BATTLE ARENA PROJECT

In this project, you will build a spaceship sprite with it's own artificial intelligence that will fight against other students' spaceships.

Your spaceship will actually consist of 3 sprites: a spaceship sprite, a weapon sprite, and a sensor sprite. The weapon sprite will follow your spaceship sprite around until your spaceship fires the laser. The weapon sprite will then move forward rapidly, up to 200 steps, and then return to the spaceship. If the enemy ship touches the weapon sprite, it will take damage. The sensor sprite can move independently from the spaceship and the weapon.

The battle will take place in a deep space arena. At the centre of this arena will be a sprite named "Referee". To begin the battle, click on Referee.

In order to ensure a fair fight, you must follow these rules:

Ship Design:

1. You must design your own ship. You can use imported pictures or draw your own.
2. The centre of rotation for your ship should be at the centre of your sprite.
3. The ship sprite should take up no less area than the example sprites.
4. Your laser sprite should be 1 pixel large.

Ship Behaviour:

1. All behaviour must be scripted before the game begins.
2. All code that executes **COMBAT ACTIONS** must be either in the ship's main script (see combat actions on page 2). Code that does not execute combat actions (such as doing calculations) can be in any script
3. Your ship should teleport to a **random start position** and begin fighting when it receives the message "fight!", broadcasted by the Referee when it is clicked.
4. Your ship starts with 10 hit points.
5. Your ship will lose 1 hit point every time it touches an enemy weapon.
6. If your ship has zero hit points, it must explode and all of your code (including the weapon sprite and third sprite) must stop.
7. Your ship can move at most 10 steps at a time (positive or negative).
8. You cannot automatically target the other player's ship with the "point towards ..." block. You can use "point towards" to point to your other sprites.
9. You cannot use the sensing command that detects another sprite's x or y position, direction and so on. You can use the sensing command to detect your other sprites' status.
10. Various Combat Actions cost different amounts of time. See the list of Combat Actions list on the next page for more details.
11. Your ship cannot change the waittime variable, which determines the length of time Combat Actions take.
12. You are allowed to broadcast erroneous messages with the hope of hacking somebody else's ship (electronic warfare). You cannot broadcast "fight!"

13. No camping (ie: you can't just sit there and shoot, you should move around)

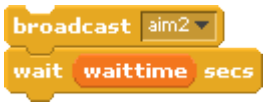
Weapon Behaviour:

1. All behaviour must be scripted before the game begins.
2. The rotation center of the weapon sprite should be in the center of the weapon sprite.
3. In order to fire your weapon, your ship sprite will have to broadcast a message to your weapon sprite.
4. You cannot automatically target the other player's ship with the “point towards ...” block. You can use "point towards" to point to your other sprites.
5. You cannot use the sensing command that detects another sprite's x or y position, direction and so on. You can use the sensing command to detect your other sprites' status.
6. The weapon sprite should move forward in increments of 10 steps. It cannot go further than a total of 200 steps. It can move in straight lines or curved lines, but it cannot stay still.
7. Use the pen tool to leave a coloured trail behind the weapon sprite. Any colour is fine.
8. After firing, the weapon sprite must return to the ship instantly.

Seonsor Behaviour:

1. There are no limits on how your sensor should look or behave, as long as it does not cause noticeable lag, does not prevent damage, and does not directly cause damage.

COMBAT ACTIONS: These are actions performed by your SPACESHIP sprite.

Action	Required Waits	Example
Move forward up to 10 steps	1 wait	
Fire the weapon sprite	1 wait per 50 steps the laser travels, up to 200 steps max	
Aim weapon sprite	1 wait	
Spaceship Edge bounce	3 waits	

Rotate ship / Set direction of ship (any # of degrees)	1 wait	
Repair 1 point of damage	100 waits	
Broadcasting erroneous messages	1 wait	

Making calculations, using ifs or if/elses, or changing changing costumes are not combat actions and do not require waiting.

Good luck everybody!