

STUDY NOTES: GROUNDWATER IN ARIZONA

Relevance of Groundwater

- Groundwater is the largest source of fresh water on Earth.
- There is over a thousand times more water in the ground than in all the world's rivers and lakes.
- 38% of the U.S. population depends on groundwater for its drinking water supply.

Groundwater Connection

- Origin: Groundwater begins as precipitation (rain or snow) that runs off the land. Some of it soaks into the ground, filling pores and cracks in soil, sand, and rock.
- Wells are used to access and pump groundwater to the surface, which is then transported using pipes and canals.
- We use groundwater for nearly everything including agriculture (farming and ranching), city water supply (for homes and businesses), and industrial use (mining, manufacturing).
- Groundwater and surface water are connected.
 - Overpumping can lower the water table, reduce streamflow and even cause rivers and lakes to dry up.
 - Surface water can recharge aquifers during wet periods.
- Overdraft happens when groundwater is pumped faster than it can be recharged.
- Long-term impacts of overpumping/overdraft include sink holes, fissures, and land subsidence (gradual or sudden sinking of the Earth's surface).
 - Physical impacts reduce the overall amount of groundwater able to be stored underground.

Groundwater in Arizona

- Groundwater is a very important part of Arizona's water cycle as it stores most of the state's fresh water, connects to surface water systems, and is vital for sustaining life and industry. Managing it wisely is key to long-term water security.
- Arizona's water supply is made up of 41% groundwater, 36% Colorado River, 18% in-state rivers, and 5% reclaimed water.
- Arizona's 1980 Groundwater Management Act was created to reduce overpumping in Active Management Areas (areas with a history of overpumping, like farmlands) to sustain available groundwater.

Name: _____

FILL-IN-THE-BLANKS NOTES

1. _____ is the largest source of fresh water on Earth.
2. Groundwater begins as _____ that runs off the land. Some of it soaks into the ground, filling _____ and cracks in soil, sand, and rock.
3. _____ are used to access and pump groundwater to the surface, which is then transported using pipes and canals.
4. Groundwater and _____ are connected.
5. Arizona's water supply is made up of _____ groundwater, 36% Colorado River, 18% in-state rivers, and 5% reclaimed water.
6. Long-term impacts of overpumping/overdraft include _____, which reduces the amount of water stored underground.

Name:_____

QUIZ

Question 1: Why should we care about groundwater?

Question 2: Is groundwater and surface water connected?

Question 3: What technology is used to access groundwater?

Question 4: Arizona's 1980 Groundwater Management Act was created to reduce what throughout the state?

Quiz Answer Key:

1. We use it for many things, including drinking, farming, water use in our homes, businesses, etc.
2. Yes
3. Wells/pumps/pipes/canals
4. Overpumping

Answer Key for Fill-in-the-Blanks:

1. Groundwater
2. Precipitation, pores (spaces)
3. Wells
4. Surface water
5. 41%
6. Sink holes/fissures/land subsidence (lowering of the land)
7. permeable pavements/green roofs/bioswales/urban trees, pollution, flooding