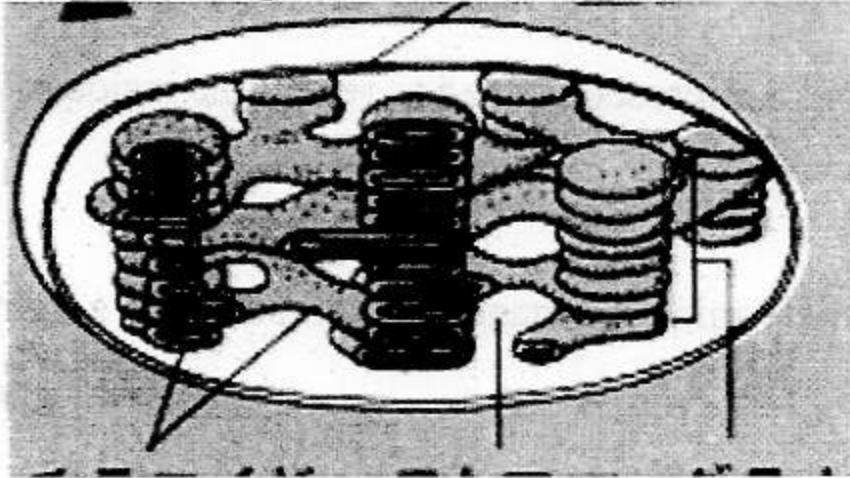


MICROBE MISSION QUESTIONS 2011 VALLEY FORGE C STATION 1

1. What is the typical microscope used to reveal the inside of a cell?
2. How does one determine the magnification power of a light microscope?
3. How do the lenses differ between light microscopes and electron microscopes?
4. What scanning probe microscope relies on the technique of measuring the interaction force between the cantilever tip and the surface of the sample?
5. Which part of a light microscope controls the amount of light shining on a specimen?

STATION 2

1. Does histoplasmosis contain nuclei in its cells?



2. A. What are the stacks in the figure above called?

B. What process takes place in the area outside these stacks?

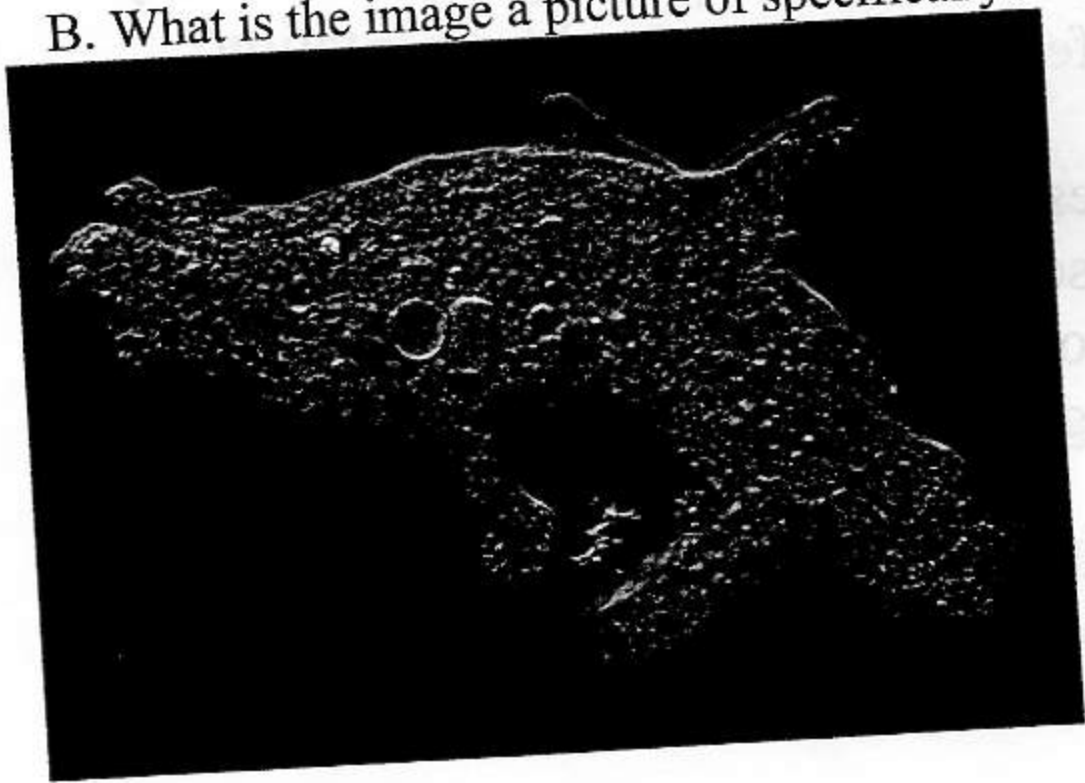
C. Name microbe type(s) that have the above organelle.

3. What does the endosymbiotic theory say about mitochondria?

4. What can be said about polio, tetanus, and malaria regarding mitochondria?

STATION 3

1. What microbe type can be methanogens?
2. What microbe type can cause disease by forming protein clumps?
3. What microbe type is fought off by vaccines?
4. A. Does the following image depict a eukaryote, prokaryote, or neither?
B. What is the image a picture of specifically?

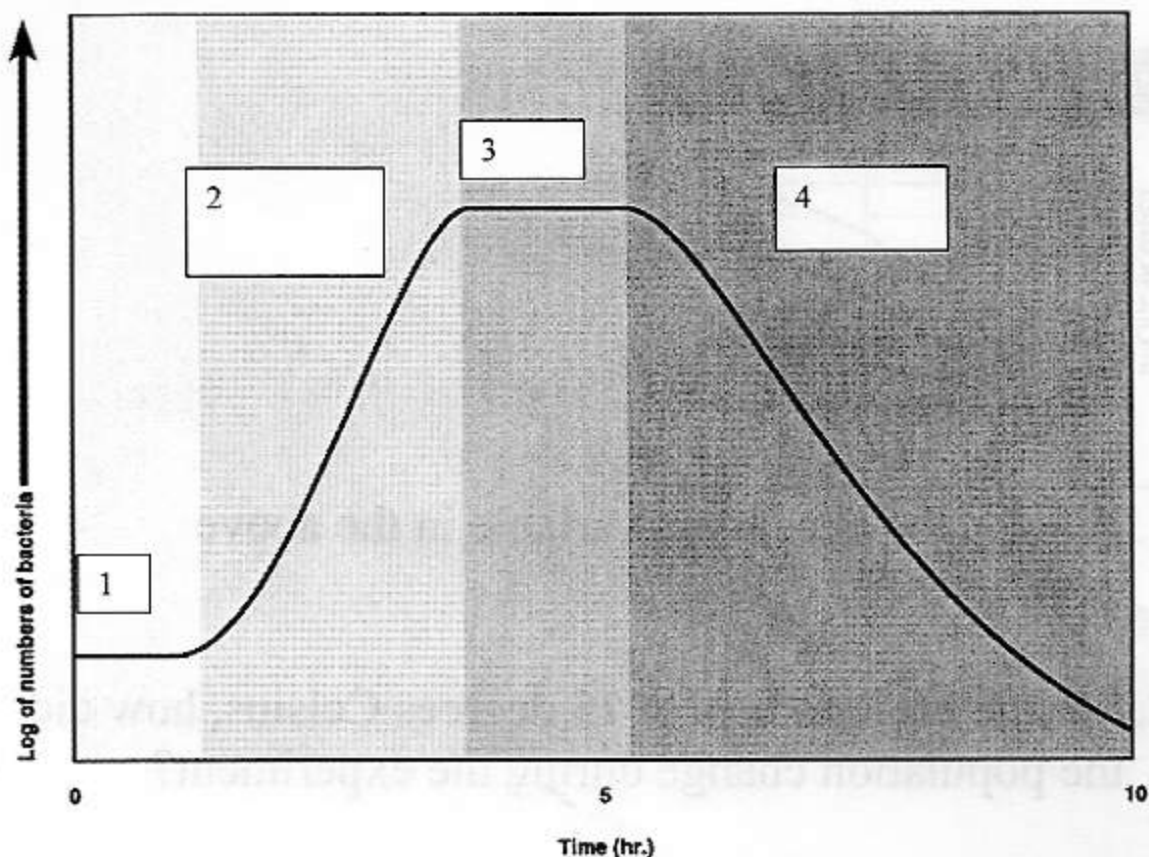


5. What metric measurement would be used to describe the size of a typical prokaryote?

STATION 4

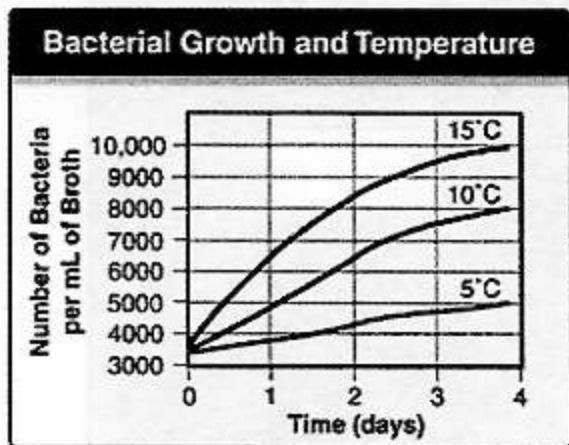
1. What type of microbe can be used in the production of ethanol?
2. What do the microbes *Gonyaulax* and *Karenia* cause? Is this harmful or beneficial? Why?
3. How can neither prokaryotes nor eukaryotes affect prokaryotic food fermentation?
4. Describe how a common human fungal disease could be directly linked with the production of a libation using another organism from the fungus kingdom.
5. What is the difference between prebiotics and probiotics?

STATION 5



1. What type of microbe growth is shown above?
2. What is #1 called?
3. What is #2 called?
4. What is #3 called?
5. What is #4 called?

STATION 6



1. What is the dependent variable in the above experiment?
2. For the bacteria kept at 15 degrees Celsius, how did the population change during the experiment?
3. What do you think would happen if bacteria were grown at 110 degrees Celsius?
4. If the graph above related to Lyme disease growth:
 - A. What shape does it have?
 - B. Is it gram positive or gram negative?

STATION 7

1. What are two types of microscopes that rely on UV rays?
2. What is the size (in metric units) of the following organisms:
 - a. Rabies
 - b. Small Pox
 - c. Polio
3. A. What prokaryotic disease was recently in the news in an earthquake-ravaged country?

B. How can this disease be prevented?
4. A. The mosquito *Aedes aegypti* can transfer what disease?

B. What type of microbe is this disease?

C. Where should one not travel if he or she does not want to catch the disease?

STATION 8

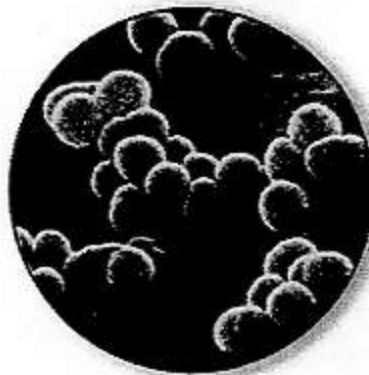
1. What two general types of microbes play a key role in food spoilage?
2. What two food preservation techniques can affect microbe growth?
3. What is one bacterium that is often used to produce cheese?
4. How is Kefir production different from Acidophilus milk production?
5. What general type of microbe can be involved in MSG production?

STATION 9

For each of the following images, name the shape and identify if the microbe is prokaryotic or eukaryotic.



1.



2.



3.

4. Gram-staining is done to what type of prokaryote?

5. A. Visually, how is a Gram-positive result different from a Gram-negative result?
B. Structurally, how is a Gram-positive bacterium different from a Gram-negative result?

STATION 10

Match the disease with the type of organism that produces it.

A. VIRAL

B. BACTERIAL

C. FUNGAL

D. PROTOZOAN/ALGAL

E. PRION

1. Mumps
2. Botulism
3. Tetanus
4. Thrush
5. Yellow fever
6. Malaria
7. Dental carries
8. Strep throat
9. Ebola
10. Peptic Ulcer
11. Mad cow disease
12. Ringworm