MAINTAINING LIFE

8. Match the terms pertaining to functional characteristics of organisms in Column B with the appropriate descriptions in Column A. Fill in the answer blanks with the appropriate letter or term.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>A. Digestion</td>
</tr>
<tr>
<td>C, H</td>
<td>B. Excretion</td>
</tr>
<tr>
<td>C</td>
<td>C. Growth</td>
</tr>
<tr>
<td>A</td>
<td>D. Maintenance of boundaries</td>
</tr>
<tr>
<td>B</td>
<td>E. Metabolism</td>
</tr>
<tr>
<td>G</td>
<td>F. Movement</td>
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<tr>
<td>F</td>
<td>G. Responsiveness</td>
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<tr>
<td>E</td>
<td>H. Reproduction</td>
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<td>D</td>
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</tbody>
</table>

9. Using the key choices, correctly identify the survival needs that correspond to the following descriptions. Insert the correct letter or term in the answer blanks.

**Key Choices**

A. Appropriate body temperature  C. Nutrients  E. Water
B. Atmospheric pressure  D. Oxygen

<table>
<thead>
<tr>
<th>Key Choices</th>
<th>Description</th>
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<tbody>
<tr>
<td>C</td>
<td>1. Includes carbohydrates, proteins, fats, and minerals</td>
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<tr>
<td>B</td>
<td>2. Essential for normal operation of the respiratory system and breathing</td>
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<tr>
<td>E</td>
<td>3. Single substance accounting for more than 60% of body weight</td>
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<td>D</td>
<td>4. Required for the release of energy from foodstuffs</td>
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<tr>
<td>E</td>
<td>5. Provides the basis for body fluids of all types</td>
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<tr>
<td>A</td>
<td>6. When too high or too low, physiological activities cease, primarily because molecules are destroyed or become nonfunctional</td>
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HOMEOSTASIS

10. The following statements refer to homeostatic control systems. Complete each statement by inserting your answers in the answer blanks.

Receptor (sensor) 1. There are three essential components of all homeostatic control mechanisms: control center, receptor, and effector. The (1) senses changes in the environment and responds by sending information (input) to the (2) along the (3) pathway. The (4) analyzes the input, determines the appropriate response, and activates the (5) by sending information along the (6) pathway. When the response causes the initial stimulus to decline, the homeostatic mechanism is referred to as a (7) feedback mechanism. When the response enhances the initial stimulus, the mechanism is called a (8) feedback mechanism. (9) feedback mechanisms are much more common in the body.

THE LANGUAGE OF ANATOMY

11. Complete the following statements by filling in the answer blanks with the correct term.

_Ventral_ 1. The abdominopelvic and thoracic cavities are subdivisions of the (1) body cavity; the cranial and spinal cavities are parts of the (2) body cavity. The (3) body cavity is totally surrounded by bone and provides very good protection to the structures it contains.

_Dorsal_ 2.

_Dorsal_ 3.

12. Circle the term or phrase that does not belong in each of the following groupings.

1. Transverse
   Distal
   Prontal
   Sagittal

2. Lumbar
   Thoracic
   Antecubital
   Abdominal

3. Calf
   Brachial
   Femoral
   Popliteal

4. Epigastric
   Hypogastric
   Right iliac
   Left upper quadrant

5. Orbital cavity
   Nasal cavity
   Ventral cavity
   Oral cavity
13. Select different colors for the *dorsal* and *ventral* body cavities. Color the coding circles below and the corresponding cavities in part A of Figure 1–7. Complete the figure by labeling those body cavity subdivisions that have a leader line. Complete part B by labeling each of the abdominal regions indicated by a leader line.

- Dorsal body cavity
- Ventral body cavity
14. Select the key choices that identify the following body parts or areas. Enter the appropriate letter or corresponding term in the answer blanks.

**Key Choices**

A. Abdominal  E. Buccal  I. Inguinal  M. Pubic
B. Antecubital  F. Cervical  J. Lumbar  N. Scapular
C. Axillary  G. Femoral  K. Occipital  O. Sural
D. Brachial  H. Gluteal  L. Popliteal  P. Umbilical

1. Armpit
2. Thigh region
3. Buttock area
4. Neck region
5. "Belly button" area
6. Genital area
7. Anterior aspect of elbow
8. Posterior aspect of head
9. Area where trunk meets thigh
10. Back area from ribs to hips
11. Pertaining to the cheek

15. Using the key terms from Exercise 14, correctly label all body areas indicated with leader lines on Figure 1–8.

In addition, identify the sections labeled A and B in the figure.

Section A: __Midsagittal__
Section B: __Transverse__
Figure 1-8
16. From the key choices, select the body cavities where the following surgical procedures would occur. Insert the correct letter or term in the answer blanks. Be precise. Also select the name of the cavity subdivision if appropriate.

**Key Choices**

A. Abdominal  
C. Dorsal  
E. Spinal  
G. Ventral  
B. Cranial  
D. Pelvic  
F. Thoracic  

\[ A, G \]

1. Removal of the uterus, or womb  
\[ F \]

2. Coronary bypass surgery (heart surgery)  
\[ B, C \]

3. Removal of a serious brain tumor  
\[ A, G \]

4. Removal of a "hot" appendix  
\[ A, G \]

5. A stomach ulcer operation

17. Complete the following statements by choosing an anatomical term from the key choices. Enter the appropriate letter or term in the answer blanks.

**Key Choices**

A. Anterior  
D. Inferior  
G. Posterior  
J. Superior  
B. Distal  
E. Lateral  
H. Proximal  
K. Transverse  
C. Frontal  
F. Medial  
I. Sagittal  

\[ A \]

1. In the anatomical position, the face and palms are on the (1) body surface, the buttocks and shoulder blades are on the (2) body surface, and the top of the head is the most (3) part of the body. The ears are (4) to the shoulders and (5) to the nose. The heart is (6) to the spine and (7) to the lungs. The elbow is (8) to the fingers but (9) to the shoulder. In humans, the dorsal surface can also be called the (10) surface; however, in four-legged animals, the dorsal surface is the (11) surface.
12. If an incision cuts the heart into right and left parts, the section is a \(12\) section, but if the heart is cut so that anterior and posterior parts result, the section is a \(13\) section. You are told to cut an animal along two planes so that the paired kidneys are observable in both sections. The two sections that meet this requirement are the \(14\) and \(15\) sections.

18. Using the key choices, identify the body cavities where the following body organs are located. Enter the appropriate letter or term in the answer blanks.

**Key Choices**

A. Abdominopelvic  
B. Cranial  
C. Spinal  
D. Thoracic

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1. Stomach  
2. Small intestine  
3. Large intestine  
4. Spleen  
5. Liver  
6. Spinal cord  
7. Bladder  
8. Trachea  
9. Lungs  
10. Pituitary gland  
11. Rectum  
12. Ovaries

19. Number the following structures, from darkest (black) to lightest (white), as they would appear on an X-ray. Number the darkest one 1, the next darkest 2, etc.

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A. Soft tissue  
B. Femur (bone of the thigh)  
C. Air in lungs  
D. Gold (metal) filling in a tooth

20. A jogger has stepped in a pothole and sprained his ankle. What systems have suffered damage? **Skeletal, muscular**
21. A newborn baby is unable to hold down any milk. Examination reveals a developmental disorder in which the esophagus fails to connect to the stomach. What survival needs are most immediately threatened?

Water & Nutrients

22. The Chan family was traveling in their van and had a minor accident. The children in the backseat were wearing lap belts, but they still sustained bruises around the abdomen and had some internal organ injuries. Why is this area more vulnerable to damage than others?

anterior & lateral aspects of the abdomen & have no skeletal protection

23. John, a patient at Jones City Hospital, is in tough shape. He has a hernia in his inguinal region, pain from an infected kidney in his lumbar region, and severe bruises and swelling in his pubic region. Explain where each of these regions is located.

- Hernia where thigh and trunk meet.
- Kidney would give pain in lower back.
- Bruises may be on or around genitals.

24. The hormone thyroxine is released in response to a pituitary hormone called TSH. As thyroxine levels increase in the blood, they exert negative feedback on the release of TSH by the pituitary gland. What effect will this have on the release of TSH?

Negative feedback causes initial stimulus to TSH in this case to decline.

25. In congestive heart failure, the weakened heart is unable to pump with sufficient strength to empty its own chambers. As a result, blood backs up in the veins, blood pressure rises, and circulation is impaired. Describe what will happen as this situation worsens owing to positive feedback. Then, predict how a heart-strengthening medication will reverse the positive feedback.