

## **Lesson Plan for Separation of Mixtures: Assessment AS Learning (Performance Based Assessment)**

### **Big Ideas:**

Identification: of a successful methodology for separating the given mixture

Principle: in terms of intermolecular forces, what concept is behind each method of separation?

Performance: Design and conduct the separation of a given mixture

### **Overview of the lesson:**

Students will apply their knowledge to design and carry out the separation of the given mixture thorough individual and collaborative group work.

**Time Frame: 30-35 minutes**

### **Vocabulary:**

Hand Separation, Using Separating Funnel, Chromatography, Distillation, Centrifugation, Intermolecular Forces, Mixtures, Separation

### **Materials**

**Station 1:** Hand Separation

Mixture of pebbles and sand in a Ziploc bag, tweezers, two petridishes

**Station 2:** Separating Funnel

Mixture of oil and water, separating funnel, ring stand, two beakers

**Station 3: Filtration**

Sand and water mixture, filter paper, funnel, ring stand, beaker, glass rod, wash bottle

**Station 4: Centrifugation**

Lead Sulfate Precipitate in water (or any other precipitate), centrifuge, test tubes, test tube stand, DI water bottle

**Station 5: Distillation**

Water with red food coloring, distillation assembly, burner, receiver flask, ring stand, matches or striker

**Prior Learning using the Screencast:**

Students watch teacher generated screencast with podcast help sheet for note-taking, the night before the activity as homework.

**In Class:**

**Performance Based Assessment:**

1. Teacher introduces the activity (2 minutes).
2. Students go to their respective stations and write an **individual report** which includes the naming the method of separation, writing individual steps and describing the principle involved in the separation of the given mixture (5 minutes).
3. Students then turn in individual report to the teacher.

4. Now, students discuss their ideas in their group as **whole group discussion**, while filling out the **self-correction guide** (5 minutes).
5. Each group works collaboratively to write a single **group report** (5 minutes).
6. Each group carries out the separation of their given mixture (5-7 minutes) and does the clean up.
7. Each group gives a short oral presentation (1 minute/group).

**Wrap Up:**

8. Teacher clarifies the misconceptions and addresses questions (5 minutes).

**Extension:**

Students identify the separation methods used in their day-to-day lives.