

Hoopster Lesson Plan 4th Grade

Teacher

Date

School

SLE # PS.6.4.1: Investigate the relationship between force and direction, PS.6.4.2: Investigate the relationship between force and mass, NS.1.4.1: Communicate observations orally, in writing, and in graphic organizers, NS.1.4.2: Refine questions that guide scientific inquiry, NS.1.4.9: Identify variables that affect investigations

Objectives:

Content: I will be able to investigate the relationship between force and direction.

I will be able to investigate the relationship between force and mass.

I will identify variables that affect investigations.

Language: I will be able to use the terms investigate, force, motion, direction, observations, and variables while working on the activity.

Assessment: The teacher will be able to assess student knowledge through their participation and their completed drawings.

Technology/Materials: scissors, ruler, 3 X 5 inch file cards, clear plastic tape, plastic straws (not the kind that bend), measuring tape or meter stick, instructions provided for building Hoopster

Vocabulary: investigate, force, motion, direction, observations, variables.

Bloom's: X Remembering X Understanding X Applying X Analyzing Evaluation X Creating

Questions: How can something fly? If we were to create a list of objects that fly, what would be on it? Explain what all of these objects have in common. Do all things that fly need wings? How could something fly without wings? What causes everything to come back to the ground? Will something fly further or higher if you throw it harder?

High Yield Strategies: X Identifying similarities & Differences Summarizing & Note Taking X Cooperative Learning X Reinforcing Effort & Providing Recognition X Setting Objectives & Providing Feedback X Generating & Testing Hypotheses X Cues, Questions & Advanced Organizers Homework & Practice X Nonlinguistic Representations

Instructional Strategies:

Engagement: Activate prior knowledge by asking questions above. Pass out the materials the students will need to build their Hoopster. Take the students through building their Hoopster. (NOTE: I would suggest building them for the students to save time.) Allow the students to draw their Hoopster and talk to their neighbor about how they will make it fly. Allow students to make predictions about how their Hoopster will fly and the distance it will travel.

Exploration: Place a piece of masking tape on the floor to show the launching zone. Allow the students to investigate flying their Hoopsters. Instruct the students to measure the distance that their Hoopster flew after each flight. Have the students write or draw about the path their Hoopster took while flying.

Explanation: Discuss with the students about how the Hoopster can fly and how gravity will always pull it down towards the floor. Ask the students to brainstorm ways to help their Hoopster fly further. Allow the students to change one variable and retest their Hoopster. Instruct the students to measure the distance traveled each time.

Elaboration: Have the students throw their Hoopster with different amounts of force to see if throwing it harder or softer changes the flight of the Hoopster. Have the students measure the distances and compare from the first testing. The students will create a chart or graph showing their results.

Intervention Strategies: See ELL levels in curriculum map. Remodel as necessary.

Accommodations & Modifications (IEPs) Pair students as needed, shorten assignment, allow for drawings in place of writing.

Evaluation: Allow students to share their results and drawings with a partner or with the class.

Closure: Students will write about the following:

1. How did your Hoopster fly?
2. Explain what helped your Hoopster travel through the air.
3. Explain why you think your Hoopster flew even though it did not have wings.

Homework: None