



Creating Human Rights Models with Basic Statistics and Probability

by Nathan Golden, 2018 CTI Fellow
Northridge Middle School

This curriculum unit is recommended for:
7th Grade Math and 8th Grade Math Statistics Review

Keywords: mean, median, MAD, single and multi-event probability, non-natural probability, statistical models, human rights

Teaching Standards: See [Appendix 1](#) for teaching standards addressed in this unit.

Synopsis: This curriculum unit will have students deepen their understanding of human rights, begin to form their own opinions on what rights they value the most, bring coding to life, all while still hitting the appropriate North Carolina 7th grade math standards. In this unit students will first study basic probability and statistics through a human rights lens. They will discuss things such as GDP per capita, infant mortality rates, access to clean water and much more. After students have successfully mastered the content and learned about human rights they will begin their end of unit project. The end of unit project will require students to choose up to 10 human rights they deem the most important. Students will then use these human rights to create a statistical model. Students will then code their model into Python. Their Python program will allow users to enter data from a variety of countries and output a human rights score from 1-10. Students can then compare their models and discuss different values and reasons for their different algorithms.

I plan to teach this unit during this coming year to 100 students in a 7th Grade Math Classroom.

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Introduction: Rationale and Demographics

Each day, at Northridge Middle School our 7th and 8th grade math teachers educate over 600 students. Northridge serves an incredibly diverse population. Around 60% of our students are Black, 33% Hispanic, 2% Asian, 3% white and 2% identify with more than one race. Our students come from all over the world. Immigrants and refugees join our school throughout the year, mostly from Central America. This year alone, I teach students that speak English, Spanish, Portuguese, Arabic, Russian and African Dialects at home.

Our school is also Title 1, serving mostly low-income students. Living in poverty often creates additional obstacles for our students. Some are homeless or hungry. Others don't get the attention they need at home as their parents are forced to work multiple jobs. Our school often struggles to retain teachers and because of gaps in funding students don't always get the additional resources they need.

Despite their circumstances, our students are incredibly diligent and intelligent. Last year, I taught 7th graders that scored an 11th grade score on their MAP test --an aptitude test that gives students a rating compared to the average student at each grade level. However, other students are much further behind and face unique struggles that generations before them don't fully understand. Our students are part of a generation that has grown up in technology. Yes, sometimes to a fault, but often to a strength. They pick up on new computer skills quickly and are always eager to create shortcuts for work through technology.

Students as bright as ours need have the potential to have a profound impact on our world. But before they can do so they need to be taught the perquisite skills. This gives teachers an added responsibility. To give students the tools not only to understand the world around them but also to change it.

One of the most important skills students need to analyze the world is a deep understanding of basic statistics. Statistics, have seemingly obvious implications. However, many of us take our daily interactions with statistics and probability for granted. While reading our morning briefs before work we encounter sentences that require an understanding of statistics and its vocabulary. For example, this sentence appears in a recent *USA Today* article: "Median household income rose 1.8 percent to an all-time high of \$61,372, the U.S. Census Bureau said Wednesday." Without being able to recognize the word "median" and truly conceptualize it's meaning, this sentence signifies nothing to a reader.

This of course, does not only apply to statistics but also probability. Students interested in politics might come across sentences like this one from *FiveThirtyEight* "Prediction markets largely concur; after Jones's win, the betting odds of Democrats taking over the Senate shot up to about 45 percent." A reader here would need to understand single event probabilities as well as multi-event probabilities if they were to analyze the odds of the Democrats over taking the Senate.

However, we don't want our students' skill set to end at reading the newspaper. Students should be able to understand how the prediction markets came up with the 45% probability. This

isn't natural probability like flipping a coin, it's an analysis of human behavior. The answer is that prediction markets use a statistical model. Statistical models can be really complicated, like the EVAAS ratings for teachers, or they can be simple like the probability Steph Curry makes two shots in a row, but either way it's just a series of inputs resulting in a single output.

Unit Goals

If we are to properly prepare our kids to be the creators and innovators of tomorrow, they must understand how to generate and program their own statistical models. That is why this unit will focus on five concrete skills.

By the end of this unit, students will be able to:

- 1) Calculate basic statistics and probabilities. This includes, mean, median, MAD, single and multi-event probability.
- 2) Engage in a rigorous and academic discussion about Human Rights. Students will be able to form opinions on what measures of human rights are most important and relate them to their own lives.
- 3) Understand how statistical models operate and be able to create their own statistical models. This will deepen students critical thinking abilities as well as push their understanding of non-natural probabilities.
- 4) Program their models in Python.
- 5) Interpret and give meaning to means, medians, measure of variability, probabilities, and results of statistical models.

Students will develop these skills through the cultivation of an ongoing project the Statistics and Probability unit. The goal of the final project will be for students to create their own human rights models that provide a human rights score to countries. Students will then research specific countries and compare the results of their models.

Implementation

To begin the unit, students will be taught the concepts of mean, median, and MAD through a Human Rights lens. While exploring these concepts students will have to answer questions like, *What does it mean that the GDP per capita is higher in China than India? Is there a relationship between income and access to human rights? Why is Somalia's life expectancy lower than Thailand's?*

While, mean and median should be review concepts but MAD, which stands for mean absolute deviation will be their first interaction with measure of variability. MAD will allow students to analyze data in a deeper way. We can use incomes to solve for variance both within and across nations. MAD will open up discussions about income inequality, educational inequalities, gender pay gaps and other discussions on inequality.

After students have demonstrated mastery of the statistics portion of the unit, we will move on to probability. 7th grade math students are expected to master single and multi-event probability questions. First, we will learn single event probability. We can answer questions such as: *What is the probability that a randomly selected person in the world will live in absolute poverty? What about a randomly selected person in the United States?*

When students have mastered single event probability we will move on to multi-event probability. One area we can heavily focus on in multiple event probability is infant mortality rates. Students then will be able to answer questions such as: *If a mother in Pakistan has 2 children, what is the probability that they both live past the age of 2?*

Subsequently, students can apply their computational and analytical skills to variables that typically play a role in evaluating human rights, we can begin to focus our discussions on the importance of each of these variables. After a class discussion, students will create a list of the variables that are most important and some they believe are less important.

Next the group project will begin. Students will be assigned groups chosen by the teacher. Using their list of important and less important human rights, each group will begin to apply a precise weight to each variable. Students will then be directed on how to turn their weights into statistical models. The teacher should provide examples of different types of statistical models but let the students create their human rights model on their own.

Following the completion of their models, students need to program a computer to do the computation for them. While students should have the skills to compute any results by hand, this is tedious, and it doesn't prepare them for actual work in statistical modeling. The teacher should provide basic instructions on how to code their models in Python. Obviously, not all 7th grade math teachers are versed in Python, but it is an easy software that anyone can learn. The basic instructions are attached here.

Finally, after students have completed the programming of their models they can begin to research different countries. To better compare models within and across classrooms it is helpful if the teacher assigns a specific country to each group. This way, in the end the results of each model can be easily compared and discussed.

Lastly, students will research and score each variable in their model for their assigned country and rate it from 1-10. For example, The United States might receive a score of a 5 on homicide rate because they rank in the middle of the pack compared to other countries. After students have rated each variable they can simply plug in the numbers to their program and see their countries overall human rights score.

Once other groups are finished they can input other results countries into their model and begin to compare countries and results with one another. The final piece of the project will be presenting results either written or verbally.

Content Research

Variables of Human Rights: When researching human rights, the most obvious place to start is the [United Nations Human Rights Doctrine](#). This doctrine, was created by The United Nations on December 10, 1948 by 48 countries. The declaration lays out thirty fundamental human rights. These rights range from freedom of slavery to the right to an education.

Others on the list are less clear. Article 3 states, [“Everyone has the right to life, liberty and security of person.”](#) These words are vague and may mean different things to different people. For example, what liberty’s is a person granted? Currently, many people do not have the liberty to choose what country the live in, is this a human rights violation? Prisoners don’t have much liberty, are prisoners automatically stripped of these rights?

When studying human rights many difficult questions such as these arise. The most fundamental of which is, are human rights subjective or objective? Are these human rights ever changing with the world, or are they built into our fabric as morally true? Of course, teachers of different religions, backgrounds, and experience might have different answers to these difficult questions. This should be a strength, just like students can offer a unique perspective so can teachers. Whatever a teacher’s perspective, one should have a firm grasp of their own understanding of human rights before starting the unit.

Still, there should be some sort of minimum of which teachers and students should strive for. Some human rights violations that are so egregious almost all see them as universally bad and should be taught as such. Teachers have a responsibility to take an ethical stance on major human rights issues, such as slavery and everyone’s right to an education. Teacher should have an honest conversation about what they believe before starting the unit. A good place to start is The Universal Declaration of Human Rights, linked [here](#).

When teaching material subject to controversy, a teacher’s responsibilities also include providing students with the right resources so that they can begin to form their own opinions. If students are only shown the United Nations’ human rights they may begin to believe that they are unalienated and that anything left off the list cannot be considered a human right.

Differences in rights and laws can be framed around the differences between the United States and other nations. Students should recognize rights that they have the others do not because of their place of birth. Such as North Koreans almost total loss of freedom, many citizens of impoverished countries lack of access to water, etc. However, students should also recognize that some countries provide rights that the United States does not. Many countries provide healthcare as a right for instance.

Furthermore, teachers should discuss the difference in access to rights inside of the United States. Different people of different nationalities, races, ethnicities, genders, sexualities, social economic statuses and ages have different access to different rights. Gay people did not have the freedom to marry the person they love in the U.S. until 2015. Many black Americans do not have the same access to safety that many white Americans enjoy. Immigrant families can

be taken from their families and homes. These truths are painted through the stories of [Philando Castile](#) and the thousands of [deported immigrants](#) each year.

If time permits, teachers should also have a long discussion on the human rights of prisoners. Prisoners forfeit almost every basic human right. They are trapped inside a cell with little connection to the outside world. Many are denied access to books, an education, peaceful assembly, and other basic freedoms. Upon release, they continue to forfeit the right to vote, struggle to find work, etc.

However, before diving into deeper topics teachers ought to ensure that students have a firm grasp on the basics of human rights. Human rights can feel abstract to 7th graders and teachers must ensure that students are understanding human rights in a way they can apply it the space around them.

There is a plethora of resources for students to be introduced to human rights besides through the United Nations. These resources can also be differentiated for different students. There are videos that show the history of human rights, lengthier articles about current events as related to human rights, and mini-books. Some of the top resources can be found in Appendix 4. Different learners might require different materials and teachers should be able to best accommodate all students. A list of differentiated resources is attached below.

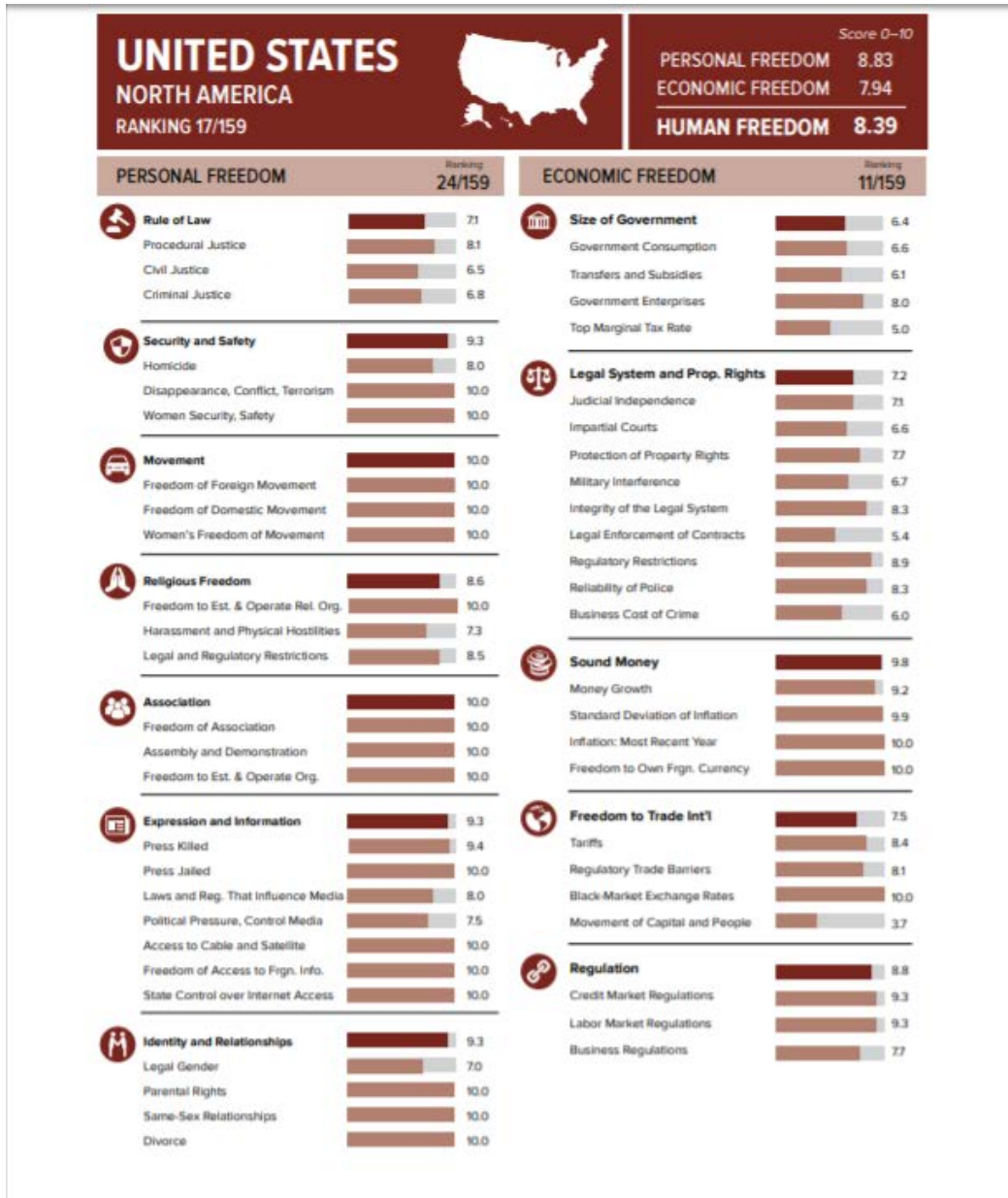
Measures of Human Rights: Existing measures of human rights are scarce. This is certainly because single statistics about human rights is a lot to ask from a single number. This does not mean that descriptive statistics are meaningless, nor, would a human rights score be meaningless. Though descriptive statistics do not tell the entire story, they can be a quick and easy way to communicate, like the summary of a novel.

However, it's not surprising the United Nations does not supply single scores to countries based on Human Rights. They don't really have a huge incentive to do so and they would surely upset more countries than they please. [They instead simply provide information on what countries have signed what human rights treaties.](#) This is also very helpful information, some of which is surprising. For example, the United States has only signed five treaties, but The Central African Republic has signed 15 out 18.

However, the UN lacks any real power to consequence nations for breaking their treaties. The major players, China, Russia, the United States, France, and the United Kingdom have a wide range of varying geopolitical agendas making any real action required to enforce the treaties nearly impossible. Even the egregious human rights violations of North Korea have gone unchecked. The United States has face no repercussions for its use of torture or separation of families at the border. Facts like these can be used to further probe students. *How much control do a government and its people have over their own human rights? Do governments sign treaties as an action plan or as a political stunt?*

[The Human Freedom Index](#)

The Human Freedom Index, published annually by the Cato Institute is one of the most comprehensive research projects about the human experience in varying countries each year. Cato examines 159 countries and scores them on 79 factors. This however, is not specifically a human rights score, rather a freedom score. Though, not a perfect match, many of the variables overlap. Included below is their snapshot of the United States from 2017.



While the Human Freedom Index is not a perfect measure, exposing students to this project might get them excited about their own. What variables do they agree with, disagree with? The Human Freedom Index applies an equal weight distribution to all their variables, why might this be an issue? At the end of their project students might even be interested in comparing their scores to the ones from Cato.

One other possible issue with Cato is its libertarian leaning origins which could influence their scores. The Cato Institute was founded by the Koch Foundation which was started by Charles Koch, a notable libertarian and Republican donor. However, this can simply lead to an open discussion with students about how even seemingly objective models can be subjective. Of course, the number that the computer outputs is objective but the variables that are included and how much weight they carry is completely up to choice, and subject to human influence.

Convention on the Rights of a Child

Students should not only be made aware of the rights endowed to them by their own country but also by the United Nations as well. While they will begin to examine their own rights through the Universal Declaration of Human Rights, they will specifically look at the rights granted to them as a child through the Convention on the Rights of a Child.

The Convention on the Rights of a Child has 54 articles spelling out who is defined as a child and what rights are specifically granted to them. While there are too many articles to list them all, Article 3 ought to be discussed.

Article 3 states: "In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration." This is an important article, that public and private institutions have a must primary concern of the best interest of the child and can lead to many important discussions such as abuse, neglect, school suspensions, and other matters dealing with public and private institutions.

Teaching Strategies

Implementing best practices for a new unit can be the difference between falling flat and engaging your students in a new way. While there are certain procedures that are fundamental to any effective and engaging classroom there are a few that stand as particularly important for this unit.

Turn and Talks

While this is already a standard practice in most classrooms I'll briefly describe for new teachers or teachers new to the practice. A turn and talk is a designated time for students to turn to another nearby student and discuss a particular topic or question. Teachers should give clear expectations for a turn and talk, including who should be talking, how long students should talk and what they should be talking about. During a turn and talk teachers can survey the room to ensure students are engaged and using academic language, as well, as joining in on conversations and probing students to go deeper.

Turn and talks are a great way to get students to begin to articulate their own ideas. If the teacher is simply lecturing the whole time the students do not get time to form their own thoughts. If a teacher only allows students to share whole group, this may disengage shy students and allows less time for speaking since only one student is speaking at once. Thus, turn

and talks become crucial when dealing with subjects like human rights. Students that are typically uninterested in numbers might have much more to share now. Turn and talks give all students an avenue to get excited about the topic and engage in real conversations about meaningful material.

Politics and Parents

While a person's rights are certainly not political, many people treat them as such. Thus, teachers need to anticipate engaging with parents during a human rights unit. Particularly controversial discussions include, gay rights, equality, migration, among many others. Teachers should not avoid these subjects because of fear of backlash but should instead, make parents aware of the discussions that will be had in class. Attached in Appendix 3 is an example of a parent letter that can be sent home before the unit begins. Students should have parents sign and return this form before the unit begins. Teacher should also include their contact information, so parents can reach out with questions. Undoubtedly, parents contact teachers and teachers have to remember that parent engagement is good and react accordingly. Teachers should never be hostile toward parents or allow parents to be hostile towards them. It helps to have a clear articulation of the pedagogical purpose of the unit and the inclusion of human rights. Let administration know beforehand as well.

Teaching Students What to Think About Not What to Think

Another important teaching strategy is to teach students what to think about, not what to think. This is also a clear message that should be sent to parents. Students have no choice but to engage with the real world, teachers will not form their opinions simply present information for them to critically analyze.

This message is not just useful to parents but students as well. Students are more likely to engage if they feel that their opinions matter. This is not to say that student's opinions should not go unchecked. If a student shares hostile belief toward student rights, especially those that affect other students in the class, a teacher has a responsibility to push back. This can be a teachable moment for the entire class, on basic ethical stances and data driven beliefs.

To enhance this part of the unit a teacher might have a short lesson on supporting claims with facts and evidence. If time does not permit, discuss with other content teachers, such as ELA, science or social studies if they can time up a lesson on evidence based claims in the context of human rights.

Group Work

Effective group work is imperative for the unit project. Students must be able to work successfully with their peers. Like all skills, collaboration can be learned and thus can be taught. Teachers should model and explain what effective group work looks like. They should provide resources so that students can hold themselves and their peers accountable.

The most effective way to do this is for the teacher to constantly be engaged in the process. While students are working the teacher should be constantly walking the room, engaging and checking in with groups. Students will be more engaged simply by having a teacher in their general proximity. Teachers may even provide students with daily participation grades during group work.

Another effective way to ensure quality group work is to have students use a rubric to track it themselves. Each day, every student will spend the final five minutes of class answering the following questions:

Describe in detail, what work you accomplished today, how were you an effective part of your team?

Name each person in your group, after their name, describe a few contributions they made to the project today.

Answering these simple questions, not only helps students monitor themselves and their peers but also indirectly makes them celebrate the contributions of their teammates. Teachers may even choose to have a few students share out a few examples of students celebrating contributions from their group members.

Aggressive Monitoring

The term “aggressive monitoring” is somewhat new in the education sphere but the technique has been part of effective teaching for ages. Aggressive monitoring is monitoring students the entire time by providing check marks (or any other marking) on their paper to ensure and incentivize that students are working the entire time.

This practice will be particularly important to this unit because students need to be engaged the entire time to learn all the new content and skills. Students are learning not only new math content but how to apply it in different ways so they will have to work tirelessly during the unit to ensure mastery and success.

Final Formal Assessment

While students will apply their knowledge of statistics and probability throughout the unit and cultivating final project, they should still be formally assessed individually on the standards. However, the formal assessment may still include questions that deal directly with human rights or mix in other style questions to prepare students to apply statistics and probability in a wide range of ways and ensure they are able to succeed on their End of Grade assessment. An example assessment can be seen below.

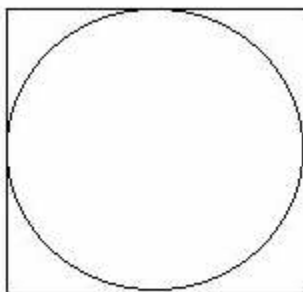
15 questions - 60 minutes - 4 minute per question pace

For questions 1-5, use the information below.

Math Island has 8 residents. Their annual incomes are listed as followed. 12, 8, 14, 18, 12, 34, 12, 14.

Science Island has 10 residents. Their annual incomes are listed as followed: 20, 12, 18, 14, 16, 16, 18, 10, 22.

- 1) Which country has a higher GDP per capita?
- 2) Which country has a higher median income?
- 3) Which country has a higher range of incomes?
- 4) Which country has a higher MAD?
- 5) Using your answers to the questions above, which country is more equal?
- 6) The infant mortality rate on Math Island is 1%. If a mother has three children, what is the probability that they all survive?
- 7) The king of Math Island flips a coin three times. What is the probability of getting two heads and one tail for the three tosses in any order?
- 8) Suppose a surveyor randomly samples 4 people from Math Island and finds that 3 of them are black. How many black people can he reasonably assume are on math island?
- 9) Science Island is a perfect circle. The diameter of the island is 100 miles across. The Capital City is 100 square miles. What is the probability that a package randomly dropped on the island will land in Capital City?
- 10) Two people on science island are doctors, four are nurses, and the rest are rocket scientist. What is the probability that a randomly selected person from Science Island works in the medical field?
- 11) Tadaisah wants to compare the wealth of two countries, do you think she should use the median or mean? Defend your response.
- 12) Maribel wants to get an A in Mr. Golden's math class. To get an A a student needs to average at least a 90% on tests. There are 5 tests on quarter 2. Her first 4 scores were as follows: 88,84, 92, and 90. What score does she need on her final test so that she gets an A in the class?
- 13) The diagram below measures a dartboard on a square wooden frame. The frame has dimensions of 2 feet. What is the probability of hitting the dartboard assuming the dart lands within the frame?



- 14) 80% of people in Japan live over 75. What is the probability that two Japanese people selected at random will live to over 75?
- 15) What is the probability of rolling an odd number then a prime number on a 1-6 dice?

Timeline of Unit

Statistics and Probability is one of the smaller units in 7th grade math, so teachers don't have as much time for it as they'd like. Most schools probably spend 3-4 weeks on the unit. Below is a loose guide for a 4-week plan for the overall unit.

Week 1

Before Week 1 starts teachers should send home the parent letter in advance so that they can begin the unit as planned. On the first day of the unit, a teacher should introduce Human Rights and lead discussions on what they are. It's possible that no math will be covered on the first day, but students should still have a target learning objective that can be measured. Students will not be successful in the unit without a firm grasp on Human Rights.

After, students understand Human Rights, Day 2-5 can be about teaching students the Statistics part of the unit, covering Median, Mean, and MAD. These lessons should be taught through a human rights lens and deepen the original discussions on Human Rights.

Week 2

Week 2 will cover the Probability section of the Unit. Students will master single and multi-event probability problems. Students will begin to develop to talk about Human Rights in new ways as math expands their ability to measure access and equality. A teacher should measure students understanding throughout the week with exit tickets or other measures of understanding.

Week 3

Week 3, will tie up any gaps in understanding from the previous two weeks. Students should also take their formal assessment during this week; the exact day is up to the teacher's discretion. By the end of the week, the teacher should introduce the final project and assign groups so that the final week can be devoted entirely to work time.

Week 4

Students will almost certainly need at least a full week to work on their final project. This should be structured work time with clear expectations for how students should be using each day.

Day 1: Research and agree on top their personal top 10 most important Human Rights.

Day 2: Write their algorithm by hand for each Human Right.

Day 3: Begin to program their algorithm into Python.

Day 4: Finalize their Python algorithm.

Day 5: Share and discuss the results of the different models.

Appendix 1: Standards Taught in Unit

NC.7.SP.1 Understand that statistics can be used to gain information about a population by:

- Recognizing that generalizations about a population from a sample are valid only if the sample is representative of that population.
- Using random sampling to produce representative samples to support valid inferences

NC.7.SP.2 Generate multiple random samples (or simulated samples) of the same size to gauge the variation in estimates or predictions, and use this data to draw inferences about a population with an unknown characteristic of interest

NC.7.SP.3 Recognize the role of variability when comparing two populations.

a. Calculate the measure of variability of a data set and understand that it describes how the values of the data set vary with a single number.

- Understand the mean absolute deviation of a data set is a measure of variability that describes the average distance that points within a data set are from the mean of the data set.
- Understand that the range describes the spread of the entire data set.
- Understand that the interquartile range describes the spread of the middle 50% of the data.

b. Informally assess the difference between two data sets by examining the overlap and separation between the graphical representations of two data sets.

NC.7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw comparative inferences about two populations

NC.7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring.

NC.7.SP.6 Collect data to calculate the experimental probability of a chance event, observing its long-run relative frequency. Use this experimental probability to predict the approximate relative frequency.

NC.7.SP.7 Develop a probability model and use it to find probabilities of simple events.

a. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.

b. Develop a probability model (which may not be uniform) by repeatedly performing a chance process and observing frequencies in the data generated.

c. Compare theoretical and experimental probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

NC.7.SP.8 Determine probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

- b. For an event described in everyday language, identify the outcomes in the sample space which compose the event, when the sample space is represented using organized lists, tables, and tree diagrams.
- c. Design and use a simulation to generate frequencies for compound events.

Appendix 2: Using Python

How to use python for beginners.

What is Python?

Python is one of the fastest growing programming languages today. It started off as a code mostly used in the economics and finance industry for running algorithms and executing trades but today it has much broader usage.

Python is well known for being one of the more user friendly languages and thus is perfect for beginners. Many people feel that Python or computer programming as a whole is inaccessible for them and their classroom. However, with just a few simple lines students can create advanced algorithms that can take math class to a whole new level.

Below is a YouTube video I made that intros Python for the class. You can use it to teach yourself, or simply show it to the students.

<https://www.youtube.com/watch?v=xpxCSxK9w5I>

Compiler

The first step to implementing Python coding into your classroom is to find the right compiler. A “compiler” is just a fancy word for a place where students can type and run their code. I highly recommend repl.it. Students pick up on the interface really quickly. You type your code on the left side and it runs on the right.

Example Math Code

Often times I have students create a code that solves will do their worksheet for them. Below is an example of a code to find slope from two given points that was coded by a student in my first block.

```
x1 = input("What is x1?");
x1 = float(x1);

x2 = input("What is x2?");
x2 = float(x2);

y1 = input("What is y1?");
y1 = float(y1);

y2 = input("What is y2?");
y2 = float(y2);

slope = (y2 - y1)/(x2 - x1);

print("The slope is", slope);
```

Python Codes Cheat Sheet

Math Operations

To be able to use all math operations in Python, type “import math” at the beginning of your code.

Addition = + Example: `total_cost = price + tax`

Subtraction = - Example: `distance = person1 - person2`

Multiplication = * Example: `area = height * width`

Division - / Example: `slope = (y2 - y1)/(x2 - x1)`

Exponents = ** Example: `10**2 = 100` Example 2: `3**3 = 27`

Square Roots = `(math.sqrt())` = Example: `(math.sqrt(9)) = 3`

Strings

To have a user input strings use the input function.

Example: `first_name = input("What is your first name?");`

Example: `height = ("What is the height?");`

Next to make sure that number inputs can be ANY number, assign your string as a float.

Example:

```
price = input("What was the price of the good?");  
price = float(price);
```

Print

To print quotes type `print("Whatever you want to type here.");` This will print exactly what you type in the quotes.

To print strings type `print(height);` this will print the answer to the height string.

To print strings and quotes together separate them with commas.

Example:

```
print("The area of the triangle is ", area);
```

Example 2:

```
print("Your first name is ", first_name, "and your last name is ", last_name);
```


Appendix 3: Parent Letter

Dear Parents and Guardians,

I hope this letter finds you well. I am sending this letter home to let you know about our upcoming “Statistics and Probability” unit. Students will be learning about these important math concepts through a human rights lens. This will allow them to apply their knowledge to the real world around them and create the problem solvers that our math class aims to achieve.

However, this will also mean that students may be engaging in dense and often difficult conversations. As their teacher, I will ensure that all students’ opinions are allowed to be shared but also ensure that every student feels safe in our classroom.

Some of the specific conversations that will arise include but are not limited to: GDP per capita, infant mortality rates, gun ownership, gay rights, race and ethnic issues, or immigration.

If you have any questions or concerns before we begin this unit please reach out to me at:

Email: teachersemail@cms.k12.nc.us

Phone: ###-###-####

Appendix 4: Human Rights Resources for Students

Listed below are some of the best resources for introing students into Human Rights. Other, more specific resources can be used once the students have a deep fundamental understanding.

Videos:

The Story of Human Rights:

https://www.youtube.com/watch?v=6XXGF_V8_7M&disable_polymer=true

The 30 Articles of the Universal Declaration of Human Rights:

<https://www.youtube.com/watch?v=hyVJHpiHO8I>

What are the universal human rights? - Benedetta Berti:

<https://www.youtube.com/watch?v=nDgIVseTkuE>

Online Readings:

UN Human Rights Explained:

<https://www.ohchr.org/en/issues/pages/whatarehumanrights.aspx>

Kids Go Global

<http://www.kidsglobal.net/the-issues/human-rights>

Interactive Site for All 30 UN Human Rights

<https://www.youthforhumanrights.org/what-are-human-rights/videos/no-torture.html>

Annotated Bibliography

Davidson, Paul. "Median U.S. Household Income Rises 1.8 Percent to Record \$61,400 in 2017." *USA Today*, Gannett Satellite Information Network, 12 Sept. 2018, www.usatoday.com/story/money/2018/09/12/median-household-income-rises-1-8-61-400-2017/1272004002/.

Used as an example for when students will need to understand statistics when encountering the news.

"Human Freedom Index." *Cato Institute*, 25 July 2018, www.cato.org/human-freedom-index.
This is a site students and educators can access to get an intro into what a human rights model might look like and the current existing model used by Cato.

North Carolina Unpacking,
www.ncpublicschools.org/docs/curriculum/mathematics/scos/current/7th-unpacking.pdf.

Used as a resource on the 7th grade math standards for North Carolina.

"- OHCHR Dashboard." - *OHCHR Dashboard*, indicators.ohchr.org/.

Details which countries have signed certain Human Rights treaties.

School of Psychology and Human Development, Institute of Education, University of London,
25 Woburn Square, London WC1H 0AA, UK

Discusses the importance of effective group work and how to implement properly in the classroom.

Silver, Nate. "Are Democrats' Senate Chances In 2018 Overrated?" *FiveThirtyEight*,
FiveThirtyEight, 10 Jan. 2018, fivethirtyeight.com/features/are-democrats-senate-chances-overrated/.

Used as an example for when students will need to understand probability when encountering the news.

"Turn and Talk." *The-Teacher-Toolkit*, www.theteachertoolkit.com/index.php/tool/turn-and-talk.

Models how to implement turn and talks and why they are effective.

"Universal Declaration of Human Rights." *United Nations*, United Nations,
www.un.org/en/universal-declaration-human-rights/.

Easy document for students to get introduced to the 30 Human Rights outlined by the United Nations.