STEAM Lessons

Density Coaster

Age Group:	K-8
Child/Adult Ratio:	6 to 1
Take Away Artifact:	No
Approximate Time:	1 hour
Divisions Covered:	All

Materials:

8-10 Different Balls: Approximately 1"-2" (Golf, Steel, Ping Pong, Wooden, Gum, Bouncy, Wiffle, Styrofoam, Small Tennis), PVC pipe, gutter sections, landscaping pipe, wooden trim, birdseed bags, 2 x 4 blocks cardboard tubes, cardboard boxes, and masking tape

Questions to Ask:

What is density? What is texture? What is friction? How do these characteristics affect movement?

Skills Required for Completion of Task:

Motor skills

- Bilateral upper extremity coordination
- Ability to manipulate small objects
- Hand-eye coordination
- Ability to grip objects
- Ability to stabilize objects/task

Process/Cognitive skills

- Ability to attend to task for greater than 5 minutes
- Follow multi-step directions
- Ability to sequence steps
- Ability to understand safety precaution
- Ability to organize or keep materials organized for task
- Ability to adjust to different workspace requirements

Social skills

- Ability to communicate and share equipment with peers/staff appropriately

K-8 Standards:

5.PS2: Motion and Stability: Forces and Interactions 1) Test the effects of balanced and unbalanced forces on the speed and direction of motion of objects. 2) Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. 3) Use evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth's center. 4) Explain the cause and effect relationship of two factors (mass and distance) that affect gravity.

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This activity would be appropriate completed by the following disciplines:
Occupational therapy, LCSW, Family Services, Industrial Arts

Instructions:

Students will each be given a bag of balls. They will mark the balls with a colored dot for identification. Students will play and interact with one ball at a time. The group will then come together and complete the following spreadsheet as group (using volunteers)

Form

In two groups, students will then design a course to test the speed of the balls rolling through the course.