THE AWESOME **POWER** *of* HYDRATION

Lesson 2

THE SCIENCE OF SKINCARE

Did you know? Healthy skin is hydrated skin!

We've learned, our skin is the barrier between you and the outside world. It works hard to keep dirt, germs, pollutants, and other things out of your body, while keeping the good stuff, like water, in. It's important we help our skin stay as healthy as possible, and one way to do that is to keep it hydrated. Oil and water are key ingredients in any skin moisturizer.

But oil and water don't mix... or do they? Today, we're going to be learning about the basics of formulation science with a fun lava lamp experiment.

For this lesson you will need:

- **Oil (baby or cooking)**
- **Water**
- **Fizzing antacid tablet**
- **Spoon**
- **Dishwashing liquid**
- **Pint glass or beaker**
- **Food coloring (optional)**

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PART 1: HANDS-ON WITH LAVA LAMPS

When we're making a skin cream, we use lots of different ingredients such as vitamins. Some vitamins only dissolve in water, and some vitamins only dissolve in oil. This means we need both oil and water in our skin creams.

STEP 1:
Go to Olay.com/ScienceKit and watch Video #3, "Let's Play with Formulas," with your class.

STEP 2:
Pour half a cup of oil and half a cup of water into your glass or beaker.
You'll see the water sink to the bottom and the oil rise to the top.

Now stick a spoon in there and mix it vigorously. The oil and water will look like they're mixing... but then they'll separate again. Now put in a couple drops of food coloring so you can really see the separation in action.

FOR IN-PERSON CLASSES:
Each student can have her or his own glass of oil and water.

FOR VIRTUAL CLASSES:
Show your students your glass of oil and water on video.

STEP 3:
Drop a fizzing antacid tablet into your glass/beaker.
The bubbles will form in the water and try to work their way into the oil, but they'll fall back down again. Oil and water just do **not** want to mix!

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WHAT'S AN EMULSIFIER?

An emulsifier encourages the suspension of one liquid within another. This means that it can essentially force two things that don't usually mix, like oil and water, to mix.

STEP 4:

Add an emulsifier!

Drop a couple drops of dishwashing liquid into your experiment. The dishwashing liquid is an emulsifier. Now mix the contents of your glass around with your spoon – it should combine! You've created an emulsion. This is similar to what scientists do when we make a moisturizer. Since we need both oil and water for hydration, we add an emulsifier – though of course it's not dishwashing liquid – so the ingredients combine and can be absorbed by your skin!

Can you spot emulsions in real life? Skin creams are emulsions. Mayonnaise is an emulsion – and uses egg yolks as the emulsifier! What else?

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PART 2: TEST YOUR SKIN KNOWLEDGE!

Q: True or false: more than 50 million skin cells can fall off your body... every day.

A: True!

Q: True or false: You have about 11 miles of blood vessels in your skin.

A: True! That's more than twice the height of Mt. Everest!

Q: True or false: your skin loses the most water in the middle of the day.

A: False! Your skin loses the most water at night.

Q: True or false: in the earth's atmosphere, there's estimated to be one BILLION tons of dust made up of dead skin cells.

A: True!

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PART 3: SHARE WHAT YOUR STUDENTS LEARNED.

Take pictures of your students' experiments and upload them to social. And take pictures of future experiments — we want to see what amazing things you do with your new classroom tools. **Don't forget to tag us at @olay #FaceTheSTEMGap.**

All of our science doesn't fit in this box!

Scan this QR code or visit **Olay.com/ScienceKit** for more.