

Lesson #2  
The Science Behind a Can of Spray Paint Part 2

Learning Targets: Students will be able explain why Spray Paint is so effective at covering surfaces.	
Understandings/Prior Knowledge: Atoms Positive and Negative Charges	Essential Question(s):  Why does Spray Paint Stick to Walls?

Key Un der st an di ng	Standards Addressed:
	SC.PS.6.8 Describe interactions among molecules SC.PS.7.4 Explain magnetic and electric forces in the universe
	HA Connection:
	Strengthened Sense of Responsibility

Se t-u p	Classroom Set-Up: Students should be able to work in groups of 3-4
	Materials and Equipment Needed:  Writing Tools Worksheet or student made poster (Below) Whiteboard or Projector

Pro duc t	RUBRIC:
	MEETS Criteria <ul style="list-style-type: none"> <li>● Students will be able to explain how spray paint <b>atomizes</b>.</li> <li>● Students will be able to explain how when particles are positively charged they repel one another, and how positive and oppositely charged</li> </ul>

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

Essential Question?  
How does spray paint cover walls so well?

When the paint leaves the Cap	When the paint hits the wall
<p data-bbox="107 596 646 667">What does it mean when the paint <b>atomizes</b>?</p> <p data-bbox="107 1163 760 1272">What does it look like? Create a diagram explaining what happens to the paint as it <b>atomizes</b>.</p>	<p data-bbox="824 596 1503 705">What happens when the positively charged paint hits an object that it oppositely charged?</p> <p data-bbox="824 1163 1455 1272">What does it look like? create a diagram explaining what happens when two oppositely charged particles interact.</p>

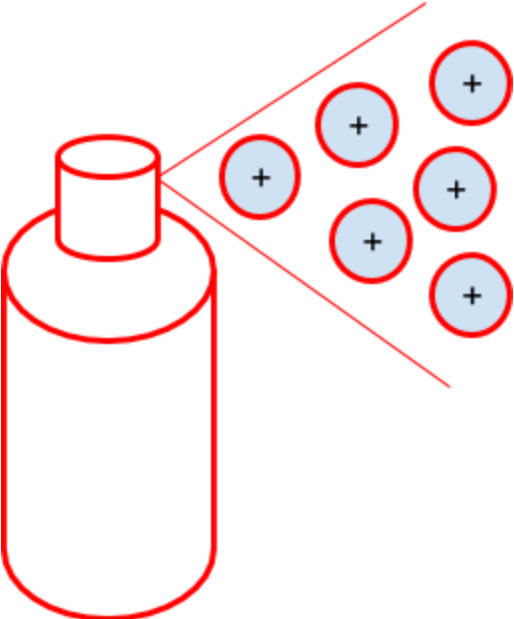
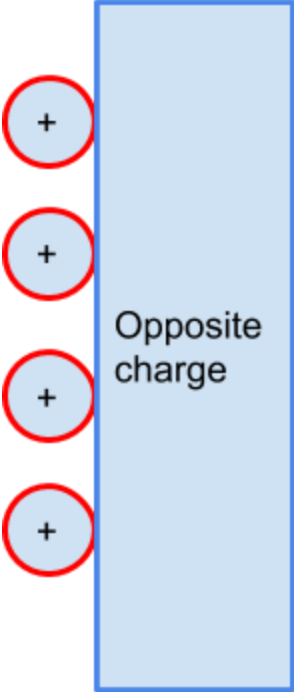
	Mins	Procedure:
L e s s o n o n F l o w	10	<p>Opening</p> <p>Present students with the essential question: How does spray paint cover walls so well?</p> <p>Students can either discuss this with their neighbors or brainstorm possible ideas. Have students share out</p> <p>Explain to students that today they will be creating charts explaining the science behind the effectiveness of spray paint.</p>
	30	<p>Work Period:</p> <p>Have students work in small groups and create a poster. You can also have students work individually in the handout above.</p> <p>Tell students that we will focusing on two distincts actions today, the moment the paint leaves the cap of the spray paint, and the moment it hits the wall.</p> <p>Display the following definition</p> <p>Atomization: the conversion of a substance into very fine positively charged particles or droplets.</p> <p>Explain to students that as the paint leaves the cap the liquid paints turns into a very fine even mist.</p> <p>Ask students the following question:</p> <p>“How does the positive charge help the paint particles from clumping together?”</p> <p>Have students discuss in groups and share out</p> <p>One possible student answer might be:</p> <p>“Two positive charges repel each other, this keeps all the paint particles separate.”</p> <p>Now ask students the following</p> <p>“Now that we have this cloud of positively charged particles, what happens when they collide with a wall that is oppositely charged?”</p> <p>Have student discuss in groups and share out. One possible answer might be</p>

	<p>“Since the paint particles and the wall are opposite charges then they will stick to each other.”</p> <p>Have students work in groups to complete the charts. Be sure that the diagrams include labels. There is an example student poster below</p>
	<p>Closing:</p> <p>Have students share the posters they have created and explain one or both sides of the chart.</p> <p>If time permits students can also answer the following questions:</p> <p>“What other machines or gadgets use positive and negative charges to function?”</p>

	<p>How will you check for understanding during instruction and how will you know if learning targets are met? Component 1F → 3D</p>
<p>Ref lec tio n</p>	<p>Checking for understanding can be done by circulating around the room and groups. The teacher can also verbally check for understanding. The teacher can also check to understanding during student presentations.</p> <p>Students should be able to explain their chart and use it to reference their learning for the day.</p> <p>Students should be able to use academic vocabulary such as atomization, particles, and charges</p>

Essential Question?  
How does spray paint cover walls so well?

**Example**

When the paint leaves the Cap	When the paint hits the wall
<p>What does it mean when the paint <b>atomizes</b>?</p> <p>When the paint leaves the can it becomes positively charged and atomizes. This means the paint gets a + charge and spreads out into a mist</p> <p>What does it look like? Create a diagram explaining what happens to the paint as it <b>atomizes</b>.</p> 	<p>What happens when the positively charged paint hits an object that it oppositely charged?</p> <p>The paint has a positive charge so its attracted to the surface with the opposite charge. It sticks together evenly.</p> <p>What does it look like? create a diagram explaining what happens when two oppositely charged particles interact.</p> 

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