The Human Body, Layer by Layer: NYSSLS Alignment

Teacher guide for the one-page student worksheet at mrsajdak.com/body. Anatomy & Physiology or Biology, grades 9 to 12. The worksheet is low-write: tick boxes, short blanks and one or two written lines. The answer key is kept off the website; write to rsajdak@buffaloschools.org for it. © 2026 Ryan Sajdak. Free to use, share and change under CC BY-NC-SA 4.0 (creativecommons.org/licenses/by-nc-sa/4.0): give credit, do not sell it, share your version the same way.

What it is

One real adult body in 3D, built from scans (Z-Anatomy, on BodyParts3D). Ten layers switch on and off: skeleton, joints and ligaments, muscles, heart and blood vessels, nervous, lymphatic, digestive, respiratory, urinary and endocrine. Each can be solid or see-through, any part can be clicked for its name, and the body can be cut in the transverse, sagittal or frontal plane. The reproductive system is not included and the model has no skin.

Objectives

Printed on the worksheet, each with a box to tick.

I can	Questions
I can use a 3D model to find parts of four body systems.	1, 4 and 5
I can explain how two systems work together, using where their parts are.	2 and 3

Standards

Performance expectation, building toward: HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

DCI LS1.A: Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. This sheet is one step toward the expectation, not a full assessment of it.

The science and engineering practices and crosscutting concepts below are named in New York State P-12 Science Learning Standards language, and each one is printed on the worksheet at the part where students use it.

Part by part

Part	Practice (SEP)	Concept (CCC)	What students do
1. One system at a time	SEP 2 Developing and using models		Switch on four systems one by one and name a part of each.
2. Systems work together		Systems and System Models	See where the lungs sit, read Learn It, then explain what the ribs do for them.
3. Slice the body		Structure and Function	Cut the chest in the transverse plane and tick what shows in the cut.
4. What the model leaves out	SEP 2 Developing and using models		Find what the page says the model does not include.

Running it

About 15 to 20 minutes. The model is large (about 2,600 parts with every layer on), so have students switch layers on one at a time. A see-through layer cannot be clicked, which is how students reach a part underneath. For Question 4 the cut slider has to sit at chest height: too high and it only cuts the neck. Explore, then explain, then apply: Q1, 2, 4 and 5 are data. Q3 comes after the blue Learn It box under the model, which opens once a lung and the trachea are clicked and teaches how the ribs guard and move the lungs.