

Triwizard Cup Sphero Breakout Challenge

On the table is an iPad with QR Code reader, a black light flashlight, a Kindle, & a Sphero with a compatible tablet & degree wheel.

Show the students the Intro/Challenge 1 Video.

Challenge 1 - Dragon Egg --- Create a simple tape “maze” with THREE turns with a Dragon at the end of it. Beside the dragon should be 3 easter eggs (one for each team, add more if you have four breakout boxes). Within the Easter Egg should be the following code in invisible ink (up = 1, right = 2, left = 3, down = 4). Make the 3 digit code on the black box be the turns for the “maze” in number format according to the secret code they found in the easter egg. Make the directional lock equivalent to the maze as well. For example, my students’ Spheros had to travel Up, Right, Up to get to the egg. The directional lock was Up, Right, Up. The 3 digit black lock box was 1, 2, 1.

Within the black box, there should be a QR Code with instructions for the second challenge. I used the Second Challenge Video

NO DRIVE MODE ALLOWED!!!

Challenge 2 - Free the underwater prisoner. Have plastic bins with water in them about $\frac{3}{4}$ of the way full. At the bottom of the bin there should be a clothespin clamping down a piece of string attached to another egg. I had to use 3lb weights to tie the clothespin to. Then I used a rock to hold the clothespin underwater. There should also be several popsicle sticks, string, tape, pipe cleaners, & a weighted object (such as rocks) for students to build with.

Students will need to create a “boat” out of popsicle sticks & pipe cleaners where Sphero is the engine. Sphero drags with a string a heavy object to unlatch the string held in place by the clothespin. OR create a boat that adds weight to the Sphero and makes him drive on the bottom of the bin. OR create propellers to help drag weighted objects through the water to knock the egg loose. OR create long propellers to knock the egg free with. Egg only has to FLOAT in order to be “rescued.” Once they have knocked it loose from the rock’s grip, the egg will shoot to the top of the water. I did not instruct the kids on how to create their solution. They come up with amazing solutions themselves!

Inside the easter egg = three clues inside of a plastic baggie. The clues can be found on the Clue & QR Code sheet.

Challenge 3 - Maze Race

Place 3 Envelops in the center of the maze for each group (Hogwarts, Slytherin, Ravenclaw). The key to the key lock is inside of the envelope. Each group must start at their own starting point. Once they have successfully completed the maze, they can then get the key!!!