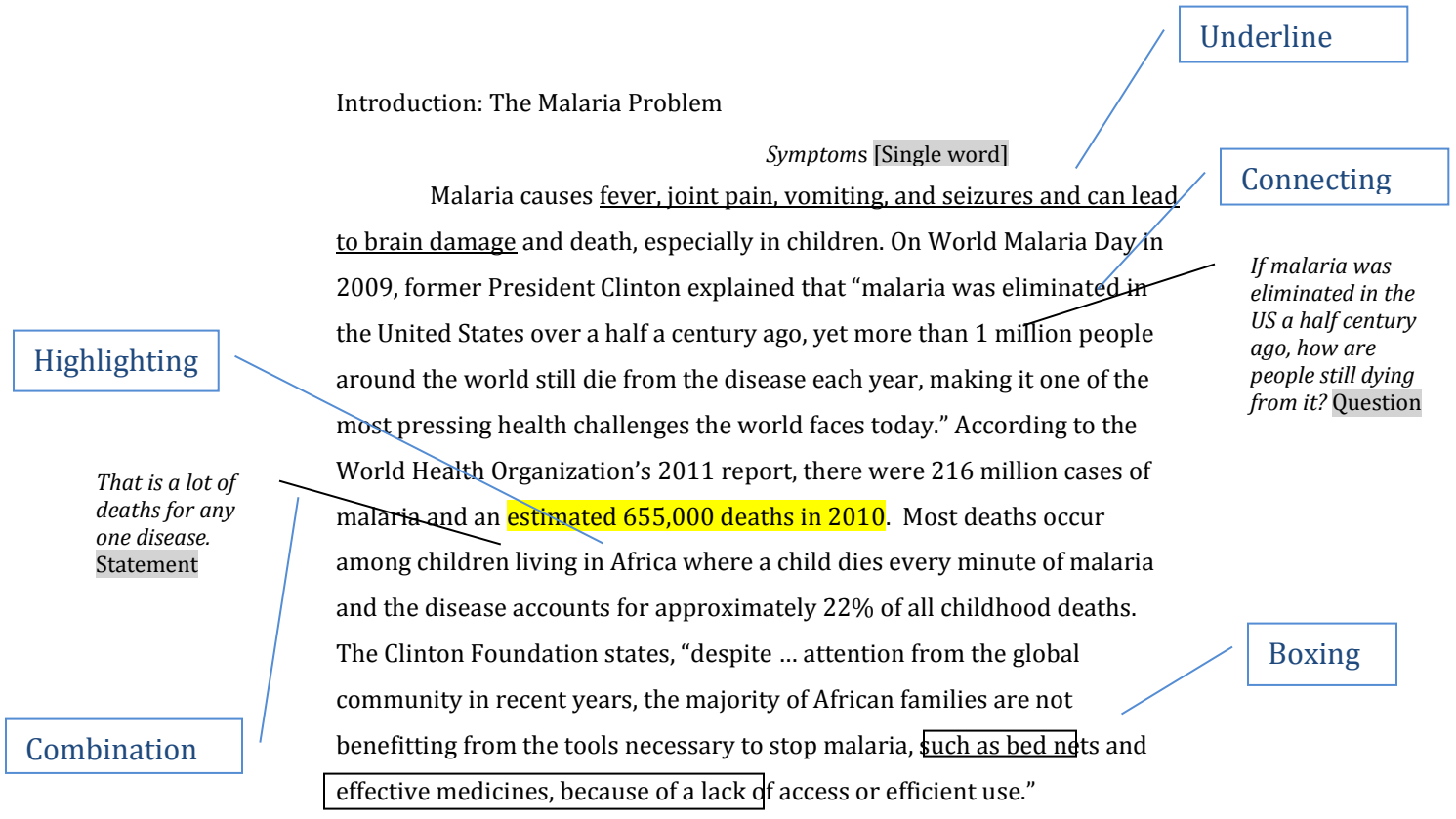
Kind of Annotation

Marks	Underlines, highlights, circlings/boxings, connecting lines and arrows
Underlines	A continuous line under words in a series, allowing for word-wrap at the margin.
Highlights	A continuous highlight through words in a series, allowing for word-wrap at the margin.
Circlings/Boxings	A circle or box around one or more words, symbols or elements in a visual.
Connecting lines and arrows	Lines or arrows between two or more places in the text, between text and annotation, between marked text and annotation.
Comments	Single words, statements, or questions.
Single Words	May include a single word, a single word and a punctuation*, or a short list of single words separated by slashes or commas.
Statements	Sentence or sentence fragments making an assertion.
Questions	Sentence or sentence fragment posing a question.
Combinations	A comment and the mark connected or in close proximity



Association of Annotation

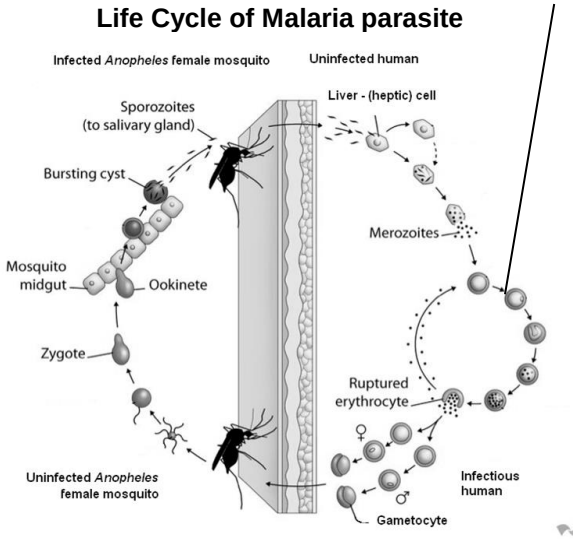
Associated with running text	Annotations made on, linked to or nearby running text.
Associated with visuals/diagrams	Annotations made on, linked to or nearby visuals/diagrams.

I didn't know that it was only female mosquitoes. Why is it only females? Associated with running text

How is malaria spread?

Malaria is caused by *Plasmodium* bacterium. These parasites infect successively two different hosts: humans and female *Anopheles* mosquitoes.

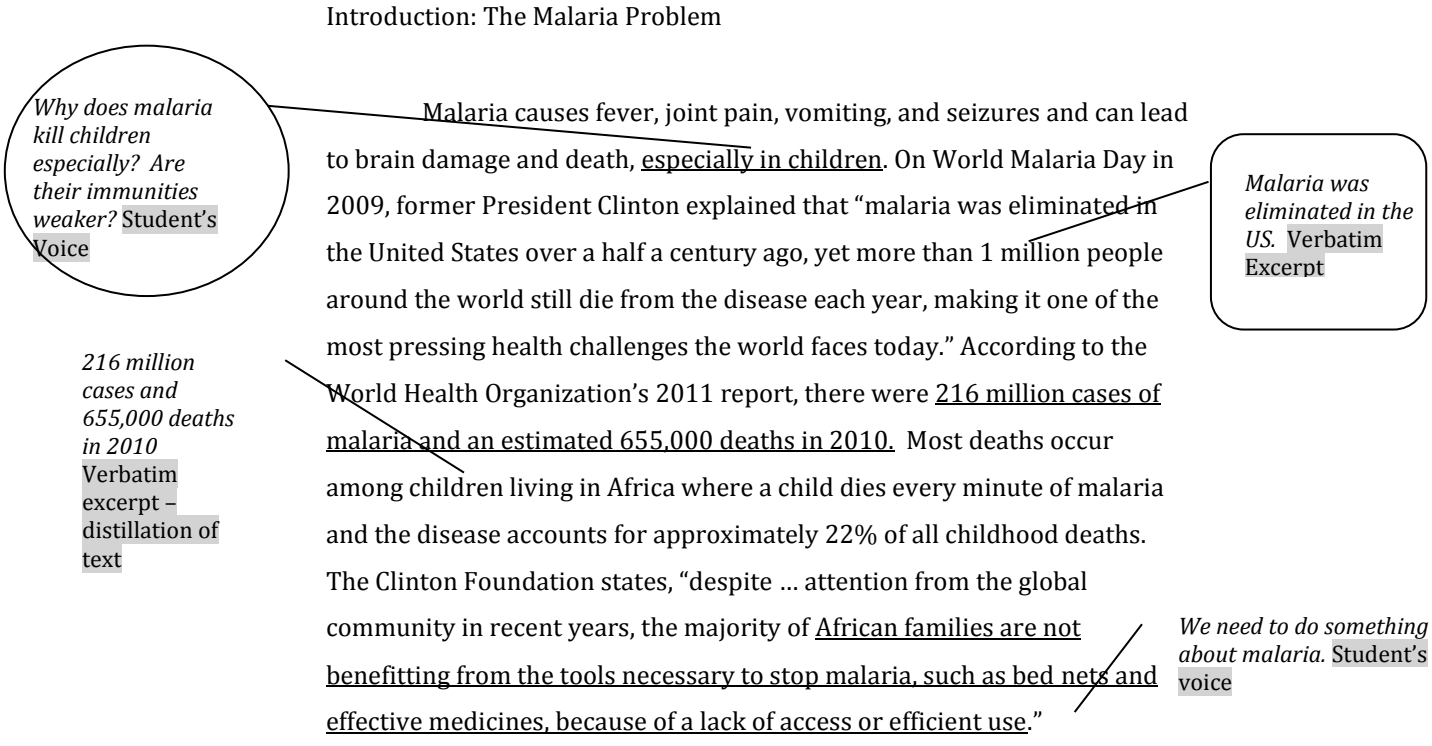
The parasites are transmitted to people who are bitten by infected female *Anopheles* mosquitoes. In humans, *Plasmodium* multiplies in the liver and then invades the red blood cells. Successive generations of parasites grow inside the red cells and destroy them, releasing daughter parasites that continue the cycle by invading other red blood cells. These blood-stage parasites, called "gametocytes" (G. gamete + kytos, cell) cause the symptoms of malaria, which begin 6-10 days after infection.



Is this what happens in the red blood cells? Associated with Visual/diagram

Degree of Student Voice

Author's voice	Comments that are verbatim/near verbatim excerpts from the text, or condensed from the text - only authors words and structure, some words/phrases from text omitted
Student's Voice	Comments including words, ideas, and phrases not found in the text or words, terms or phrases from the text but reshaped to serve a new rhetorical purpose.



Close Reading Process

Identifying key vocabulary	Comment explicitly asserts that a word/term is key, critical or important.
Identifying unknown vocabulary	Comment explicitly asserts or strongly implies that the word, terms or symbol is unknown to the student or that the student is puzzled by it.
Define (unknown) vocabulary	Comment explicitly asserts/advances a meaning for an unknown word, term or symbol.
Labeling	Comment names/labels an elements of a visual or a text
Identifying main ideas of the text	Comment explicitly asserts that a idea is a main/key/important idea.
Paraphrasing and summarizing	Annotation is a paraphrase or summary
Identify familiar concepts	Comment explicitly / overtly claims that a concept is familiar to the student.
Making connections outside texts	Comment explicitly claims a connection between an idea in text and another idea, not in one of the texts in the set.
Making connections within texts	Comment explicitly claims a connection between an idea in text and another idea in the same text
Making connections across texts	Comment explicitly claims a connection between an idea in text and another idea in another text
Making predictions / inferences	Comment makes a prediction / hypothesis / inference / tentative claim
Identifying/expressing confusions and/or roadblocks	Comment explicitly / overtly expresses a confusion connected with a particular portion of the text / word / phrase / symbol / sentence.
Using context clues to build understanding	Comment explicitly / overtly claims that a context clue (particularly referenced) helped to resolve a confusion.
Questioning	Comment poses an inquiry for the purpose of knowledge building.

I need to member the name of the bacteria. [Identifying key vocabulary]

How is malaria spread?

Malaria is caused by *Plasmodium* bacterium. These parasites infect successively two different hosts: humans and female *Anopheles* mosquitoes.

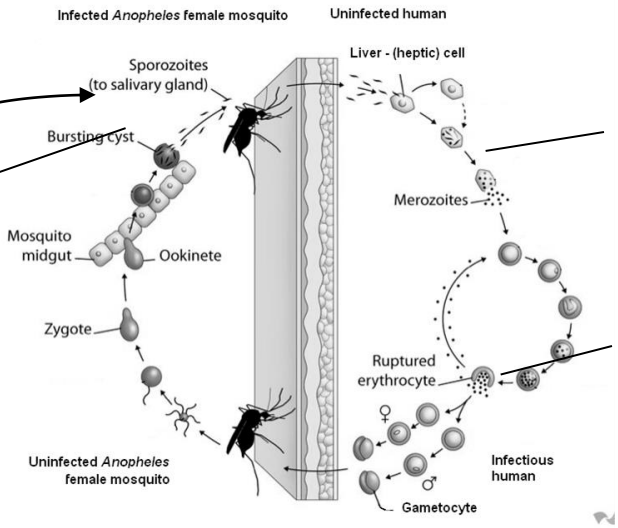
What is a host? [Identifying unknown vocabulary]

This is important because it is how people get infected. [Identifying main ideas of the text]

I knew that mosquitoes were involved with malaria. [Identifying familiar concepts]

The parasites are transmitted to people who are bitten by infected female *Anopheles* mosquitoes. In humans, *Plasmodium* multiplies in the liver and then invades the red blood cells. Successive generations of parasites grow inside the red cells and destroy them, releasing daughter parasites that continue the cycle by invading other red blood cells. These blood-stage parasites, called "gametocytes" (G. gamete + kytos, cell) cause the symptoms of malaria, which begin 6-10 days after infection.

Life Cycle of Malaria parasite



The plasmodium passed from mosquito to humans through a bite. [Paraphrasing / summarizing]

I think that each arrow separates different steps in a process [Labeling]

This is why bites infect people because bacteria get into the mosquitoes' salivary glands. [Making connection within text]

I think this how the bacteria destroy the RBCs? [Using Context clues to resolve a confusion.]

I recall that red blood cells carry oxygen. [Making connection outside texts]

Now I think 'host' means that the bacteria live in us because it says they 'multiply in the liver' and 'grow inside the red blood cells' [Defining (unknown) vocabulary]

What does it mean for the bacteria to destroy the RBCs? Doesn't it live in them? [Questioning]

Such as fever, joint pain, vomiting and dying. [Making connection to another text]

So you can die 6-10 days after the bite. [Making a Prediction / Inference]

Scientific Close Reading

The following codes focus on Scientific Modeling, in particular the reader's work of constructing a coherent and reliable understanding of phenomena - Nascent Modeling, which is a particular focus in the project. We expect scientific reading to encompass additional goals and processes.

Comments on science	A comment about science, not particular to the central phenomena of the module
Comments on the **phenomena and elements** of an explanatory model	A comment about the phenomena that is the topic of the text set.
Comments on the **relationships** in an explanatory model	A comment about links or relationships between elements in the explanatory model for the phenomena.
Generating an explanatory model for the phenomena	A comment (words and/or diagram) that combines elements and links to expresses am explanatory model or partial explanatory model.
Generating a course of action based on the explanatory model of the phenomena	Annotation expresses a course of action about the problem and implicitly/explicitly indicates the basis from the explanatory model.
Attending to scale, proportion and quantity in the phenomena	A comment about the scope/significance of the system and associated with text evidence about the scope or significance.

I knew that mosquitoes were involved with malaria. [Phenomena and elements]

If we stop mosquito bites then the plasmodium might die out. [Generate a course of action]

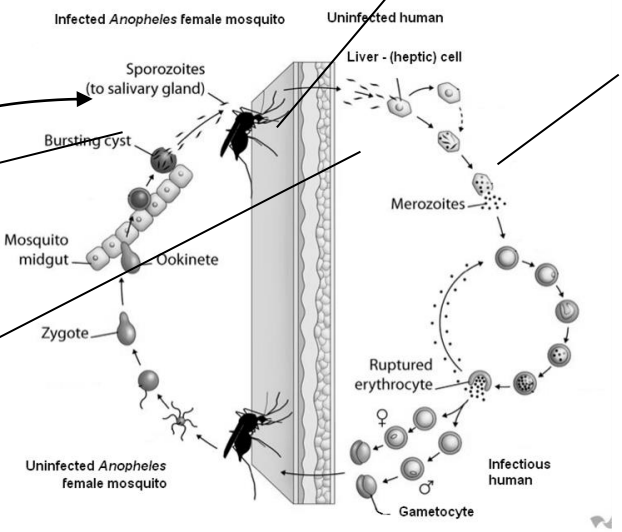
How is malaria spread?

Malaria is caused by *Plasmodium* bacterium. These parasites infect successively two different hosts: humans and female *Anopheles* mosquitoes.

The plasmodium passed from mosquito to humans through a bite. [Relationships]

The parasites are transmitted to people who are bitten by infected female *Anopheles* mosquitoes. In humans, *Plasmodium* multiplies in the liver and then invades the red blood cells. Successive generations of parasites grow inside the red cells and destroy them, releasing daughter parasites that continue the cycle by invading other red blood cells. These blood-stage parasites, called "gametocytes" (G. gamete + kytos, cell) cause the symptoms of malaria, which begin 6-10 days after infection.

Life Cycle of Malaria parasite



1 Infected Mosquito → bites 1 uninfected person → plasmodium goes into the person → 10 uninfected mosquitoes bit 1 infected person → plasmodium goes into all 10 mosquitoes making more infected mosquitoes each cycle [Generate an explanatory model]

Does the mosquitoes' saliva carry the plasmodium into people during the bite? [Relationships]

How many parasites are transferred in a bite? More than the seven shown here, right? [Attending to scale]

What does it mean for the bacteria to destroy the RBCs? Doesn't it live in them? [Phenomena and elements]

What are the symptoms of malaria and how bad do the symptoms get? [Phenomena and elements]

The symptoms begin fast. [Phenomena and elements]

Malaria Assessment Model Rubric

Dimension	Level	Description
Elements		
Human (H)	1	Inclusion of human in model
	2	Humans can exist in EITHER infected or uninfected
	3	Humans can exist in BOTH uninfected and infected by malaria
	4	Humans can exist in BOTH uninfected and infected by malaria AND describes 2 or more stages/process of malaria propagation inside the humans
Mosquitos (M)	1	Inclusion of mosquito in model
	2	Mosquito EITHER infected or uninfected
	3	Mosquito in BOTH uninfected and infected by malaria
	4	Mosquito in BOTH uninfected and infected by malaria AND describes two or more stages/process of malaria
Context	1	No mention of ecological context of Africa
	2	Discusses role the ecological context of Africa: human-mosquito proximity, moist climate of sub-Saharan Africa
Interactions		
Movement of plasmodium through mosquito feeding on human blood	1	No mention of infection and disease as stages or how it moves from host to host.
	2	Evidence of ONE-WAY transmission
	3	Evidence of BI-DIRECTIONAL transfer of plasmodium
	4	BI-DIRECTIONAL movement and clear description of the parasite moving between the organisms
Continuity & transmission of plasmodium (*directionality)*	1	No mention of H → M or M → H spread
	2	Either mention of H → M or M → H
	3	Both H → M and M → H
	4	Discusses H → M and M → H as continuous cycle
Intervention	1	No mention of intervention
	2	Discusses in-effective use of bed nets and/or medicines
Scale		
Aggregate Level Effects	1	No mention of aggregate level outcome
	2	Discusses the large-scale impact by going beyond the human ↔ mosquito relationship, but does not clearly or accurately delineate how human ↔ mosquito *leads to* large scale impact
	3	Integrated description of how human ↔ mosquito interactions leads to aggregate level impact on large population. This must include: (1) many mosquitos and individuals have malaria, (2) one single mosquito can infect multiple individuals, and (3) multiple individuals can transfer plasmodium to many mosquitos