

TITLE

- Organization, life functions, and survival needs

ESSENTIAL QUESTION

- Explain how survival needs and necessary life functions are important at each level of organization.

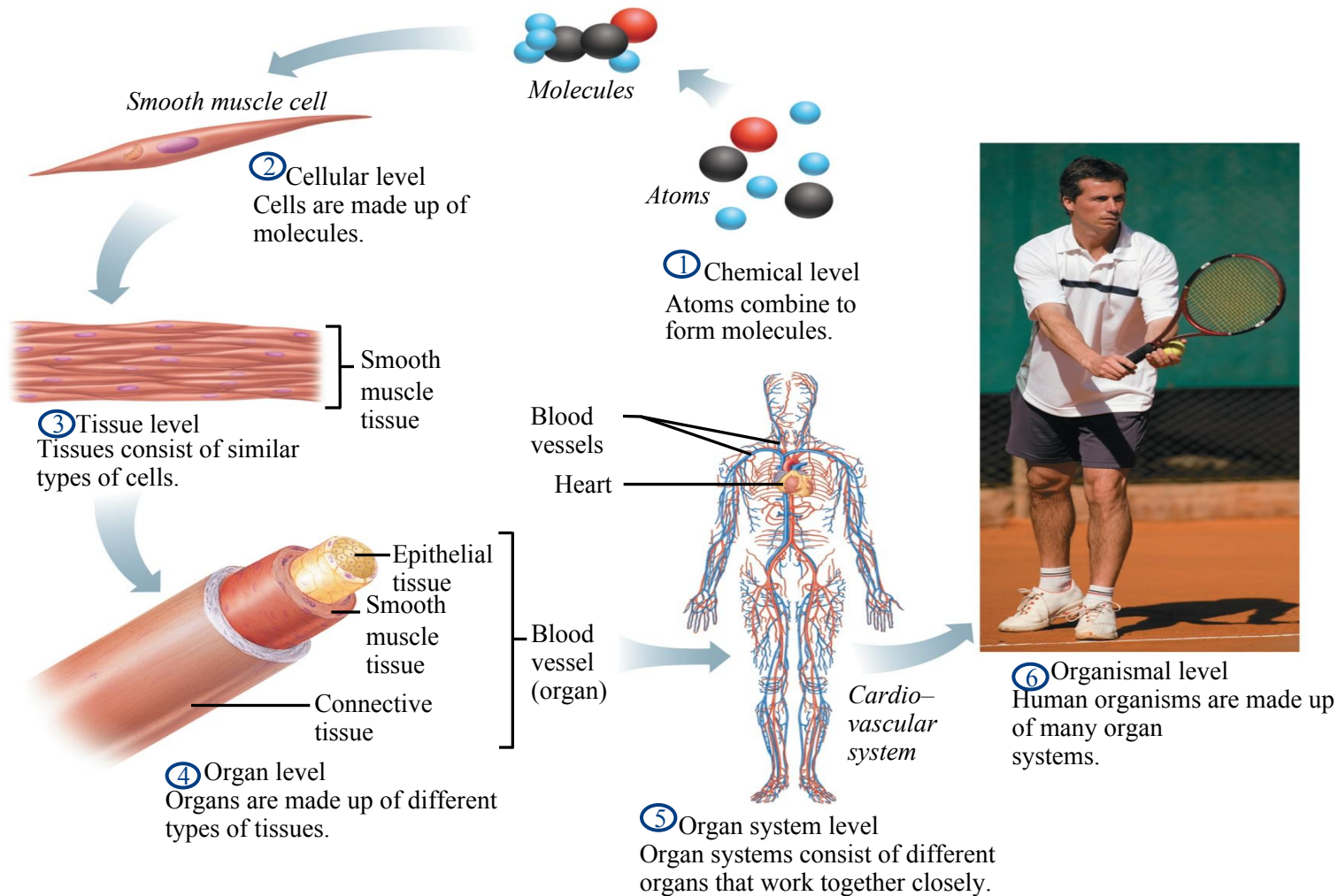
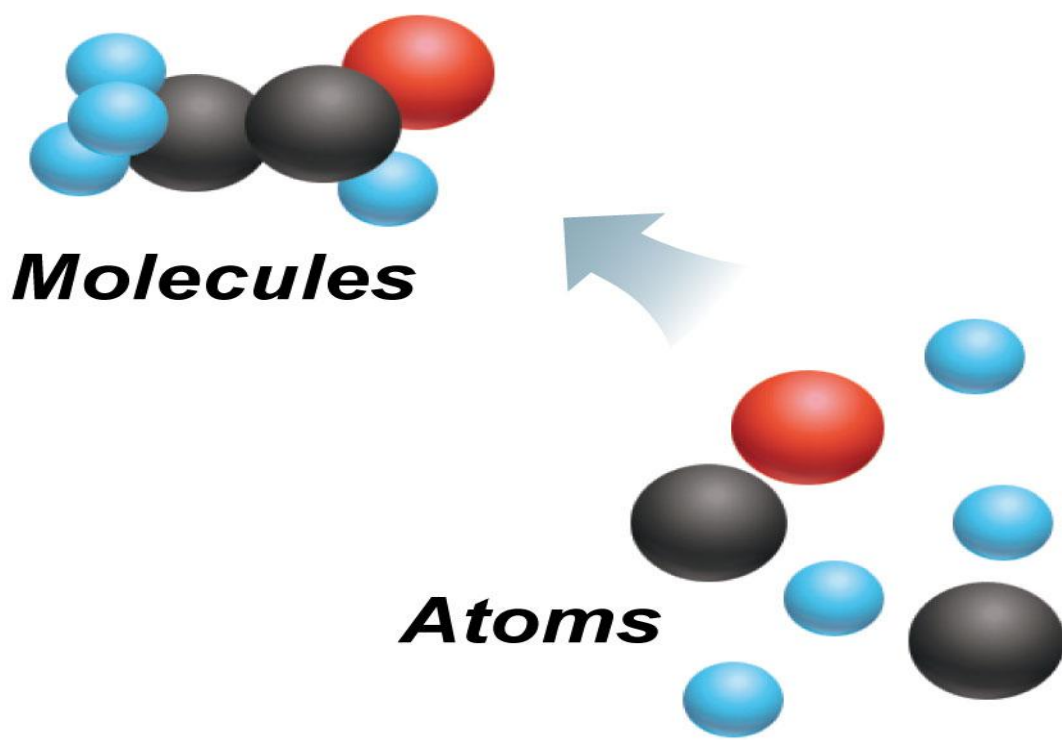
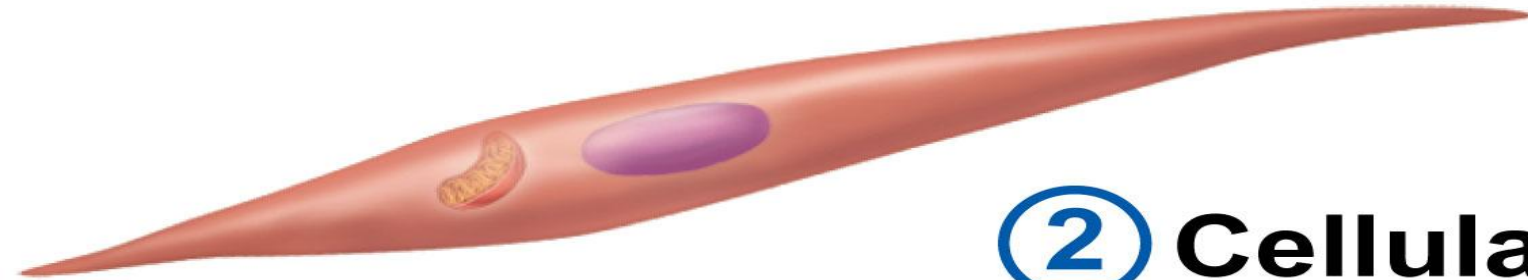


Figure 1.1

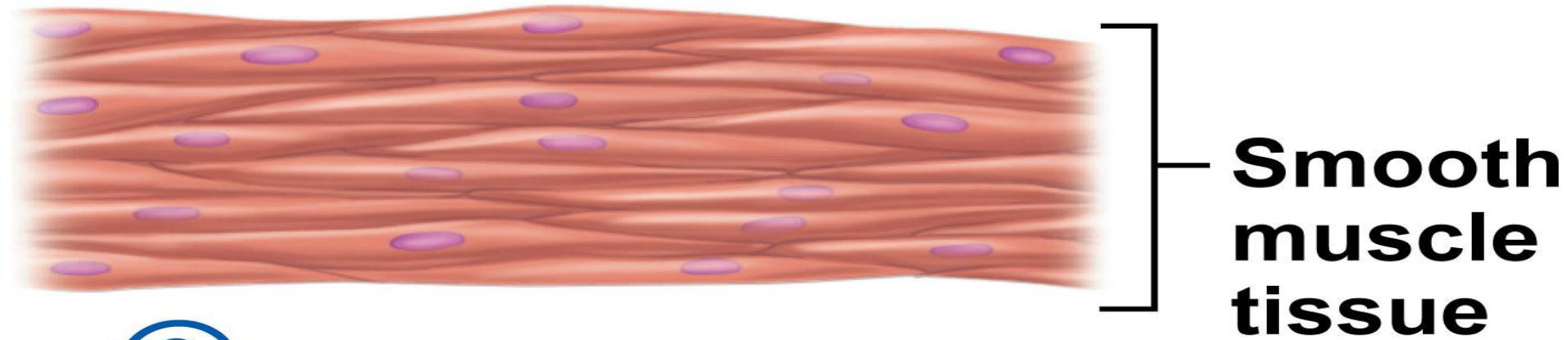


**① Chemical level
Atoms combine to
form molecules.**

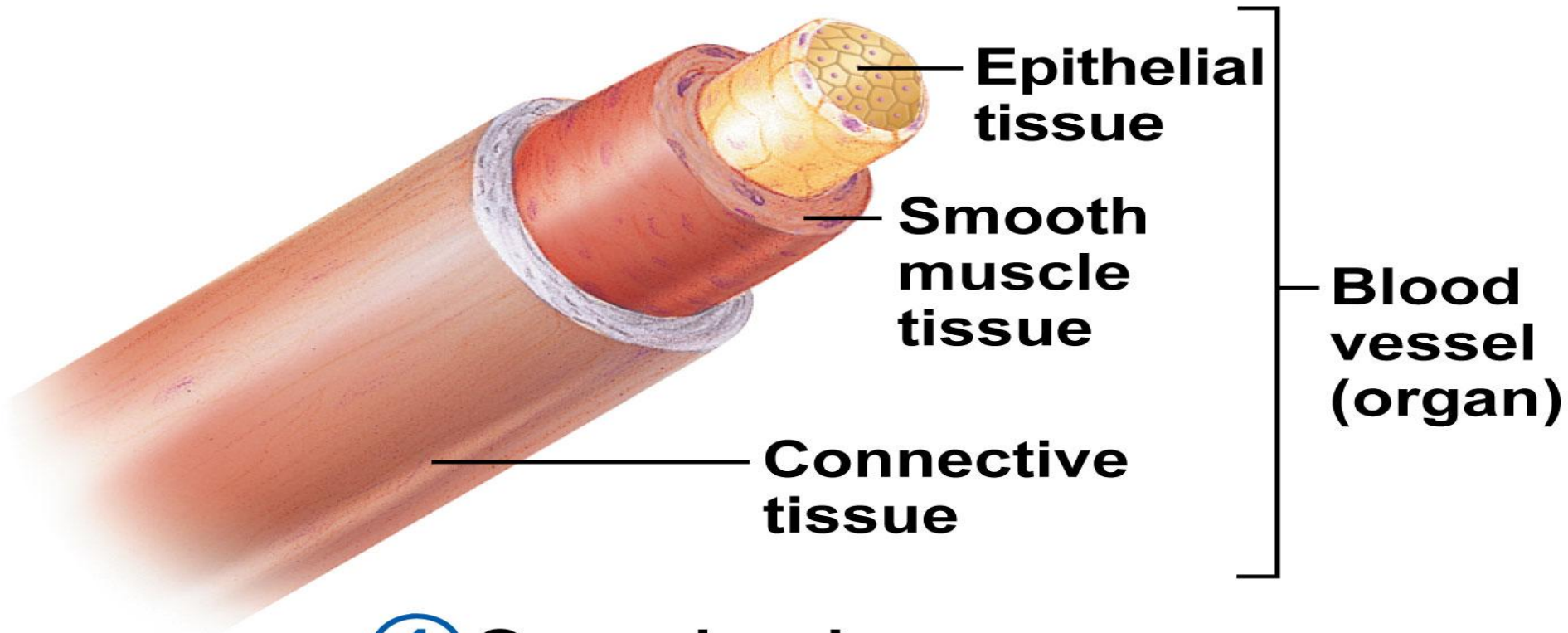
Smooth muscle cell



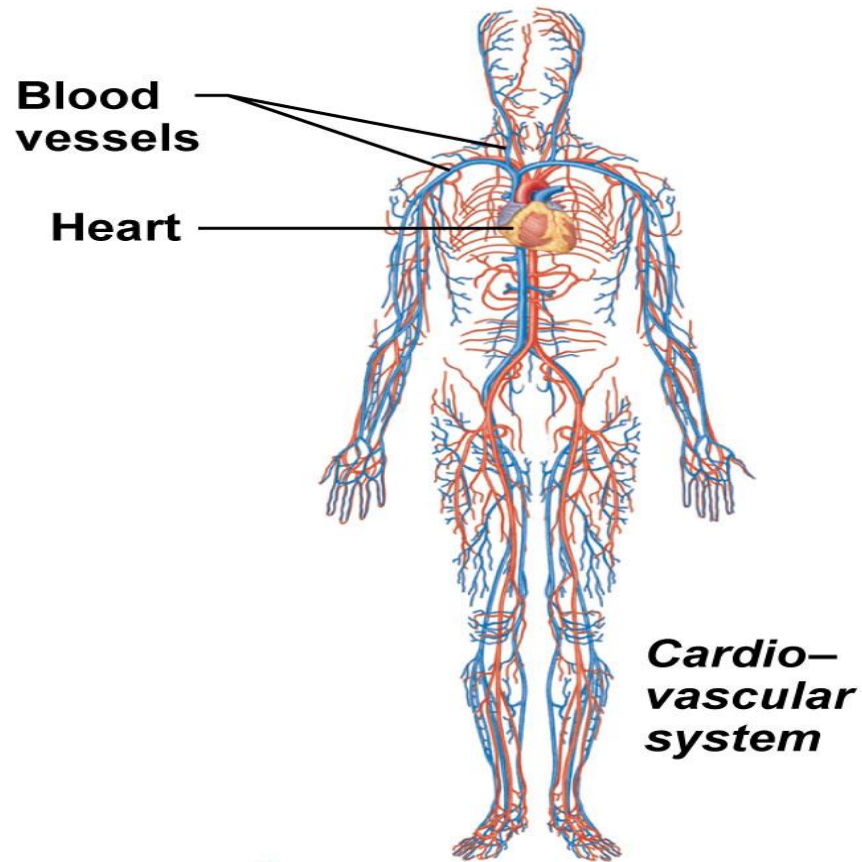
**② Cellular level
Cells are made
up of molecules.**



③ Tissue level
Tissues consist of similar types of cells.



④ Organ level
Organs are made up of different types of tissues.



⑤ Organ system level
Organ systems consist of different organs that work together closely.



⑥ Organismal level
Human organisms are
made up of many organ
systems.

Figure 1.1, step 6

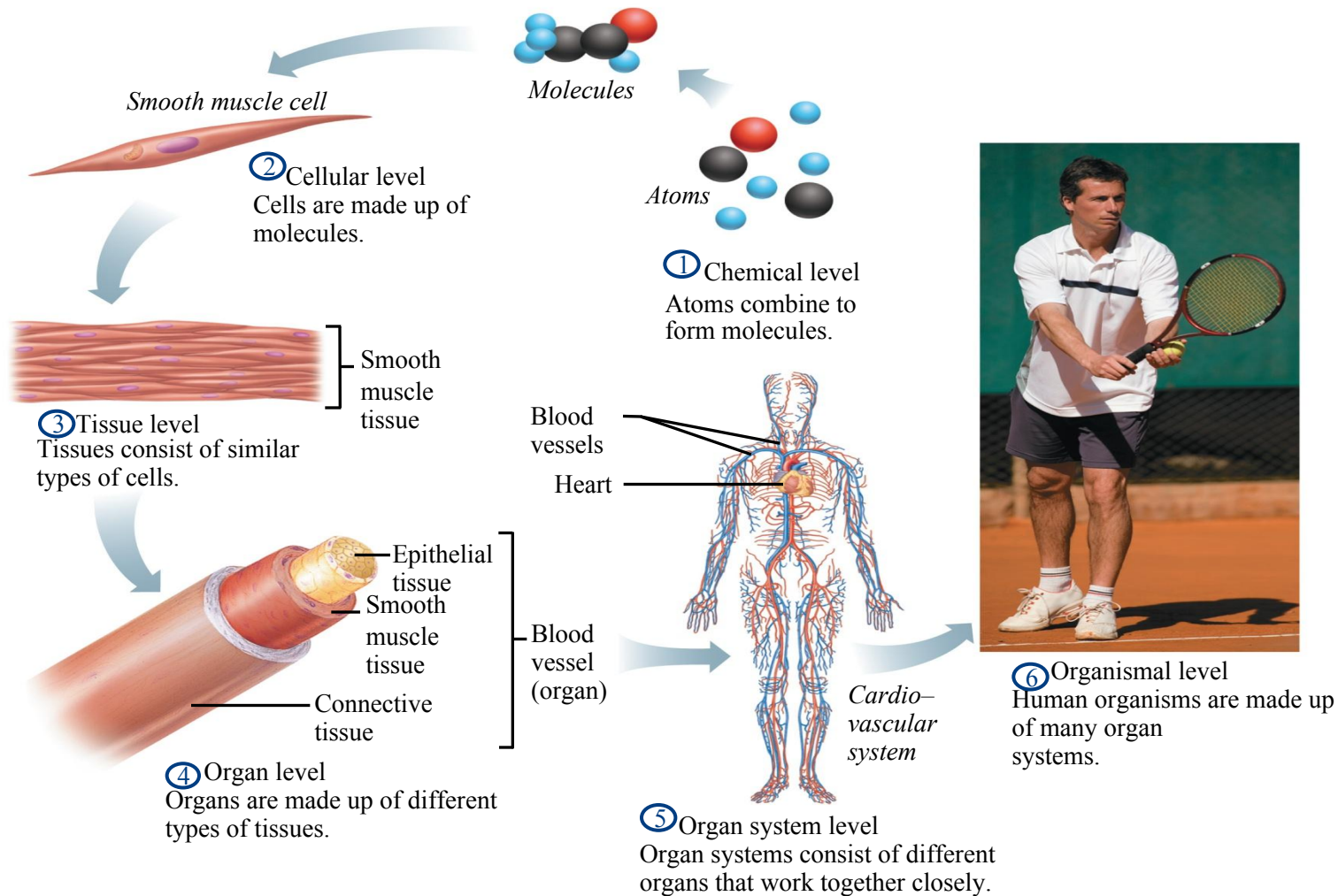


Figure 1.1

Survival Needs

1. Nutrients

- Chemicals for energy and cell building
- Includes carbohydrates, proteins, lipids, vitamins, and minerals

2. Oxygen

- Required for chemical reactions

Survival Needs

3. Water

- 60–80% of body weight
- Provides for metabolic reaction

4. Stable body temperature

- 37°C (98°F)

5. Atmospheric pressure must be appropriate

- Must be appropriate for gas exchange

Necessary Life Functions

1. Maintain Boundaries

- Cells have a membrane boundary
- Body has skin

2. Movement

- Locomotion
- Movement of substances

Necessary Life Functions

3. Responsiveness

- Ability to sense changes and react

4. Digestion

- Break-down and delivery of nutrients

Necessary Life Functions

5. Metabolism – chemical reactions within the body

- Production of energy
- Making body structures

6. Excretion

- Elimination of waste from metabolic reactions

Necessary Life Functions

7. Reproduction

- Both mitosis & meiosis
- Production of future generation

8. Growth

- Increasing of cell size and number