FOAMY SOAP FUN

AN ACTIVITY TO EXPLORE THE SCIENCE OF SOAP AND HAND WASHING
Hey, Mom! That experiment we did with cinnamon and oil was really fun!

Now we know that soap, water, and rubbing hands for 20 seconds are all super important...

To wash off coronavirus and other pesky germs!
I'm remembering something else cool about soap! I saw this on a school trip to the museum.

We put drops of food color on shaving cream and made marbled prints on paper. Want me to show you?

Shaving cream actually IS soap... just made into a foam!

Sure, but what does this have to do with soap?
Ok, let's drop some food color on a blob of shaving cream.

Swirling the food color around makes a marbled pattern.
Remember we found out that soap molecules are water loving on one end and oil loving on the other end?

The water loving part of the shaving cream likes the food color.

The oil loving part of the shaving cream does not like the food color.

So, the color doesn't mix in fast. That's why we can make nice swirls.
We can put a piece of paper on the marble pattern and lift it off.
Scrape the shaving cream off the paper and you see the marble pattern!

That is so pretty!

I wonder if other kinds of color, like paints, would work the same way?
Maybe we can try that! But I want to show you something else first...

We need to mix the food color into the shaving cream as evenly as we can.
Now, we drop water on the colored shaving cream.

Wow! The shaving cream is instantly white where the water dropped!

It looks like the water pushes the color away and makes a clean surface.
The food color washing away is like water rinsing away viruses after we get them soaped up!

Oil-loving ends of soap molecules attach to oily layer of virus and form a soapy layer.

Soapy layer around virus + rubbing hands together unsticks virus from skin.

Water-loving ends of soap molecules are attracted to water.

Water rinses virus away.
I'm still a bit confused about shaving cream being soap. It looks like foam...

I'll show you something. We did this at the museum too.

I'll use a paintbrush to whip air into liquid soap and food color.

Let's drop water on this lather I made... See! It gets a clean spot just like the shaving cream did!

LATHER MEANS FOAMY SOAP!
You're right! Rubbing hands together adds air to the soap and water and makes lather.

Oh! Sort of like how you make lather when you rub your hands together with soap and water.

So the 20 second hand washing rule gives enough time to make the lather and rub it around!
We had so much fun making marbled prints with shaving cream!

We hope you’ll try making prints yourself! Maybe you’ll have some new ideas about things to try!

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