Modeling a Pandemic

From 1347 to 1453 the Bubonic Plague also known as the "Black Death" caused an estimated 75 million deaths across the world. The plague began in Asia and then spread rapidly to Europe, even crossing the North Sea to the island of Great Britain. The "black death" was actually the only time in recorded history that saw a definite decrease in the human population. Diseases like the black plague (though typically much less deadly) are known as **pandemics**. A **Pandemic** is a disease or illness that spreads rapidly over a large area, often an entire continent, country, or even possibly the world. But how can we test the best ways to respond to a pandemic?

When scientists cannot replicate or create the right situation for an experiment they often use a **model**. Models can show what might happen in situations science cannot yet reproduce or situations that might be dangerous to create for real. Obviously scientists would not want to recreate a pandemic just to test different responses to a disease, so this is one situation where they would definitely use a model. We will be using a model to test how pandemics spread, how diseases are transferred, and how different countries around the world may respond to a growing pandemic.

In order to model a pandemic we will be playing the video game Pandemic 2. You can find the game at pandemic2.org. You will play the game and pause it to **fill out the following information every 3 days. Be sure to include any breaking news about your disease you happen to notice.**

At The Start

Disease Class:

Why did you choose this disease class? What benefits does it give you? What are its traits?

Starting Region:_____

Day 1

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

        Disease Evolution

        Which symptoms do you have active? Why?

        <u>Symptom</u>   <u>Reason for choosing</u>

        Resistances:

Transmissions:

Day 4

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

Disease Evolution

Which symptoms do you have active? Why?

Symptom   Reason for choosing

Resistances:

Transmissions:

Day 7

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

Disease Evolution

Which symptoms do you have active? Why?

Symptom   Reason for choosing

Resistances:

Transmissions:

Day 10

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

      Disease Evolution

      Which symptoms do you have active? Why?

      Symptom   Reason for choosing

Resistances:

Transmissions:

Day 13

World Information:

Alive Population: Infected Population:
Dead Population: Disease Start Date:
Healthy Population:

       Disease Evolution
       Which symptoms do you have active? Why?
       <u>Symptom</u>   <u>Reason for choosing</u>

       Resistances:

       Transmissions:

Day 16

World Information:

Alive Population: Infected Population:
Dead Population: Disease Start Date:
Healthy Population:

       Disease Evolution
       Which symptoms do you have active? Why?
       <u>Symptom</u>   <u>Reason for choosing</u>

       Resistances:

Transmissions:

Day 19

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

Disease Evolution

Which symptoms do you have active? Why?

Symptom   Reason for choosing

Resistances:

Transmissions:

Day 22

World Information:

Alive Population: Infected Population:

Dead Population: Disease Start Date:

Healthy Population:

Disease Evolution

Which symptoms do you have active? Why?

Symptom   Reason for choosing

Resistances:

Transmissions:

Day 25

World Information:

Alive Population:	Infected Population:
Dead Population:	Disease Start Date:
Healthy Population:	

Disease Evolution

Which symptoms do you have active? Why?

Symptom   Reason for choosing

Resistances:

Transmissions:

Summary Questions

1. Define the following vocabulary words:

   *Outbreak-

   *Epidemic-

   *Pandemic-

   Virus-

Bacteria-

Parasite-

Vaccine-

Transmission-

**refer to Ms. Phillips' flipped videos on Youtube to help define

2. How did this activity model the real world spread of disease? What were some possible errors in the model?

3. Draw a graph of the infected and dead population (on the same graph, color coded):

Analysis Questions:

1. Pandemics are not the only level of disease spread, there are also **epidemics and outbreaks** which are much less wide spread. **Epidemics** tend to be contained to one centralized area. **Outbreaks** are the initial spread of a disease at the beginning. Look back at your data and determine over which days you would consider your disease an outbreak, when you would consider it an epidemic and when or if you would consider it a pandemic.

2. Look back at your disease's spread, when you play again will you pick the same disease type? Why or why not?