**Bone Tissue questions**

Name and date submitted (3 pts):

Using this handout as a TEMPLATE, create space in between problems below and write or type your answers. KEEP THE SAME NUMBERING SYSTEM AND THE ORIGINAL QUESTIONS or you will have points deducted.

(100 points possible)

1. (6 points) Functions of Bone Tissue: EXPLAIN EACH FUNCTION (p. 176)
2. Support
3. Protection
4. Assistance in Movement
5. Mineral storage
6. Blood cell production
7. Triglyceride storage
8. (7 points) Structure of Bone: NAME and DESCRIBE the seven (7) parts of a ‘long bone’ (p. 176)



1. (4 points) Histology of Bone Tissue: NAME and EXPLAIN THE FUNCTION of the four (4) types of bone cells (p. 178)
2. (5 points) Where do we find Compact Bone Tissue?
3. (5 points) Where do we find Spongy Bone Tissue?
4. (12 points) Bone Scan: Respond to these six (6) questions (box on p. 179)
5. What is injected into your bone in a bone scan?
6. Normal, healthy bone tissue is indicated by what?
7. Darker, ‘hot spots’ may indicate what problems?
8. Why? Why are they darker? Explain.
9. Lighter, ‘cold spots’ may indicate what problems?
10. Why? Why are they lighter? Explain.
11. (9 points) Blood and nerve supply of bone: Read the section carefully (p. 181) and ANSWER THE QUESTIONS
12. Why do bones need blood supply? Explain why. There are several reasons. Be specific!
13. A bone marrow needle biopsy involves sticking a long needle into the middle of the bone. Given the fact that the needle is just going through bone, why does it hurt?
14. What conditions is a needle biopsy used for?
15. (6 points) Bone Formation: Growth in Length (p. 185)
16. What is the ‘growth plate’ in a bone technically called?
17. How does a bone grow in length? Explain the process using at least 5 well-written sentences that tie together. USE YOUR OWN WORDS.
18. (6 points) Bone Formation: Growth in Thickness (p. 186)

How does a bone grow in thickness. Explain the process using at least 3 well-written sentences. USE YOUR OWN WORDS.

1. (6 points) Bone Remodeling: Read the section carefully (p. 186-187) and ANSWER THE QUESTIONS
2. What is bone remodeling? Why? How? How often? Explain the process, including resorption and deposition. Contrast the function of osteoblasts and osteoclasts. I’m looking for a 5-6 sentence summary. USE YOUR OWN WORDS.
3. Explain how the calcium and phosphorus from bone are removed and make their way into the blood stream. Try to be specific.
4. Orthodontics: Why does teeth-straightening rely on osteoclasts and osteoclasts in your maxilla and mandible (upper & lower jaw bones)? Explain.
5. (12 points) Factors Affecting Bone Growth: Read the section carefully on p. 187
6. What minerals are needed?
7. What vitamins are needed, and what does each one do?
8. Why are the insulinlike growth factors (hormones) needed? Be specific.
9. What hormone is responsible for the “growth spurt” of teenage years?
10. What sex hormone ultimately is responsible for stopping bone growth?
11. Why does female bone growth typically end earlier than in males?
12. (6 points) Fracture and Repair of Bone: identify the type of fracture below (p. 187-189)
13. One side of the bone breaks and the other side bends.
14. The broken ends of the bone protrude through the skin.
15. The bone is splintered, crushed, or broken into pieces.
16. One end of the bone is forcefully driven into the interior of the other end.
17. The bone develops microscopic fissures.
18. Why does bone heal faster than cartilage?
19. (6 points) Maintaining levels of calcium (p. 190-191)
20. What is parathyroid hormone, and what is its function in calcium homeostasis?
21. What is calcitriol, and what is its function in calcium homeostasis?
22. What is calcitonin, and what is its function in calcium homeostasis?
23. (4 points) Exercise and Bone Tissue (p. 191)
24. Why does weight-bearing exercise strengthen bone tissue? Explain what’s going on.
25. Would children raised in space ever be able to return to Earth? (just state your opinion, and give reasons)
26. (6 points) Aging and Bone Tissue (p. 191-193)
27. What causes loss of bone mass as a person ages? Be specific.
28. What causes bone brittleness as a person ages? Be specific.
29. How can a person slow or prevent *osteoporosis*? There are many things. Go down the list. If it helps, make a table below.