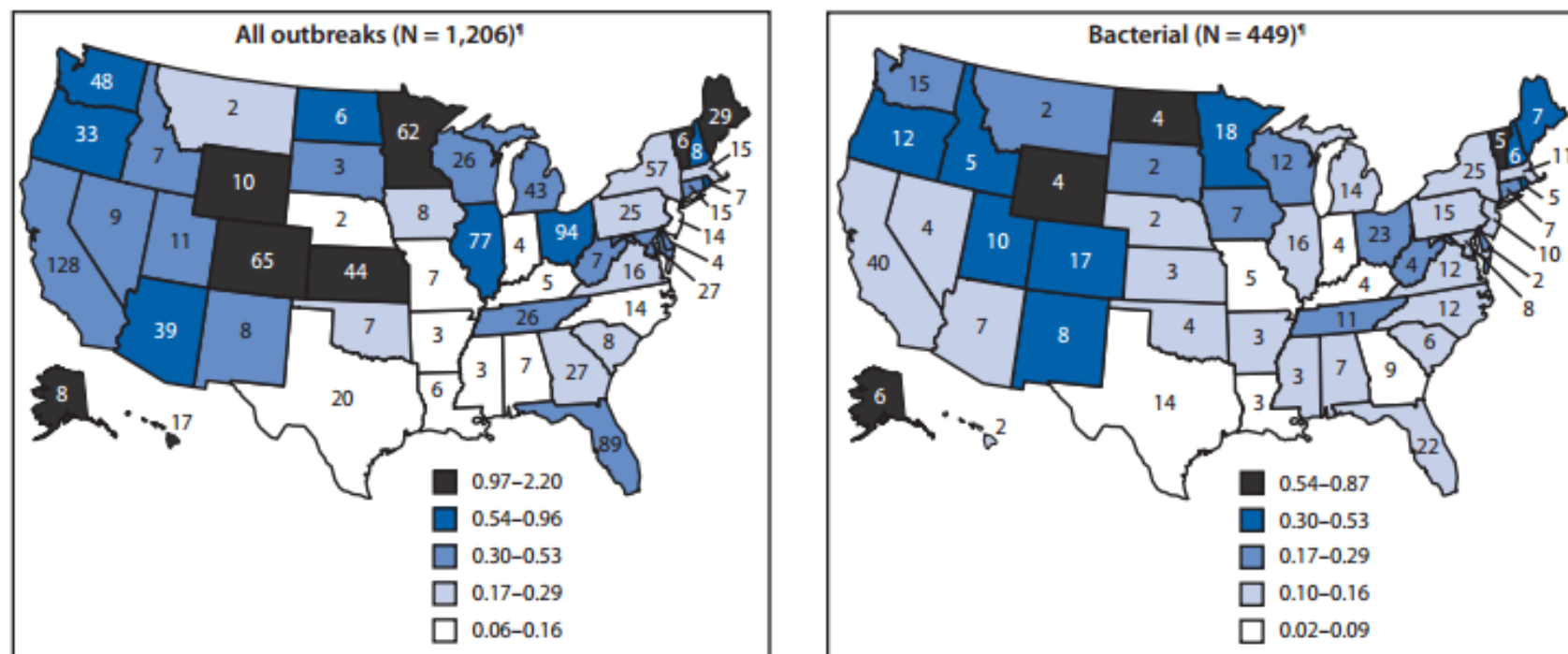
1. You will create several infographs, charts, tables, and/or graphs that will display the information you found while you researched.
2. You will ensure all your infographs, charts, tables, and/or graphs are labeled properly, color coded, and have a one paragraph explanation each.
3. You will create a minimum of 4 infographs, charts, tables, and/or graphs.

# Examples



# Examples

FIGURE. Rate of reported foodborne disease outbreaks per 100,000 population\* and number of outbreaks,<sup>†</sup> by affected states and major etiology group<sup>§</sup> — Foodborne Disease Outbreak Surveillance System, United States, 2008

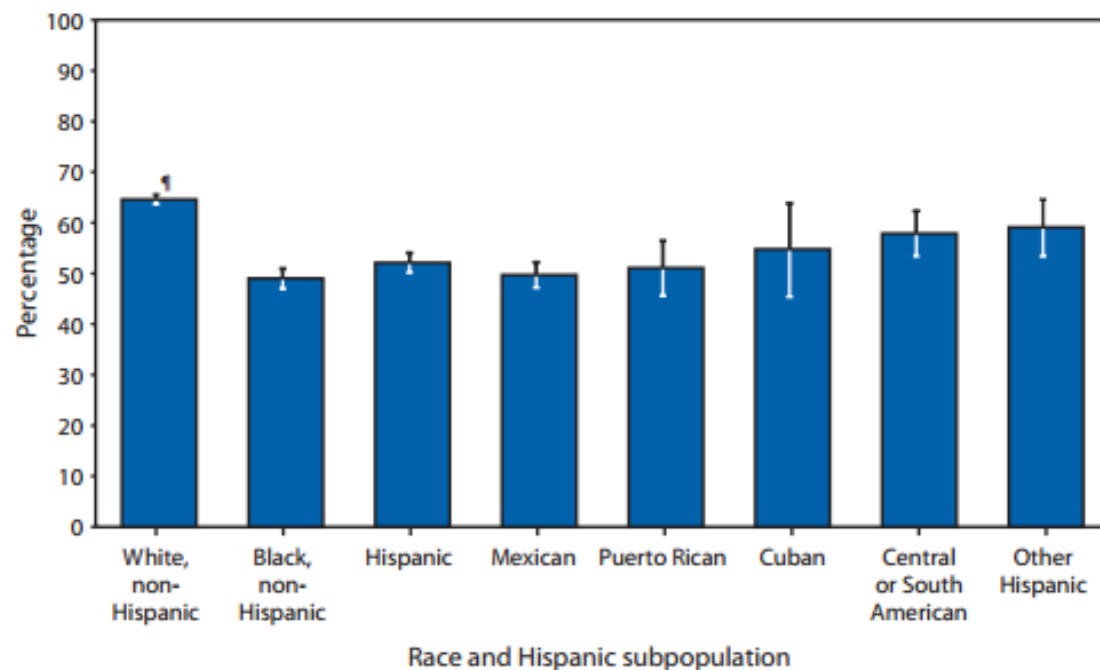




# Examples

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

**Percentage of Adults Aged  $\geq 18$  Years with Self-Reported Excellent or Very Good Health,\* by Race and Hispanic Subpopulation<sup>†</sup> — National Health Interview Survey, United States, 2009<sup>§</sup>**



# Examples

## Morbidity and Mortality Weekly Report

TABLE 1. Number and percentage of reported foodborne outbreaks and outbreak-associated illnesses, by etiology\* — Foodborne Disease Outbreak Surveillance System, United States, 2008, and 2003–2007 mean annual totals

Etiology	Outbreaks						Illnesses						Hospitalizations					
	2008				2003–2007		2008				2003–2007		2008				2003–2007	
	CE	SE	Total		No.	Mean annual total†	CE	SE	Total		No.	Mean annual total†	CE	SE	Total		No.	Mean annual total†
			No.	(%)					No.	(%)					No.	(%)		
<b>Bacterial</b>																		
<i>Salmonella</i> <sup>§</sup>	110	7	117	(18)	129	(17)	4,883	77	4,960	(27)	3,290	(17)	791	6	797	(66)	369	(49)
<i>Clostridium perfringens</i>	21	19	40	(6)	44	(6)	965	444	1,409	(8)	1,815	(9)	3	1	4	(<1)	12	(2)
<i>Escherichia coli</i> , Shiga toxin-producing (STEC) <sup>§</sup>	36	—	36	(5)	27	(4)	920	—	920	(5)	402	(2)	214	—	214	(18)	115	(15)
<i>Campylobacter</i> <sup>**</sup>	21	4	25	(4)	22	(3)	604	11	615	(3)	623	(3)	20	5	25	(2)	13	(2)
<i>Bacillus cereus</i>	3	12	15	(2)	18	(2)	73	49	122	(1)	138	(1)	—	1	1	(<1)	—	(0)
<i>Staphylococcus enterotoxin</i> <sup>††</sup>	6	8	14	(2)	35	(5)	257	54	311	(2)	472	(2)	12	—	12	(1)	20	(3)
<i>Shigella</i> <sup>§§</sup>	6	—	6	(1)	11	(1)	170	—	170	(1)	500	(3)	4	—	4	(<1)	12	(2)
<i>Clostridium botulinum</i>	4	—	4	(1)	3	(<1)	10	—	10	(<1)	10	(<1)	9	—	9	(1)	8	(1)
Other bacterial	1	2	3	(<1)	15	(2)	64	24	88	(<1)	117	(1)	—	—	—	(0)	1	(<1)
<i>Listeria</i> <sup>¶¶</sup>	3	—	3	(<1)	2	(<1)	33	—	33	(<1)	13	(<1)	25	—	25	(2)	11	(1)
<i>Vibrio parahaemolyticus</i>	1	—	1	(<1)	5	(1)	2	—	2	(<1)	109	(1)	—	—	—	(0)	1	(<1)
<i>Vibrio</i> other	—	1	1	(<1)	1	(<1)	—	3	3	(<1)	2	(<1)	—	—	—	(0)	—	(0)
<i>Escherichia coli</i> , enterotoxigenic	—	—	—	(0)	2	(<1)	—	—	—	(0)	125	(1)	—	—	—	(0)	1	(<1)
<i>Brucella</i> sp.	—	—	—	(0)	1	(<1)	—	—	—	(0)	2	(<1)	—	—	—	(0)	1	(<1)
<i>Yersinia enterocolitica</i>	—	—	—	(0)	1	(<1)	—	—	—	(0)	3	(<1)	—	—	—	(0)	1	(<1)
<b>Total</b>	<b>212</b>	<b>53</b>	<b>265</b>	<b>(40)</b>	<b>316</b>	<b>(41)</b>	<b>7,981</b>	<b>662</b>	<b>8,643</b>	<b>(47)</b>	<b>7,623</b>	<b>(40)</b>	<b>1,078</b>	<b>13</b>	<b>1,091</b>	<b>(91)</b>	<b>566</b>	<b>(75)</b>