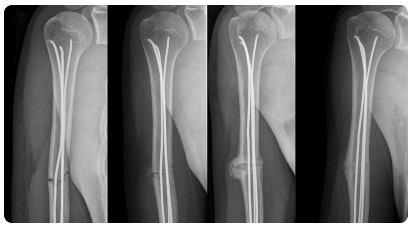
Fracture Clinic Lab

Name _____

Date _____

Period _____

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Do Now A snapped pencil stays snapped. A broken bone can grow back together. These four X-rays show one arm bone over one year. The thin white rods are metal, put in to hold it still. 2 minutes, before you open the lab

A. What does a bone have that a pencil does not?

B. Where does the X-ray change most over time?

☐ At the ends of the bone ☐ Around the break ☐ Nowhere

I can classify a fracture by its shape and by whether the skin is broken. **I can** describe the four stages of bone repair in order. **I can** explain why a broken bone can heal.

Part 1. Break it

Tab 1. Run all six tests. **SEP 3 · CCC 2**

1. SEP 3 · Plan check. What job does each one have? Tick one in each row.

The size of the bone	☐ Changed ☐ Measured ☐ Kept the same
The kind of force	☐ Changed ☐ Measured ☐ Kept the same
Pieces, angle, still joined	☐ Changed ☐ Measured ☐ Kept the same

2. Record what the lab shows for each test. Write **none** if there is no single line.

Test	Pieces	Angle (°)	Still joined?
A. Bend, adult bone			
B. Twist, adult bone			
C. Bend and push end to end, adult bone			
D. Hard crushing blow, adult bone			
E. Push end to end, adult bone			
F. Bend, young bone			

3. Which test made a break line straight across the shaft?

4. How many degrees apart are the twist line and the bend line?

5. CCC 2 · Tests A and F use the same force. What changed, and what happened?

6. Which test left the most pieces?

READ FIRST. In the lab, find the green Learn It box and read it. Then answer 7 to 9.

7. CCC 6 · Name the break from each test.

A	B	C	D	E	F

8. CCC 2 · Arm wrestling twists the upper arm hard. Which break would you predict? Why?

9. CCC 6 · Why can a young bone bend and crack on one side only?

Part 2. Read the X-ray Tab 2. Follow the dark line.

SEP 4

10. SEP 4 · What does the break do? Fill in the middle column.

X-ray	What the line does	Name (question 12)
1. Upper arm bone		
2. A child's forearm		
3. Collarbone		
4. Ankle, thin outer bone		
5. Top of a thigh bone		

11. Which X-ray break was hardest to see? Why?

READ FIRST. In the lab, find the green Learn It box and read it. Then answer 12 to 13.

12. Go back to the table above. Write the name of each break.

13. SEP 6 · Give each case two labels, one for the skin and one for the shape.

Case	Skin	Shape
Bone came through the skin. A line straight across the shaft.		
Skin not broken. One spine bone squashed shorter.		
Skin not broken. A piece of skull pressed in.		

Part 3. Follow the repair Tab 3. Stop at all seven times.

SEP 5 · SEP 2 · CCC 4

14. Record how firmly the break holds, and write one or two words for what is in the break.

Time	Day 1	Week 1	Week 3	Week 6	Week 12	Week 26	Week 52
Holds (of 100)							
What is there							
Stage (17)							

15. SEP 5 · Points gained per week: from week 3 to week 6 _____ and from week 26 to week 52 _____. (points gained ÷ weeks)

16. SEP 2 · Model check. Name one thing the drawing does not show.

READ FIRST. In the lab, find the green Learn It box and read it. Then answer 17 to 20.

17. Go back to question 14. Write the stage for each time.

18. SEP 5 · Use the Perkins table in the lab. Transverse time ÷ spiral time in the same limb = _____. Lower limb time ÷ upper limb time = _____.

19. SEP 5 · A runner breaks a tibia straight across. Joined in _____ weeks. Solid in _____ weeks.

20. SEP 6 · CCC 4 · Explain it. Why can a broken bone heal when a snapped pencil cannot?

What I saw	
The science idea	
How it explains it	

Hole's Essentials 3e, Section 7.4 (pp. 234-237) and Bone Fractures (pp. 266-267) · AP.4.7.6 · HS-LS1-1, HS-LS1-2 · Virtual lab