### Using the *Stopping Mosquito-Borne Disease* Interactive in a Whole-class setting

Link to beginning of the resource - <http://media.hhmi.org/biointeractive/click/Dengue/01a.html>

**Slide 1-3:** Introduction to catching a disease. Teach as per slide.

**Slide 4:** Vector borne disease. Stop here and present additional information.

Question

Apart from malaria and dengue fever, what other diseases are spread by mosquitoes?

* Yellow fever
* Chikungunya
* Zika
* Ross River

Additional diseases spread by mosquitoes in Australia are:

* Australian encephalitis
* Barma Forest (BF) virus disease

Reference: <http://medent.usyd.edu.au/arbovirus/mosquit/mosqfact.htm>

**Slide 5:** Play video on Dengue fever symptoms (1:15 seconds)

**Slide 6:** Play video: Dengue Mosquito Vectors (1:15 seconds)

**Slide 7:** Note the health threat posed by Dengue fever

After this slide….

Teacher explanation:

Additional fact! We have just discussed some types of MBD. Did you know that the species listed here, *Aedes aegypti* is also the vector for Yellow Fever, Chikungunya and Zika! As you can see this is one dangerous organism!

*Aedes aegypti* is present in Australia too! It is a tropical species, so it only occurs in tropical north Queensland from Townsville northwards.

The other species mentioned, *Aedes albopictus* is not yet present in Australia, but the likelihood that it will eventually invade Australia is very high!

**Slide 8:** Skip this video

**Slide 9:** The dengue virus transmission cycle.

Consider the question on the slide: Can you think of another biological cycle that might be important for dengue?

* The Mosquito Life Cycle

**Slide 10:** The Mosquito Life Cycle

Play video (1:06 seconds)

Stop after video here and present additional information.

**Additional information:**

The graph can be used to explain that the symptoms of a vector born disease usually do not occur immediately when you are bitten. The time between infection (bite) and onset of symptoms is known as the *incubation period*. 

Based on Figure 5.4 Chapter 5: pages 143-145. Borger-Smith.

It also takes time for a virus or pathogen to replicate inside the host (mosquito) before it is dangerous to other organisms. For instance, the dengue virus must replicate for approximately 12 days before it is able to infect another person.

**Slide 11:** How to stop dengue?

Question for Students, as listed on slide…

Think of some ways to stop dengue….At least make a list in your head.

The next slide will list possible answers so pause for discussion

**Slide 12:** How to Stop Dengue

Consider the question:

Did your list focus on targeting the virus or targeting the mosquito?

Preventing dengue or treating dengue?

**Slide 13:** How to stop dengue?

Extra information…

Mention to students that this will be the focus of the next module. We will look at novel methods that are being used to fight dengue fever.

**Slide 14:**

Think of ways to reduce the prevalence of breaking the life cycle of the mosquito at different stages.

Play all four mini presentations: Remember to click on each.

1. Adults (3 slides)
2. Larvae and Pupae (1 slide)
3. Eggs (1 slide)

**Slides 15-28:**

**Activity (Case Study):**

This case study explores a Mosquito Eradication program that has taken place in Brazil to help decrease Dengue Fever. It requires students to analyze data and graphs from this study and interpret their findings. Please note this is an optional section. It can be used if you have extra time. Slide 28 presents a video summary of the program.

**Slide 28:**

Play video: Intervention program summary (1:22 seconds)

**Slide 29:**

Play Video: Community based intervention program (1:15 seconds).

**Slide 30:**

Play video: Program results (1:22 seconds)

**Slide 31:**

Video: optional

**Slides 32-36:** Reference