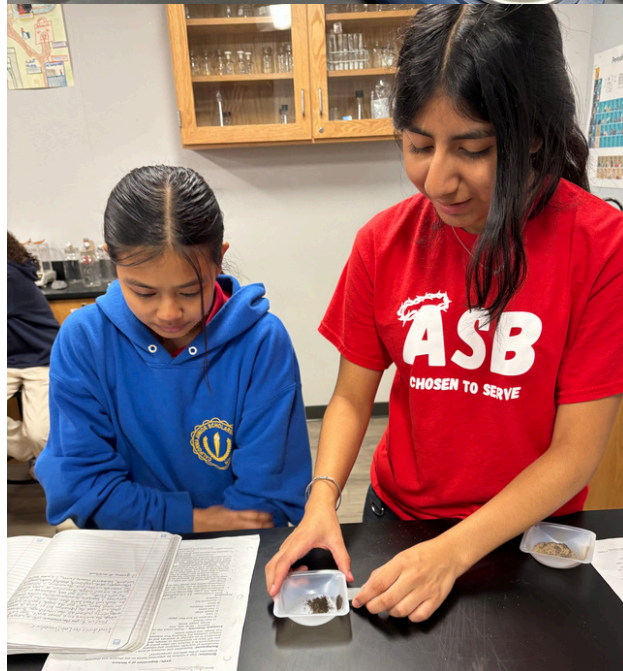


## SEPARATION OF A MIXTURE:

# D.Y.O.L.

Every science experiment offers students the chance to challenge their thinking. For our eighth-grade class, this challenge came during their “Do Your Own Lab” (DYOL), where they were tasked with separating a mixture based on its physical and chemical properties. In this hands-on activity, students were divided into groups and asked to design an experiment to separate a mixture of sand, salt, iron filings, and poppy seeds. Through this task, students had to engage in critical thinking, coming up with strategies to identify and use the correct techniques for separating each substance.

The first step involved writing a hypothesis and brainstorming potential methods for separation. With materials like tape, plastic wrap, magnets, and aluminum foil at their disposal, the students crafted detailed step-by-step procedures. They also measured the starting mass of the mixture and tracked the mass after each separation phase to see how successful their methods were. “The students have been learning about the chemical and physical properties of matter,” said Ms. Jessica, the teacher. “This experiment allowed them to apply their knowledge in a practical way and explore how different substances react when mixed together.”



## SEPARATION OF A MIXTURE:

# D.Y.O.L.

As the experiment progressed, students faced various challenges that required creative problem-solving. They had to figure out which equipment would be most effective for each substance. For example, the iron filings were easily removed using magnets, while the poppy seeds were separated by simply using water. However, the separation of sand and salt was more complex and required deeper thinking.

“It showed us there are many ways to separate mixtures,” explained Ashley. “It all depended on the properties of the substances we were working with.”

“The hardest part was separating the sand and salt,” added Brienne. “We could use the magnet for the iron, and the seeds were easy to separate with water. But the salt and sand required multiple steps. We learned that filtering them more than once helped us separate the two.”

Ms. Jessica pointed out that the critical thinking skills developed during this experiment are important in real-life applications, such as in cooking, laundry, and even in engineering and science fields. Understanding how substances react and how to manipulate them based on their properties is crucial.





## SEPARATION OF A MIXTURE:

# D.Y.O.L.



“It was a lot of fun,” said Justin. “But it made us think about the right tools for the job. We used the magnet for the iron fillings, plastic wrap to keep everything in place, tweezers for the seeds, and we evaporated the salt from the sand using water. Every part of the experiment required different strategies.”

While the students had fun with the experiment, they also exercised their critical thinking skills. They had to adapt, problem-solve, and make decisions on which methods and tools would be most effective in separating the four substances. Through this process, they learned how important it is to think critically in science, and how such skills can be applied to real-world scenarios.

