**Sphero Multiplication**

**Objective**: Students will program their SPRK+ to roll for \_\_ seconds. They will loop as many times as needed to demonstrate their given multiplication problem.

**Materials**:

* Sphero Measuring tapes (1 per group)
* SPRK+ (1 per group)
* iPad with Lightning Lab app (1 per group)
* Teacher created multiplication task cards (15-20 various multiplication problems)

**Procedures**:

Mini Lesson

1. Model connecting SPRK+ to iPad. Open lightning Lab app, and hold SPRK+ against iPad until the robot turns solid blue, and the iPad shows it is connected.
2. Model using a roll command and changing the variables. Remind students that time and speed affect distance!
3. Point out where to find the loop command and how to change the number of times the command is repeated.
4. Show a Multiplication Task Card, and explain that the first number will represent how many inches traveled, and the second number will represent how many times to repeat.

Group Task

1. Students will receive a multiplication task card. They must first experiment with the time and speed variables to make their SPRK+ roll for the correct amount of inches to match their task card.
2. Students will then program the same commands but with a loop to represent the number of times to repeat.
3. Students will use Sphero measuring tape to measure total distance traveled.

Conclusion

1. Ask for student groups to demonstrate their multiplication problem. Encourage students to use math vocabulary when explaining their problem and their program. Prompt students until you get something along the lines of “We programmed our SPRK+ to roll for 5 inches, 7 times. We measured the distance traveled and found that our SPRK+ traveled 35 inches. So 5 x 7 equals 35.”

**Assessment**

Informal Observations will be recorded by the teacher