1. You want to tell your friends about the significance of worm parasites. Select an intestinal worm (either Ascaris roundworms, hookworms, tapeworms, or guinea worms) and write (1) how it enters the human body, (2) where it goes, (3) how big it gets, (4) possible impacts on the infected person, and (5) approximately how many people are infected worldwide.
   My answer: Tapeworms: can exist in cooler climates
   - Food contaminated with cysts
   - 10ft long
   - Can leave the intestines and move to the brain in rodent species of tapeworms
     - If a cat or dog eats the brain of a rodent with tapeworm, they may cough up or poop a tapeworm
     - Chemicals can kill worms: though often doesn't work and they need to be healthy
   - ~50 million infected

   Better answer: Tapeworms – Infection is typically from ingesting an infected flea or tapeworm larva in undercooked meat or shed segment of a worm. The worms take up residence in the intestines. They can be 15m (50ft) long!! They consume nutrients the host ingests. Treatment is with oral medications. It is unclear how many global infections there are.

2. Some arthropods are a significant threat to humans. Describe how fleas related to the plague of the fourteenth century and how mosquitoes relate to malaria.
   My answer: The Bubonic plague was caused by bacteria carried by fleas carried by rats. In this case, the flea and rats were vectors. Plasmodium comes from the guts in mosquitoes. While the mosquitoes consume blood, the plasmodia is transferred into the bloodstream causing malaria.
   Better answer: Fleas living on rats carried the bacteria bacterial Yersinia pestis. When the fleas took their necessary blood meal from humans they unintentionally transferred the bacteria into humans. The bacteria caused infection ("plague"). Fleas are the "vector" of this disease. Some mosquitoes can become infected with the plasmodium protist when they take their necessary blood meal. Plasmodium infection (in the blood) is malaria. When the mosquito takes another blood meal, they can unintentionally transfer the protist into humans. Plasmodium has a very complex life-cycle (many stages/forms in multiple organs) so it is very difficult to treat.

3. If you only had a limited time to scan a scientific research paper, what parts would you read and why?
   My answer: Abstract because it is a one-paragraph summary of the article. This way I can also decide whether I want to read the full article. I'll read the conclusion as well because it is a summary that often includes the potential impact of research.

4. Explain why we hear about cholera when there is a natural disaster or refugee crisis. Include (1) what causes the disease, (2) what happens to the patient, and (3) the treatment.
   My answer: Vibrio cholera: rod-shaped with long tail to move through water. Caused by drinking contaminated water from fecal material. Causes rapid diarrhea to be able to spread more and can be fatal if untreated. The treatment is the use of latrines as a way to separate contaminated water and drinking water.
   Better answer: Cholera bacteria (Vibrio cholerae) is located everyplace. About 3 million cases each year. Spread fecal to oral through contaminated drinking water. Whenever sanitation and drinking water systems are disrupted cholera outbreaks can/do occur. Cholera infections cause diarrhea which leads to dehydration and ~95k deaths/year. The body will fight this off if given time, so treatment if possible is simply clean drinking water, IVs can be used in severe cases if enough $$.