

## Day 2

### Teams (Aliases):

- A: Alice and Luke
- B: John and Bob
- C: Katie and Scott and Martha

### HW Review:

Explain why you like the game.

Goal

Story

One rule

Players

Player interactions

### Resources:

- <https://youtu.be/9bSX9Q5aP6E>
- [https://youtu.be/\\_sXUtlg7upA](https://youtu.be/_sXUtlg7upA)
- <https://arcade.makecode.com/tutorials> (most useful).

### MakeCode Arcade:

- <http://arcade.makecode.com/beta>

### Steps to create Pacman in Makecode Arcade.

- Create Pacman project in makecode arcade.
  - Use the below link to start creating Pacman.
  - Open the below link.
  - [https://makecode.com/\\_3s22PeeDDMHu](https://makecode.com/_3s22PeeDDMHu)
- Create Pacman sprite
  - Use 'set mySprite to sprite kind of player' block to on start. This block will be found in the 'Sprites' drawer.
  - Click on the sprite edit area.
  - Draw pacman sprite.
  - Rename mysprite to Pacman.
  - [https://makecode.com/\\_UcL9833saViy](https://makecode.com/_UcL9833saViy)
- Make Pacman Move with the gamepad.
  - Create an 'on game update with heading' block. This block will be found in the 'Game' drawer.
  - Drag 'move mySprite with buttons' block to on game update. This block will be found in the 'Controller' block.
  - Press + on the block.

- Add 50,50 for vx and vy velocity.
  - [https://makecode.com/\\_WHrM73LaV40p](https://makecode.com/_WHrM73LaV40p)
- Draw the Maze (ugly maze just a block for walls)
  - Drag 'set tilemap to' block the top of on start. This block will be found in the 'Scene' drawer.
  - Click on the edit tilemap area.
  - Click on 'My Tiles'.
  - Press + to create a new tile.
  - Create a blue block by painting the entire area in blue. Click done.
  - Select the newly created tile.
  - Draw a basic maze for the game.
  - Rearrange Pacman's position if needed.
    - Follow the below steps to place Pacman in the desired tile.
      - Drag 'place mysprite on top of tilemap col row' block to the bottom of on start. This block will be found in the 'Scene' drawer.
      - Replace 'mysprite' with 'Pacman'.
      - Add 4,2 (or other desired value) in col and row.
  - [https://makecode.com/\\_dtJD0Agwg27k](https://makecode.com/_dtJD0Agwg27k)
- Camera follow Pacman
  - Drag 'camera follow sprite mySprite' block to on game update. This sprite will be found in the 'Scene' drawer.
  - Change mySptite to Pacman.
  - [https://makecode.com/\\_YWAAXhHV6gpE](https://makecode.com/_YWAAXhHV6gpE)
- Introduce Walls
  - Click on edit tilemap area in the 'set tilemap to' block.
  - Click on draw walls.
  - Draw the walls over blue tiles and click done.
  - [https://makecode.com/\\_d0f0TXYzUErh](https://makecode.com/_d0f0TXYzUErh)
- Create pellets and place them in the maze.
  - Click on edit tilemap area in the 'set tilemap to' block.
  - Click on My Tiles.
  - Create a new tile that looks like a pellet. (Start drawing from 7,7).
  - Place it all over the tile map expect for corners and ghost box.
  - Click done.
  - [https://makecode.com/\\_EbK4wCCDj0AK](https://makecode.com/_EbK4wCCDj0AK)
- Enable Pacman to eat the pellets.
  - Create a 'on sprite of kind player overlap at location' block. This block will be found in the 'Scene' drawer.
  - Click the drop-down and select the pellet tile.
  - Drag a 'set at tilemap col row' block inside the above block. This block will be found in the 'Scene' drawer.
  - Replace tilemap row col with 'location'.

- You can right on 'location' on the above block and use it to replace 'tilemap row col'.
- [https://makecode.com/\\_We6D2FDU3bzo](https://makecode.com/_We6D2FDU3bzo)
- When Pacman eats a pellet, play a sound.
  - Drag 'play sound ' to on sprite overlap block. This block will be found in the 'Music' drawer.
  - Choose the preferred sound.
  - [https://makecode.com/\\_f4retL4i05Dr](https://makecode.com/_f4retL4i05Dr)
- When Pacman eats a pellet, increase his score.
  - Drag 'set score to 0' to on start. This block will be found in the 'Info' drawer.
  - Drag 'change score by 1' to on sprite overlap block. This block will be found in the 'Info' drawer.
  - [https://makecode.com/\\_FKpC8pV5A9TP](https://makecode.com/_FKpC8pV5A9TP)
- Create power pellets and place them in the maze.
  - Click on edit tilemap area in the 'set tilemap to' block.
  - Click on My Tiles.
  - Create a new tile that looks like a pellet. (Start drawing from 7,7). Make sure the pellet is considerably bigger than the normal pellet.
  - Place it on all four corners.
  - Clock done.
  - [https://makecode.com/\\_2zvfaF3sw1dk](https://makecode.com/_2zvfaF3sw1dk)
- Enable Pacman to eat the power pellets and increase his score.
  - Create a 'on sprite of kind player overlap at location' block. This block will be found in the 'Scene' drawer.
  - Click the drop-down and select the power pellet tile.
  - Drag a 'set at tilemap col row' block inside the above block. This block will be found in the 'Scene' drawer.
  - Replace tilemap row col with 'location'.
    - You can right on 'location' on the above block and use it to replace 'tilemap row col'.
  - Drag 'play sound ' to on sprite overlap block. This block will be found in the 'Music' drawer.
  - Choose the preferred sound.
  - [https://makecode.com/\\_EU93jiKCKWq1](https://makecode.com/_EU93jiKCKWq1)
- Detect when all pellets are eaten and end the level.
  - Add a variable (PelletCount) to on start.
    - To add a variable, go to 'Variables' drawer.
    - Click on Make a Variable.
    - Name the variable you want.
  - Drag 'Set Pellet\_Count to 0' to on start block. This block will be found in the 'Variable' drawer.
  - Save the number of pellets in the variable.

- To do this replace '0' in the above block with 'length of array list'. This will be found in the 'Arrays' drawer.
  - Now replace 'list' with 'array of all locations'. This will be found in the 'Scene' drawer.
  - Select the pellet sprite from the drop-down.
- Change PelletCount by -1 when Pacman eats a pellet or power pellet.
  - Add 'Change Pellet\_Count by 1' block to 'on sprite of kind Player overlaps (pellet) at location'. This will be found in the 'Variables' drawer.
  - Change '1' to '-1' above in the above block.
  - Add 'Change Pellet\_Count by 1' block to 'on sprite of kind Player overlaps (power pellet) at location'. This will be found in the 'Variables' drawer.
  - Change '1' to '-1' above in the above block.
- Create a new 'on game update every 500 ms' block. This block will be found in the 'Game' block.
- Add an 'if true then' block to the above block. This block will be found in the 'Logic' drawer.
- Replace 'true' with '0 = 0' block. This block will be found in the 'Logic' drawer.
- Replace '0' on the left with 'Pellet\_Count' block. This block will be found in the 'Variables' block.
- Drag 'game over LOSE' inside the above created 'if ..... then' block. This block will be found in the 'Game' drawer.
- Click 'LOSE', this will change it to 'WIN'.
- Click on the '+' button.
- [https://makecode.com/\\_W4cL44e4w6R3](https://makecode.com/_W4cL44e4w6R3)
- Make Pacman go over the end of the screen where maze is open
  - Press debug and navigate Pacman to end of tunnel to find x position of Pacman, left and right end of the tunnel.
  - In on game update create following logic
    - If Pacman x = 7 and left button is pressed
      - Drag 'if true then' block into 'on game update with heading' block. This block will be found in the 'Logic' drawer.
      - Replace 'true' with 'and' block. This block will be found in the 'Logic' drawer.
      - Add '0 = 0' to the left of 'and'. These blocks will be found in the 'Logic' drawer.
      - Replace left '0' of the left '0 = 0' block with 'Sprite x' block. This block will be found in the 'Sprites' drawer.
      - Replace 'sprite' with 'Pacman' from the drop-down in the above block.
      - Replace right '0' of the left '0 = 0' block with '7' (or relevant value).
      - Replace remaining '0' with 'is A button pressed'.
      - Replace 'A' with 'left' from the drop-down menu.
    - Set Pacman x = 249

- Drag a 'set mySprite x to 0' block to the if block. This block will be found in the 'Sprites' drawer.
  - Replace 'mySprite' with 'Pacman'.
  - Replace '0' with '249'.
  - Else if Pacman x = 249 and right button is pressed
    - Click on '+' on the bottom of 'if ..... Then' block twice.
    - Click on '-' beside the second 'else'.
    - Add '0 = 0' to the left of 'and'. These blocks will be found in the 'Logic' drawer.
    - Replace left '0' of the left '0 = 0' block with 'Sprite x' block. This block will be found in the 'Sprites' drawer.
    - Replace 'sprite' with 'Pacman' from the drop-down in the above block.
    - Replace right '0' of the left '0 = 0' block with '249' (or relevant value).
    - Replace remaining '0' with 'is A button pressed'.
    - Replace 'A' with 'right' from the drop-down menu.
  - Set Pacman x = 7.
    - Drag a 'set mySprite x to 0' block to the else block. This block will be found in the 'Sprites' drawer.
    - Replace 'mySprite' with 'Pacman'.
    - Replace '0' with '7'.
- [https://makecode.com/\\_1AjCV36p6UcX](https://makecode.com/_1AjCV36p6UcX)
- Add Pacman animation
  - Create a new function (animatePacman).
    - Click on the 'Functions' drawer. Click 'Make a Function'.
    - Replace 'doSomething' with 'animatePacman'.
  - Add animation from extensions.
  - Drag 'animate sprint ... loop' to the new function. This block will be found in the 'Animation' drawer.
    - Click on create animate frame area.
    - Recreate the exact same Pacman sprite. This will give us 1 frame.
    - Copy the frame and make necessary changes.
    - Rearrange frame order.
    - Click done
  - Change the interval to 100 ms.
  - Switch loop to on.
  - Drag 'call animatePacman' to on start. This will be found in the 'Functions' drawer.
  - [https://makecode.com/\\_Vo8MymcY7MwX](https://makecode.com/_Vo8MymcY7MwX)