

Name: _____

Muscle Contraction Analogy Storyboards

Your analogy must include, *as a minimum*, the following “scenes”:

1. An AP releases ACh from neuron’s synaptic terminal into synaptic cleft
2. ACh binds to and opens Na⁺ channels on the sarcolemma
3. Na⁺ diffuses in, an AP is generated and moves down sarcolemma and T-tubules
4. AP opens Ca²⁺ channels in terminal cisternae, releasing Ca²⁺ into sarcoplasm
5. Ca²⁺ binds to troponin, changing its shape and pulling tropomyosin
6. Active sites on actin are exposed
7. Myosin heads bind to active sites
8. ATP releases myosin heads from active site to repeat cycle



Storyboard Criteria:

- Label all characters and scenes using physiologic terminology
- Illustrations should be in color and may be created digitally
- This sheet should be completed and included with your storyboards
- Your analogy should make sense to anybody not familiar with muscle contraction physiology

Cast of Characters

Role	Played By
Motor Neuron/Synaptic Terminal:	_____
ACh:	_____
Ligand-Gated Na ⁺ Channels (on sarcolemma):	_____
Na ⁺ (from extracellular fluid):	_____
Action Potential (sarcolemma to T-tubules):	_____
T-Tubules:	_____
Terminal Cisternae:	_____
Voltage-Regulated Ca ²⁺ Ion Channels (on TC):	_____
Ca ²⁺ (from within terminal cisternae):	_____
Actin:	_____
Troponin:	_____
Tropomyosin:	_____
Active Sites (on actin):	_____
Myosin Heads:	_____
ATP:	_____
_____ :	_____
_____ :	_____