**Date**: \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_

**Do all balls bounce?**

**Teacher:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**MT:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Learning objective:**  Children will engage in a cycle of inquiry (practices) to understand that different properties of balls (physical science: attributes) cause them to bounce (cause and effect) differently. | |
| **Crosscutting Concepts**: cause and effect | |
| **Core idea**: physical science: attributes of objects | |
| **Key Practices:** observing, predicting, planning, investigating, documenting, analyzing & interpreting data, | |
| Questions to **assess understanding** (what crosscutting concepts are being assessed with each question?):   * Did the balls bounce? * Why do you think the balls bounced differently? (**attributes of materials caused different effects)** | |
| **Format Used**  Whole group Small group Centers/Free choice | **Key Words**: bounce, higher, lower, baseball, ping pong ball, beach ball, materials, heavy, light |
| **Materials:**   * Balls with different bounces (e.g., little/no bounce- baseball, mid bounce- beach ball, high bounce- ping pong ball * Chart paper * Markers or crayons * Different colored baskets or boxes * tape | |
| **Procedure** (identify key practices within your procedure):  **Introduce Activity (whole group):**  Note: This lesson should be implemented only after children have had at least a day for free exploration of various types of balls.  Begin by **reviewing** the concept web about balls and remind children of some of the things that they know about balls and some of the questions they had about balls. Focus on the question, “do all balls bounce?” (**asking questions)**  Show the children the collection of balls and ask them, “how can we find out if all balls bounce or not?”  Use *think, pair, share* to allow children to think about their plans for testing and share their plan with their neighbors and/or ask children to draw out the steps of their plan. **(planning)**  Ask a few children to share their plans. Encourage them to think about how they will record their observations/keep track of which balls bounce and which ones do not. Show children the baskets and chart paper and ask them if they might be able to use these materials to help record their observations (e.g., using the baskets to sort the balls by “high”, “medium”, and “low” bounce; using the chart paper to make a chart to list (writing, pictures, and/or the balls themselves “high”, “medium”, and “low” bounce)  Ask children to make predictions about what they think will happen. Use *think, pair, share* again so that all children are engaged but time is not spent on listening to each prediction. Again, ask a few children to share out with the whole group. (**Predicting)**  Prompt them to provide a reason for their prediction by asking, “why do you think that?” (e.g., I think the baseball will bounce because it is heavy but the beach ball will not because it has air).  Encourage children to think about what they will do if they all bounce. | |
| Let children know that the balls will be in the block center this whole week and when they go to center/work time, they can carry out their plans to test whether or not all balls bounce. (**investigate)**  **Investigate:**  Visit children while they are in small group time. Scaffold their experimenting by:   * reminding them of their plans * encouraging them to refine their experimenting by measuring (e.g., counting the number of bounces, using tape to mark how high the ball went when it bounced, using tape or the edge of a bookshelf as a place marker for where to drop the ball; **using math**) * model language like, “high”, “higher”, “low”, “lower” * ask questions like, “did the \_\_\_\_ ball bounce as high as the \_\_\_\_ball?”, “why did the \_\_\_ball bounce higher?” (**constructing explanations)** * help children sort the balls as they explore using either the baskets, charts, or any other way children have planned to document their findings. (**Documenting)**   **Review:**  After children have finished experimenting, ask them about their data (baskets or chart). Remind them of their question, “do all balls bounce?” and help them use their data to answer this question. Ask children to think about why the balls bounced differently. This can then be turned into another investigation.  At the end of the week, ask groups of children to talk about their experiences with the balls in the block center that week. Re-visit your concept web. This might be a great time to pose new questions about balls. | |
| **Other objectives that can be met** (language, math, social & emotional, motor, et.) | |
| Ideas to **connect, deepen, or extend** the experience:   * compare the bounce of balls that are the same material but different sizes * test the bounce of a ball on different surfaces (grass, carpet, tile, etc.) | |
| **Notes & reflections:** (Did the children meet the learning objective? Why or why not? What was surprising or unexpected about how children engaged in this lesson? What else did they figure out (what other crosscutting concepts, core ideas, or practices)? What modifications would you make to this lesson in the future? How will you use what *you learned* *about the children* to plan another experience?) | |