

	<b>Student Activities</b>	<b>Teacher Strategies</b>	<b>Simulation</b>
Engage	<p><a href="#">Nature's Colour Wheel Scavenger Hunt</a> to happen during school hours, can also be taken home to add other items (such as fruits and vegetables from the fridge)</p>	<p>Ask students</p> <ul style="list-style-type: none"> <li>- What colours do you like?</li> <li>- Where can you find these colours in nature?</li> <li>- Which materials do you think would create a rich dye? How about a light dye?</li> </ul>	none
Compile	<p>Watch <a href="#">Diffusion</a> video (stop at 2:50) and define diffusion, high concentration, low concentration and particles</p>	<p>Pause video at key points, ask students to summarize what is happening to the particles. Use Think-Pair-Share to define key vocab</p>	<a href="#">Diffusion Simulation</a>
Explore	<p>Choose two items from the scavenger hunt, one that will create a dark dye and one that will create a light dye. Mix/add water to the material. Check the dye every hour, record data (photos and written/audio notes) to create a timeline in a ppt</p>	<p>Ask students to make predictions. How long will it take for the water to completely change colour? When will the water stop changing colour? Will the final dye be rich or light?</p>	

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Generate	<p>Run through the diffusion simulation as a class.</p> <p>Use the simulation to find out which variable could be changed to create a richer/lighter dye.</p>	<p>Go over the variables. Questions to ask about variables:</p> <p>Particle numbers – ask students which material would have a more particles</p> <p>Mass: Where did the paint particles go? Did they sink, float or spread out?</p> <p>Radius: Is the size of a particle related to size?</p> <p>Temperature: How does a bottle of paint feel? How about the paint itself? And how about water?</p>	<p>Use the <a href="#">diffusion simulation from PhET</a> to recreate the paint and water diffusion example from the video.</p>

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Evaluate	<p>Explain how to make a rich/light dye using the materials they chose from the explore stage.</p> <p>Test ideas on the simulation.</p> <p>Use pencil crayons to make a visual of the predicted final dye colour.</p>	<p>Ask students to write down the instructions for their original dyes.</p> <p>Question prompts:</p> <p>Should any steps be added to make a rich/light dye?</p> <p>What steps can they add to create a dye quickly?</p> <p>What steps can they add to use a smaller amount of material?</p> <p>Encourage students to use the simulation to test their ideas.</p>	<p>Use the <a href="#">diffusion simulation from PhET</a> to test ideas.</p>
Modify	<p>Exchange instructions and predicted colours with another group. Make suggestions using sticky notes.</p> <p>Return and ask questions. When modifications to instructions are completed, return to the explore stage to test the instructions.</p>	<p>Guiding questions:</p> <p>How are the instructions for the rich dye similar to your instructions for the rich dye?</p> <p>What differences are there in instructions? What do you think is the purpose/reason of/for these differences?</p>	