GOT YOU COVERED!

FOLLOW-UP ACTIVITIES

Activity 1 • You're Covered

- Ask students to conduct a research project on how coatings technology has advanced the industry associated with a favorite hobby over the past decade and where the future might lie. Encourage them to think outside of typical science areas and explore art, design, sports, and other applications.

Activity 2 • What's Your Wavelength?

- How do different finishes, like high gloss and matte paint, affect color reflection and absorption? This is an important consideration in choosing paints for projects.
- Mixing colored lights works on an additive principle, unlike paints and pigments. You can demonstrate additive mixing by using flashlights and several different colors of cellophane. Tape several different colors of opaque paper (including black and white) onto a wall and shine the colored flashlights onto them.

Activity 3 • Cool & Collected

Have students engage in energy and environmental conservation studies based on the wave characteristics of light. Some ideas:

- Pavement colors can have a big impact on air temperature. Students can test this by laying their test materials underneath the ice cube in the plate or bowl, measuring how long it takes to melt in the open air.
- Urban heat islands are an important financial and conservation issue. Have students create an urban environment by stacking all of the structures and "pavements" they've created. Then test how fast ice cubes melt in different sections of the "city." Learn more at: **https://heatisland.lbl.gov/coolscience/cool-roofs**.
- Cool white and reflective roofs offer a lot of benefits, but the glare can be disruptive for neighbors and wildlife. Plus, they increase the need for heat during the winter months. Ask students: Can you think of a way to create a roof that can be changed from dark to light for maximum temperature control? Have them brainstorm ideas as a class.

Activity 4 • Damage Control

Electrochemical corrosion is a broad topic with many avenues for exploration.

- Recommend that classroom teachers leverage this activity to teach lessons in ionization, pH, the chemistry of batteries, and more.
- Ask students to brainstorm alternate materials that wouldn't be affected by rust, and what concerns might arise from those. For example, could you build a bridge from plastic instead of steel and concrete? Why or why not?
- Electrochemical corrosion is just one type of problem that the coatings industry works to prevent. Mold growth in paint cans, algae and other types of marine fouling on ships, and UV damage to plastics can also be costly and dangerous.

Activity 5 • Links in a Chain

- Dispersion is a related consideration that you can demonstrate for students. Make it a sweet treat by comparing the difference in how chocolate syrup, cocoa powder, and chocolate chips mix into a glass of milk. Discuss temperature and other considerations.