Explore Collisions Away from the Classroom!

P03: Collisions (Recommended for Grades 3-5)

Please use the following resource to learn about collisions

Watch this Video: https://www.youtube.com/watch?v=51IFubnEAsU)

Answer these questions:

- What happens when a moving bowling ball hits one that is standing still?
- The moving bowling ball has kinetic energy. Where does that energy go?
- What do you think would happen if one bowling ball were more massive than the other?

Activity:
Follow these directions to investigate collisions by playing a marble game called Ring Taw:

You will need:

● One 20-foot-long piece of yarn or string, tied in a loop.	● One 3-foot-long piece of yarn or string, tied in a loop.	● A clear area on the floor. ● Marbles

- Spread the two loops out into circles on the floor, with the small loop in the center of the large one.
- Each player selects one marble as their shooter marble (remember which one is yours!), and then the rest of the marbles are placed in the small circle.
- Players take turns trying to knock marbles **out** of the small circle...but their shooter has to stay **in** the large circle! Here's what happens in each turn:
  - On the first turn, each player rolls their shooter from anywhere outside the larger circle.
  - If they hit a marble out of the small circle -- AND their shooter doesn't leave the larger circle -- they keep the new marble. They go again, rolling their shooter from wherever it stopped.
  - Whenever a player doesn't hit a marble out of the small circle -- OR their shooter leaves the larger circle -- their turn is over.
  - Once all the marbles are out of the small circle, the player with the most marbles wins.

Make observations & use Claims, Evidence, and Reasoning!

1. **Claim**: Objects can transfer energy to each other during collisions.
    - **Evidence**:

    - **Reasoning**:

2. **Claim**: An object has more kinetic energy if it is moving faster.
    - **Evidence**:

    - **Reasoning**: