My idea

Use this to summarize your idea, plan it using sketches, notes and pseudocode as needed

I will make a pirate-themed game, where the goal is to hit enemy pirate ships with your cannon and steal their treasure. The player will move their ship with WASD controls and shoot with the mouse. Each ship will have three "lives" which will be indicated by the ship's colour. The enemy ships will shoot at the player. Proximity of the player to enemy ships will determine how much damage an attack will do – the closer the ships are to each other, the more damage the attack will do. The player earns treasure for every hit.After all 3 ships are defeated, the game returns to the start screen. After each win, the amount of treasure on the start screen increases, as the pirate's hoard increases every round.
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Where will the inventory skills be demonstrated? List every one to be sure you've included them.

Pseudocode
- Draw the scene – start screen with treasure (skill 33) and start button (skill 46), game screen with ocean and pirate ships (skills 1, 2, 3, 4)
- Create classes for coins, enemy ships, and player ship (skills 28, 29, 30)
- Draw coins across start screen (skills 16, 17)
- Make start menu change to game screen when button is pressed (skill 10)
- Player movement (skill 7, 23)
- Make enemies appear randomly and move around the top half of the screen continuously (skills 5, 6, 8, 20, 38, 39, 41, 43)
- Shoot weapon when mouse is pressed
- When ship is hit, check collision (skill 11, 14, 39, 49), check distance to determine damage (skill 40) change colour of ship (skills 9, 15, 18), update score (skills 12, 13, 21, 24) and display coins across the top of the screen (skill 34, 35, 36)
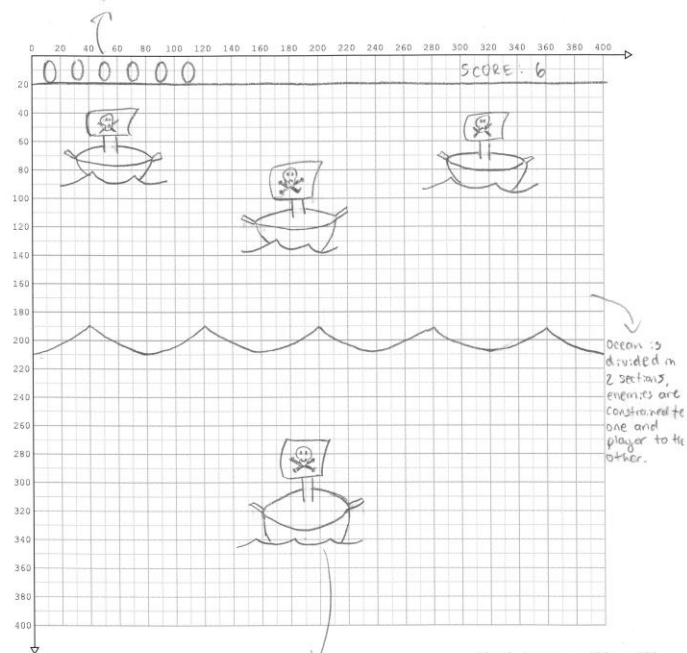- Splash animation with particle effects (skill 39) when a ship sinks

Milestone 1	Milestone 2	Milestone 3	Milestone 4
A working start screen with a start button, and the ocean scene with the player ship. This milestone will include creating a ship class and a coin class.	Make the player able to move. Create an enemy ship class, make the enemies move, and constrain enemy ships to the top of the screen. Create a cannonball class, and fire cannonballs when mouse is pressed. Check collision with cannonballs.	When enemy ship is hit, change colours and sink after 3 hits. Hitting a ship from closer does more damage. Enemies will also fire cannonballs. Update score and draw treasure across top of screen.	Debugging and answer questions if not complete by milestone 3
Which inventory skills will this demonstrate? List them. 1 – draw shapes	7 - keyPressed	39 – vector physics	
2 – fill colour for shapes	23 – pass by copy	43 – new method (rotate())	
3 – use modes	5 – random()	40 – direction and distance	
46 – button (roll over highlight)	6 – constrain()	9 – local variable	
4 – setup and draw	8 – increment operators	15 – switch	
33 – array to draw treasure	20 – function with no parameters	18 – break	
28 – create class	38 – PVector	12 – conditional statements	
29 – use new to instantiate object	41 – random 2D vector	13 – boolean expressions	
16 – loop	11 – println()	21 – function with return type	
17 – nested loop	14 – logical operators	24 – pass by reference	
30 – write constructor function	49 – collision	34 - ArrayList	
10 – global variable		35 – manage set of objects 36 – add() and remove() Answer all questions (19, 22, 25, 26, 27, 31, 32, 37, 42)	
You should deliver approx. 10 skills at this milestone	You should deliver approx. 10 skills at this milestone	**You must deliver 30 inventory skills by this milestone.**	

1. shape - draw scene
2. fill, etc. - draw scene
3. modes - draw scene

4. setup(), draw() background
5. random() - appearance of enemies
6. constrain() - keep enemies in a certain area
7. keyPressed() - movement
8. increment operators - use for position of enemies
   (send them back / constrain them)
9. local variable - colour of ship (changes when hit)
10. global variable - booleans for if the ships start to appear /
    when they get hit, what happens (add point)   Start menu

11. println() - identify if collision / shooting mechanic is
    working

12. conditionals - if enemy ship is hit, increase score
13. Booleans - if ship is hit == true, increase score,
    if ship is hit != true, decrease score
14. Logical operators - if player position = enemy position
    && mouse Pressed, hit enemy ship
15. switch - change ship colour based on how many times
    it is hit

16. loop - coins going across the start screen
17. nested loop - multiply coins going down the start screen
18. break() - use to end execution of code in switch

20. function with no parameters - void displayShip()
21. function with return type - int for score
23. Pass by copy: update player position
24. Pass by reference: update score

28. class - enemy ship
29. new ship
30. write constructor function for ships

33. Array - use to draw treasure on start screen
34. ArrayList - use for coin "score"
35. change number of coins each time a ship is hit
36. add() and remove() to change number of coins

38. PVector - position of enemy ship
39. Use vectors to calculate enemy + cannonball positions
40. Direction + distance - if the ships are close, do
    more damage
41. Random 2D vector - randomly generate the
    direction + speed of the enemy ship
43. Use rotate() to change the direction of the
   ship after it has been hit

Coins increase with each successful hit and are equal to the score

— Enemy ships move randomly within their half of the screen
— Enemies fire at random toward the player

SCORE: 6

Ocean is divided in 2 sections, enemies are constrained to one and player to the other.

Player Ship can move and fire cannonballs

Pixel Paper – 400 x 400
Graph Paper for Screen Coordinates

— All ships change colour as they are hit (brown → orange → red)
— After 3 hits, ship "sinks" with splash animation

Gold coins

PIRATE PLUNDER

START!

Pixel Paper – 400 x 400
Graph Paper for Screen Coordinates
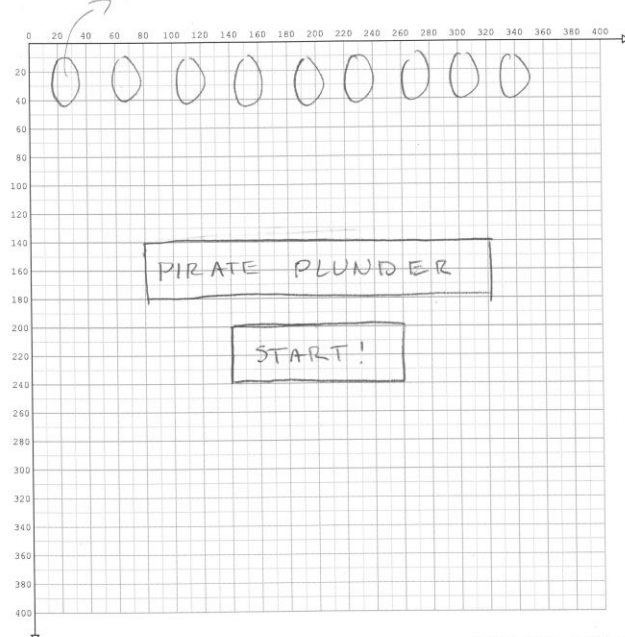
— Coins on start menu will increase with each round that the player wins
— Start button is highlighted when rolled over with the mouse