

Name: _____

Date: _____

Runoff Simulation Worksheet

Use Model My Watershed's Runoff Simulation Tool (<https://runoff.modelmywatershed.org/>) to complete the questions on this worksheet.

Vocabulary

Precipitation: Water that falls to the ground in the form of rain, snow, sleet, or hail.

Evapotranspiration: The process of water moving from the land to the atmosphere either by evaporation or transpiration from plants.

Infiltration: When water soaks into the soil and rock layers and is absorbed.

Runoff: The movement of water over the land. In the water cycle, this is excess water that doesn't undergo evapotranspiration and doesn't infiltrate the soil.

Choose one of the vocabulary words and use it in a sentence.

Runoff Simulation Model Questions

1. How much run off will there be in an area with pasture or hay field that has soil with moderate infiltration if the precipitation is set to the highest level?
2. How much run off will there be in an area with high development that has soil with moderate infiltration if the precipitation is set to the highest level?
3. Which of the areas in questions 1 and 2 has more run off? Why do you think that is?

4. Find a setting that will have no runoff and write down what it is. Why is there no runoff in that situation?
5. Set the land cover and soil group so that they are as similar to where you live as possible. How much of the water will infiltrate (be absorbed into the soil) if you set the precipitation to the maximum amount?

Answer Key

Simulation Model Questions

- How much run off will there be in an area with pasture or hay field that has soil with moderate infiltration if the precipitation is set to the highest level?

9.3 centimeters

- How much run off will there be in an area with high development that has soil with moderate infiltration if the precipitation is set to the highest level?

19.2 centimeters

- Which of the areas in questions 1 and 2 has more run off? Why do you think that is?

The area with high development has more runoff. Answers for the second part will vary, but may include that water can't be absorbed into pavement, that there isn't soil for water to soak into, or that there aren't plants for transpiration.

- Find a setting that will have no runoff and write down what it is. Why is there no runoff in that situation?

Answers will vary. Any land cover not included in the chart doesn't have a no-runoff scenario with any type of soil or amount of precipitation.

	Barren Land	Forest	Shrub/ Scrub	Grassland	Pasture/ Hay	Crops	Wetlands
High Infiltration	Low Rain	Low-Moderate Rain	Low-Moderate Rain	Low-Moderate Rain	Low-Moderate Rain	Low-Low/Mid Rain	Low-Moderate Rain
Moderate Infiltration	Low Rain	Low-Mid Rain	Low-Mid Rain	Low-Low/Mid Rain	Low-Low/Mid Rain	Low Rain	Low-Moderate Rain
Slow Infiltration		Low Rain	Low Rain	Low Rain	Low Rain	Low Rain	Low-Moderate Rain
Very Slow Infiltration		Low Rain	Low Rain	Low Rain	Low Rain	Low Rain	Low-Moderate Rain

- Set the land cover and soil group so that they are as similar to where you live as possible. How much of the water will infiltrate (be absorbed into the soil) if you set the precipitation to the maximum amount?

Answers will vary.