O2 CO2 Jeopardy

- **CO = HR X SV**
  - Stroke volume is affected by:
    - **Preload**
      - Volume coming into ventricles
    - **Afterload**
      - Resistance the left ventricle must overcome to circulate blood
    - **Contractility**
      - The ability of the heart to contract
      - Contractility decreases when the heart is damaged, such as in a heart attack

- **BP = CO x R (PVR)**
  - Peripheral vascular resistance is affected by:
    - Blood volume
    - Blood viscosity
    - Artery Elasticity

- How does blood pressure stay within normal limits?
  - Rapid acting mechanism
    - Baroreceptor reflex
    - Receptors
    - Sensory nerves
    - Medulla oblongata
    - Motor nerves
  - Slow acting mechanism
    - Renin-angiotension-aldosterone system
    - Causes an increase in blood volume and vasoconstriction

- What is peripheral vascular resistance and how does it affect blood pressure?
- How does the release of aldosterone affect the blood pressure?
- Describe factors which are responsible for normal variations in blood pressure.
- What physiologic mechanism maintains blood pressure when a person with normal blood volume stands upright from a sitting position?
  - Describe why a hypovolemic person experiences orthostatic hypotension when he / she stands upright from a sitting position?
  - Your patient has been on bedrest for one week. You are getting him up for the first time. He says he feels he will “pass out”.
  - Describe this phenomena.
- How do the ausculatory method and the palpation method of blood pressure measurement differ?
- How do vasoconstriction and vasodilation affect blood pressure?
  - What assessment is needed? What teaching is needed?
    - 20 year old male with BP 124/82
    - 30 year old female with BP 130/85
    - 70 year old male with B/P 160/94
  - Your client has a hemoglobin of 8 and a hematocrit of 35%. If all other factors remain normal, how may this affect the blood pressure?
  - How will a hematocrit of 55 and a hemoglobin of 20 affect blood pressure if all other factors remain normal?
  - You assess your clients blood pressure in the arms and the legs. Which would you expect to be higher and why?

- Why do some persons faint when they wear tight collars?
- Discuss normal temperature ranges for varying age groups.
- Discuss the effect of circadian rhythm and environment on temperature.
What are three factors which produce variations within the normal temperature range.
How is temperature regulated in the body?
Differentiate between hypothermia, hyperthermia and pyrexia or fever.

Temperature / Terminology

Application
- Your client has hyperthermia. Temp is 104 degrees.
- You give him a tepid bath. Explain how this will reduce his temperature.
- What are three nursing interventions for your client who is febrile?
- Your client is admitted with fever of unknown origin (FUO).
  - How would this affect the other vital signs.
  - Why does it affect the other vital signs.
- What is the relationship between temperature and the oxygen requirements of the body?
- What causes chills when you are cold?
- What causes chills when you have a fever?
- Your client has a temperature of 103 degrees. You administer an antipyretic medication.
- What is the effect of the medication and what will you see in your patient which will indicate that the medication is effective?
- Give two examples of patients who would need a rectal thermometer. Explain your rationale.
- Besides rate, what other factors should be assessed when evaluating a peripheral pulse?

Pulse / Terminology
- What is a pulse deficit?
- Calculate the pulse deficit if the apical pulse is 100 and the radial pulse is 80.
- What is pulse pressure.
- Describe a normal pulse pressure.
- Your patient’s radial pulse is 65 beats per minute and irregular. How should you further assess?
  - How will hemorrhage affect the pulse?

Respirations / Terminology
- Explain how these terms are related and/or different.
  - Apnea
  - Biots’ respirations
  - Cheyne – Stokes respirations
  - Dyspnea
  - Eupnea
  - Kussmaul’s
- What makes us breathe?
- How do these factors influence respirations?
  - Exercise
  - Pain
  - Anxiety
  - Chronic smoking
  - Anemia
  - Body position
- What are two patterns of respirations in which the rate is abnormal?
- What are two patterns of respirations in which the volume is abnormal?
- What are two patterns of respirations in which the rhythm is abnormal?
- Differentiate ventilation, diffusion and perfusion.
- How can ventilation, diffusion and perfusion be assessed by the nurse?
- Describe normal respiratory efforts for persons of various age groups.
- Your patient is dyspnic. What action should the nurse take?
• How do increased levels of carbon dioxide in the blood affect respirations?
• How does hypoxia affect respirations?
• What is pallor?
  o How is it recognized in the black, brown and white populations?
• What is cyanosis?
  o How is it recognized in the black, brown and white populations?
• Explain the process of blood cell production.
  o WBC – 11,000
  o Neutrophils – 9,000 or 70%
  o Eosinophils – 400 or 1%
  o Basophils – 100 or 1%
  o Lymphocytes – 1,700 or 20%
  o Monocytes – 200 or 8%
  o Platelet count – 100,000
• What is hemoglobin?
• Which components of the CBC look at the size of the RBC
  o Weight of the hemoglobin?
  o What does a Hematocrit value of 43% mean?
  o What does a WBC count of 15,000 mean to you?
  o What signs and symptoms might your patient display if their HGB is 8 and their HCT is 20?
    ▪ What would you do about it?
• Pictures of Venous Insufficiency
  o http://medlib.utah.edu/kw/derm/wound/venous.htm

• When and how should pain be assessed?
  o Why should we treat pain???
  o Research shows that unrelieved pain:
    ▪ Inhibits the immune system
    ▪ Can enhance tumor growth
    ▪ Increases oxygen demand
    ▪ Causes respiratory dysfunction
    ▪ Decreases gastrointestinal motility
    ▪ Causes confusion

• What is the effect on blood pressure of a medication which reduces peripheral vascular resistance?
• What is the effect on blood pressure of a medication which reduces aldosterone production?
• What is the effect on blood pressure of a medication which blocks sympathetic nerve impulses?
• What is the effect on blood pressure of a medication which reduces reabsorption of sodium and water by the kidneys?
• What is the effect on blood pressure of a medication which increases the strength of myocardial contraction? (increased contractility)
• What is the effect on cardiac output of a medication which increases stroke volume?