

38. Name three or more ways to conserve water in your home. Take shorter showers, turn off water when brushing teeth, use low flow toilets, fill baths $\frac{1}{2}$ full, use low flow showerheads.

39. Name 2 ways to conserve water used in landscaping. Plant drought tolerant plants (xeriscape) and use drip irrigation.

40. During what season, or months, is the demand for water the highest in Colorado?
In the summer months of June, July and August.

41. In Colorado, what percentage of water is used by cities and what percentage is used by agriculture?
10% city, 90% agriculture.

42. How many gallons of water are used in a single toilet flush? 1-5 gallons

43. How many gallons of water can a leaky faucet waste in one day? Up to 7 gallons per day.

WATER TREATMENT

44. Where does the water from lakes and rivers go to be cleaned so that it is safe to drink? Drinking water treatment plant.

45. Where does all the water and waste from sinks, bathtubs and toilets go to be cleaned before the water is put back into the river? The sanitary sewer system and then the wastewater treatment plant.

46. At the water treatment plant, which two processes treat water? Physical (filtration) and chemical (chlorine).

STORMWATER

47. Name the two different types of sewer systems. Storm sewer and sanitary sewer.

48. Where does storm water runoff from rain and snow go? The storm drain system and then into creeks and rivers.

49. Why should motor oil, paints or other hazardous materials never be dumped down storm drains? Storm drains connect to creeks, transporting harmful materials to fish, wildlife, and people downstream.

50. Name 3 ways to reduce pollution in landscaping. Don't use fertilizers or pesticides, clean-up pet waste and pick up litter and trash.

51. Name 2 ways to prevent pollution from entering storm drains. Pick up pet waste, maintain vehicles, use fertilizers sparingly or use natural compost etc..

52. After wastewater is treated, where does it go? Back into creeks and streams.

53. Where is a safe place to dispose of household hazardous waste such as motor oil, heavy cleaners & degreasers, pesticides, fertilizers & oil-based paints? The Boulder County Hazardous Household Waste Facility.

NORTHERN COLORADO WATER CONSERVANCY DISTRICT

54. What is it called when water is diverted from one river basin into another? Trans-basin diversion.

55. What is the purpose of the Northern Colorado Water Conservancy District? Water distribution for 30 northern Colorado cities.

56. Water in the Colorado-Big Thompson system originates at the headwaters of the Colorado River in Rocky Mountain National Park. What side of the continental divide does this water come from? The Western Slope.

57. Name three Front Range storage reservoirs for the Colorado-Big Thompson system water.
Horsetooth Reservoir, Carter Lake and Boulder Reservoir.

GENERAL

58. A healthy riparian (stream side) habitat is critical for 90% of Colorado's wildlife, yet represents only what percent of the land area? 2%

59. Why isn't it safe for hikers and backpackers to drink water directly from streams in Colorado? Stream water may contain impurities such as dirt, disease causing organisms and chemical contaminants that can make you sick.

60. Name ways you can reduce pollution. Reduce (don't buy more than you can use), Reuse and Recycle (contact local resources to see if someone can use the product or recycle it).



Extreme Water Wizards Trivia

(Special Teachers' Guide)



Type of Activity:

Take home study guide

In-class activity

Classroom Time:

45 minutes

Printed Materials:

Extreme Water Wizards Trivia student study guide sheets and one set of teacher flash cards

Standard 4: Strand 4.3.

Students know major sources of water, its uses, importance, and cyclic patterns of movement through the environment.

Lesson Objectives:

- ◆ Memorize fascinating facts about local watersheds and resources.
- ◆ Engage class in activity with flash cards.
- ◆ Prepare students for Extreme Water Wizards trivia contest at Operation Water Festival.

Activity Procedure:

There are two parts to this activity:

1. Extreme Water Wizards Trivia student study guide.
2. Extreme Water Wizards Trivia teacher flash cards.

Activity Directions:

Hand out Extreme Water Wizards student study guide and have all students use this to prepare over the coming weeks for the Extreme Water Wizards trivia contest at Operation Water Festival by memorizing these water facts.

Use the questions to conduct in-class activities to help students memorize the water facts. Teachers may choose to break up the class into groups and/or break up the questions by category.

Background Information for Class Discussion:

There will be an Extreme Water Wizards trivia contest at the Operation Water Festival. Students from your school will play against students from another school.

Water Wizards Study Guide

GEOGRAPHY

1. What is a watershed? The area drained by a river or stream and its tributaries.
2. Name the watershed that most schools in the Boulder Valley School District are in?
The Boulder Creek Watershed
3. Name the watershed that most schools in the Saint Vrain Valley School District are located in?
The Saint Vrain Creek Watershed
4. Where does the drinking water for your community come from? ***Choose correct answer for appropriate community. (See Unit 1 for additional water supply information.)**
BOULDER: Reservoirs on North Boulder Creek, Barker Reservoir, and Boulder Reservoir sources (including Carter Lake)
LONGMONT: North and South St. Vrain Creeks, St. Vrain Creek, Carter Lake, and the Ralph Price Reservoir (Button Rock Preserve)
LOUISVILLE: South Boulder Creek and Carter Lake
SUPERIOR: Carter Lake and Terminal Reservoir
ERIE: Carter Lake and Erie, Prince and Thomas Reservoirs
5. Where are the headwaters of the Boulder Creek Watershed? Indian Peaks Wilderness Area.
6. Where are the headwaters of the St. Vrain Creek Watershed? Rocky Mountain National Park.
7. Most of Colorado's precipitation falls in which portion of the state? Mountains
8. What is the significance of the Continental Divide to water supplies? This is where water flows east to the Atlantic or west to the Pacific.
9. Name the four major rivers that originate in Colorado. Colorado River, South Platte, Arkansas, and the Rio Grande.
10. What major river in Colorado do Boulder and St. Vrain Creeks eventually feed into?
South Platte (South Platte > Missouri River > Mississippi > Gulf of Mexico).

SCIENCE

11. Name the 3 physical forms of water. Liquid, solid and vapor.
12. How much of the Earth's surface is covered by water? 80%.
13. What percentage of the Earth's water is salt water? 97%
14. What percentage of the Earth's water is fresh water? 3%

FLOOD

15. Why is Boulder prone to flash flooding?
It is located at the mouth of several adjoining canyons.
16. What should you remember to do in a flood?
Move to higher ground, such as a hill or the top of a building.
17. What can your family do to prepare for a flood?
Create a Flood Response Plan.
18. Why should you never drive a car through flood waters?
Because it only takes 18 inches of water to carry away an automobile.
19. What are three things that you should do during a flood? Get to higher ground, stay off bridges or roads that are under water, do not drive through flood waters, stay away from power lines and electrical wires and do not eat or drink anything that has come into contact with flood water.

WATER CYCLE

20. Name the process of the water cycle when water changes from a liquid to a vapor. Evaporation.
21. Name the process of the water cycle where water vapor is transmitted through the pores of leaves into the atmosphere. Transpiration.
22. What is the name for the portion of the water cycle where solid or liquid water falls to the Earth's surface? Precipitation.
23. Name the process in the water cycle when water changes from a vapor to a liquid or solid state, such as within a cloud. Condensation.
24. What is the energy source that drives the water cycle? The sun.
25. How much of the water on Earth is usable fresh water? Less than 1%.

WATER SUPPLY

26. What percent of Colorado's water supply comes from snow pack? 80%.
27. What is Boulder County's average annual precipitation? 18 inches/year.
28. What is an acre-foot, and how many gallons are there in an acre-foot of water? 1 acre of water, 1 foot deep; equaling 325,900 gallons.
29. What is it called when water is left in a river for aquatic life or recreation? Minimum stream flows.
30. An acre-foot of water is enough to meet the inside-home, lawn watering and industrial needs of how many urban people for one year? 4-5.

WATER RIGHTS/ADMINISTRATION

31. Name the system of water allocation in Colorado and explain how it works.
Prior Appropriation Doctrine and it works "first in time, first in right".
32. Where are disagreements over water rights handled? In water court.

WATER CONSERVATION

33. Where is most of the treated water used in western cities? In landscaping.
34. What is xeriscape? An attractive and water conserving landscape.
35. How much water does the average person in Boulder use in a day inside the home?
66 gallons.
36. What percent of the water treated by public water systems is used for drinking and cooking? Less than 1%.
37. What room of a house typically has the highest water use? Bathroom.

