



Intro to Phosphates Activity

Grade Span	5-8
Time Span	50 minute class
Standards	Obtaining, Evaluating, and Communicating Information
Focus Question	<p>What is phosphate?</p> <p>Where does it come from?</p> <p>Why is too much a concern?</p>
Overview	Phosphates can be found in rocks. They are needed in plants and animals to survive however too much can cause algal blooms and decrease water quality in lakes and streams.
Objectives	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Give reasons as to why a body of water would be “dead”. • Explain where phosphates come from.
Materials Needed	<ul style="list-style-type: none"> • Algae on water • Blue Green Algae Bloom on Lake Erie • Sassafras River, Va Algal Bloom • The Phosphorus Cycle • Phosphate Mining Video • Paragraph Reading Organizer
Vocabulary	<p>Phosphate: a naturally occurring element found in rock.</p> <ul style="list-style-type: none"> • Decomposition: the process of breaking down organic material, rotting.
Teacher Prep	<p>Look over videos and articles to familiarize yourself with phosphate, where it’s found, and what the phosphate cycle is.</p> <p>Have groups of students prepared.</p> <p>Printing of pictures:</p> <ul style="list-style-type: none"> ○ Algae on water



	<ul style="list-style-type: none"> ○ Blue Green Algae Bloom on Lake Erie ○ Sassafras River, Va Algal Bloom <p>Print article for each student::</p> <ul style="list-style-type: none"> ○ How do Phosphates Affect Water Quality <p>Print for each group (or each student):</p> <ul style="list-style-type: none"> ● Paragraph Reading Organizer
<p>Background</p>	<p>USGS Phosphates and Water</p> <p>Nutrients and Eutrophication</p> <p>The Phosphorus Cycle</p> <p>The Phosphorus Cycle (video)</p>
<p>Procedure</p>	<p>Engage:</p> <p>Show students the following pictures:</p> <ul style="list-style-type: none"> ● Algae on water ● Blue Green Algae Bloom on Lake Erie ● Sassafras River, Va Algal Bloom <p>Discuss with students what they see. Ask them what they think this is a picture of? Where did this green “gunk” come from? Have students ever seen anything like that before?</p> <p>Explore:</p> <p>Break students into groups of 2 or 3. Give each student a copy of How do Phosphates Affect Water Quality Assign each group one paragraph to read through. Give the group the Paragraph Reading Organizer. Have students in the group fill in the sheet as they are reading. Come back together at the end and have each group share what they read.</p> <p>Explanation:</p> <p>Watch the: Phosphate Mining Video</p>



	<p>Share: The Phosphorus Cycle video with students. Discuss with students what they saw, where phosphorus comes from, why phosphorus is needed?</p> <p>Extension:</p> <ul style="list-style-type: none">• Take a walk around town and look for areas where phosphates may be leaking into the water supply.• Have students write letters to the editor about phosphates and what townspeople could do to stop phosphates from leaking into the water.• Go around town and gather water samples and test for phosphates in the water. Again, students could share this information with the town.
Wrap-Up	<p>Evaluate: Formative Assessment:</p> <p><u>Paragraph Reading Organizer (Below)</u></p> <p>Summative Assessment:</p> <p>Have students draw a picture of what the phosphorus cycle looks like. Have students list 3 ways phosphorus gets into water and 1 way students can help to stop phosphorus getting into the water.</p>



Paragraph Organizer

Name:

Which paragraph are you reading?
One idea from your paragraph:
Second idea from you paragraph:
Third idea from your paragraph:
Overall summary of your paragraph:

Name:

Which paragraph are you reading?
One idea from your paragraph:
Second idea from you paragraph:
Third idea from your paragraph:
Overall summary of your paragraph: