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**Lab:** The Separation of a Mixture

**Research Question:**

How can I separate a mixture into its original parts?

**Introduction:**

We are trying to get sand, iron filings, rocks, and salt out of the mixture.

**Procedures:**

First, we put the North side of the magnet into the mixture and it picked up iron filings. Secondly, we used tweezers to pick the rocks out of the mixture. We then poured water into a pot along with the sand and salt and boiled it.

**Results:**

The magnet successfully picked almost all the iron filings out. We did everything correctly until the part where we boiled the mixture while it still had sand *and* salt. Once the water started to boil, the sand actually burned. Then we stopped once we realized it wasn't working and we were left with wet, burnt sand and salt.

**Conclusion:**

You can separate a mixture into its original parts by using specific separation techniques varying with the components making up the mixture. Separation techniques separate components of a mixture by manipulating the physical properties of the substances in the mixture. Instead of boiling the sand and salt, we should have put the sand in the water, so the salt would dissolve, then filtered the sand out of the water, then boiled the water until only the salt remained.

Mechanical separation is the physical separation of a mixture using your hands or tools like tweezers. It is often used to separate mixtures of solid particles. This is what we used to get the rocks out. Magnetism is used to physically separate magnetic components in a mixture. This is the technique we used to remove the iron filings from the mixture. Filtration is used to separate solid particles from a fluid. The fluid passes through a filter and the solid particles are trapped by the filter while the fluid goes through. This is what we should have used to remove the sand from the salt.