

# ARTFUL SCIENCE

# SALT ART

## 💡 BIG IDEA

To examine how the interactions between salt and watercolor paint can be used to create a unique artistic technique.

## 🕒 TIME

30-40 minutes

## ❤️ WHY WE LOVE IT

This is an artistic way to introduce the properties of salt and water.

## READY...

Gather materials (per group):

- white paper (The less water soluble, the better. Yupo paper works best!)
- watercolor paint
- paintbrushes
- water
- cups
- salt (coarse, preferably in a salt shaker)
- smocks or old shirts
- newspapers



Figure 1: Sparkly salt art

## SET...

Lay newspaper down on your tables to protect them from the paint. Fill cups with water. Have smocks, paintbrushes, paint, and paper ready to pass out. It might be a good plan to make a salt painting beforehand to show students what to expect before they begin and to spark some ideas. Prepare an area for drying the paintings after the activity.

## GO!

1. Ask students what the relationship is between salt and water. *Do they mix together? Would salt water be a good thing to drink if you were thirsty? Why do salty things make you thirsty in the first place?*
2. Now ask students how many of them have ever painted with watercolors. *What do they think will happen if they add salt to a watercolor painting? Will it change the way the painting looks?*
3. If you made a salt painting before the class, show it to students and prompt them to observe how it might look different from an ordinary watercolor painting.
4. Pass out the watercolors, water, paintbrushes, and paper, and allow students to start painting anything they'd like.
5. Students should paint until there is virtually no blank space left on their paper, but also make sure the paint is still wet before adding the salt! Depending on how fast students paint, they can add salt to their painting after they've completed only a small portion, and then continue to add more as they paint. The salt will absorb some of the water in the watercolor paint, leaving behind a swirly, cloudy-looking design that will also sparkle a little bit while the salt crystals remain on the page. **(Figure 1)**

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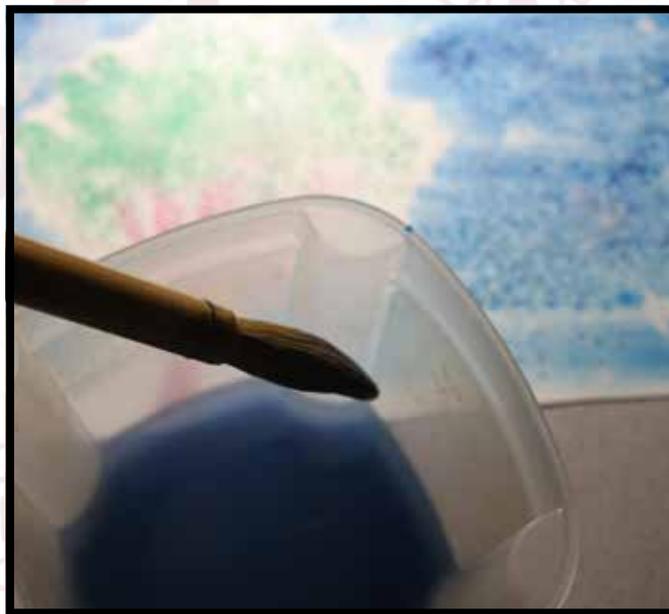
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## DIFFERENTIATION

- **K-1:** Supervise these students while they add salt to their paintings. Some will need assistance.
- **2-3:** Have small groups of these students share a limited amount of salt as a way of controlling their use of it.
- **4-5:** Before the activity, these students may benefit from brainstorming how they might use this artistic technique to serve a particular purpose in their paintings (e.g., to make their clouds look more textured).
- **6-8:** Have students think back on their previous scientific knowledge and come up with a new and exciting form of scientific art. Have them create a materials list and steps. *Would they make paintings of multicolored flames? Exploding sculptures?*

## TRY THIS

1. If students paint quickly, you can have them make more than one painting. If they do so, encourage them to experiment with different types of designs and colors.
2. Try using different types of paper or different consistencies of salt (from fine to Epsom). *What happens to the end product?*
3. Prompt students to think about how they can use the effects of the salt to actually help their designs. For example, salt art is particularly good for painting things like clouds and trees.
4. See if using other materials, like sugar and baking soda, results in different effects in the paintings.



## WHY IS THIS SCIENCE?

When people eat food high in salt, salt is absorbed through the walls of the small intestine, enters the bloodstream, and makes the blood saltier. As this saltier blood moves through the body it makes the fluid outside the cells saltier than the fluid inside the cells. The salt pulls water from the inside of the cells, acting like a sort of “water magnet.” This illustrates the process of osmosis: if you have a lot of water inside of a cell and only a small amount outside the cell, some of the water will move outside the cell to balance things out more. (This works in the opposite direction as well.) These cells send chemical messages to the brain, telling the brain that the cells need more water so they can plump up again with water. Students can connect this concept to the fact that they probably feel thirsty (in need of more water) after eating a salty food.

Salt is an example of a **hygroscopic substance**—one that is able to attract and contain water molecules from the surrounding environment. This process is why you see the effects you do on the watercolor paints: some of the water is absorbed into the salt, and upon absorption it leaves behind a texture different from what you’d normally encounter in watercolors.

## WITH THANKS AND FOR MORE INFORMATION, VISIT:

<http://www.oms.edu/sites/all/FTP/files/smile/ece/SaltPainting.pdf>

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