MAINE MOBILE BIOLAB

STUDENT HANDOUT

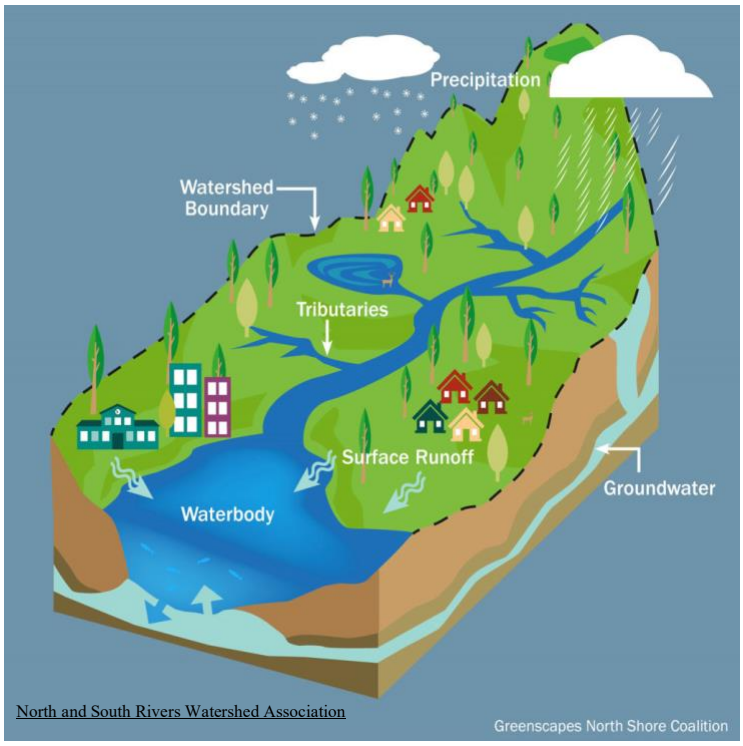
Name:	

Watershed Wonders

Augmented Reality Sandbox Exploration

The **water cycle** is the constant movement of water around Earth. Water evaporates from bodies of water, rises into the air, and forms clouds through condensation. The water eventually falls back to the ground as precipitation. That water then flows across the land or soaks into the ground, making its way back to larger bodies of water—starting the cycle all over again.

A **watershed** is an area of land where all the water—rain, melting snow, and runoff—flows downhill into the same body of water. The shape of the land controls where water collects, how rivers form, and which areas are more likely to flood. To help us understand these shapes, scientists use **topographic maps**, which show elevation using **contour lines**—lines that connect points of equal elevation. The shape and spacing of these lines give us information about the shape and slope of the ground. By reading contour lines, you can tell where hills, valleys, and slopes are which helps you predict where water will flow and where safe places to build might be. In the **AR Sandbox**, these contour lines appear automatically as you build hills, valleys, and river channels, letting you see how changes in elevation affect water flow.



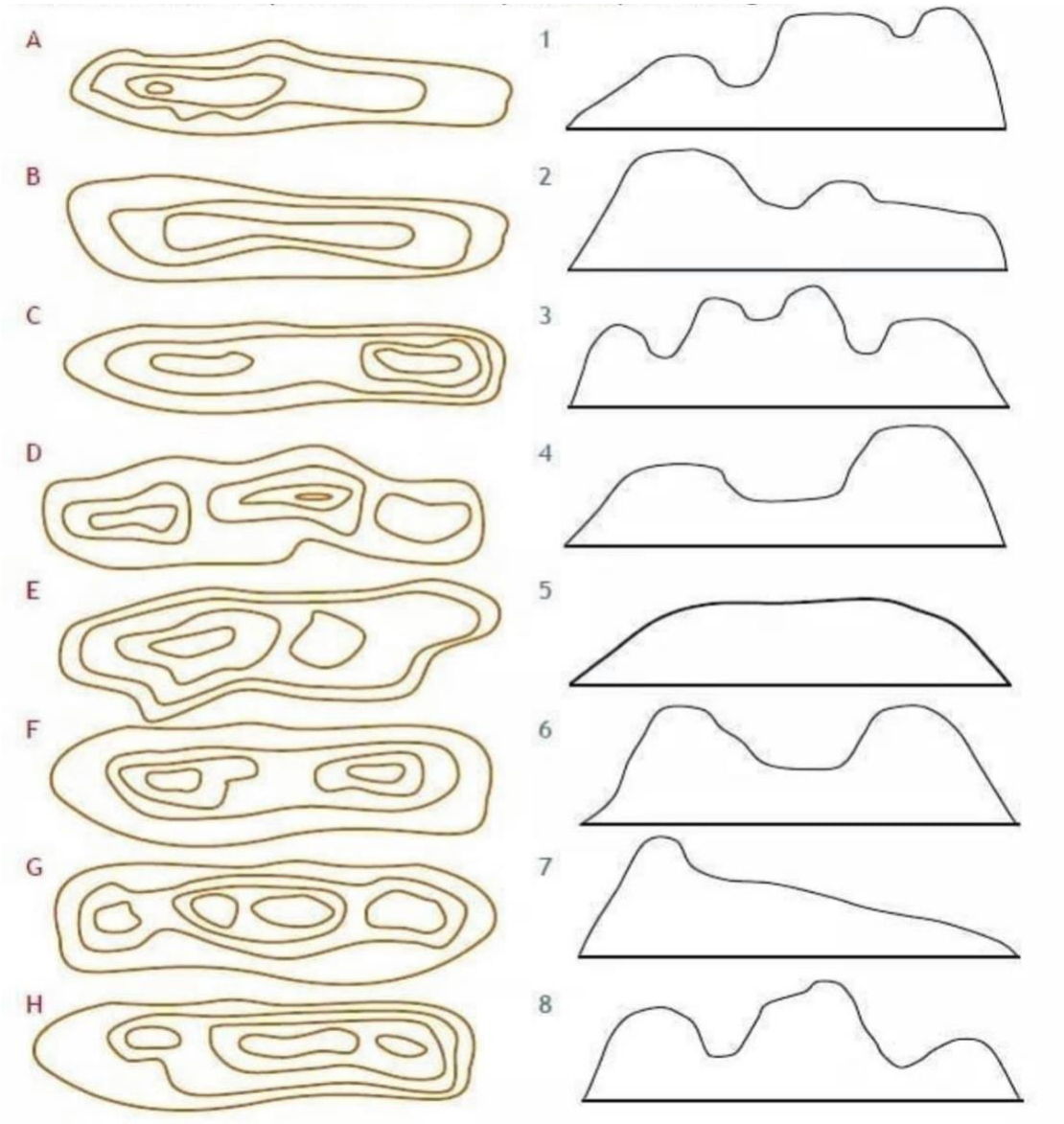
Your team will use the AR sandbox to create a landscape and then design a city with water movement in mind. Your challenge is to decide where to place buildings, roads, and important structures so your city can thrive while staying safe from flooding. By modeling your own watershed, you'll learn how geography, engineering, and mapping all work together to shape the places where people live.

QUICK CHECK: How does the shape of the land (topography) influence where water goes during the water cycle?

QUICK CHECK: What do closely spaced contour lines tell us about slope compared to contour lines that are farther apart?

Contours

Match the contour shape on the left to the profile shape on the right.



BUILDING A CITY

Sector	
Residential	Neighborhood School Green Space
Commercial	Downtown Area Hospital Businesses
Industrial/Agricultural	Farm Factory Airport
Other Requirements	Road access to water

Things to consider:

- Where will water runoff settle?
- Where will there be erosion?
- Where is the easy access for construction and resources?
- How will sea level rise impact the city?

SKETCH YOUR CITY DESIGN BELOW:

EVALUATE: After rain and/or sea level rise, what city features are in danger or destroyed? What worked and what did not? Where did water flow the fastest and where did it flood?

REDESIGN

What changes would you make you your city's layout based on the effects of water runoff? Where is the best place to build each feature?