

GD 8

Math Clean Up, Part II

This is a continuation of GD 7. You will add code onto that website.

In this lesson, we **control the debris** by making it move left or right depending upon a correct or incorrect selection of an answer. After the user makes a selection of an answer, **we also update the game with a new question and new set of answers**. Finally, we write code to detect **if the debris is touching the boat**.

1. If so, then the game is over
2. Else, the game continues

Math Clean Up – match the answer with the questions. Control your shape ship using the computer mouse. Think quick or else the ocean debris will get close to your ship and jam the engines.

1. Debris control
2. Collision detection of debris and boat

1. Write the code below in between `<script>` `</script>`. The **large, green banner** is your landmark. **Go to the coding website and look for it.** Next, write the code below underneath the **large, green banner**. **Write all of it, color code is for explanation.**

```

/* =====
* Score Keeping
*
* ===== */
var tail = onscreenList.length-1;
for( var c = 0; c < cQALim; c++ )
{
    if( p1LArr[laz].check_hb_of_circle( cArr[c].cXPos, cArr[c].cYPos, cArr[c].cRad ) )
    {

        var arrIndex = indexObjArr[c].qaIndex;
        var testObj = allQAArr[arrIndex].get_qa_pair();
        if( chosenQAObj.a == testObj.a )
        {
            console.log( " ... correct answer to question ..." );
            // -- hit laser on ball, more laser
            laserLim++;

            p1Score += 1;

            // -- move monster to the left
            monXPos -= monXOffset;

        }
        else // -- wrong answer
        {
            // -- move monster to the right
            monXPos += monXOffset;
        }
    }
}

```

```

        // -- slow down
        p1Score -= 1;

        if( p1Score <= 0 )
        {
            p1Score = 0;
        }
    } // -- end else

    chosenPos    = Math.floor( Math.random() * indexObjArr.length );
    newSetFlag   = 1;

} // -- end outer if

// -- move to next item on the left
tail--;

}
}

```

Explanation

The code in **blue** checks if a laser has entered the hit box of a circle, which is used to position the answer.

The code in **green** executes **ONLY** if the user selected the answer that matches the question. The double equal sign shows comparison. The following will then happen

1. The user gets his/her laser back
2. The player's score is increased by 1
3. The debris is moved back 1 step

However, the code in **red** executes if the user selected the answer that **didn't match** the question. The following will then happen

1. The debris is moved one step to the right (which is 25 pixels), which makes it closer to the boat
2. The player's score is decreased by 1

Finally, the code in **orange** will set the control signal to randomly pick at new set of question and answer pair and 3 false answers.

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2. Write the code below in between `<script>` `</script>`. The **large, green banner** is your landmark. **Go to the coding website and look for it.** Next, write the code below underneath the **large, green banner**. **Write all of it, color code is for explanation.**

```

/* =====
 * New Set Of QA and Costumes
 *
 * ===== */
if( newSetFlag )
{
    indexObjArr[c].update_indexes();
    // -- change color of answer
    cArr[c].change_color();
}

```

Explanation

The code in **orange** from this step matches the code in **orange from Step 1**, where we set the control signals to pick a new set.

The code above updates the indexes and new indexes will cause the debris to change costumes, change font color, and pick a new question and answer pair.

3. Write the code below in between `<script>` `</script>`. The **large, green banner** is your landmark. **Go to the coding website and look for it.** Next, write the code below underneath the **large, green banner**. **Write all of it, color code is for explanation.**

```

/* =====
 * Check if monster is touching boat
 *
 * ===== */
if( monXPos >= 300 )
{
    console.log( "***** game over *****" );
    window.cancelAnimationFrame(redrawCon)
    sampleCount = 5000;
}

```

Explanation

The debris is following the boat and will advance to the right side one step every 3 seconds. The code above checks **if** the debris has entered the hit box of the engine, which is near the middle of the boat.

The important part is the **“if”** statement that checks **if** the position of the debris is greater than or equal to 300. If true, the code will cancel the next animation frame and then set the sample count to 5000, which will cause the game to fully stop.

JS Challenge 1 → write the answer inside chat of Zoom

Assume that an array named **asteroidImgSrcArr** exists and already has data at each cell.

Your goal is to write a **for** loop that starts at position 0 and ends at the length of the array. Next, jump by 2 positions.