Subjects/Target Grades
Science and Social Studies
Grades 5-9

Duration/ Location
30 minutes
Classroom setting

Materials

Per class

- glass of muddy water
- glass of clear water

Per small group or student

- Copy paper cut in half
- Plastic plate from the Engage activity
- Cup for water (25 – 50 mL)
- water soluble markers
- Lower Grand River Watershed student activity map
- Lower Grand River Watershed Land Use chart

Lesson One Elaborate Watersheds & Nonpoint Source Pollution- pages 12 & 13 from Lesson 1

Activity Overview

Students to expand on their 3D watershed models and explore what affects water quality in a watershed.

Lesson Procedure

1) Show students a glass of muddy water and a glass of clear water. Engage them in a discussion of which they think has better water quality. *Would they think differently if the clear water was from a toilet? Or if the clear water contained fertilizer?*

2) Appearance isn't the whole story, as they will see in the video. Continue showing the *Watersheds and Nonpoint Source Pollution* video starting at 3:07 minutes.

3) Follow up with a definition and discussion of **nonpoint source pollution**, highlighting the examples in the video. Differentiate between the three types of water pollution of most concern in the Lower Grand River Watershed (i.e., sediment, nutrient, and pathogens).

4) Use the *Lower Grand River Watershed* student activity map to make another three- dimensional model. This will help students conceptualize flow of pollutants in a watershed. Review what the numbers indicate on the map.

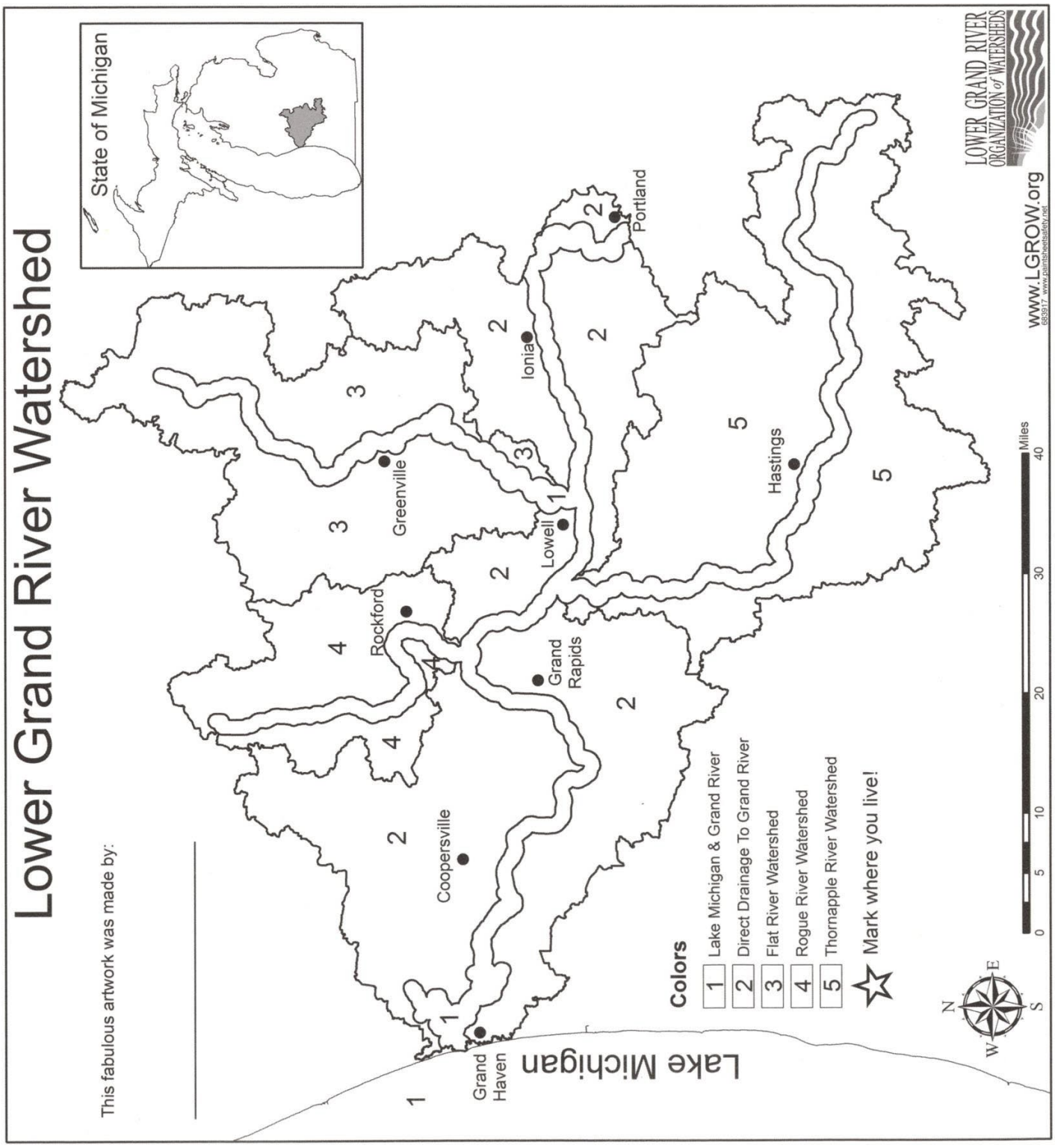
5) Based on the information from the video and the *Lower Grand River Watershed Land Use* chart, have students label and indicate the percentages of the main types of land use in the 2-5 numbered areas of the map (A = agriculture, F = forest, D= developed areas/urban). Encourage students to think about sources of possible nonpoint source pollution in each of the numbered areas based on land use.

6) Use different color water soluble markers or water colors to indicate the relative proportion of pollution (sediment, nutrients, or pathogens) that they think is in each area of the watershed.

7) Crumple the paper along the outside ridgelines and pour water on the model noting the paths of water and changes in color.

Vocabulary Terms

Nonpoint Source Pollution– when the pollutants do not originate at single point sources


Lower Grand River Watershed
This fabulous artwork was made by:
State of Michigan
Lake Michigan
Grand Haven
Coopersville
Rockford
Greenville
Grand Rapids
Lowell
Ionia
Portland
Hastings
Colors
1 Lake Michigan & Grand River
2 Direct Drainage To Grand River
3 Flat River Watershed
4 Rogue River Watershed
5 Thornapple River Watershed
Mark where you live!
Miles
0 5 10 20 30 40
N E S W
LOWER GRAND RIVER ORGANIZATION of WATERSHEDS
www.LGROW.org

Lower Grand River Watershed Land Use

Land Use (% Total)

	Agriculture	Forest	Urban
Direct Drainage to Grand River	33%	26%	24%
Flat River	50%	20%	6%
Rogue River	45%	30%	5%
Thornapple River	69%	15%	3%

Source: *Lower Grand River Watershed Management Plan*, Appendix 4.1: Subwatershed Management Unit Summary Sheets & Figures
https://www.lgrow.org/lgrwmp