Pathology Class 4:

Organ Systems Pathology (Ages 10-13yo)

1. Which part of the lungs carries air in and out like tubes?
   A. Bronchi
   B. Alveoli
   C. Sinuses
   D. Diaphragm
2. Why is pneumonia more serious than a chest cold or bronchitis?
   A. It causes more sneezing
   B. It affects the air sacs where oxygen enters the blood
   C. It only happens in adults
   D. It always lasts longer
3. What happens in asthma that makes breathing hard?
   A. The heart beats too fast
   B. The blood has less oxygen
   C. The airways tighten and fill with mucus
   D. The lungs stop growing
4. Which organ helps remove damaged red blood cells from the blood?
   A. Liver
   B. Kidneys
   C. Heart
   D. Spleen
5. What is anemia?
   A. A problem with carrying enough oxygen in the blood
   B. Too much blood in the body
   C. A lung infection
   D. A heart rhythm problem
6. What is the main problem in diabetes?
   A. Too much oxygen in the blood
   B. Blood sugar is not controlled properly
   C. The lungs cannot expand
   D. The heart beats irregularly
7. What does it mean if the bone marrow is making lots of new red blood cells?
   A. Oxygen levels are too high
   B. The spleen is not working
   C. The body is trying to replace lost blood cells
   D. Blood sugar is low
8. Which of these is NOT a heart arrhythmia?
   A. Heart beating too fast
   B. Heart beating too slow
   C. Heart beating irregularly
   D. Heart beating stronger
9. Why can acne get worse during puberty even if someone washes their face?
   A. Dirt stays in the skin
   B. Sweat blocks pores
   C. Hormones increase oil production
   D. Skin becomes thinner

10. Which organ uses a lot of oxygen even though it is small?
    A. Liver

B. Brain
C. Pancreas
D. Gallbladder

Home Activity – Answer Key

Activity 1 — Systems stress map

Circle 1 — Lungs
Helps:
- Regular physical activity
- Clean air / outdoor air
- Good breathing habits
- Avoiding smoke and vaping

Stresses:
- Vaping
- Smoking or secondhand smoke
- Air pollution
- Repeated respiratory infections

If stressed too often, it might fail by:
- Reduced oxygen transfer
- Inflamed or narrowed airways
- Mucus buildup blocking airflow
- Less oxygen getting to body cells

Dominant failure patterns: barrier + inflammation + transport

Circle 2 — Heart
Helps:
- Regular exercise
- Good sleep
- Balanced diet
- Hydration

Stresses:
- Energy drink or stimulant overuse
- Chronic sleep deprivation
- High sugar / highly processed diet
- Severe overexertion when ill (for example myocarditis risk)

If stressed too often, it might fail by:
- Abnormal heart rhythm (electrical signaling problem)
- Poor pumping efficiency
- Reduced blood flow to tissues
- Exercise intolerance or collapse risk

Dominant failure patterns: communication (electrical) + transport

Circle 3 — Brain
Helps:
- Adequate sleep
- Learning and mental challenge
- Physical activity
- Stress management

Stresses:
- Sleep deprivation
- Repeated head impacts / concussions
- Chronic high stress
- Excess screen time with poor sleep

If stressed too often, it might fail by:
- Slower thinking and reaction time
- Memory and concentration problems
- Persistent post-concussion symptoms
- Mood and regulation problems

Dominant failure patterns: structural + communication + regeneration limits

Circle 4 — Hormones / Metabolism
Helps:
- Balanced meals
- Steady blood sugar patterns
- Regular sleep schedule
- Stress regulation

Stresses:
- High sugar diet
- Constant snacking on refined carbs
- Chronic stress
- Severe sleep disruption

If stressed too often, it might fail by:
- Blood sugar dysregulation
- Insulin resistance patterns
- Energy crashes
- Hormone imbalance symptoms (acne, fatigue, irregular cycles later)

Dominant failure patterns: signaling + dysregulation

Activity 2 – Lung Tool Logic

What to do:
Match the tool to what it mainly does.

Tools ➔ Choice
- Peak flow meter ➔ Measures air speed of exhalation
- Nebulizer ➔ Delivers moisture, saline (salt water), or medicine to lungs
- Steam inhaler ➔ Delivers moisture to upper respiratory tract (sinuses/throat)
- Breathing muscle trainer ➔ Strengthens breathing muscles