

Fun Facts

Space Sand truly is the closest thing to soil from Mars that most of us will ever see and touch. Reddish in color and very dusty and dry, Space Sand is hydrophobic sand with the same properties as the sand found on Mars. This sand is thought to exhibit hydrophobic properties because it has not been exposed to water for more than 13 million years! Space Sand is currently being used in NASA Mars Exploration Classroom Experiments.

Individual and Group Experiments

Either every student can do every experiment or students can break into groups and observe each other's lessons.

1. Fill two bowls three-quarters full with water. Add one tablespoon of Space Sand to the first bowl. Next, add one tablespoon of natural sand to the second bowl. What happened? Did the Space Sand get wet? Did the natural sand? Why?
2. Fill one bowl three-quarters full with water. Sprinkle a thin layer of Space Sand on the surface of the water. Take a pencil and slowly push it through the thin layer of Space Sand. What happens? Now take the pencil out. Is the pencil wet or dry? Why?
3. Lay two pieces of construction paper on a flat surface. Add one tablespoon of Space Sand to the first piece of paper. Add one tablespoon of natural sand to the second piece of paper. Drizzle one tablespoon of vinegar over each type of sand. What happens? Does the Space Sand get wet? Does either sand bubble?
4. Fill one bowl three-quarters full with water. Now add one teaspoon each of all three colors of Space Sand. What happens? Did it get wet? Do the colors mix? Now add one teaspoon of natural sand to the water with the Space Sand. What happens? Does either sand sink?
5. Put one teaspoon of Space Sand in water in a bowl. With a spoon, stir the sand under the water. Can Space Sand be sculpted under water? Take it out and put it back in the water. Now drain the water. What happens? Is the Space Sand wet or dry?

6. Weigh the mass of one cup of Space Sand. Now add water. Pour the water and Space Sand through a coffee filter so that only dry Space Sand remains. Weigh again. Is the mass the same or different? Repeat the same experiment with natural sand. Is the mass the same or different? Why?
7. Add a small amount of oil to one bowl of water. What happens? Pour some Space Sand over the oil. What happens? Does the oil mix with the Space Sand? Why?
8. Fill two bowls with water. Add two tablespoons of Space Sand to the first bowl, and two tablespoons of natural sand to the second bowl. Place both bowls in a freezer overnight. Take them out the next morning. What happens? Did both bowls of sand freeze?
9. Fill two bowls with water. Slowly sprinkle one tablespoon of salt into the water of each bowl. Next, sprinkle some Space Sand on top of the first bowl. What happens? Add one more tablespoon of salt to the first bowl and repeat. Can it hold more Space Sand? Sprinkle one teaspoon of natural sand into the second bowl. What happens? Does the natural sand sink or float? Why? What is surface tension?
10. Fill one bowl with water. Add two tablespoons of Space Sand to it. Now add a little dish detergent to the bowl. What happens? Does the Space Sand get wet? Why?

Discussion Questions

1. Why is Space Sand different than natural sand? How do you think you could create your own Space Sand?
2. What causes a molecule to be polar or non-polar? What is an example of a polar molecule? A non-polar molecule?
3. What other uses could Space Sand have? Can it be helpful to our environment?

Notes

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