



QUESTION 1

Greg wants to observe an object with a convex lens and a concave lens.

Which of his friends' predictions are correct?

	Resolution of image when using convex lens	Resolution of image when using concave lens
Bobby's prediction	Increased compared to object	Increased compared to object
Cindy's prediction	Increased compared to object	Decreased compared to object
Alice's prediction	Decreased compared to object	No change compared to object
Marsha's prediction	Decreased compared to object	Increased compared to object

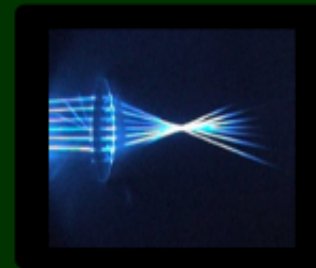
- A. Bobby's prediction
- B. Cindy's prediction
- C. Alice's prediction
- D. Marsha's prediction



QUESTION 2

The parts of a microscope that **refract** light are:

- A. Objective and aperature
- B. Aperature and stage
- C. Objective and stage
- D. Eyepiece and objective



QUESTION 3

Maria views an object with a concave lens. Which image best shows what she sees?



Object



Image **A**



Image **B**



Image **C**



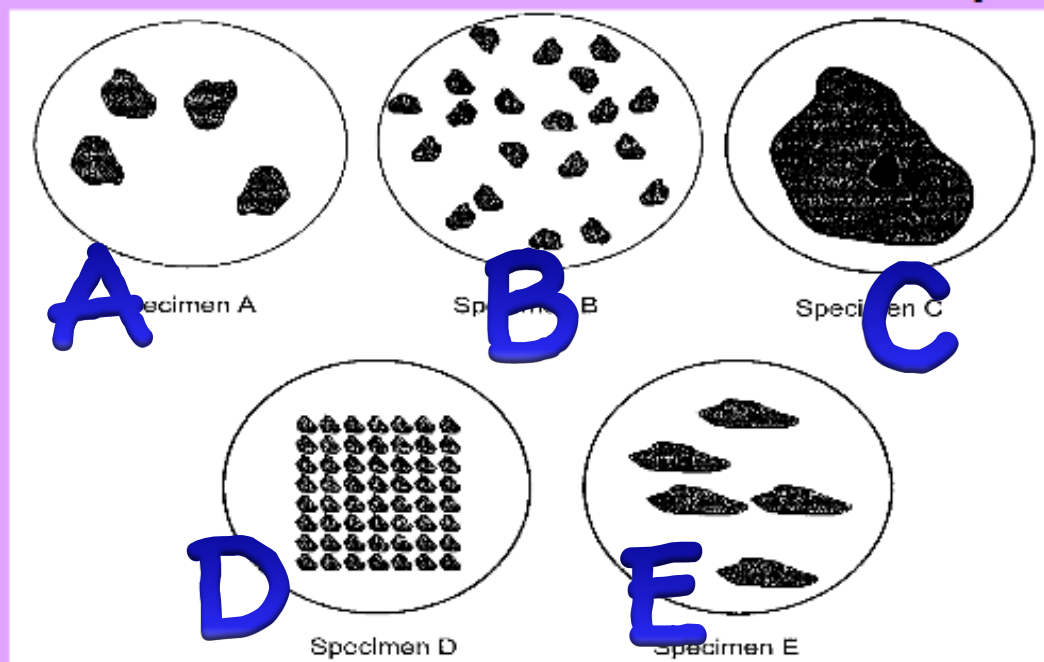
Image **D**

- A. Image A
- B. Image B
- C. Image C
- D. Image D



QUESTION 4

Robert observed five specimens with the compound microscope during his science class and drew how each looked. Which of the statements about the specimens is true?



- A. It is unlikely that any of the specimens are composed of cells.
- B. Specimens A, B and E are the same specimen observed with different objectives.
- C. Specimens A, B and C are the same specimen observed at different levels of magnification.
- D. It is likely that Specimen A is a cross section and Specimen D is a smear.



QUESTION 5

Ruth is helping her teacher prepare directions for a microscope lab manual. She needs to include an example that shows the difference between the smallest and largest fields of view of the microscope. Sketches of the three fields of view are shown below. Which two should she choose?



- A. A and B
- B. B and C
- C. C and A



QUESTION 6

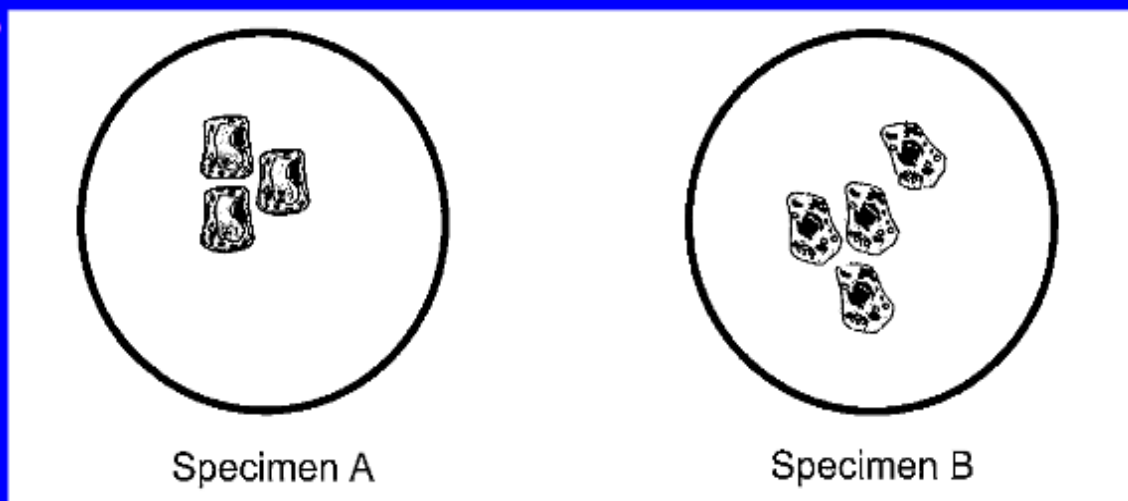
Your science partner views a cork section with the compound microscope that has a **10X eye piece**. He uses the **40X objective** for his observations. The total power of magnification he observes when he views the specimen is:

- A. 10X
- B. 400X
- C. 40X
- D. 1X



QUESTION 7

Oscar observes two specimens using the 40X objective of the microscope and sketches his observations. Which statement best summarizes his findings?



- A. Only one of the specimens contains cells with a cell wall.
- B. Both specimens contain cells with a cell wall, cell membrane, nucleus and cytoplasm.
- C. The only cell organelles the specimens have in common is the nucleus.
- D. Specimen A was most likely from an animal and Specimen B was most likely from a plant.



QUESTION 8

Which statement best describes the relationship between magnification, resolution and field of view?

- A. As magnification increases \uparrow , resolution increases \uparrow and field of view decreases \downarrow .
- B. As magnification increases \uparrow , resolution decreases \downarrow and field of view increases \uparrow .
- C. As magnification decreases \downarrow , resolution decreases \downarrow and field of view decreases \downarrow .
- D. As magnification decreases \downarrow , resolution increases \uparrow and field of view increases \uparrow .



QUESTION 9

Mark needs to analyze three examples of **eukaryotic** cells for his science fair project. His lab partner brings four samples for him to observe. Which three should he choose?

- A. Onion, water, skin
- B. Tomato, water, onion
- C. Skin, water, tomato
- D. Skin, tomato, onion



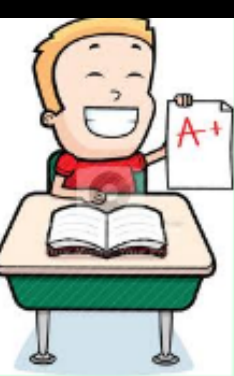
QUESTION 10

Lily and Noah are helping their teacher place slide specimens in the lab for science class. One of the specimens has a label missing. Their teacher tells them it is a plant specimen. To make sure, Lily and Noah look at the specimen under the microscope.

They see cells with a nucleus, cytoplasm, cell membrane and cell wall, but they do not see chloroplasts.

Which of the following is the most likely explanation?

- A. The section is from the root of the plant.
- B. The section is not from a plant, but from an animal.
- C. The chloroplasts are too small to be seen with a compound microscope.
- D. The section is from the leaf of the plant.



QUESTION 11

Moses observes four specimens in the lab. He records his observations in a table. Which specimen can perform photosynthesis?

Specimen	Nucleus	Cytoplasm	Cell Membrane	Cell Wall	Chloroplasts
A	X	X	X		
B	X	X	X	X	X
C	X	X	X	X	
D		X	X		

- A. Specimen A
- B. Specimen B
- C. Specimen C
- D. Specimen D



QUESTION 12

Amy has just returned from a trip to her Aunt's garden. She picked a tomato and wants to use the wet mount procedure to prepare her specimen. Her friends try to help by suggesting several steps. Which of her friends suggestions would be the best choice for Amy's specimen?

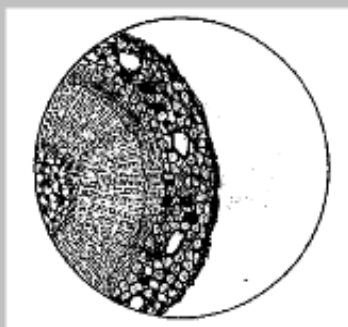
Friends	Steps
Carly's suggestion	Cut the tomato into a piece that is 3 cm x 3cm x 3cm. Place the piece on a glass slide
Kellen's suggestion	Place the whole tomato on the microscope stage
Catherine's suggestion	Cut an tomato section that is 1 cm long by 1 cm wide and as thin as possible. Place a drop of water onto a glass slide. Add the tomato section on top of the water. Place a coverslip on top of the specimen.
Enrique's suggestion	Cut an tomato section that is 1 cm long by 1 cm wide and as thin as possible. Place a drop of water on top a glass slide. Add one tomato section on top of the water.

- A. Carly
- B. Kellen
- C. Catherine
- D. Enrique

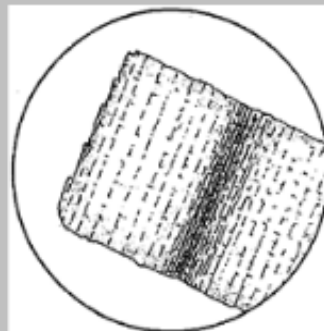


QUESTION 13

Dr. Janet is studying the effects of a drought on plants. To do this she needs to observe both longitudinal and cross sections of several plant stems. Her lab assistant helps her by preparing the sections of the first plant stem but forgets to label the slides. Dr. Janet looks at the slides and sees the images below.



Slide A



Slide B

Which slide should Dr. Janet pick if she wants to show her assistant the **cross section** of the plant stem?

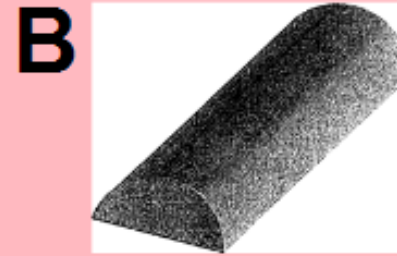
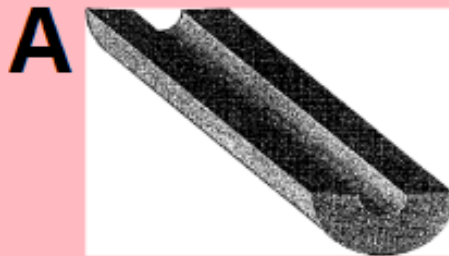


QUESTION 14

Mrs. Frizzle draws a longitudinal and a cross section of a specimen on the board for her class to see.



She asks the class to describe how the whole specimen would look. Which drawing best shows how the whole specimen would look?

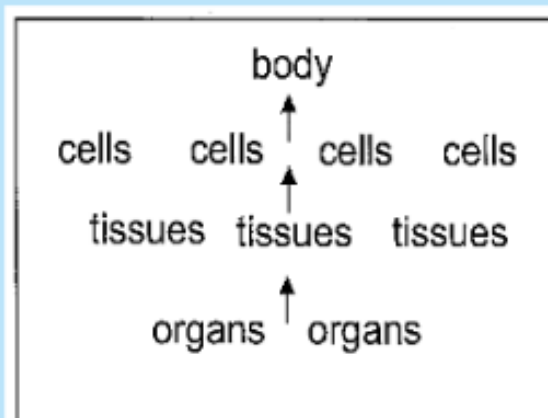




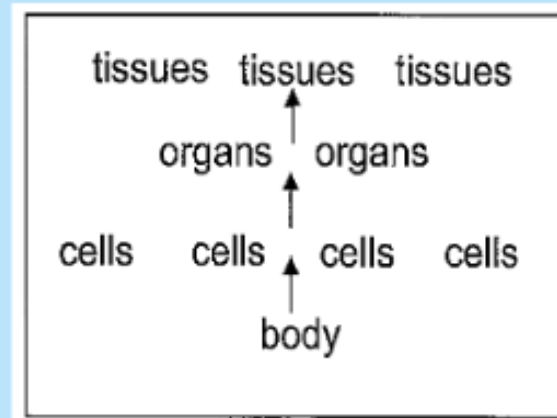
QUESTION 15

Which answer most accurately shows the way in which the human body is organized?

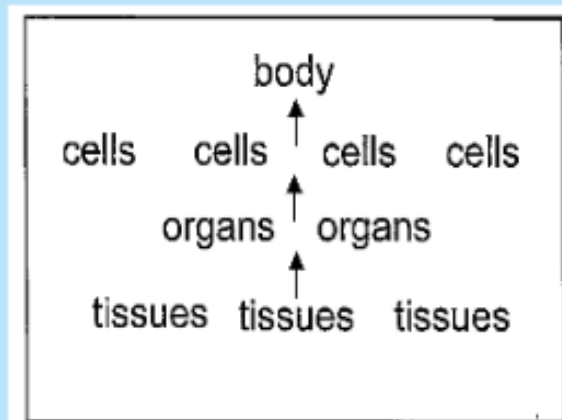
A



C



B



D

