



Name: _____

Hour: _____

Where is All the Water?

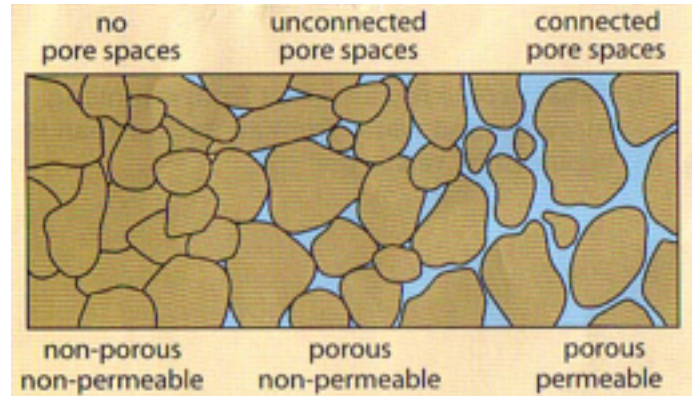
Lay of the Land - Calculating Runoff

Knowledge Probe

Examine the diagram illustrating permeability and porosity and summarize each term.

Permeable = _____

Porous = _____



Predict

How might manmade structures like buildings and parking lots affect the surface runoff of an area?

Procedure:

- Each square on the grid represents 100 m² of land (each side is 10 m)
 - Count the number of squares in the section of land.
 - Decide as a group how to handle partial squares
 - Multiply that number by 100 to get the area of the section
- Now calculate the volume (m³) of water falling on your site.
 - Hudsonville receives an average of .98 meters of rainfall per year.
 - Convert the volume to gallons by multiplying by 264 gal/m³

$$\text{Annual Rainfall (.98)} \times \text{Area of the Section} \times 264 \text{ gal/m}^3 = \text{Volume of rainfall}$$

- Calculate how much water becomes surface runoff.
 - Different surface types result in different runoff amounts.
 - The harder the surface is the more runoff produced.
 - Use the coefficients in the table

$$\text{Rainfall (gal)} \times \text{Runoff Coefficient} = \text{Surface runoff}$$

Adapted from <http://watershedmg.org/sites/default/files/docs/>