Mrs. Williams’ Class

Students in Mrs. Williams’ class studied atmospheric pressure. She taught the essential concepts through a combination of lecture, streaming video, textbook lessons and classroom discussions. Quiz results from the day prior to the lesson showed most students have retained the concepts and are ready to apply them to a hands-on activity.

At the beginning of the lesson the class reviewed the learning target: “Students will show how the force of atmospheric pressure can defeat gravity.” To meet the learning target, students were placed in groups, with necessary materials at their tables, and assigned the following task:

***1. Fill cup ¾ full of water***

***2. Place DRY card over the top of the cup***

***3. Use your hand (make sure it’s dry) to hold the card tightly in position and invert the cup over your larger container (or sink)***

***4. Slowly remove the hand holding the card***

***Each Group will work together to chart the following:***

***5. Draw a ‘force-diagram’ showing the forces at work in this demonstration when the cup is upside-down. (Hint: air pressure v. gravity) Are the forces balanced or unbalanced?***

***6. Why doesn’t this ‘trick’ work if the ‘seal’ between the card and the cup is broken, thinking about what happens to the surrounding air pressure when outside air gets into the cup?***

As the students worked, Mrs. Williams redirected minor off-task behavior, showed enthusiasm for the activity, and asked questions to encourage students to refine their explanations. She directed groups to make corrections, if needed.

Once students were finished, their posters were displayed for a gallery walk. During the walk, students were asked to note differences and similarities in the work, in preparation for a whole group discussion. Finally, Mrs. Williams synthesized the statements of the group to describe how atmospheric pressure defeated gravity in the given situation.

At the conclusion of the lesson, Mrs. Williams asked students to complete the following statement independently: The force of atmospheric pressure can defeat gravity because….

Based on their responses, she will decide how to proceed.