**Activity 8: Separating Heterogeneous Mixtures**

## What methods can be used for separating heterogeneous mixtures? Hypothesis

Describe the separation method you would use for each of the following mixtures. (More than one method might be possible for each. Choose the one you think will work best.)

|  |  |
| --- | --- |
| **Mixture** | **Separation Method?** |
| **paper clips and marbles** |  |
| **salt and pepper** |  |
| **sand and water** |  |
| **marbles and water** |  |
| **iron shavings and salt** |  |
| **paper clips and toothpicks** |  |
| **toothpicks and sand** |  |

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## Materials

* water
* jar or bowl
* toothpicks (wooden toothpicks work best)
* fine sand
* paper clips
* sieve or colander
* iron filings (use paper clips if iron filings are unavailable)
* magnet
* salt
* marbles
* coffee filters

## Procedure

1. Make a mixture by combining some paper clips with some marbles in a small jar or bowl.
2. Try your method for separation.
3. If your method did not work, try another method.

## Need a Hint?

Try another method described in the introduction: mechanical separation, flotation, filtration, dissolving, or magnetism.

1. When you find a method that works, record it on your *Observations Table* as well as how and why it worked.
2. Repeat Steps 1 to 4 for each of the mixtures described in the *Observations Table.*

Observations

# Observation Table

|  |  |  |
| --- | --- | --- |
| Mixture | Separation Method Need a Hint?  Did you use mechanical separation, filtration, flotation,  dissolving, or magnetism? | How and why did your method work?  Need a Hint?  What property did your method separate the parts based on?  Size? Appearance? Solubility? Magnetism? Buoyancy? |
| one handful paper clips and one handful of marbles |  |  |
| one spoonful salt and one spoonful pepper |  |  |
| one spoonful sand and 1/4 cup water |  |  |
| one handful marbles and 1/4 cup water |  |  |
| one pinch of iron shavings and one spoonful salt |  |  |
| one handful of paper clips and one handful of  toothpicks |  |  |
| one handful of toothpicks and one handful of sand |  |  |

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## Conclusion

Compare your observations with your hypothesis.

* Which of your hypotheses did not work? Can you explain why?
* Mechanical separation is a method that can be used for many of the mixtures you made. Explain why you might choose another method instead of mechanical separation.

Based on your observations, complete the following chart to answer your Explore Question:

* What methods can be used for separating heterogeneous mixtures?

|  |  |
| --- | --- |
| **Mixture** | **Separation Method?** |
| **paper clips and marbles** |  |
| **salt and pepper** |  |
| **sand and water** |  |
| **marbles and water** |  |

Check your answers on pp. 64-65.