

Name:

Date:

Class:

Pre/Post-Quiz

1. For each item below put which scale would be most appropriate; meter, millimeter, micrometer, or nanometer:

Item	Scale
Feather	millimeter
Atom	nanometer
Length of eye lash	millimeter
Width of eyelash	micrometer
Human DNA	nanometer
House	meter
Molecules	nanometer
Plant cell	micrometer
Virus	nanometer
Tree	meter
Ant	millimeter
Bacteria	micrometer

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2. A student pours a small amount of salt into boiling water and it appears to have dissolved. The ability to dissolve is called:

- A. mass
- B. magnetism
- C. evaporation
- D. solubility**

3. A student uses a stove to heat up their macaroni and cheese. Which of the following objects uses the same source of energy as the stove?

- A. A teapot using thermal energy**
- B. A computer using electrical energy
- C. A wind-up toy using mechanical energy
- D. A plant using solar energy

4. Which of the following tools would best be used to see a plant cell?

- A. A telescope
- B. A magnifying lens
- C. A telescope
- D. A microscope**

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Short answer questions:

1. Why was it important that we only change the amount of one of the three compounds when testing the liquid crystals?

Example answer: To know which of the three compounds most affects the liquid crystals' performance during testing.

2. Why are we seeing different colors when the liquid crystals experience different temperatures?

Example answer: Liquid crystals cluster closer together or further apart depending on what the temperature is. How tightly the crystals are changes what wavelength of light they reflect, or what color we see.

3. What does it mean that liquid crystals are thermosensitive?

Example answer: Liquid crystals are sensitive to changes in temperature; how closely they cluster together changes with the temperature.

4. What does it mean that liquid crystal is an 'in between phase'?

Example answer: The organization of liquid crystals is 'in between' that of solids and liquids. They are not as rigidly organized as solids and they are not as disordered as liquids.

5. Explain what is happening to the light when it hits the liquid crystal?

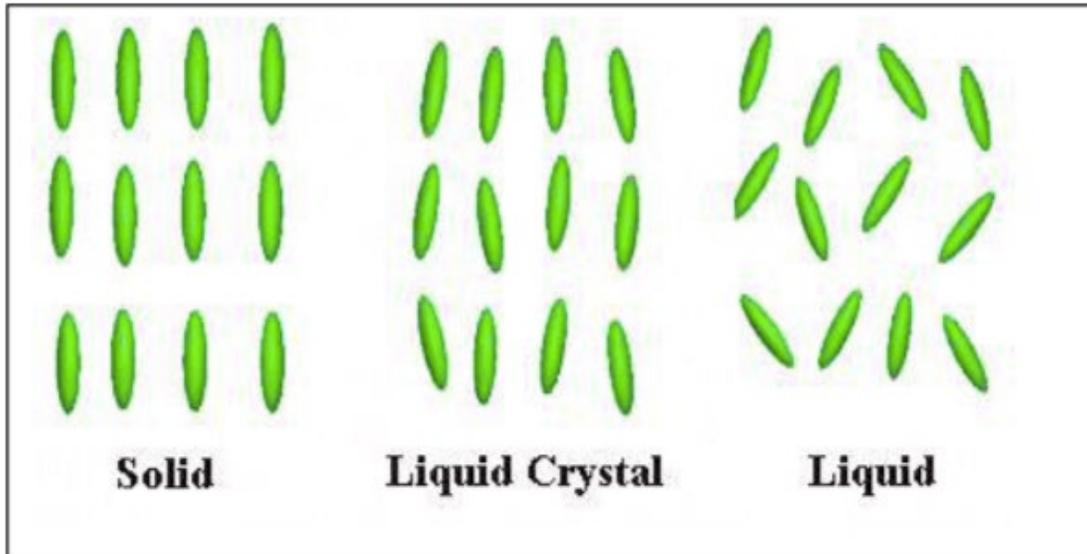
Example answer: When lights hits the liquid crystal, some of the light gets reflected. The color of the reflected light depended on how close the liquid crystals are clumped together.

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6. Draw what the liquid crystal phase would look like and explain why it looks that way.



Example answer: The liquid crystal phase is 'in between' the solid and liquid phases. It's not as disordered as the liquid phase and it's not as rigid as the solid phase.