**Soil and Biochar Mixture Lab Sheet Answer Key**

**Predictions**

**Prediction; answers will vary.**

Might biochar affect each soil type’s ability to retain water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If so, would it increase or decrease water retention for each soil type?

**Prediction; answers will vary.**

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Which type of soil/biochar mixture do you expect to retain the most water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Data Collection Instructions**

* Record your water retention levels in the table below.
* Subtract the volume of the drained water in the graduated cylinder from the volume of water you started with (100 ml).
* Record the difference in the amount of water retained column.

**Part 1: Soil**

|  |  |  |
| --- | --- | --- |
| **Soil Type** | **Amount of Water Collected** | **Amount of Water Retained** |
| **Sand** |  |  |
| **Loam** |  |  |
| **Clay** |  |  |

**Analysis Questions**

**clay**

Which soil type was best at retaining water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**sand**

Which soil type was worst at retaining water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 2: Soil/Biochar Mixtures**

|  |  |  |
| --- | --- | --- |
| **Type of Soil and Biochar Mixture** | **Amount of Water Collected** | **Amount of Water Retained** |
| **Sand/Biochar Mixture** |  |  |
| **Loam/Biochar Mixture** |  |  |
| **Clay/Biochar Mixture** |  |  |

**Analysis Questions**

1. Did biochar affect each soil type’s ability to retain water? Explain.

Yes, biochar had a big impact on sand, more than clay and loam. Results show that the addition of biochar has the potential to increase total water retained for sand and loam. In this experiment, biochar had little to no impact on clay soil.

1. Did biochar increase or decrease each type of soil water retention level? Explain.

We found no significant differences in water retention, and drainage in clay/biochar.

The loam/biochar mixture had a small increase in water retention level. However, the addition of biochar significantly increased the water retention levels for sand.

1. Which type of soil/biochar mixture retained the most water?

The clay/biochar mixture retained the most water.