

Greg Landry

Exercise & Sports Physiology

Self-Paced

Illuminating His Creation • Revealing His Glory

PART 2 OF 2

CHAPTERS 3-7



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Exercise & Sports Physiology - Self-Paced Class

CHAPTER 3

VO₂, Cellular Respiration, Training, & the Anaerobic Threshold



VO₂ MAX

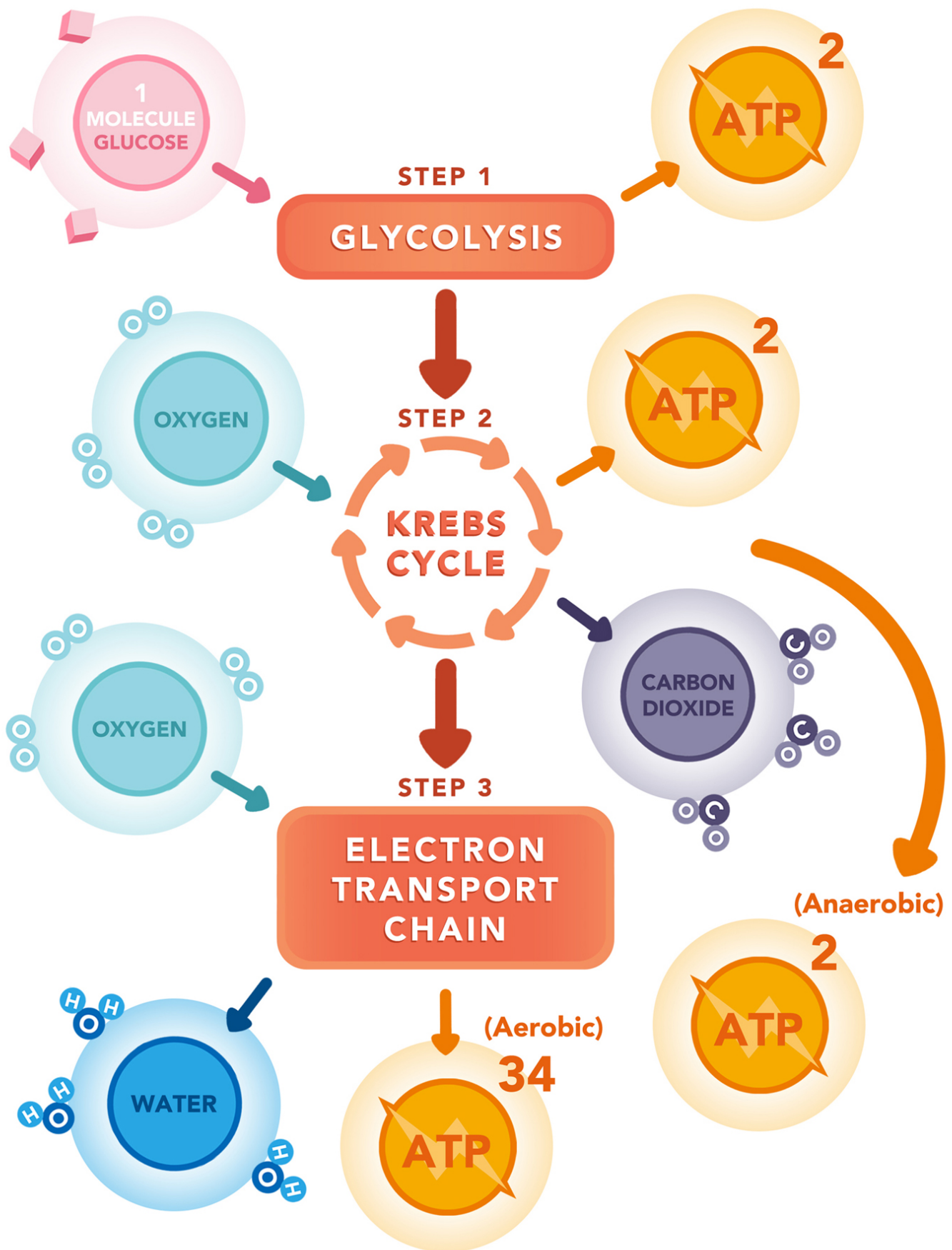


$$VO_2 =$$

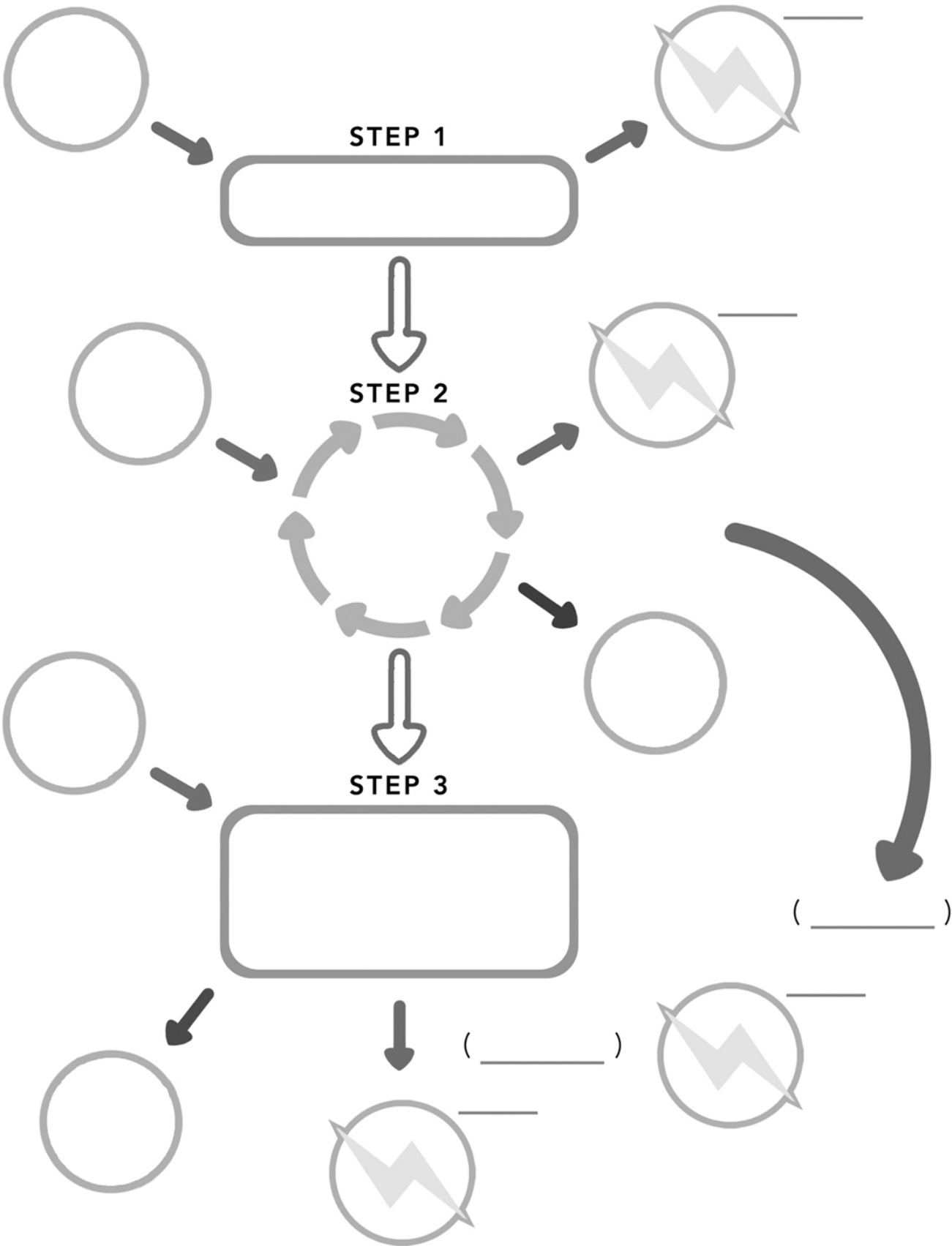
(millimeters of inhaled air per minute)(% O₂ inhaled)

(mm of exhaled air per minute)(% O₂ exhaled)

CELLULAR RESPIRATION

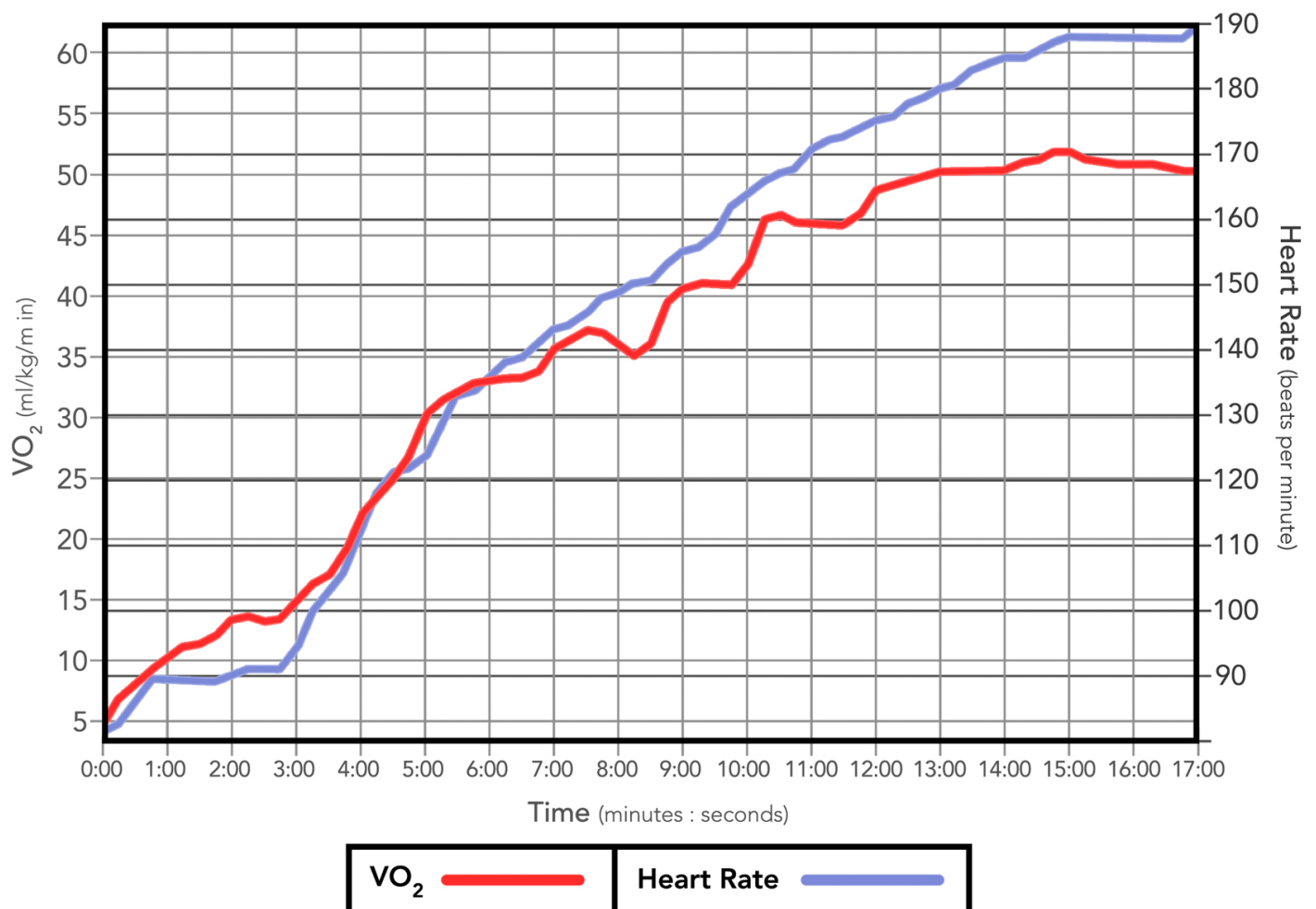


CELLULAR RESPIRATION



HEART RATE

AGE	MAXIMUM HEART RATE	50%	75%	85%
20	200	100	150	170
25	195	98	146	166
30	190	95	142	161
35	185	93	138	157
40	180	90	135	153
45	175	88	131	149
50	170	85	127	144
55	165	83	123	140
60	160	80	120	136
65	155	78	116	132
70	150	75	113	127
75	145	70	108	123
80	140	70	104	119
85	135	68	101	115



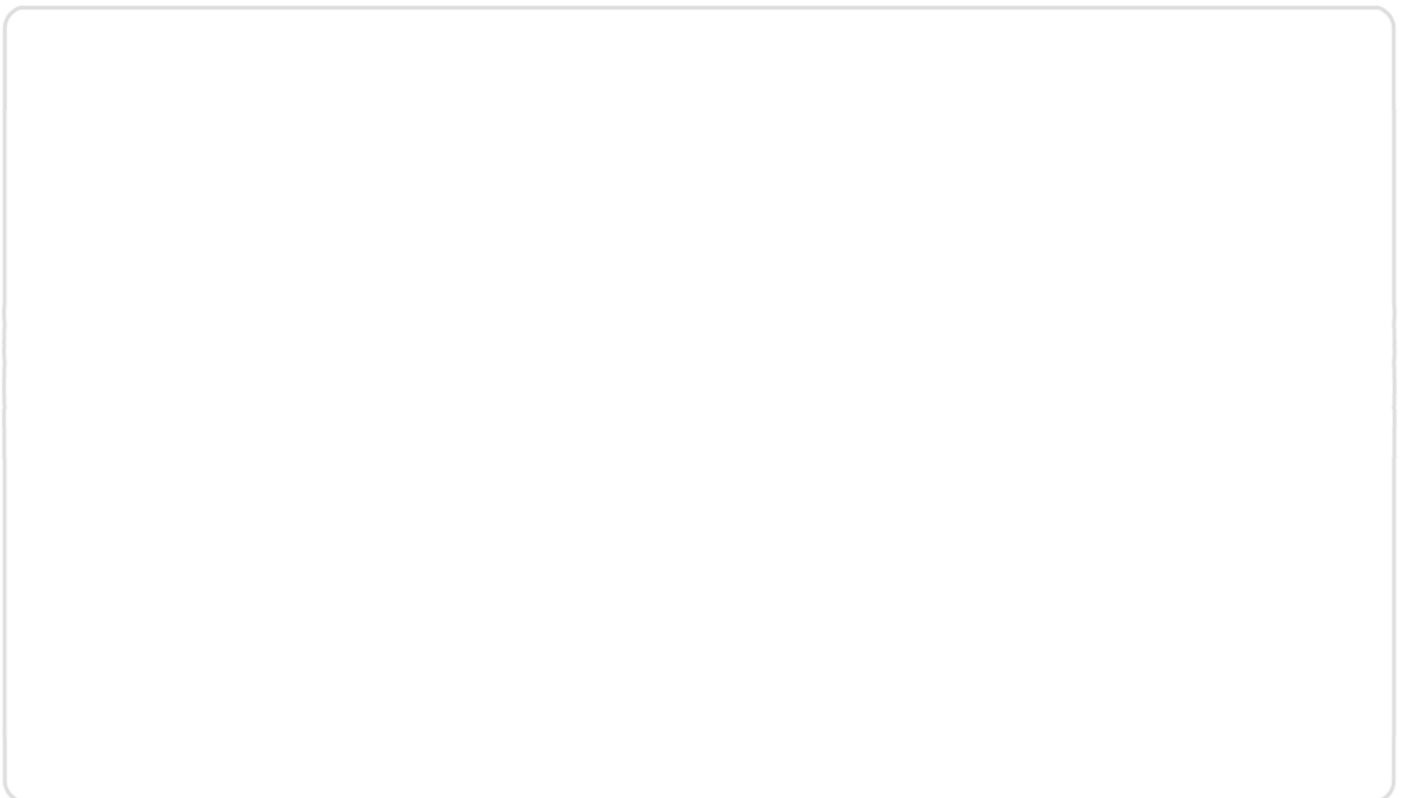
Chapter 3 Worksheet

1. Have you filled in the black and white printables from this chapter? _____
2. Have you completed your class notes from this week: taken notes on all of this week's class (going back to the class recording if necessary), sketched, and summarized? _____
3. Have you studied using retrieval practice until you know all of the information?
What types of retrieval practice did you use? _____

4. For 10 minutes, teach someone what we discussed in class — using your notes as little as possible. Who did you teach and what did you teach them?

5. Explain something about this week's lesson that you found most interesting.

6. In the space below, sketch and explain the anaerobic threshold.



Your Science Creation Worksheet

Use this space to create - write, sketch, note-sketch, or in some other way depict information, concepts, and ideas covered in this chapter.

Exodus 35:31

and he has filled him with the Spirit of God, with skill, with intelligence, with knowledge, and with all craftsmanship



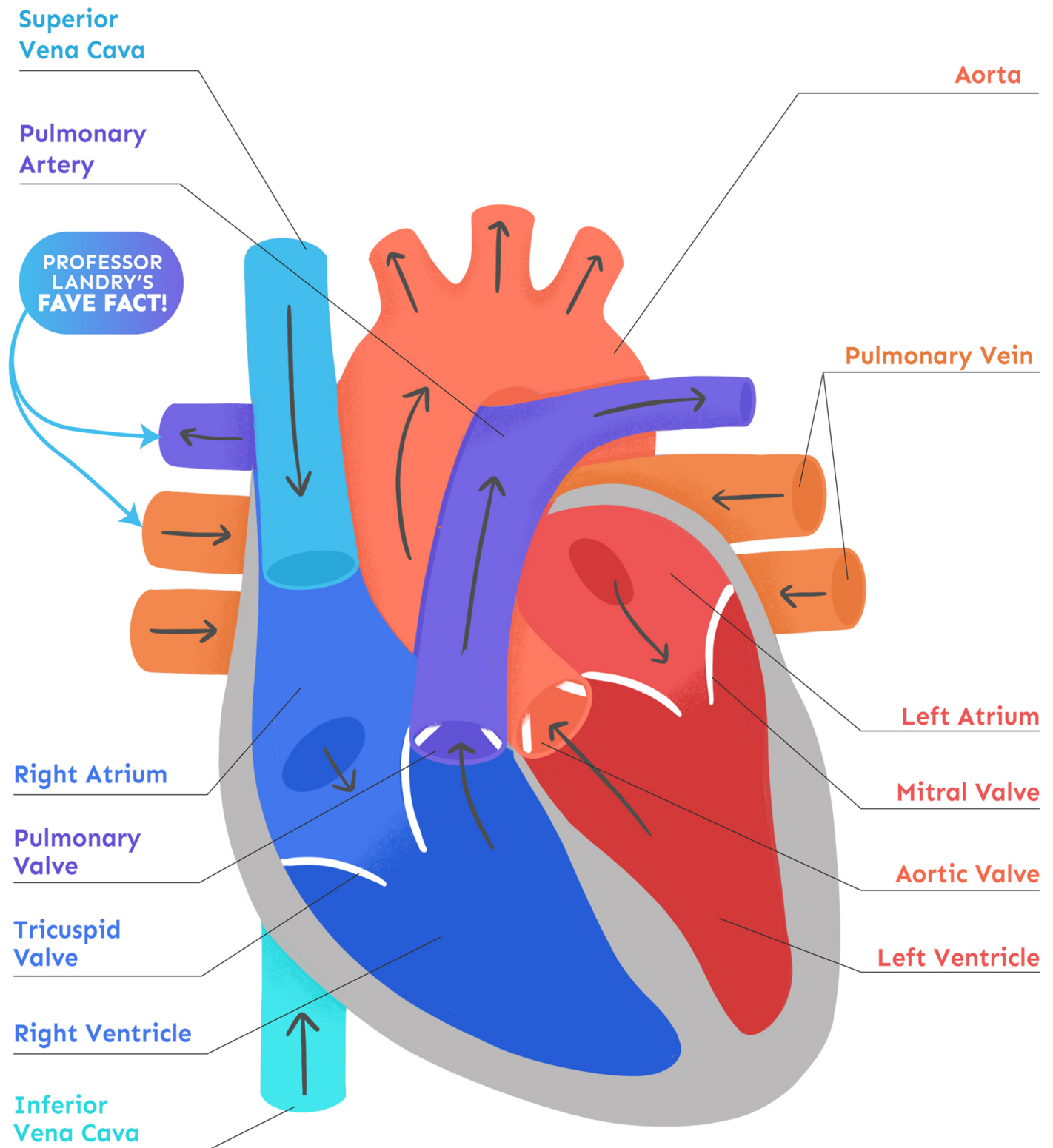
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CHAPTER 4

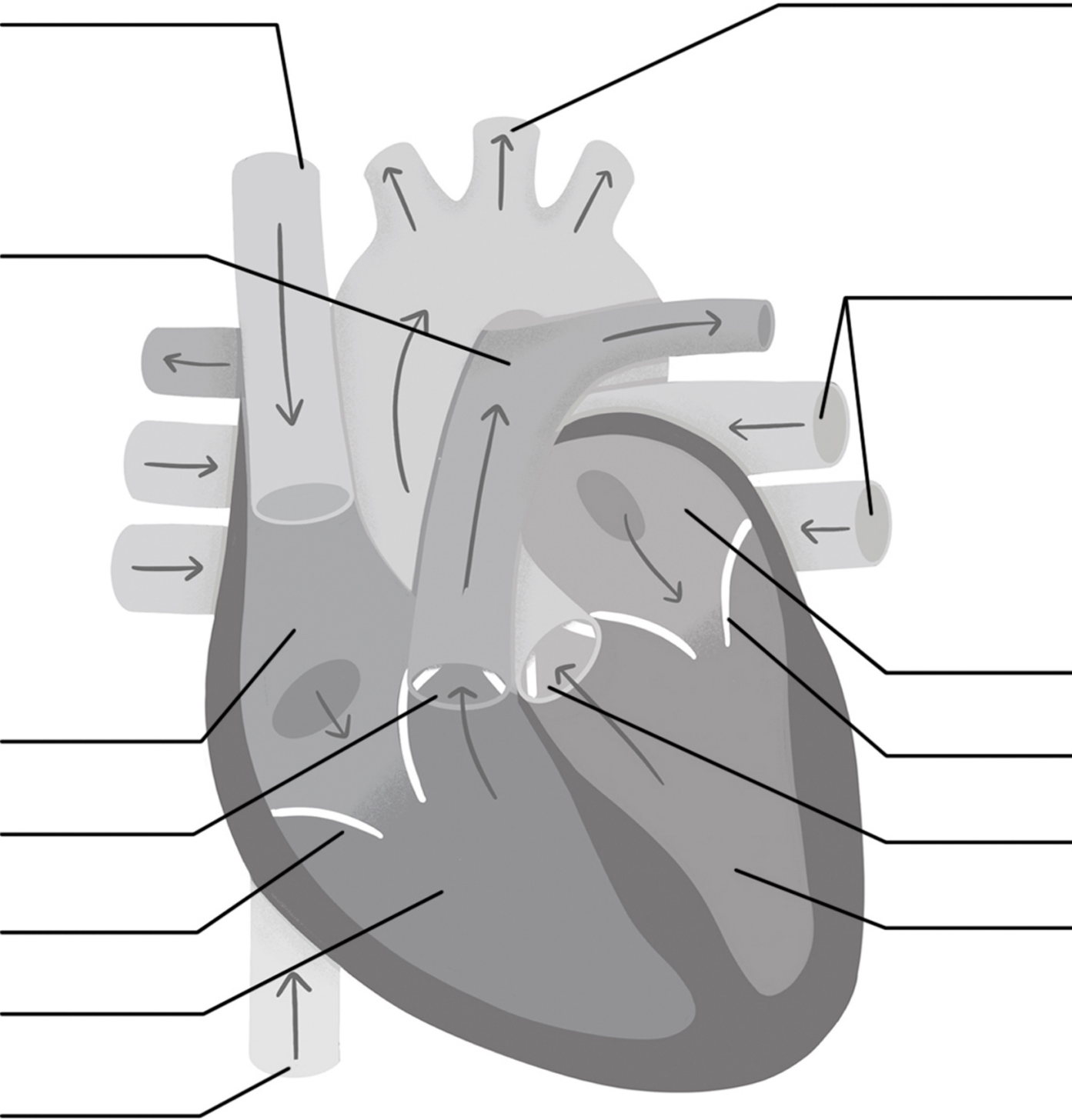
Cardiovascular Function, Training, & Heart Rate



HEART CIRCULATION



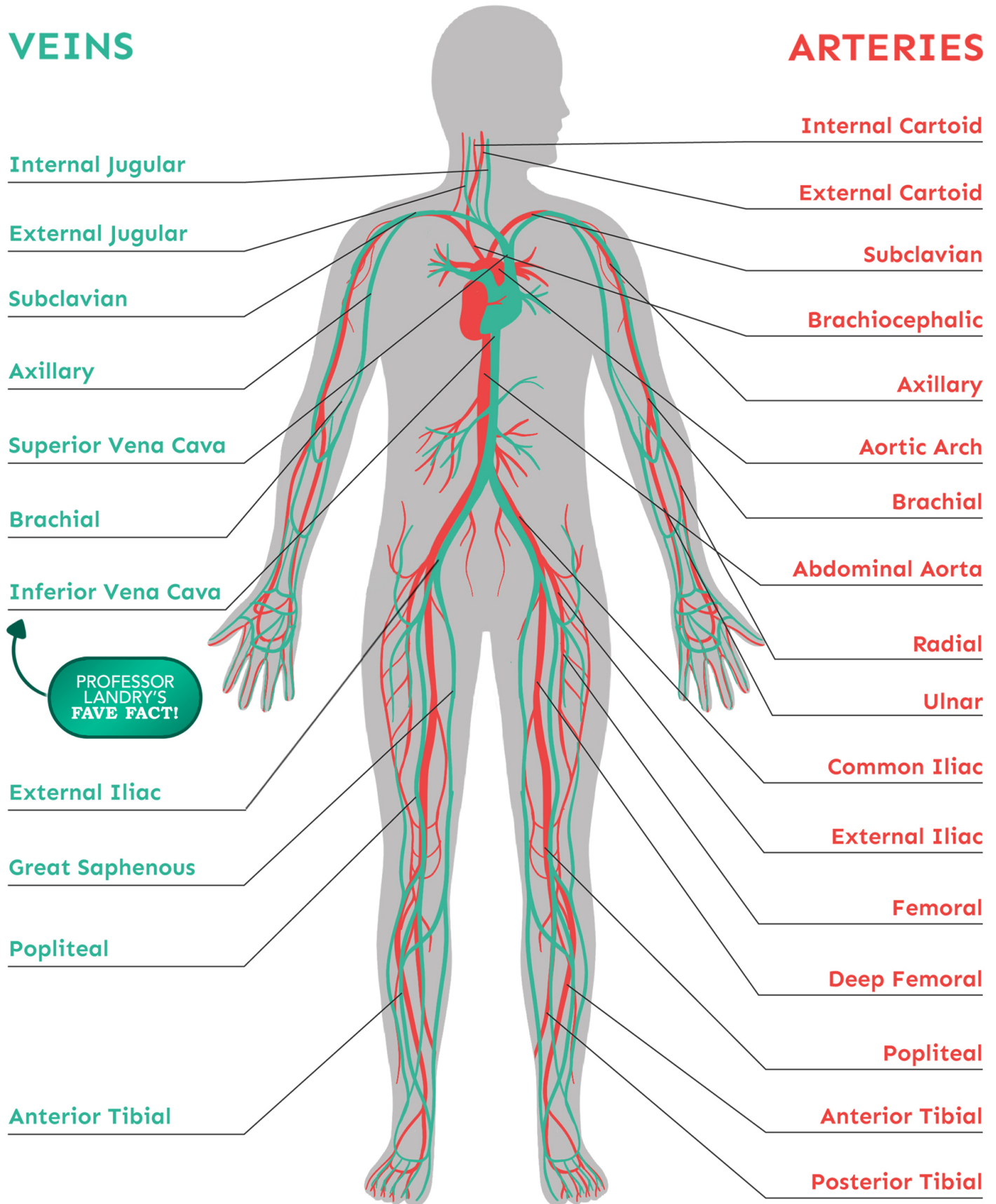
HEART CIRCULATION



VEINS AND ARTERIES

VEINS

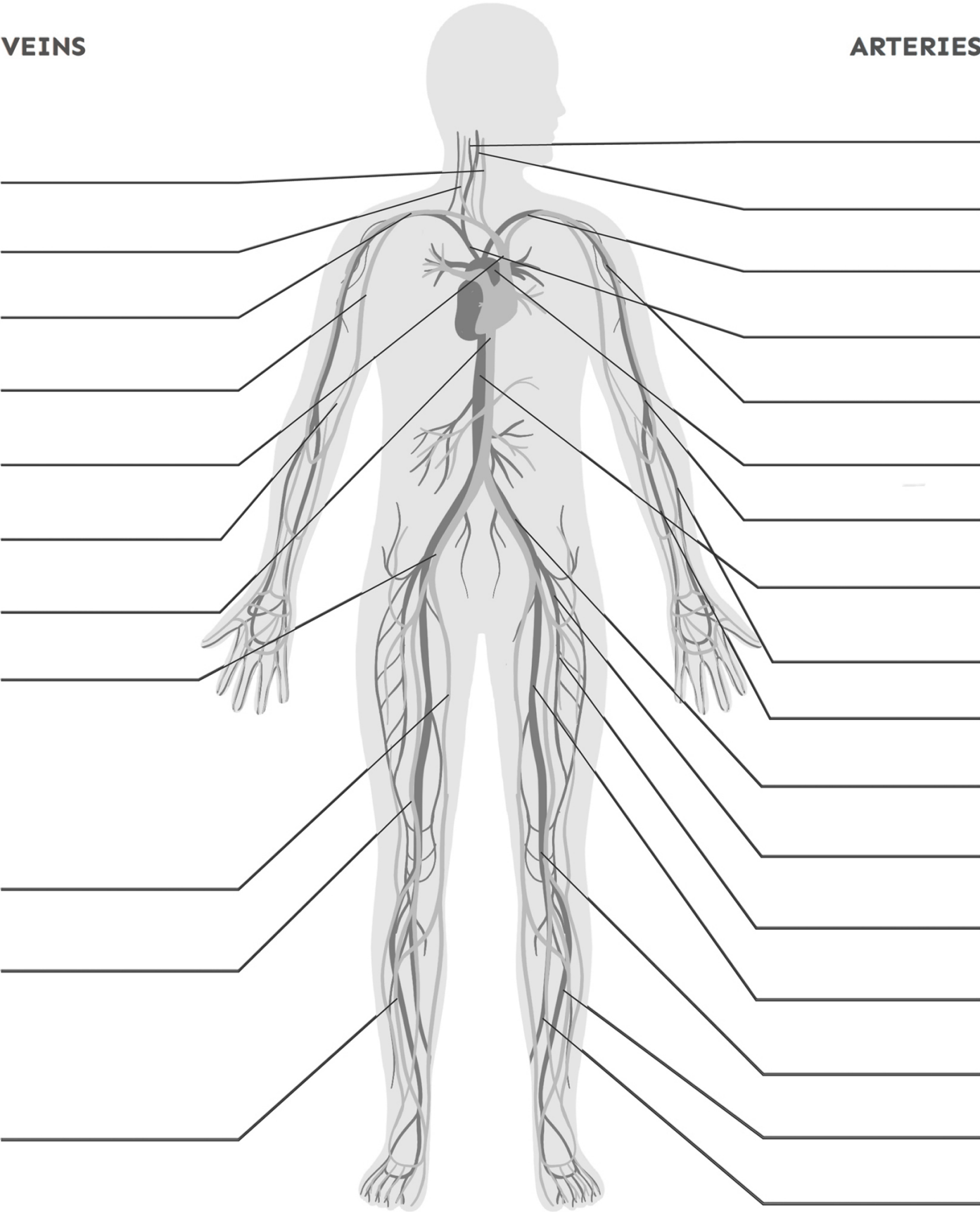
ARTERIES



VEINS AND ARTERIES

VEINS

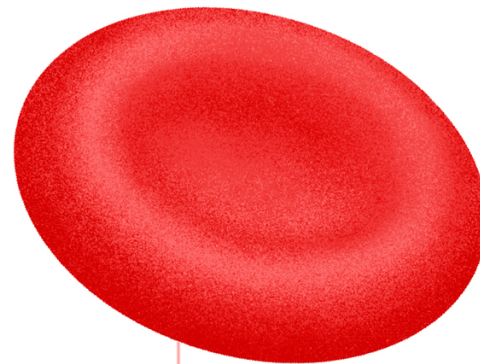
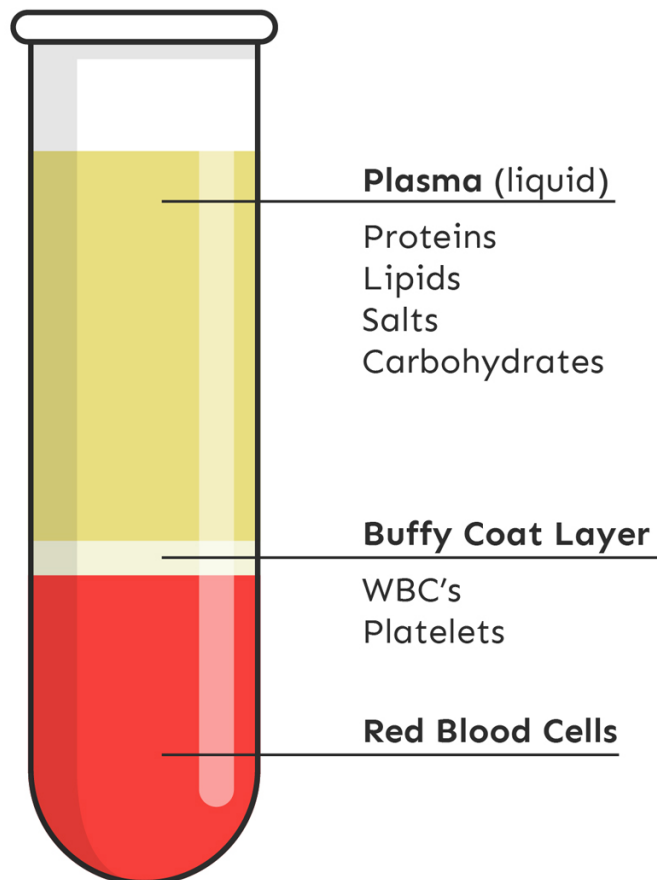
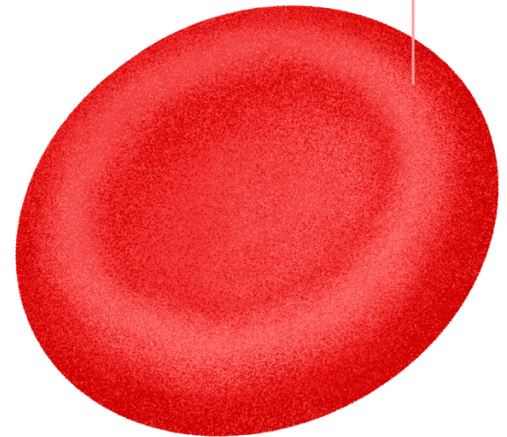
ARTERIES



BLOOD

Blood Type and RH	# of people who have it	Blood Type and RH
O Rh Positive	1 in 3	36.9%
O Rh Negative	1 in 15	7.1%
A Rh Positive	1 in 3	35.7%
A Rh Negative	1 in 16	6.3%
B Rh Positive	1 in 12	8.5%
B Rh Negative	1 in 67	1.5%
AB Rh Positive	1 in 29	3.4%
AB Rh Negative	1 in 167	0.6%

Contains hemoglobin



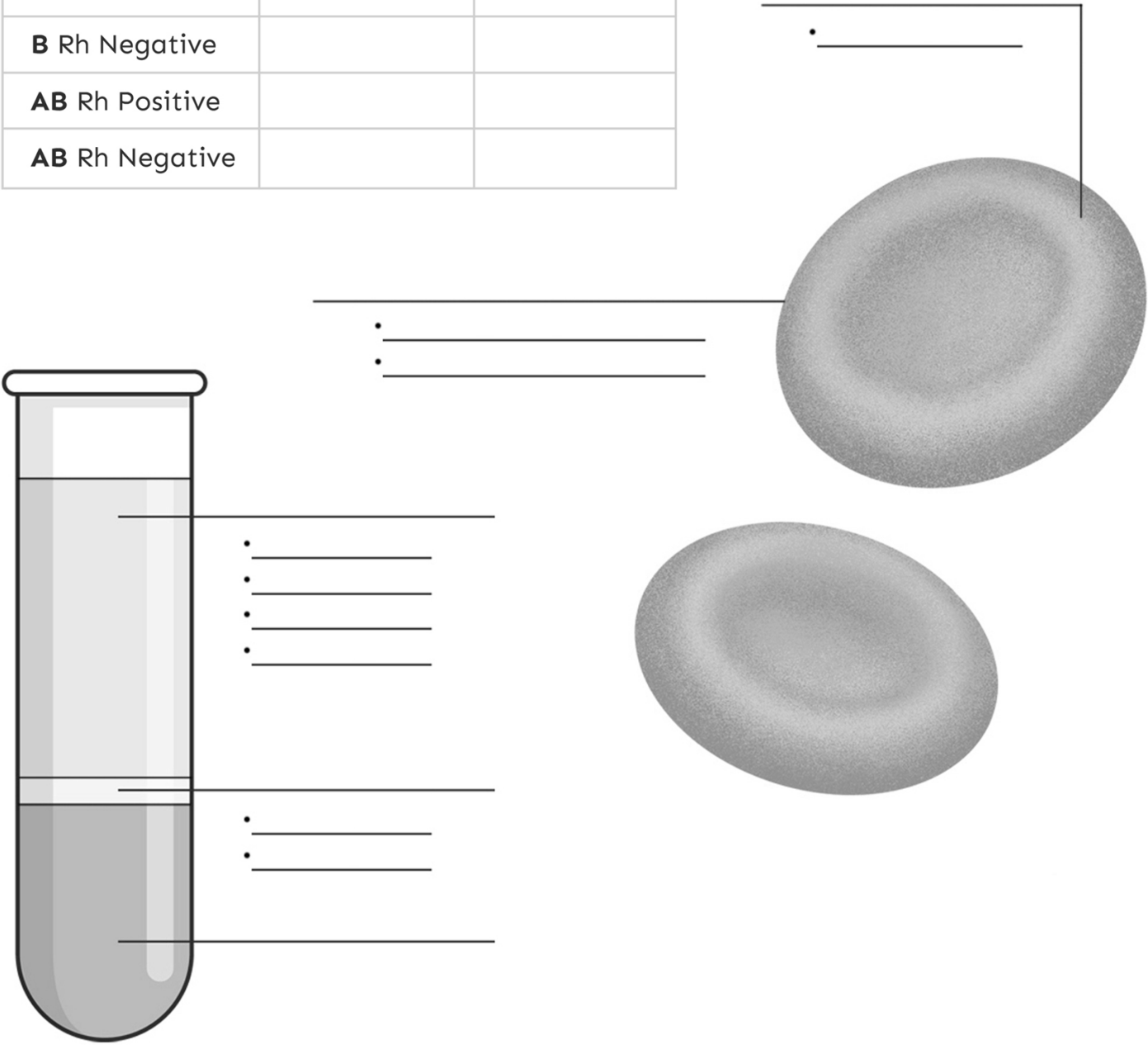
Erythrocytes (red blood cells)

Biconcave discs with no nucleus
Carry oxygen

PROFESSOR
LANDRY'S
FAVE FACT!

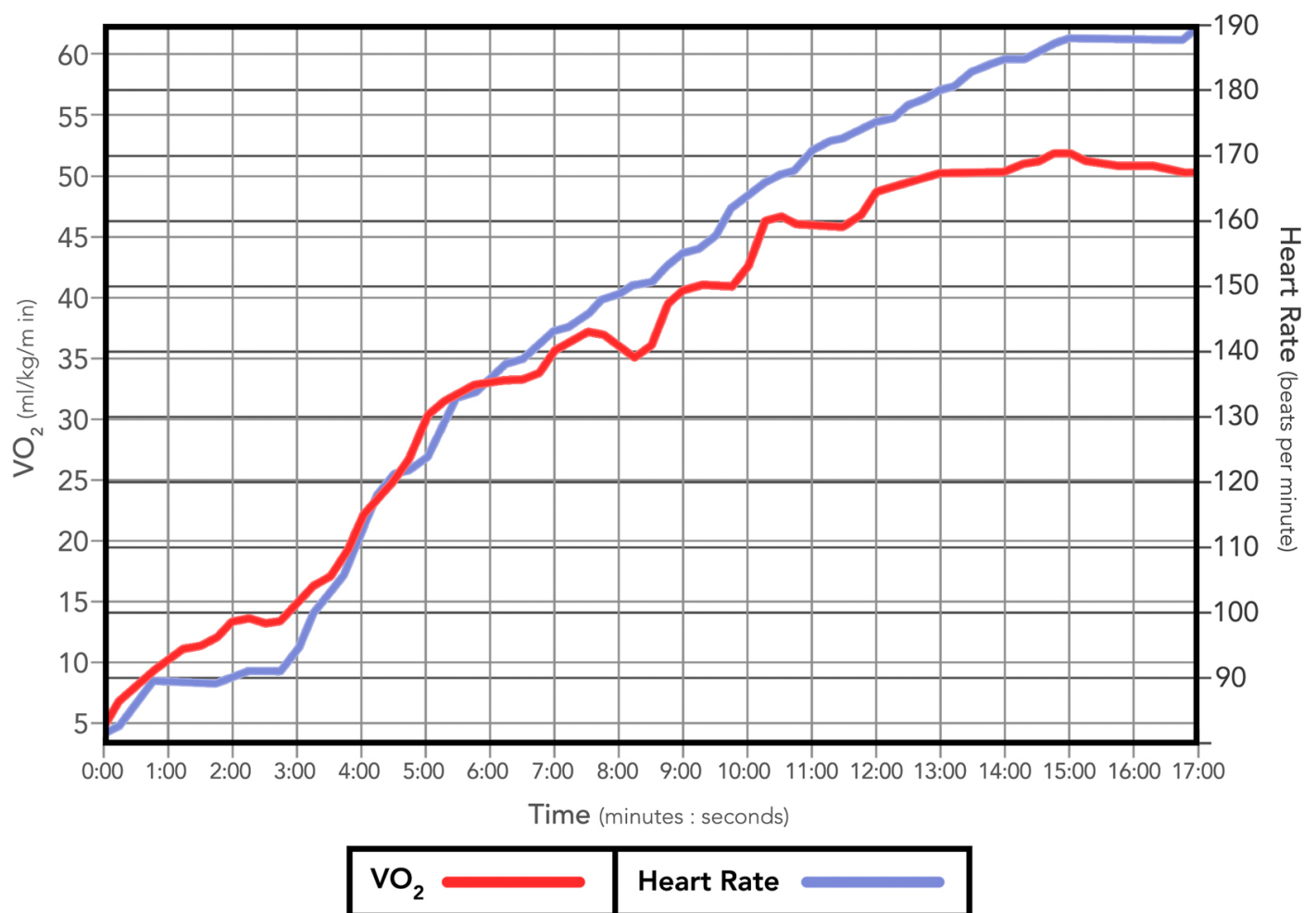
BLOOD

Blood Type and RH	# of people who have it	Blood Type and RH
O Rh Positive		
O Rh Negative		
A Rh Positive		
A Rh Negative		
B Rh Positive		
B Rh Negative		
AB Rh Positive		
AB Rh Negative		



HEART RATE

AGE	MAXIMUM HEART RATE	50%	75%	85%
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65	155	78	116	132
70	150	75	113	127
75	145	70	108	123
80	140	70	104	119
85	135	68	101	115



Chapter 4 Worksheet

1. Have you filled in the black and white printables from this chapter? _____
2. Have you completed your class notes from this week: taken notes on all of this week's class (going back to the class recording if necessary), sketched, and summarized? _____
3. Have you studied using retrieval practice until you know all of the information?
What types of retrieval practice did you use? _____

4. For 10 minutes, teach someone what we discussed in class — using your notes as little as possible. Who did you teach and what did you teach them?

5. Explain something about this week's lesson that you found most interesting.

6. How many chambers are there in a human heart? _____
7. What are those chambers called? _____

8. What color is oxygenated blood? _____ Deoxygenated? _____
9. What color is blood in the left ventricle? _____
10. Describe the path of blood through the heart. _____

11. Where does the blood pick up carbon dioxide and where does it drop it off?

12. Do arteries carry blood *away* from the heart or *toward* the heart? _____

Chapter 4 Worksheet

- 13.** Sketch the path of blood through the heart, color-coding it for oxygenated and deoxygenated blood.

Chapter 4 Worksheet

14. What color is the blood in the veins? In the arteries?

15. Where is the largest artery located?

16. Is the blood pressure higher in the veins or in the arteries? Why?

17. Is the blood ever blue? _____

18. Is the blood ever green? _____

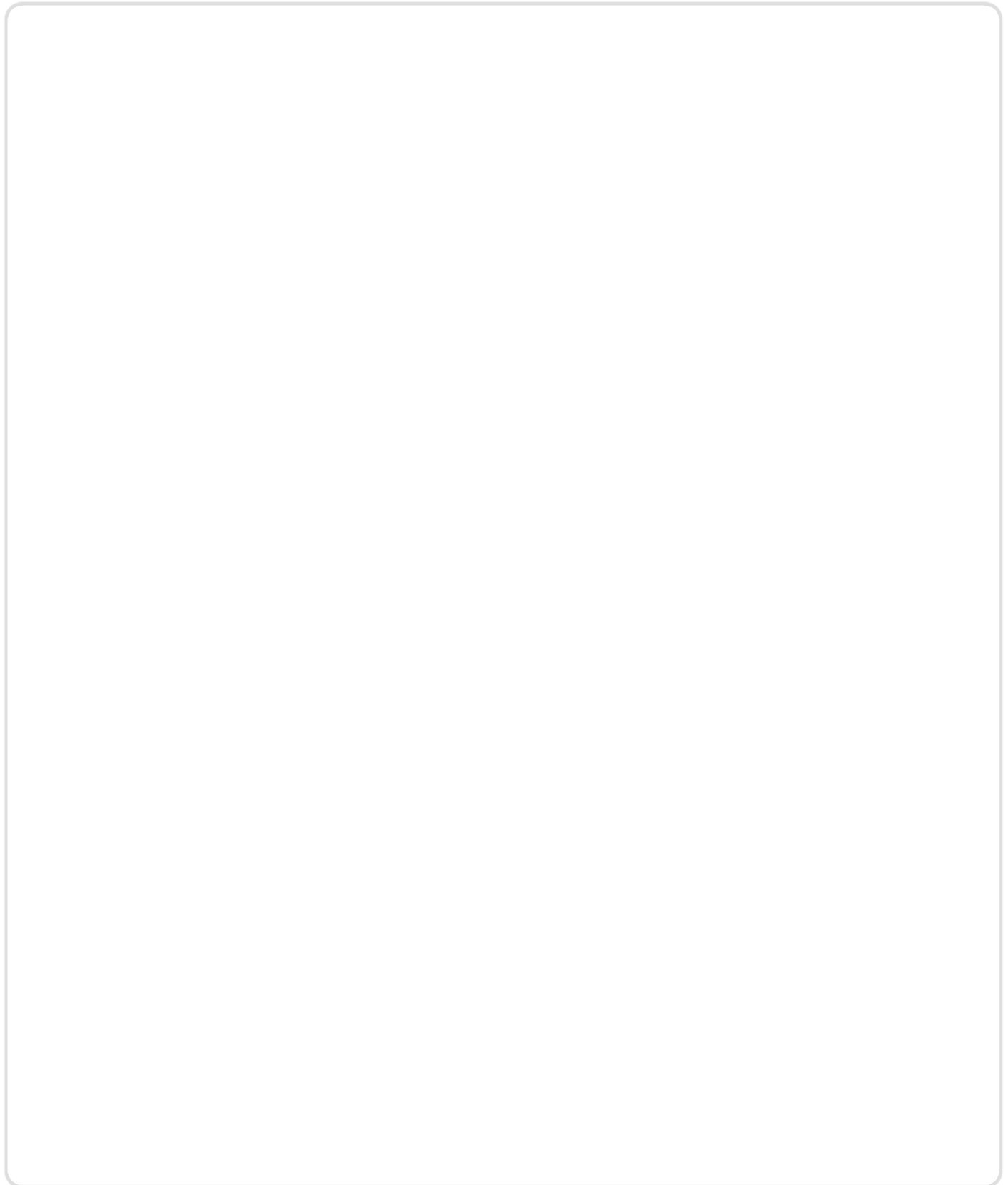
19. Describe, "hematocrit." _____

20. List the eight blood types/Rh factors in order from most common to least common in the U.S.

21. What is the normal hematocrit range for females? For males?

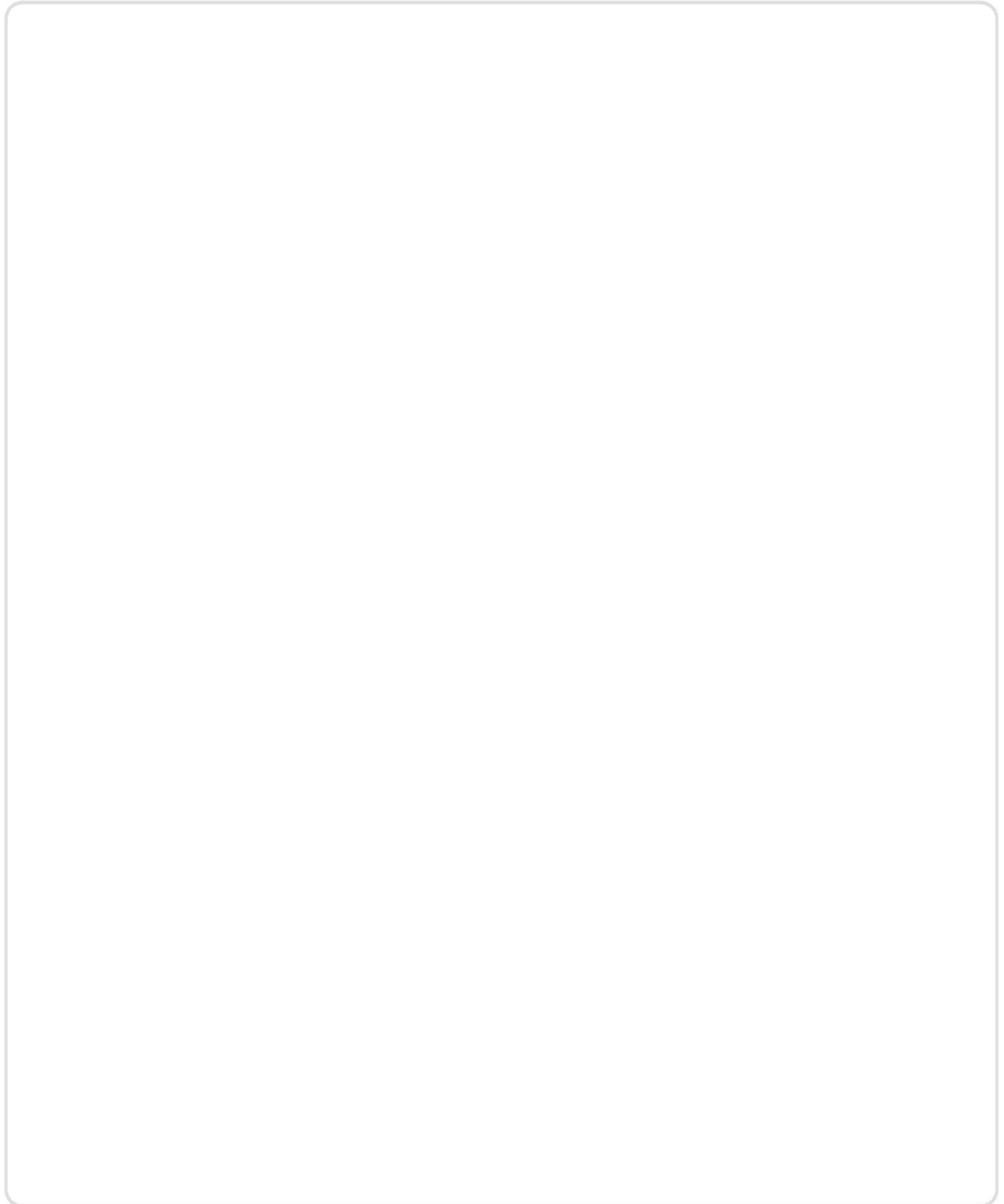
Chapter 4 Worksheet

- 22.** Sketch a body with at least five arteries of your choice and five veins of your choice. Label them and use arrows to indicate the direction of blood flow.



Chapter 4 Worksheet

23. In the space below, sketch an erythrocyte with the blood type antigens and label them.



Your Science Creation Worksheet

Use this space to create - write, sketch, note-sketch, or in some other way depict information, concepts, and ideas covered in this chapter.

Exodus 35:31

and he has filled him with the Spirit of God, with skill, with intelligence, with knowledge, and with all craftsmanship



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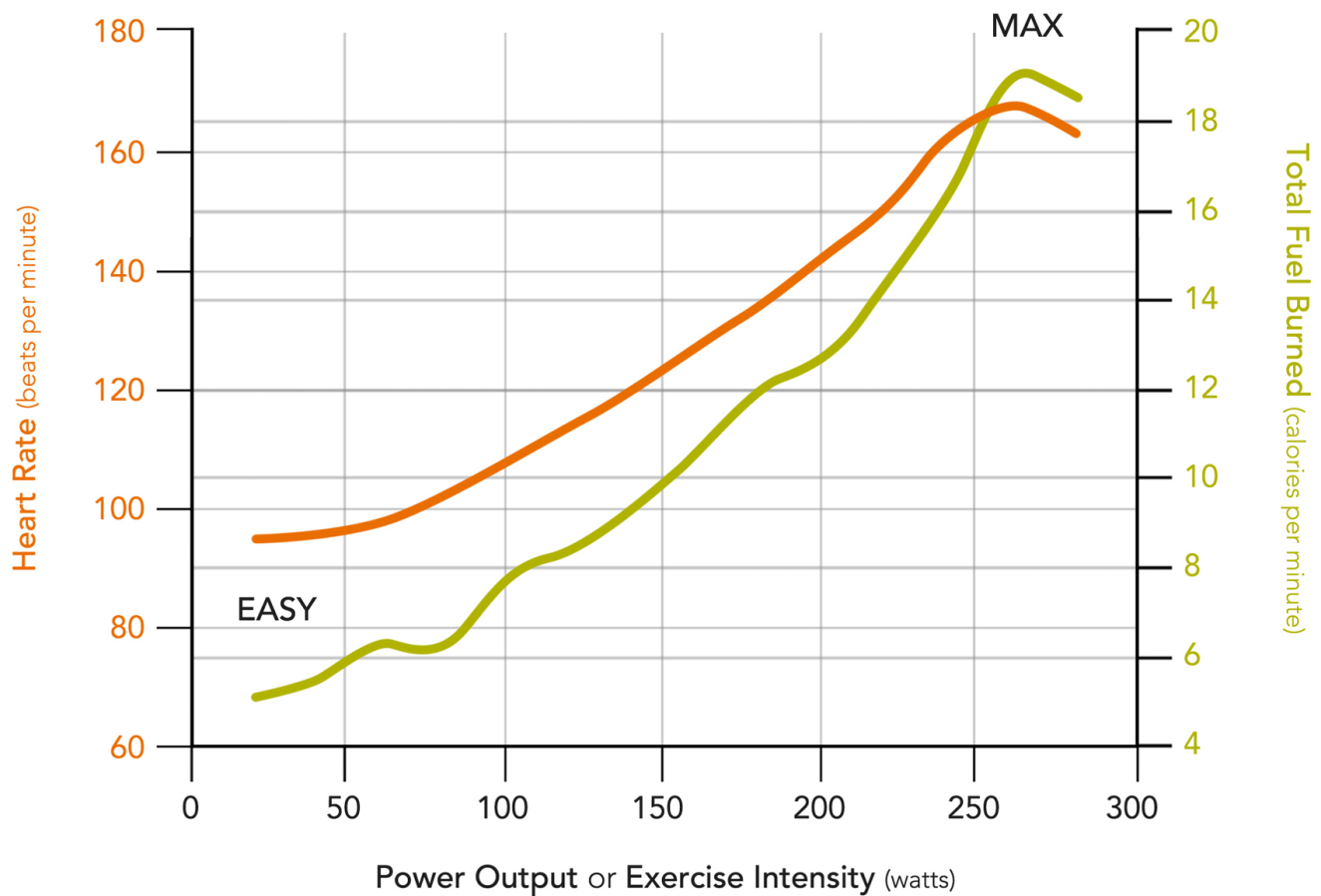
CHAPTER 5

Energy Expenditure, Glycogen, & Respiratory Function in Training

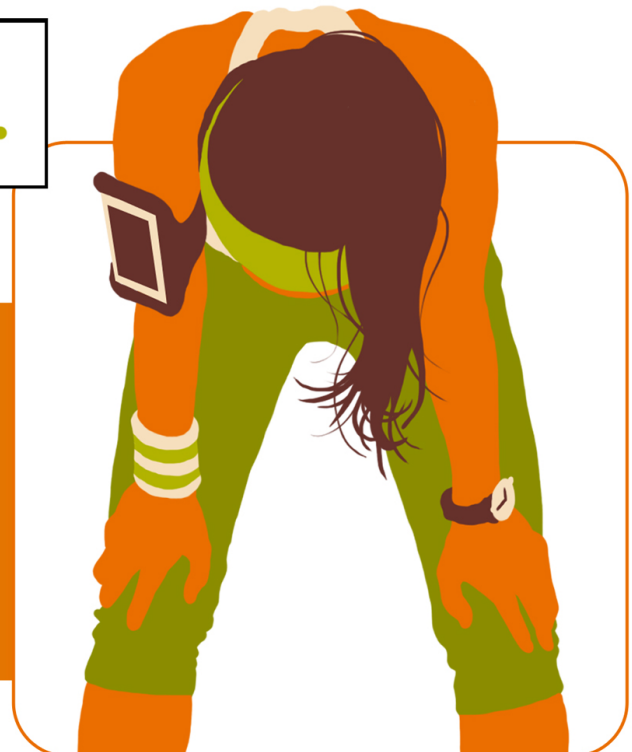


Energy Expenditure

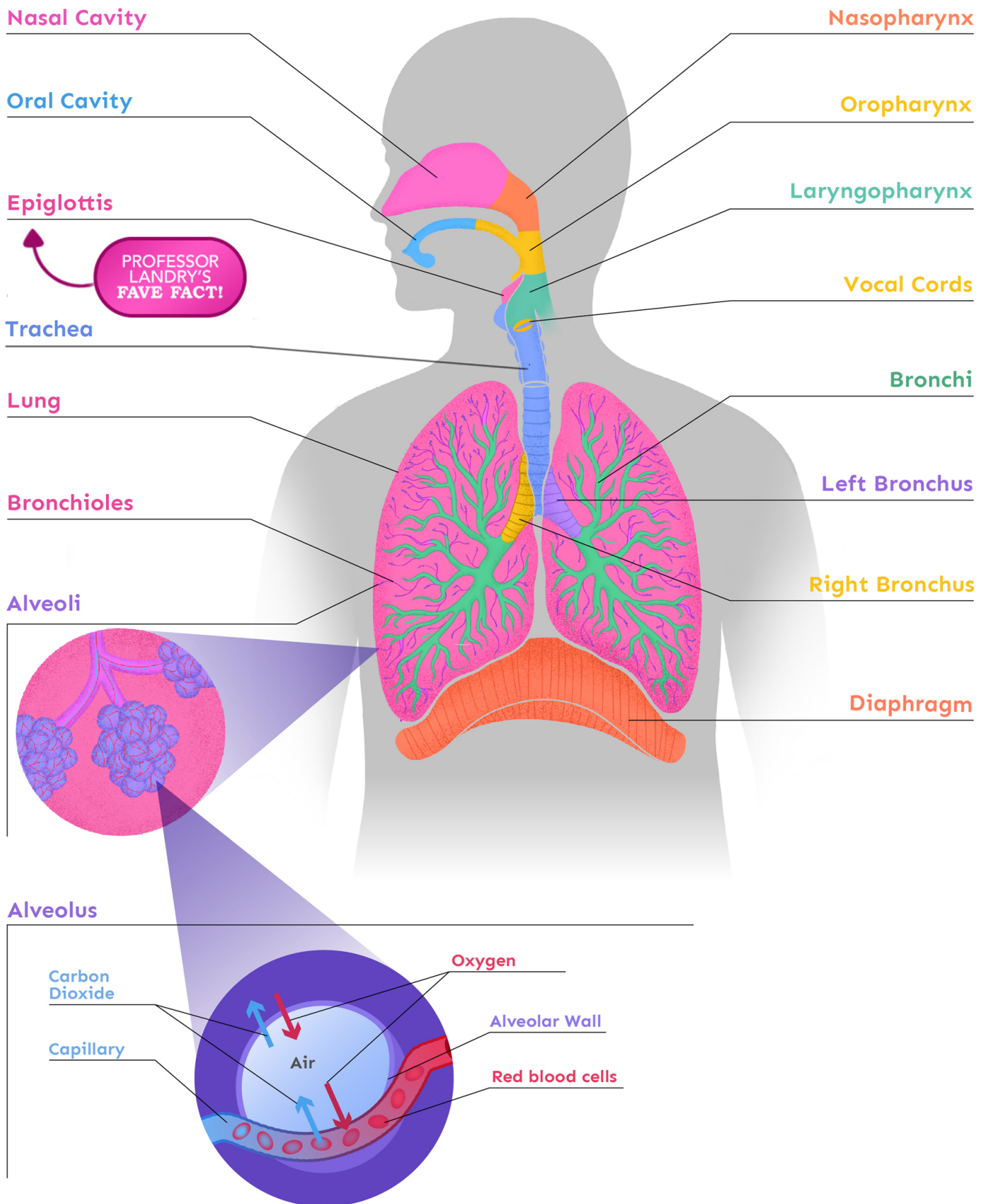
total calories of fuel burned per minute increases
as exercise intensity increases



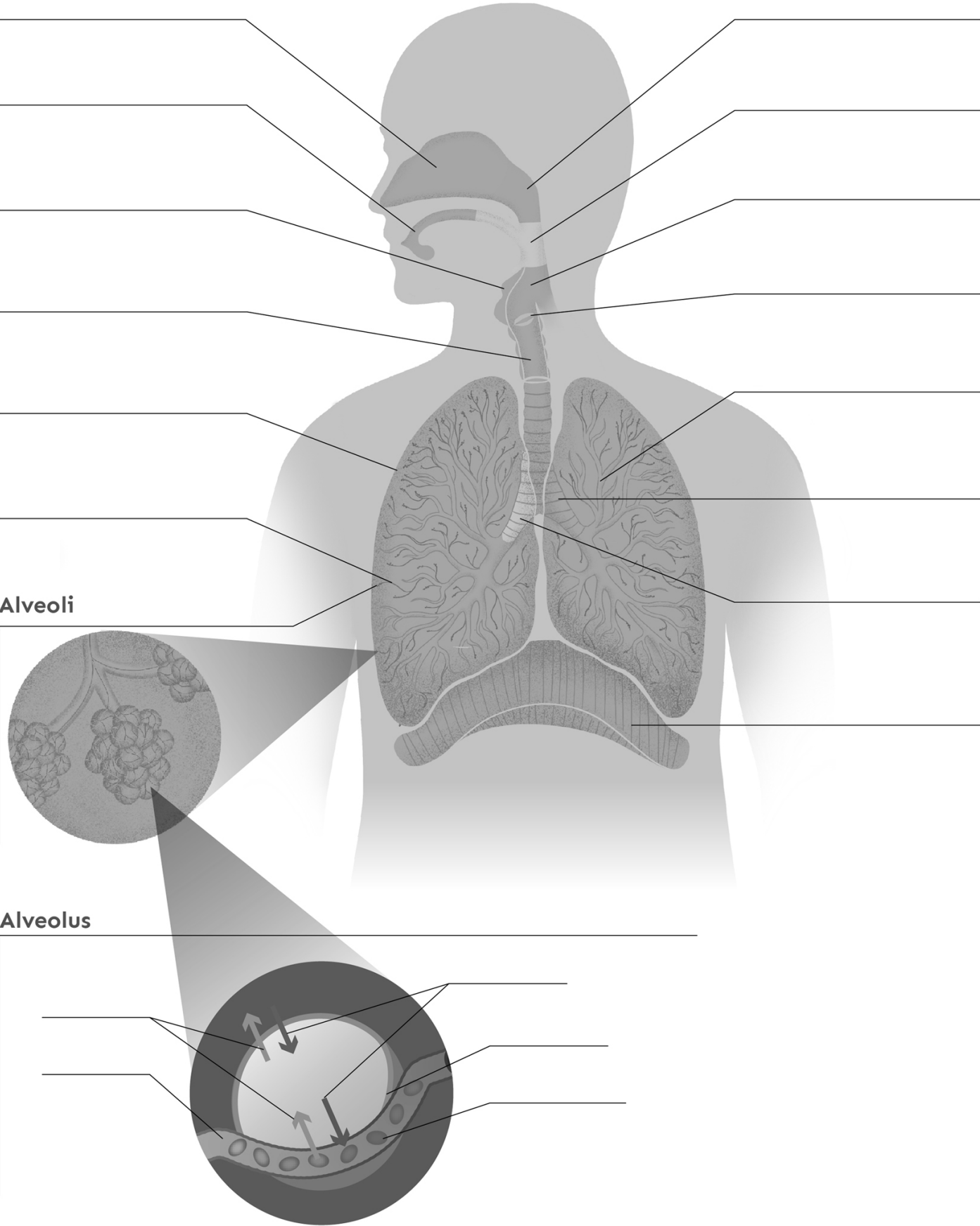
**HITTING
THE
WALL**



Respiratory System



Respiratory System



Chapter 5 Worksheet

1. Have you filled in the black and white printables from this chapter? _____
2. Have you completed your class notes from this week: taken notes on all of this week's class (going back to the class recording if necessary), sketched, and summarized? _____
3. Have you studied using retrieval practice until you know all of the information?
What types of retrieval practice did you use? _____

4. For 10 minutes, teach someone what we discussed in class — using your notes as little as possible. Who did you teach and what did you teach them?

5. Explain something about this week's lesson that you found most interesting.

6. What occurs in alveoli?

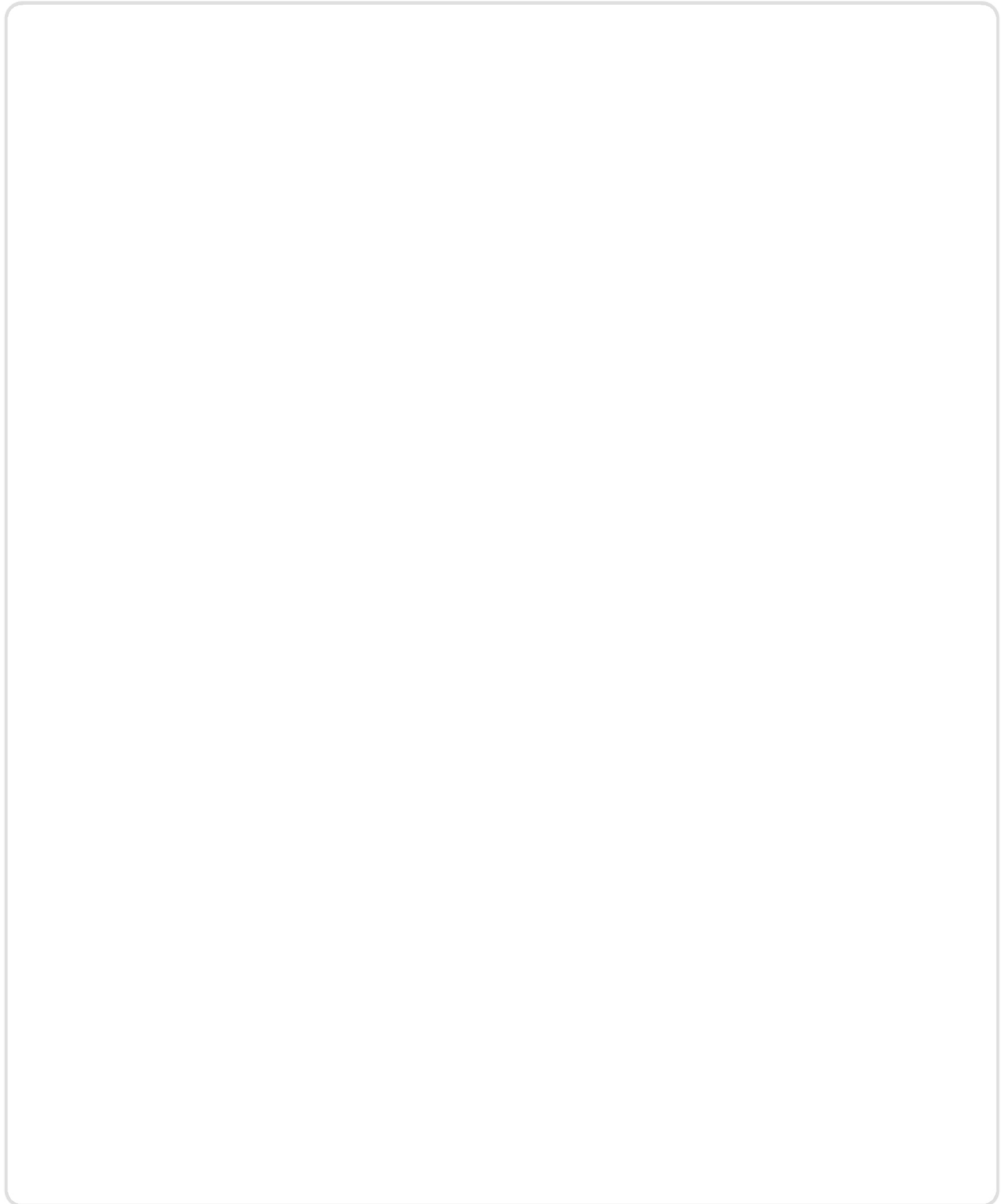
7. Are the lungs hollow? Explain your answer.

8. How does oxygen get into the lungs?

9. Which gases are in ambient air and in what percentages?

Chapter 5 Worksheet

10. In the space below: sketch the lungs, label parts, and trace the path of oxygen and carbon dioxide.



Your **Science Creation** Worksheet

Use this space to create - write, sketch, note-sketch, or in some other way depict information, concepts, and ideas covered in this chapter.

Exodus 35:31

and he has filled him with the Spirit of God, with skill, with intelligence, with knowledge, and with all craftsmanship

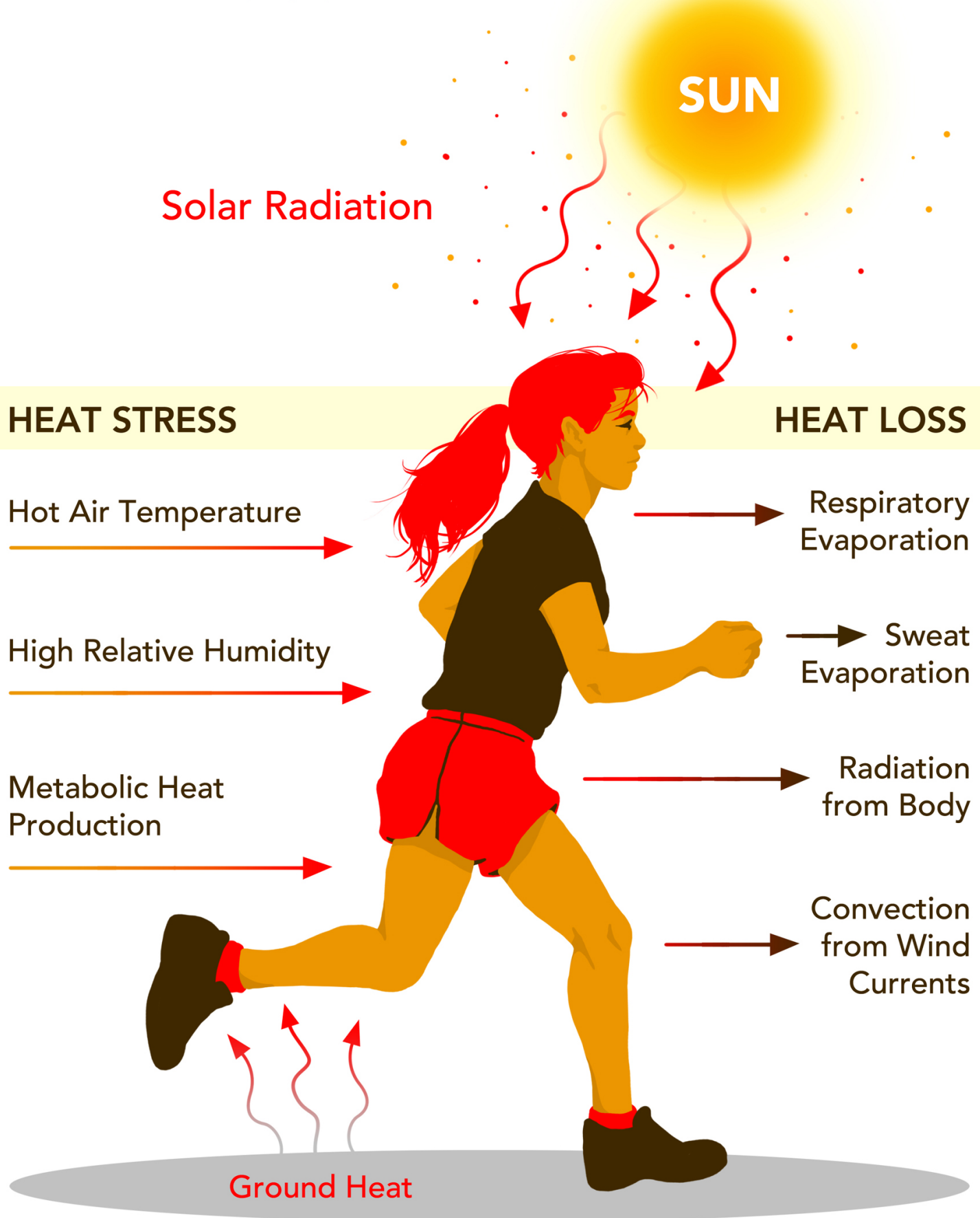


CHAPTER 6

Live High, Train Low: Training in Altitude & Heat



HEAT LOSS



LIVE HIGH, TRAIN LOW

Altitude Training



Chapter 6 Worksheet

1. Have you filled in the black and white printables from this chapter? _____
2. Have you completed your class notes from this week: taken notes on all of this week's class (going back to the class recording if necessary), sketched, and summarized? _____
3. Have you studied using retrieval practice until you know all of the information? What types of retrieval practice did you use? _____

4. For 10 minutes, teach someone what we discussed in class — using your notes as little as possible. Who did you teach and what did you teach them? _____

5. Explain something about this week's lesson that you found most interesting. _____

6. Explain the factors that affect heat dissipation during exercise. _____

Your Science Creation Worksheet

Use this space to create - write, sketch, note-sketch, or in some other way depict information, concepts, and ideas covered in this chapter.

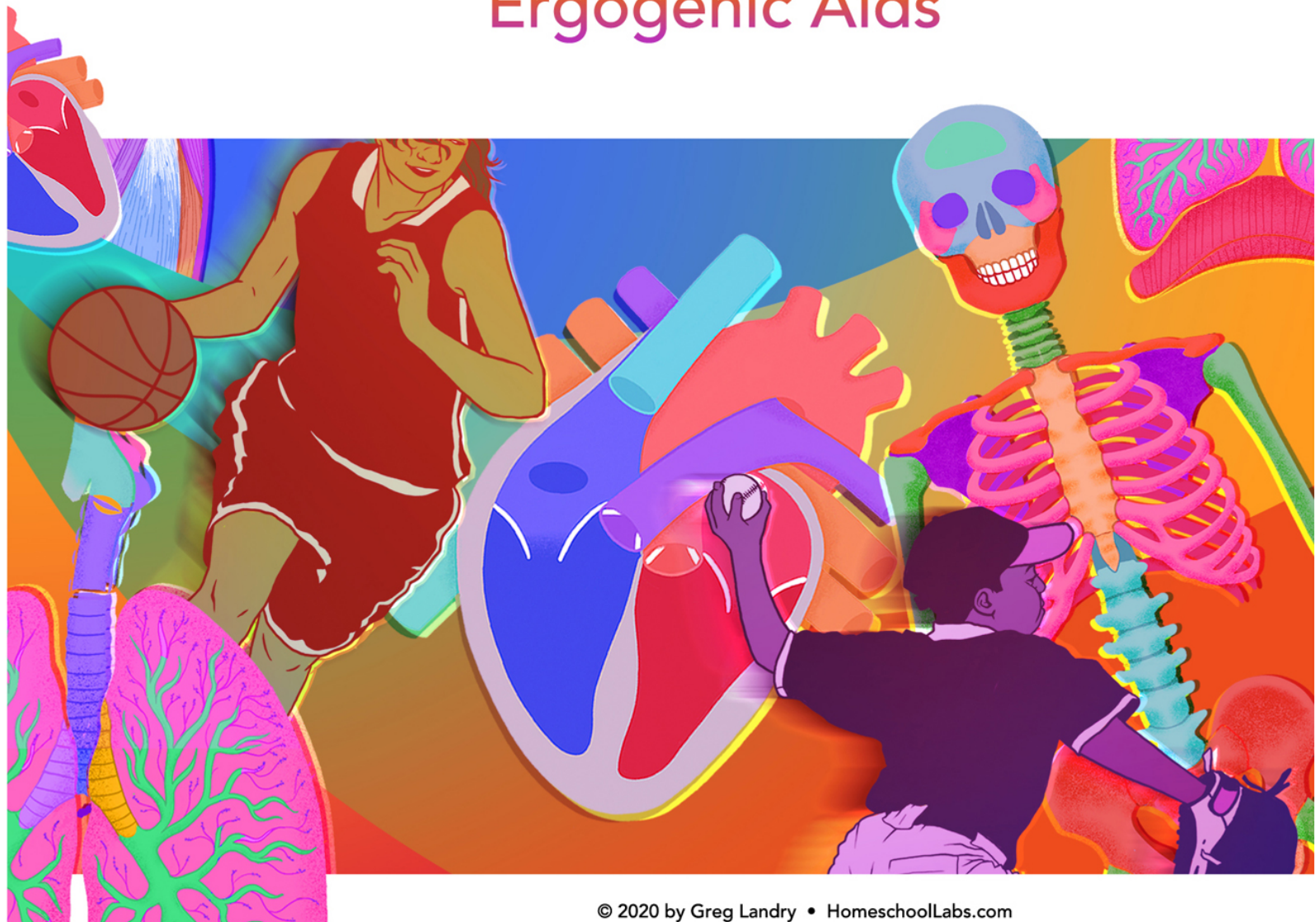
Exodus 35:31

and he has filled him with the Spirit of God, with skill, with intelligence, with knowledge, and with all craftsmanship



CHAPTER 7

Ergogenic Aids



ERGOGENIC AIDS



**IS GATORADE AN
ERGOGENIC AID?**

Chapter 7 Worksheet

1. Have you filled in the black and white printables from this chapter? _____
2. Have you completed your class notes from this week: taken notes on all of this week's class (going back to the class recording if necessary), sketched, and summarized? _____
3. Have you studied using retrieval practice until you know all of the information?
What types of retrieval practice did you use? _____

4. For 10 minutes, teach someone what we discussed in class — using your notes as little as possible. Who did you teach and what did you teach them?

5. Explain something about this week's lesson that you found most interesting.

6. List as many ergogenic aids as you can think of, and explain the effect they're supposed to have.

Your **Science Creation** Worksheet

Use this space to create - write, sketch, note-sketch, or in some other way depict information, concepts, and ideas covered in this chapter.

Exodus 35:31

and he has filled him with the Spirit of God, with skill, with intelligence, with knowledge, and with all craftsmanship