# Group 1: Square

## Part 1: Getting started

1. Open the Sphero edu app on your ipad and connect it to the Sphero SPRK+
2. Open the programs tab at the bottom of the screen
3. Select the square program for your robots and view the code.
4. Place your robots on the floor

## Part 2: Predict

**Looking at the code, what do you expect the robot to do when you start the program?**

## Part 3: Test

1. Press the green start button at the top of the screen

**Was your prediction correct?**

1. Press the red ‘stop’ button at the top of the screen

## Part 4: Export

1. Use the options button in the top right of the screen to view 'Sensor Data'
2. Tap 'Download CSV Data' and save it to a Google Drive or send it via email

## Part 5: Compare

1. Tap and hold all the delay codes and drag them to the bin at the bottom of the screen
2. Press the green start button at the top of the screen

**How has the movement of the robot changed?**

1. Export the data again

## Part 6: Graph

1. Compare the exported data from the first experiment with the second one.

**Can you see where your observed changes are represented?**

1. Choose an appropriate graphing tool and style to compare the data side-by-side

## Part 7: Present

**Present your graphs and interpretations of your findings to the class.**

# Group 2: Toss & Catch

## Part 1: Getting started

1. Open the Sphero edu app on your ipad and connect it to the Sphero SPRK+
2. Open the programs tab at the bottom of the screen
3. Select the *Toss & Catch* program for your robots and view the code.
4. Place your robots on the floor

## Part 2: Predict

**Looking at the code, what do you expect the robot to do when you start the program?**

## Part 3: Test

1. Press the green start button at the top of the screen
2. Toss the robot (gently) into the air and catch it in your hand
3. Press the red ‘stop’ button at the top of the screen

**Was your prediction correct?**

## Part 4: Export

1. Use the options button in the top right of the screen to view 'Sensor Data'
2. Tap 'Download CSV Data' and save it to a Google Drive or send it via email

## Part 5: Compare

1. Take turns to run the program and do the toss and catch.
2. Export the data after each run of the program.

## Part 6: Graph

1. Compare the exported data from each of the experiments.

**Can you see a pattern in the data for each throw?**

1. Choose an appropriate graphing tool and style to compare the data side-by-side

## Part 7: Present

**Present your graphs and interpretations of your findings to the class.**

# Group 3: Sphero Pong

## Part 1: Getting started

1. Open the Sphero edu app on your ipad and connect it to the Sphero SPRK+
2. Open the programs tab at the bottom of the screen
3. Select the *Sphero Pong* program for your robots and view the code.
4. Place your robots on the floor

## Part 2: Predict

**Looking at the code, what do you expect the robot to do when you start the program?**

## Part 3: Test

1. Stand about 1 meter from a partner, start the program, and tap Sphero when it comes back at you!
2. Press the green 'Start' button at the top of the code and play Pong.
3. Press the green start button at the top of the screen
4. Play pong with your feet and the sphero
5. Press the red ‘stop’ button at the top of the screen

**Was your prediction correct?**

## Part 4: Export

1. Use the options button in the top right of the screen to view 'Sensor Data'
2. Tap 'Download CSV Data' and save it to a Google Drive or send it via email

## Part 5: Compare

1. Take turns to run the program and play the game.
2. Export the data after each run of the program.

## Part 6: Graph

1. Compare the exported data from each of the experiments.

**Can you see a pattern in the data for each game?**

1. Choose an appropriate graphing tool and style to compare the data side-by-side

## Part 7: Present

**Present your graphs and interpretations of your findings to the class.**

# Group 4: Temperature

## Part 1: Getting started

1. Open the PocketLab app on your ipad and follow the instructions on the device to pair it with the PocketLab Voyager
2. Attach the temperature probe
3. Tap the graph icon in the top right screen of the iPad. Scroll down and select temperature probe from the list of options.
4. Press the record button at the bottom centre of the screen
5. Place the tip of the temperature probe under your arm and wait until the graph stops fluctuating

## Part 2: Research

**What is the healthy average body temperature?**

**How does yours compare?**

## Part 3: Test

1. Take turns measuring your body temperatures in your group
2. Press the red ‘stop’ button at the bottom of the screen

## Part 4: Export

1. Use the share button in the bottom right of the screen and tap Share Data
2. Tap 'Gmail’ and email the data to yourself to work on your laptop

## Part 5: Compare

1. Compare the temperatures for each person
2. How long did it take on average to record the temperature?

## Part 6: Graph

1. Compare the exported data from each of the measurements.

**Can you see a pattern in the data?**

1. Choose an appropriate graphing tool and style to compare the data side-by-side

## Part 7: Present

**Present your graphs and interpretations of your findings to the class.**

# Group 5: Light Intensity

## Part 1: Getting started

1. Open the PocketLab app on your ipad and follow the instructions on the device to pair it with the PocketLab Voyager
2. Tap the graph icon in the top right screen of the iPad. Scroll down and select light intensity from the list of options.
3. Press the record button at the bottom centre of the screen
4. Place the PocketLab face-up on the table

## Part 2: Research

**What does Lux measure?**

**What are some ambient light recommendations for different work? How does your room compare?**

## Part 3: Test

1. Move your hand over the PocketLab, using the graph to figure out where the light sensor is on the device. **How low can you make the graph go?**
2. Move the PocketLab around the room and record the Lux levels.
3. Shine a torch on the light sensor. **How high can you make the light sensor go?**
4. When you are finished, press the red stop button at the bottom of the screen.

## Part 4: Export

1. Use the share button in the bottom right of the screen and tap Share Data.
2. Tap 'Gmail’ and email the data to yourself to work on your laptop.

## Part 5: Compare

1. Compare the light intensity in each area.
2. How long did it take on average to record the temperature?

## Part 6: Graph

1. Take a look at the exported data.
2. Choose an appropriate graphing tool and style to compare the data you recorded.

## Part 7: Present

**Present your graphs and interpretations of your findings to the class.**