

February 3, 2015

### Warm-Up

Today you will need your notebook and pencil.  
**Test on Thursday. HW due Friday.**

- Review from Yesterday:  
 Describe or draw a series of pictures for how an oxbow lake forms.

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1. Narrow neck of the Meander is gradually being eroded.  
 2. Water now takes the quickest route. Depression taken place, sealing off the old meander. The Meander neck has been cut through completely.  
 3. Oxbow lake - left behind when meander completely cut-off.

# Groundwater + Floods

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 February 3, 2015

## Review Underground Zones

**Zone of Aeration**  
 Region in the soil/ground in which pore spaces are filled with air.

**Zone of Saturation**  
 The region of the soil/ground below the water table, in which the pores are filled with groundwater.

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## Aquifer

Homework

- Aquifer:** Huge underground storehouse of groundwater used for drinking

Aquifer  
 Bedrock

## Groundwater Animation

- <http://www.as.uky.edu/sites/default/files/elearning/module01swf.swf>

## Changes to Groundwater

- **Groundwater Recharge:**  
Infiltration of water into the saturated zone.  
Replenishes supply of groundwater.

**Example:** Precipitation, runoff



- **Groundwater Discharge:**  
Movement of groundwater out to surface waters.  
Lowers supply of groundwater.

**Example:** Occurs during dry periods

## Flood Protection Techniques

- We'll divide into 6 groups
- Each group will read about one flood protection technique
- **Each group member will present one of the following questions to the class:**
  - 1. Define/explain your flood protection technique
  - 2. What is one benefit of your technique?
  - 3. What is one disadvantage of your technique?
  - 4. Interesting fact about your technique.

## Flood Prevention Methods

- **Levees**
- Embankments built next to the river channel



## Flood Prevention Methods

- **Flood Barriers**
- Expensive. Protect important urban areas and some can be opened and closed.



## Flood Prevention Methods

- **Flood Control Channels**
- Empty concrete channels that run above or below the surface




## Flood Prevention Methods


- **Dams**
- Regulate the river's flow so that the river never exceeds bankfull discharge



## Flood Prevention Methods



- **Reforestation**
- Planting trees to try and increase the lag time (period of time between peak rainfall and peak discharge) of a river



## Flood Prevention Methods



- **Controlled Flooding**
- Redirecting excess water to designated flood regions

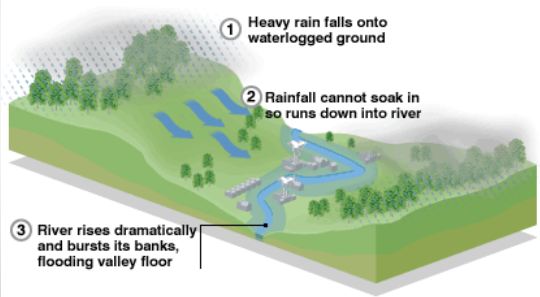


## Flash Floods

What conditions contribute to creating a flash flood?  
<https://www.youtube.com/watch?v=-uLaH7zuHA>


**HOW FLASH FLOODS OCCUR**

- 1 Heavy rain falls onto waterlogged ground
- 2 Rainfall cannot soak in so runs down into river
- 3 River rises dramatically and bursts its banks, flooding valley floor



## Flooding in Bangladesh

- How has urbanization and a growing population contribute to the flooding in Bangladesh?
- <https://www.youtube.com/watch?v=gRwAMieTqYQ>



## The Drowning Country

- [https://www.youtube.com/watch?v=MAkz1AVZY\\_Y](https://www.youtube.com/watch?v=MAkz1AVZY_Y)