Cornell Guided Notes

Human Anatomy & Physiology (Human Body Systems) | 2026-09-16

Name	Period	Date	Lesson
		2026-09-16	

Lesson focus

Sarcomere and contraction

Key words and questions	Prepared details and student notes

Essential question
What is today's target?

Describe sarcomere structure and explain contraction using the sliding-filament model. Big idea: Every voluntary movement in the body is driven by sarcomeres shortening through actin-myosin cross-bridge cycling.

My notes, examples, and questions

Key words
What vocabulary unlocks the lesson?

- sarcomere
- actin
- myosin
- contraction
- tendon
- origin
- insertion
- lever

My notes, examples, and questions

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Cornell Notes - Continued

Key words and questions	Prepared details and student notes
Must-know ideas **What should I understand by the end?**	- A sarcomere is the functional unit of a muscle fiber, bounded by Z-lines. It contains thick (myosin) and thin (actin) filaments. - In the sliding-filament model, myosin heads pull actin toward the center of the sarcomere; the A-band stays constant while the I-band and H-zone narrow. - ATP powers the cross-bridge cycle; without ATP, myosin heads cannot detach (explaining rigor mortis as a pathophysiology example). **My notes, examples, and questions**
Process notes **What happens during class?**	- 0-8: Intro: scale from whole muscle to sarcomere - 8-25: Notes: sarcomere structure and sliding-filament mechanism - 25-45: PLTW online task: sliding-filament mechanism - 45-62: Label sarcomere diagram: Z-lines, A-band, I-band, actin, myosin - 62-75: Write two-sentence explanation of band changes during shortening - 75-80: Submit diagram and explanation; preview Maniken build **My notes, examples, and questions**

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Steps and evidence **What do I do and turn in?**	- Read the notes on the sarcomere, actin (thin) and myosin (thick) filaments. - Label a sarcomere diagram including the Z-lines, A-band, and I-band. - Complete the PLTW online task on the sliding-filament mechanism. - Explain in two sentences what happens to the bands when a muscle shortens. - Submit your labeled sarcomere diagram and contraction explanation. Evidence: Notebook check - Labeled sarcomere diagram (Z-lines, A-band, I-band, actin, myosin) plus a two-sentence sliding-filament contraction explanation. **My notes, examples, and questions**
Checks for understanding **How do I know I got it?**	- You can label the parts of a sarcomere. - You can explain contraction with the sliding-filament model. **My notes, examples, and questions**

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Lab or safety notes
What must I handle carefully?

Supplies:
- Maniken model
- Clay or modeling material for muscle build
- Muscle reference diagrams
- Sculpting tools
- Lab notebook
- Camera or tablet to document the build

My notes, examples, and questions

Summary

Today's lesson focused on Sarcomere and contraction. The main target was: Describe sarcomere structure and explain contraction using the sliding-filament model. The evidence of learning is Notebook check: Labeled sarcomere diagram (Z-lines, A-band, I-band, actin, myosin) plus a two-sentence sliding-filament contraction explanation.. In my own words, the most important idea from today is:

My summary

My final question or connection