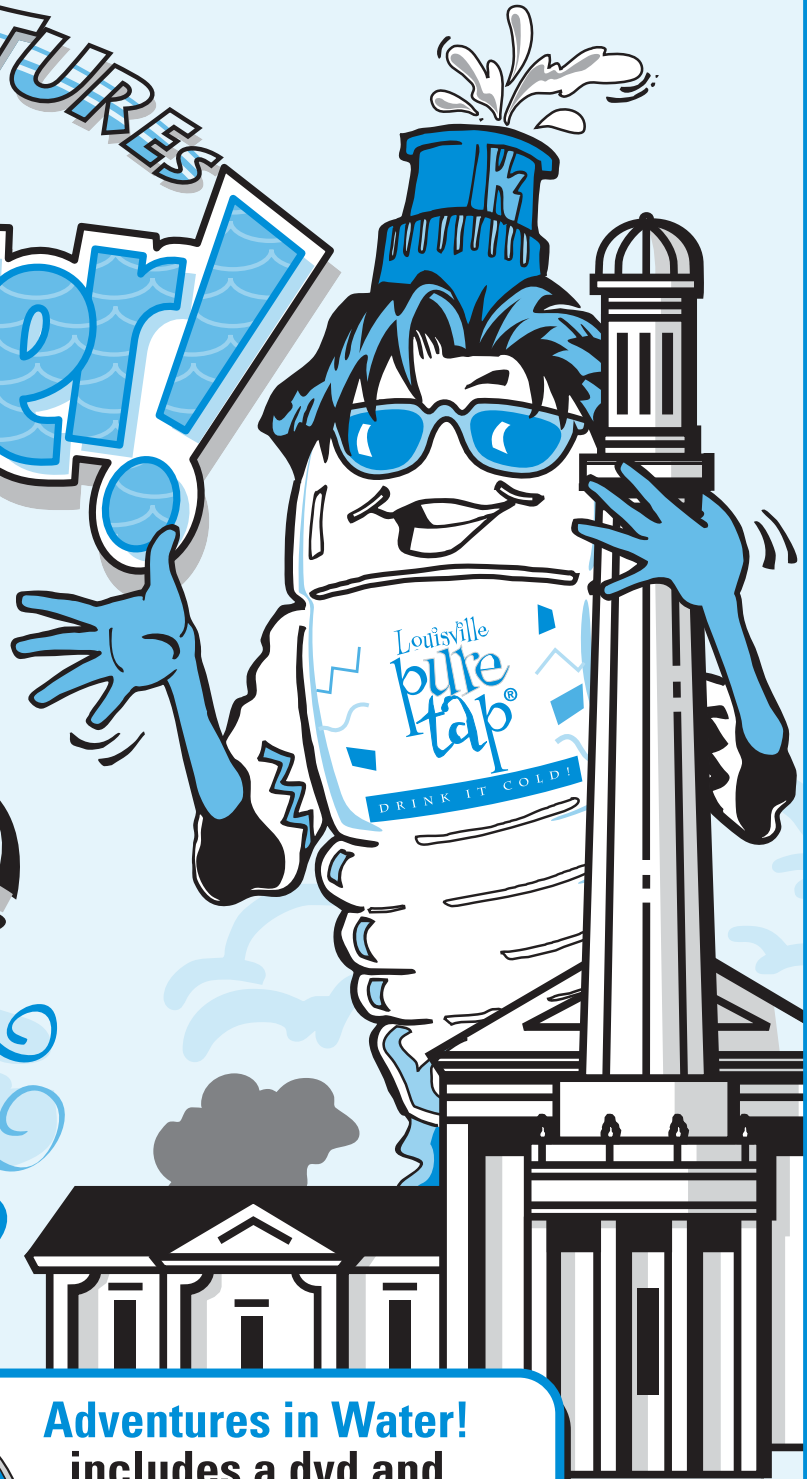
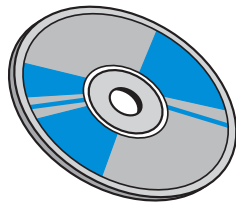


ADVENTURES in Water!



Louisville
**pure
tap**



Adventures in Water!
includes a dvd and
complements erosion
science modules.

DEVELOPED BY LOUISVILLE WATER COMPANY

“Adventures in Water!” is a complement to the erosion science module. The lesson includes a DVD in which Science Steve explains how erosion impacts water quality in the Ohio River and how Louisville Water Company makes millions of gallons of drinking water every day.

Use this lesson as part of your erosion unit; it’s a good real-world example. Or, invite Louisville Water Company to your classroom to conduct an erosion or earth materials experiment. You can also tour Louisville Water Company! Education programs from Louisville Water Company are free. Contact 569-3600 x2436 or email educationprograms@lwcky.com



Suggested Format

- Copy pages 3 and 4 for each student. Read them before watching the dvd.
- Students watch the Adventures in Water! DVD
- Follow-up assessment
- Invite Louisville Water Company to your classroom or tour the water company

Core Content

Science

- | | |
|-------------|---|
| SC-04-2.3.1 | Earth materials provide many of the resources humans use. |
| SC-04-2.3.2 | The surface of the Earth changes. Some changes are due to slow processes such as erosion or weathering. Some changes are due to rapid processes such as landslides, volcanic eruptions and earthquakes. |



Visit www.tappersfunzone.com!

An illustration of a blue river winding through a landscape. The river is bordered by black lines. Inside the river, there are several small blue fish swimming. The title 'The Adventure Begins at the River...' is written in a large, bold, black font across the middle of the river.

The Adventure Begins at the River...

Louisville's drinking water begins at the Ohio River. Yes, the river looks brown, even green. But we're lucky to have it as a source for drinking water. Each day 90 billion gallons of water flows by Louisville; the water company uses about 135 million gallons for drinking water. The Ohio River is an amazing **natural resource**. Drinking water is a manufactured product from that resource.

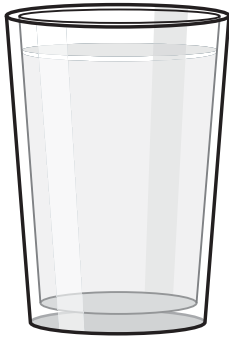
Break It Down

Why does the Ohio River look brown? Most people believe it's because of pollution. That's not true! Yes, trash sometimes ends up in the river, but the river is actually not contaminated with chemicals, trash and sewage. **Erosion** is what makes the Ohio River look brown.

Weathering is the process that breaks things down. **Erosion** not only breaks things down but moves them by wind, water, air or gravity. Erosion can be as simple as removing a rock from a hillside. Weather, like rain, causes erosion; people cause erosion by digging in the ground. Erosion always includes some type of **force**.

Rain creates much of the erosion in the Ohio River. There's land along the side of the river. When it rains mud, rocks, sticks, plants, animal material, and even trash can wash into the river. The heavier the rain, (more force), the more erosion.

Erosion has a huge impact on the quality of the Ohio River. Erosion can wash natural and man-made contaminants into the river. Erosion also determines how clear or cloudy the river looks; that's called **turbidity**. High turbidity or really muddy water can decrease the amount of **algae** in the river. Algae are the primary producers in the aquatic system. Smaller fish eat algae which in turn are food for larger fish and so on.



Make it Clear

It takes two days to make your drinking water. Part of the process is removing the eroded material, the **sediment**, in the river. Louisville Water Company invented a **filter** to remove sediment. The filter has three layers: coal, sand and gravel.

Under the Ground

Louisville Water Company takes water from the Ohio River and 150 feet in the ground! The ground water doesn't contain eroded material. Underneath the dirt there's a layer of clay, sand and gravel. In between the sand and gravel is river water that's naturally filtered.

WORLD WALL

Algae: plant or plant life organisms that trap light from the sun

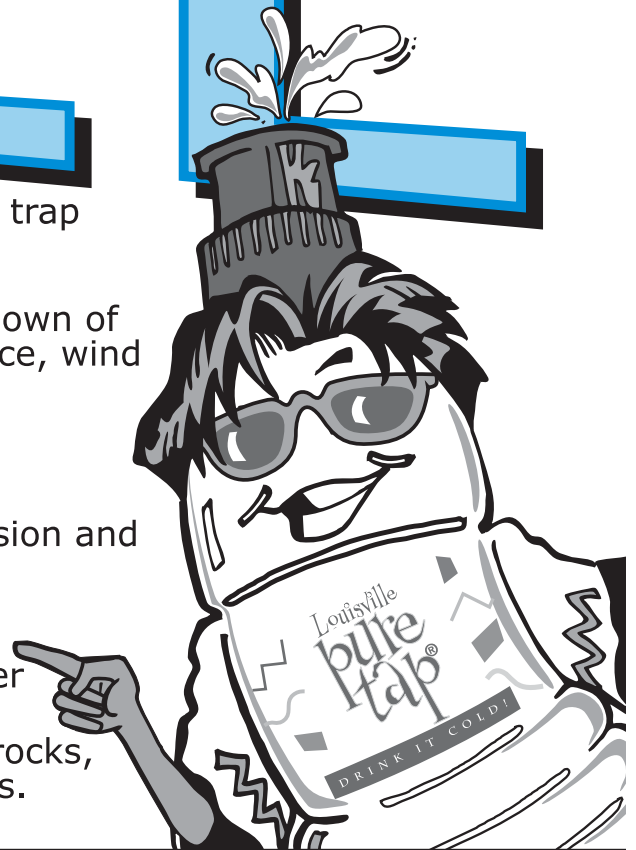
Erosion: the movement and breaking down of rocks and minerals by water, ice, wind and gravity

Filter: something that separates things

Sediment: materials removed by erosion and carried by water

Turbidity: clarity or clearness of water

Weathering: the decomposition of rocks, soils and their minerals.



Name _____



1. **What is the primary reason the Ohio River looks brown?**
 - a. Algae
 - b. Sediment that erodes into the river
 - c. Factory pollution
 - d. Barge traffic

2. **Water that is 150-feet under the ground is much cleaner than water we see in the Ohio River. How could ground water be cleaner?**
 - a. Only water, not sediment and pollution, move down into the ground
 - b. The sand and gravel layers in the ground naturally filter the water
 - c. The time it takes to travel 175 feet in the ground cleans the water
 - d. The water in the ground didn't come from the Ohio River

The Ohio River is nearly 1,000 miles long. Look at the map to answer questions 3-5.

3. **The Ohio River begins and ends in what cities?**

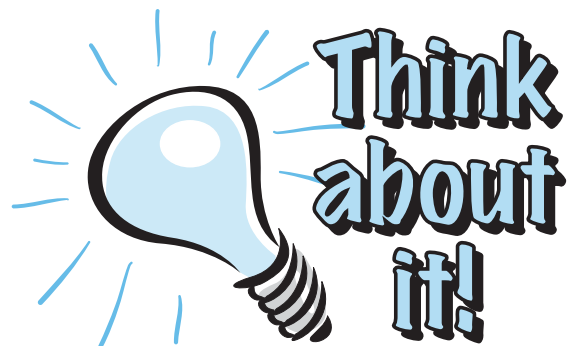
4. **An oil spill in Cincinnati could impact the river quality in which cities on the map?**



5. **The Ohio River flows through or borders six states. List the states.**

6. **What did Louisville Water Company invent to remove the sediment from the Ohio River?**

- a. The reservoir
- b. A filter
- c. Riverbank filtration
- d. Turbidity



Name _____

ADVENTURES in Water!

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- 3. The Ohio River begins and ends in what cities?**

Pittsburgh

Cairo

- 4. An oil spill in Cincinnati could impact the river quality in which cities on the map?**

Louisville

Evansville

Cairo



- 5. The Ohio River flows through or borders six states. List the states.**

Pennsylvania

Kentucky

Ohio

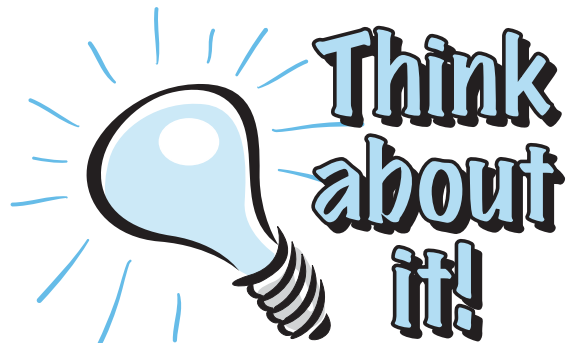
Indiana

West Virginia

Illinois

- 6. What did Louisville Water Company invent to remove the sediment from the Ohio River?**

- a. The reservoir
- b. A filter
- c. Riverbank filtration
- d. Turbidity



Open Response Question

A public water utility, like Louisville Water Company, has two primary responsibilities: public health and safety.

A. Give an example of how a water company impacts public health and safety.

B. For each example, list a consequence that could occur if the water company could not provide safe drinking water.



SCORING GUIDE

- 4- Student gives an example for health and safety and has a clear understanding of a water company's impact on both.
- 3- Student gives an example for health and safety but has a limited understanding of a water company's impact.
- 2- Student answers part A but not B. OR Student gives examples for either health/safety and an explanation for the impact.
- 1- Student gives a partial answer for A only.
- 0- No response.

Look for:

- safe drinking water important for a person's health, water is used to grow and make food, fire protection, hospitals, etc.



DRINK IT
COLD!



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