Lessons:

Day 1 Activity: To Bounce or Not to Bounce

Objective: TSWBAT explore how height affects potential energy of an object and discover that a rubber ball bounces higher and a clay ball is deformed more when each is dropped from a greater height.

Anticipatory Set:

1. Ask students: *What does the word "potential" mean?*
2. Ask students: *What do you think "potential energy" means?*
3. Hold up clay ball and rubber ball, and ask: *Which ball do you think stores more potential energy that will create the most motion?*
4. This morning, you will be exploring this question through a lab experiment: *To Bounce or Not to Bounce.* You will work in small groups of 3 to do the experiment.

New Information:

- Potential energy=stored energy
- Kinetic energy=energy of motion
- Relationship: the higher the potential energy is, the greater the kinetic energy will be; at the greatest potential energy, the kinetic energy is zero because there is no movement. Ex. Top of the roller coaster

Materials:

1. Student textbook p. C14-C15
2. Clay balls—2 different color sets
3. Rubber bouncy balls
4. Student handout: Observations and Conclusions

Modeling:

1. Refer to p. C14 in textbook to model how to conduct the experiment
2. Show students where to get their lab materials
3. Remind students to be careful while getting on chair

Checking for Understanding:

Ask students: *How many clay balls do you need? Which ones? Where do you get your materials? Where are the procedures of the experimental lab?*

Student Activity / Guided Practice:

1. Review safety precautions with students
2. Students work in small groups of 3-4 to conduct "To Bounce or Not to Bounce" activity on p. C14-15
3. Students may take turns dropping the balls, making measurements, and recording measurements and observations
4. Students record their observations on the handout provided
5. Show students how to look at the ruler from the side to measure how high the ball has bounced
6. Before Step 3, ask: *Which ball do you think will bounce higher, the rubber ball or the clay ball? Why?*
7. Students analyze and draw conclusions while thinking about and answering questions on the student sheet