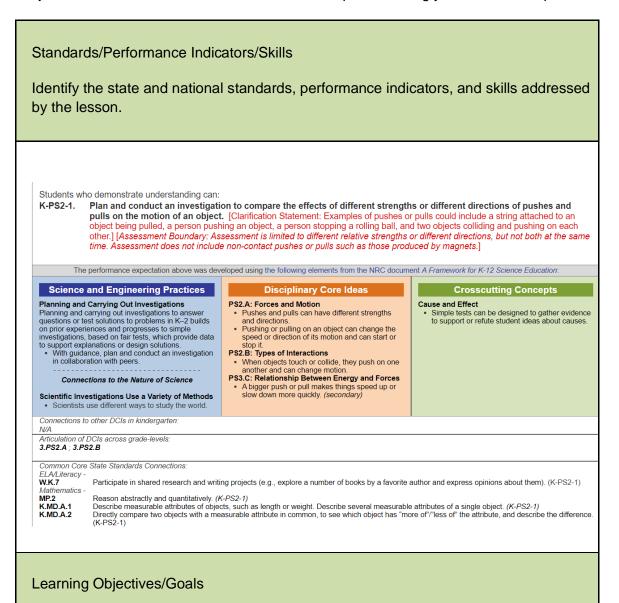
Sphero Mini Lesson Plan

(an optional resource)

In the context of the *PPAT*® Assessment, this lesson plan format is a template provided for teacher candidates to use as they develop well-planned and structured lessons. This resource also can help a teacher candidate better understand and design meaningful daily lessons that will positively enhance instructional practice and student learning. It is intended for use in conjunction with Tasks 2, 3, and 4. You have the option of using your own lesson plan format.



Describe the lesson's objectives and the learning outcomes that are appropriate for meeting curricular/classroom needs.

The students will be able to investigate and explore the different effects of pulling, pushing and rotating an object as well as coding. In this case, with a sphero mini robot.

Your verb is investigate which is on the analyze level of bloom's.

Assessment (the type[s] of assessment used throughout the lesson)

Identify the assessment that occurred before, during, and after the lesson.

Before: To begin with, the students would be asked how well their "driving" skills are and how well they can maneuver around objects.

During: The students would fill out the know and want to learn section of a KWL chart about Sphero Mini's

After: The students would be given a post test and/or complete the KWL chart.

Project fails to display the necessary data or does not do it properly.	Project demonstrates considerable knowledge about the topic.	Project reflects understanding of the topic.	Project demonstrates a thorough understanding of the topic.
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Coding does not work, or has major flaws that prevents its intended use	Coding mostly works, and has only minor flaws	Coding works in the way the student intended	Coding is functional and refined with extra features that exceed the requirements.
Project shows no evidence of rotation	Project shows some understanding of rotation	Project shows an understanding of rotation	Project shows full understanding of rotations
Project does not have programming for the Robot represent a push on a obstacle	Project shows some understanding by programming Robot represent a push on a obstacle	Project shows understanding by programming Robot represent a push on a obstacle	Project shows complete understanding by programming Robot represent a push on a obstacle

Pre-Test Questions:

- 1. What is the first thing you would do with a sphero mini when you receive it?
 - a. Connect it to your device
 - b. Throw on floor
 - c. Drive it around
 - d. Make an obstacle course for it
- 2. What happens when you continually spin the sphero mini in a circle?
 - a. It spins in a circle
 - b. Goes nowhere
 - c. Moves in a straight line
 - d. Spins in a circle for a few spins then eventually changes directions and moves in different motions.

3.

a.

4. What different objects can you place the sphero mini on and drive it around?

- a. A table
- b. The floor
- c. A chair
- d. A cabinet
- e. All of the above

5.

- 6. When using the sphero mini, what obstacle was the sphero mini unable to move or knock over?
 - a. A table
 - b. A traffic cone
 - c. A bowling pin
 - d. A marble
- 7. Why do sphero minis try to roll over obstacles more often than pushing obstacles?

a.

- 8. What ideas justify that heavy objects are difficult for sphero minis to move?
 - a. The sphero mini was unable to move the object and the object stopped the sphero mini's momentum.
 - b. The sphero mini moved the object easily.

C.

d.

- 9. What path would you select for your sphero mini to roll across to travel easiest?
 - a. An empty floor space
 - b. A rocky surface
 - c. In a pool
 - d. In a box full of crayons
- 10. Which obstacle would the sphero have an easier time traversing?
 - a. A piece of paper
 - b. A block
 - c. A traffic cone
 - d. A bowling pin
- 11. How could you determine that the sphero was affected by the obstacles in the course?
 - a. The sphero mini was blocked and had a hard time going past the obstacle.
 - b. The sphero mini was unaffected by the obstacle.
 - c. The sphero mini was boosted and gained speed with the obstacle in its path.
 - d. The sphero mini used the obstacle whenever driving to navigate directly through the course.

Lesson Structure and Procedures

Describe the sequence of events of the lesson elements, including the before, during, and after of the lesson (i.e., the engagement/opening, the procedures used, the activities for guided practice, and the conclusion).

Engage: What do you think will happen if you draw the path of the obstacle for the sphero mini? Have you ever driven a sphero mini robot? What do you know about the sphero mini robot?

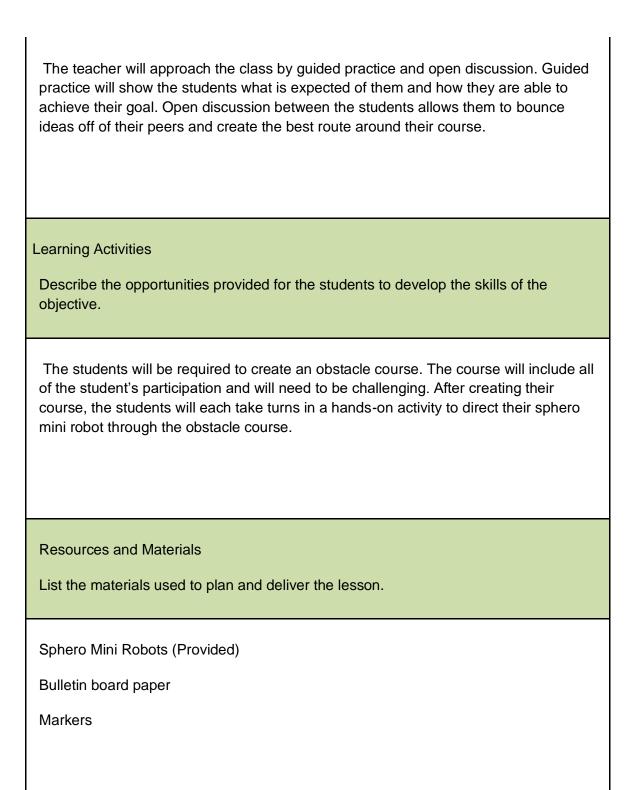
Explore: How are you driving the sphero mini on the obstacle course? What happens when you draw the path for the sphero mini robot? Does it happen this way every time? What does your data suggest? When you changed the path of the sphero mini robot what happened?

Explain: Why do you think the path of the sphero mini robot changed? How is your claim supported by evidence? Considering what happened, how has your thinking about this changed? What do you think you need to find out more about?

Elaborate: Do you expect the same path for all sphero mini robots on the obstacle? How would you use this method to complete the obstacle? What else could you do to better understand the strategy to drive the sphero mini?

Instructional Strategies

Describe the teacher's approach to achieving the learning objectives and meeting the students' needs.



Technology

Describe the instructional and/or assistive technology that was incorporated into the lesson to enhance instruction and student learning.

Sphero Mini Robot

Sphero Play App

Post Test

Differentiation/Accommodations/Modifications/Increases in Rigor

Describe the modifications made to meet the needs of all learners and to accommodate differences in students' learning, culture, language, etc.

- Students will be playing a game of Chutes and Ladders that is integrated with mathematics. The Sphero Mini will be used as a place marker as students answer missing factor multiplication problems. If students get the answer correct then the place marker (sphero) can be moved if the student answers incorrectly the place marker will stay in place. This activity can be used with addition, subtraction, division problems.

Classroom Management

Identify the strategies used that are consistent with the learning objectives of the lesson and that also met student behavior needs to help keep the students on task and actively engaged.

Extensions
Describe the activities for early finishers that extended the students' understanding of and thinking about the learning objectives/goals by having them apply their new knowledge in a different way.
Follow-Up Activity to the Lesson
Describe a quick activity for review or for building on the lesson that will deepen student understanding and interconnect concepts. (The activity may be incorporated in class the next day or throughout the unit.)

Additional Information Identify any area or lesson component that was not covered by this lesson plan format but that you feel is vital to include in a description of the lesson.						