

Nano-biobot Challenge

You are the newest member of Dr. Saif's lab and you and your team must design a nano-biobot that can **detect** and **locate** a malaria infection in a human body.

You will build a large-scale model of your nano-biobot using any materials that are in the lab (paper, wood, plastic, batteries, motors, wires, magnets, etc.). The model can be **static** (does not move) or **functional** (does move).

You will work in groups.

Your project will include:

1. **Research** on malaria (this worksheet!)
2. A **sketch** of your design
3. Your **model**
4. An **explanation** of your model

Before you start designing you must first do some research on what an infection is and how it can they be found in the body. Do some web searches and take notes in the spaces below.

Step 1: Research

1. What is malaria? What causes malaria?

2. How can malaria be detected inside the body?

Helpful search terms

- *antibodies*
- *white blood cells*
- *hemozoin*

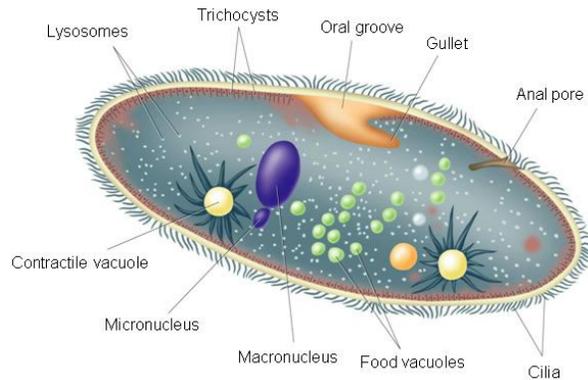
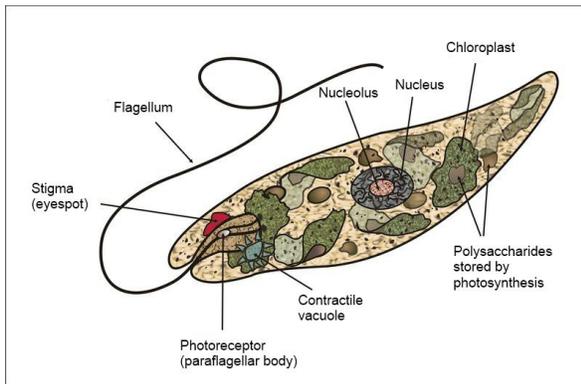
Step 2: Design

Use the information you gathered about infections to sketch a design of what you want to build. Just like the other biobots, your biobot should have two parts: mechanical (non-living) and biological (living).

A. Mechanical part:

1. How will your nano-biobot move through the body?

Consider: what did the protists use to move?



Our nanobot will move using....

C. Create a sketch of your design. Add notes and labels to your design to show how and why it will work. Include a list of **materials** that you will need.

Step 3: Build

Show your annotated design and list of materials to Mr. Siegel. Once he has given his approval you can start building!

Step 4: Reflect

This will be assigned at the end of the project.



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