Coordinates & Game Design

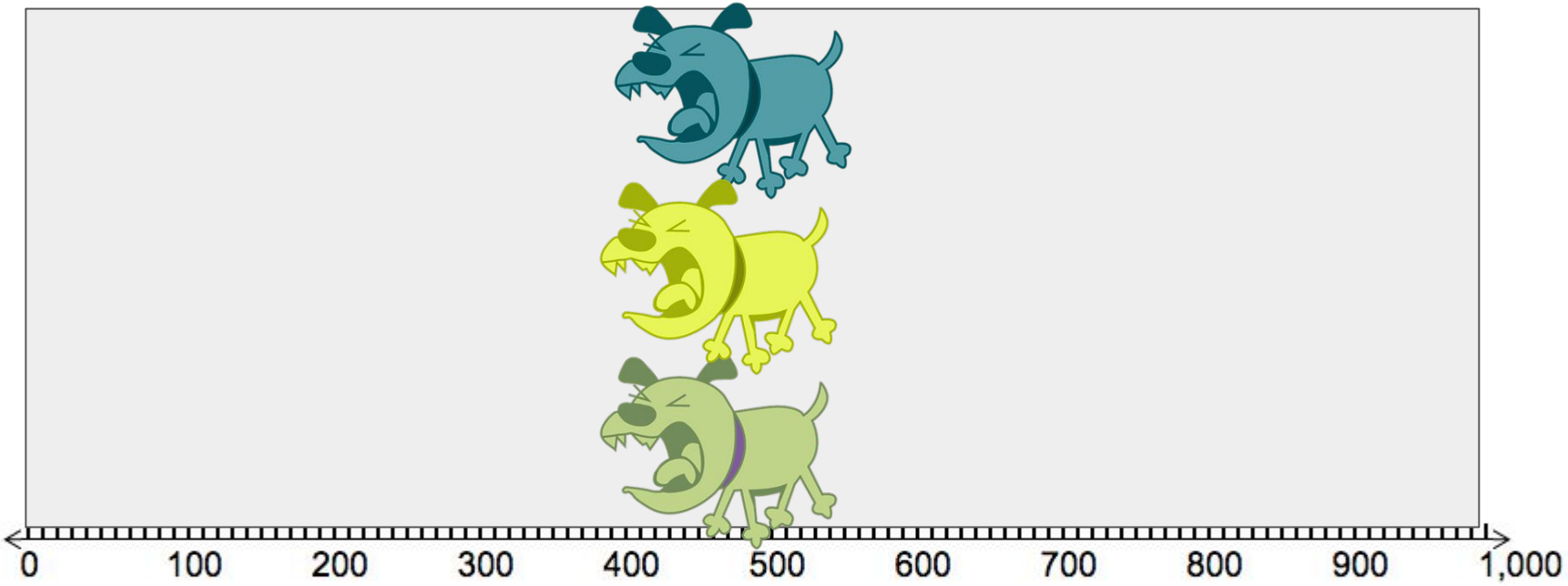
@BootstrapWorld

Navigating a Grid

Computers use numbers to represent a character's position on screen, using number lines as rulers to measure the distance from the bottom-left corner of the screen. For our videogame, we will draw the number line so that the screen runs from 0 (on the left) to 1000 (on the right).

Navigating a Grid

But one number line isn't enough!



Navigating a Grid

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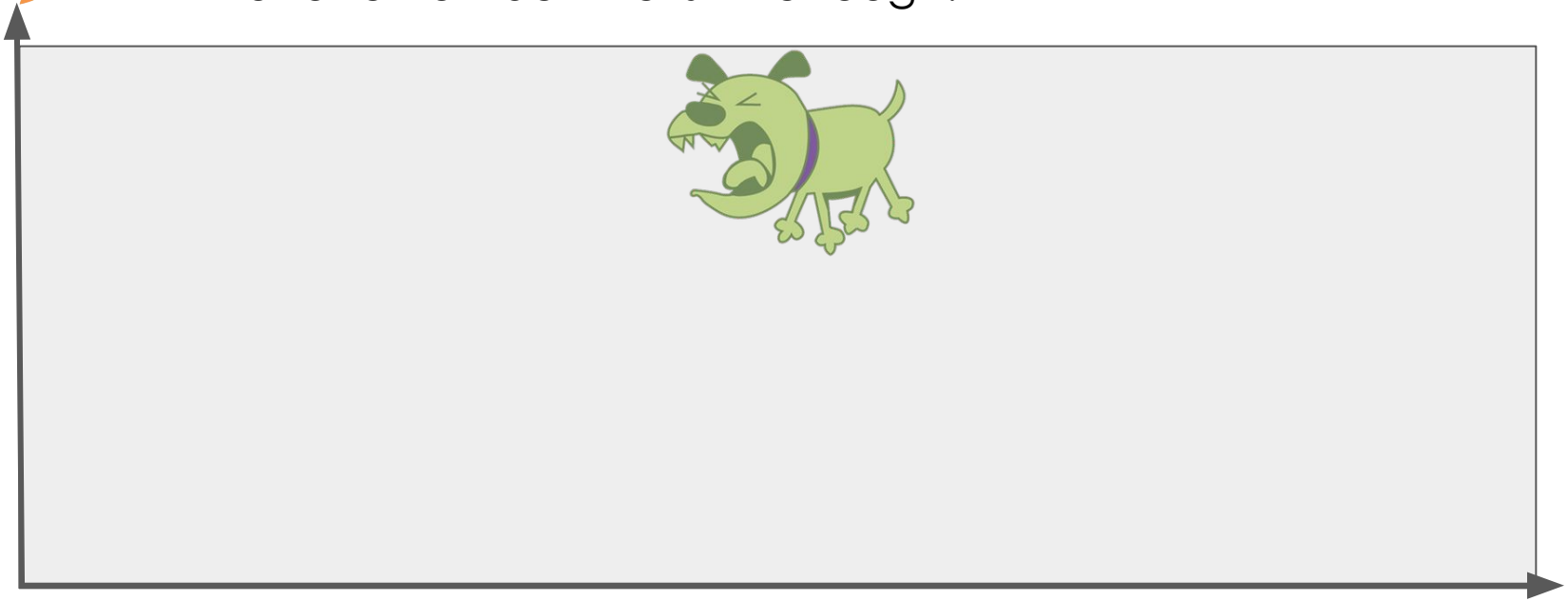


Navigating a Grid

1. Turn to Estimating Coordinates

2. For each character, *estimate* what you think the x- and y-coordinates are.

Navigating a Grid

- Should any of the characters have x-coordinates that are very similar? How come?
- Should any of the characters have y-coordinates that are very similar? How come?
- How do you think this concept relates to a video game?

Students, write your response!

Bridging to Video Games

Try adjusting the sliders to move the cat.

Turn to Notice and Wonder in your workbook

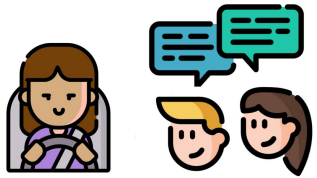
What do you Notice?

What do you Wonder?

Students browse: www.desmos.com/calculator/pbm9nxr2rd

Bridging to Video Games

- Turn to **Game Brainstorming** in your workbook.
- As a group, come up with *at least one idea* for a game!
  - Every game has a BACKGROUND (where the game is set)
  - Every game has a PLAYER (moves up and down)
  - Every game has a DANGER (moves left/right - lose points if you hit!)
  - Every game has a TARGET (moves left/right - gain points if you hit!)



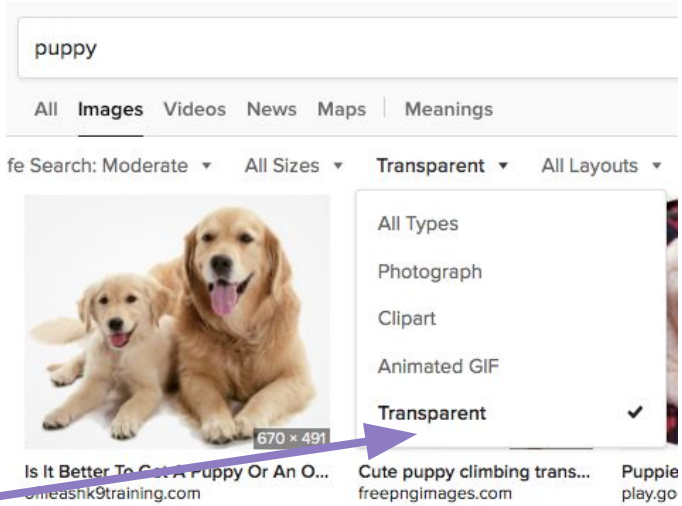
Bridging to Video Games

Find images for your game, and use [this Google Draw template] to create a Screenshot.

Screenshot must include

- Estimates of coordinates for each character.
- 2 characters that have similar x-coordinates.
- 2 characters that have similar y-coordinates.

Tip: Find transparent images on DuckDuckGo.



Students browse: docs.google.com/drawings/d/1_JpZVynhTQ6heFHK5qqHjR-L2XIOTRS43Xc6kk...

Bridging to Video Games

What games did you come up with?

What are the coordinates of the dog before it gets onscreen?

Why do we make estimates?

What makes a good estimate?

How can we improve our estimation skills?

Students, write your response!