Balls and Ramps Conceptual Story

Insights - Grade 1

K-12 Unifying Concept: **Our physical world is made of substances, materials, and objects that can be identified by their unique properties, and is organized into systems that are interconnected.**

First Grade Level Concept: Matter can change and has properties that can be described.

Sub-concept: Balls have properties by which they can be described.

Lesson 1
Introducing Balls

Students share their experiences with balls and what they know about them.

Lesson 2
Differences

Students focus on some of the differences among balls as they explore and record their findings.

Lesson 3
Comparing Balls

Students compare the size and weight of different balls and how well they bounce and roll.

Sub-concept: The properties of balls affect how they move.

Lesson 4
Straws and Balls

Students use straws to make balls move, exploring such things as which balls are easy to move and hard to stop.

Sub-concept: The properties of balls affect how they bounce.

Lesson 5
Bouncers

Students have their initial experience with bounciness of balls.

Lesson 6
Comparing Bounciness I

Students measure the bounciness of different balls and develop a graph.

Lesson 7
Comparing Bounciness II

Students measure/ record bounciness of class balls; share thinking about what makes a ball bounce; predict/test bounciness of new balls.

Sub-concept: What makes a ball a ball?

Lesson 8
Making Balls

Students make their own balls out of plasticene and explore their movement.

Lesson 9
Making More Balls

Students make balls out of different materials, explore the motion of their balls, and share ideas about why they move as they do.

Sub-concept: Different balls react differently on ramps.

Lesson 10
Balls, Ramps, and Roadways

Students creatively explore what balls do on inclined planes.

Lesson 11
Exploring Different Ramps

Students roll balls down ramps, making connections between height and steepness of the ramp and speed of the ball.

Lesson 12
Ramps and Balls of Different Weight

Students focus on weight of balls and whether or not weight affects how fast the balls reach the bottom of the ramp.

Lesson 13
Ramps and Balls of Different Sizes

Students focus on size of balls and whether or not size affects how fast the balls reach the bottom of the ramp.

Lesson 14
Building Complex Systems

Students work together to build ramp systems using all their prior experiences to inform their work.