Module Plan: The Mathematics of Understanding Disease  
Estimated: 50 minutes

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Materials Needed</th>
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| 5 min | Introductions:  
- Welcome students & provide overview of the session  
- Overview of Disease Modeling | Powerpoint Slide: Overview of Session |
| 7 min | Outbreak in a Cup Activity (in groups of 2-3) | Powerpoint Slides: Directions  
Red and white beans  
Cups  
Paper and pencil |
| 5 min | Groups Pair & Share | Powerpoint Slides: Questions (Share!) |
| 5 min | Class Discussion | Powerpoint Slides: Mathematical model & A more complicated disease model |
| 3 min | Intro to Malaria | Malaria Powerpoint Slide |
| 5 min | Introduction to Gapminder | Powerpoint slides: Introduction slides to Gapminder  
Gapminder.org “200 years that changed the world” video |
| 10 min | Gapminder: Impact of Water Sources on Malaria Outbreaks | Gapminder desktop app on computers  
Exploring Gapminder handout |
| 10 min | Exploring Gapminder:  
- Ask students to experiment with changing the x and y axis to further explore the impact of Malaria on countries. | Gapminder desktop app on laptops  
Exploring Gapminder handout |
| 5 min | Closure:  
- What interesting trends did you notice?  
- What questions do you have about using mathematics to understand diseases? | Powerpoint slide: optional final slide about malaria |