

DIY Super Cool Kinetic Sand

Simple STEM Activities You Can Do at Home

Purpose:	The purpose of this activity is for students to investigate and explain the physical properties of DIY kinetic sand.
Standard:	<p>S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects. a. Ask questions to describe and classify different objects according to their physical properties.</p> <p>S5P1. Obtain, evaluate, and communicate information to explain the differences between a physical change and a chemical change. a. Plan and carry out investigations of physical changes by manipulating, separating and mixing dry and liquid materials.</p> <p>S8P1. Obtain, evaluate, and communicate information about the structure and properties of matter. a. Develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures.</p>
Materials:	Fine sand, cornstarch, water, spoon, plastic knife, food coloring, dishwashing detergent, assorted objects to mold the sand.
Procedures:	<ol style="list-style-type: none"> 1. Add 1 cup of fine sand, ¼ cup of cornstarch, 1 tablespoon of detergent, and 5-6 drops food coloring to a bowl. Mix well. 2. Add ¼ cup water and another ¼ cup of cornstarch and mix well. 3. If possible, allow the sand mixture to sit for 60 to 90 minutes. 4. Pick up a handful of kinetic sand from the bowl and mix with your hands. 5. Add a little more sand if it is too wet or water if it is too dry. 6. Observe the properties (features) of your kinetic sand as you mix it. Write a list of words that describe it. 7. Mold the kinetic sand into a ball by applying pressure and observe. 8. Mold the kinetic sand into different shapes and observe and test. 9. Explain why you think the Kinetic Sand has different properties when you put pressure on it than it does when you let it go.
Science Behind It:	<p>Sand is a loose granular material that covers the beaches, riverbeds and deserts of the world. It is made of finely divided rock and mineral particles. Kinetic sand is sand that sticks to itself, so you can form clumps and mold it with your hands. It mimics the physical properties of wet sand. Kinetic sand is a mixture of sand, cornstarch, water, detergent, and food coloring.</p> <p>Kinetic sand is unusual and super fun because sometimes it acts like a liquid and sometimes it acts like a solid. When you put pressure (or force) on it by poking it or grabbing it into a ball, it acts like a solid and the mixture maintains its shape. But, as soon as you remove the pressure, the mixture loses its shape and starts to flow like a liquid. This happens because when the cornstarch particles are put under pressure they trap the water molecules between them temporarily turning the mixture into solid-like material.</p>
Questions to Ask:	1. What words can be used to describe the properties Kinetic sand?