

Flash Flood Quiz

Name _____

Date _____

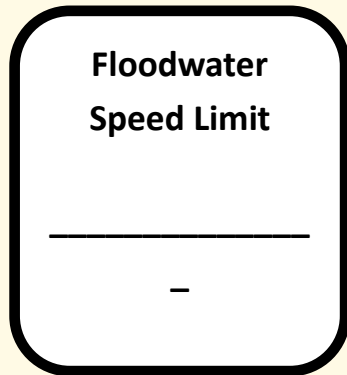
1. Circle the months of Flash Flood Season.

- January February March April May June
 July August September October November December

2. What are the three Ds?

1. _____
 2. _____
 3. _____

3. How fast can floodwater move?



4. Detention basins and flood channels are good places to play when it's raining.

True False

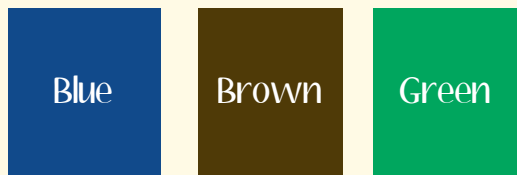
5. List four things that can be found in floodwater.

1. _____ 2. _____
 3. _____ 4. _____

6. Where does floodwater end up after it rains?

- Lake Mead A Swimming Pool
 Red Rock The Ocean

7. What color is floodwater?



8. I can play in flood water if I am a good swimmer.

True False

9. Floods can happen anywhere and any time, not just during Flash Flood Season.

True False

10. What should you do to stay safe when it is flooding? Write about it.



Splash!

Elementary Teacher Resource Information

Flash Flooding: Background Information

Recorded reports of flooding in Clark County date back almost 100 years. While floods can and have occurred in almost every month of the year, the most damaging storms typically occur between July and September. During these hot summer months, moist, unstable air from the Gulf of Mexico is rapidly forced upward by hot air currents. The dynamics of this process often results in spectacular displays of lightning in the desert sky. Too often, they also cause severe thunderstorms with intense rainfall. Steep mountain slopes and hard desert surfaces cause the rain water to run off rapidly and concentrate in the urbanized areas at lower elevations.

floodwater. Get out of areas that are subject to flooding. Do not attempt to cross flooded roadways and never play in or around flood control facilities.



The drop in elevation from Red Rock Recreation Area to Lake Mead is approximately 2,800 feet, about two and one half times as tall as the Stratosphere Tower. Rainwater runs down that slope from the west side of the Valley to the east, making its way to Lake Mead. Children especially need to understand the force of floodwater as it travels through the Valley during a storm. They also need to understand how quickly water can rise in channels and stormdrains. During the July 1999 100-year storm, one channel in the Valley went from being dry to carrying 7 feet of water in just eight minutes.

Children should never play around floodwater or in flood control facilities like washes, channels, stormdrains or detention basins. The water can move as fast as 30 miles per hour and can sweep anyone away very easily. Not only is floodwater dangerous, it's also incredibly dirty. Stormwater runoff is filled with contaminants like oil, pesticides, trash, glass, rocks and construction materials (nails, wood, wire, etc.). It is also filled with bacteria from pet waste that runs off lawns, parks and golf courses.

Listen to the radio or watch TV for the latest flash flood information. You can see real-time rainfall amounts and weather radar at more than 185 locations around the Valley on the District's website, www.regionalflood.org.

Most flood deaths occur in vehicles, and most happen when drivers try to navigate through floodwater. One inch of rapidly moving floodwater can cause a person to lose control of their vehicle. Water that is two feet deep can float a large vehicle, like an SUV, away. It's important to make smart decisions and keep yourself safe in a flooding situation. Head for higher ground and stay away from

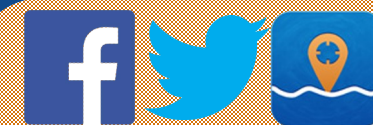
The Flood Channel is a 30-minute educational television program that focuses on flood safety and flood control progress in the Valley. You can find episodes on Cox Cable channels 2 and 4; on the District's website; and on YouTube.

Introduction

With new residents moving to Southern Nevada every month, many are unaware of the dangers of flash flooding. The Regional Flood Control District works to educate residents about the intensity of summer rainstorms and the resulting flooding that can occur. The District also works to educate the students about flood safety by giving presentations in classrooms. This supplemental material was developed for teacher use to educate Clark County students about flood safety.

Objective

To teach students the dangers of flash floods. To deter students from playing in flood control facilities, like channels and detention basins, by educating them about the power of floodwater and the contaminants the floodwater contains. A secondary objective is for students to deliver a flood safety message to their family members about the dangers of driving through flooded areas.



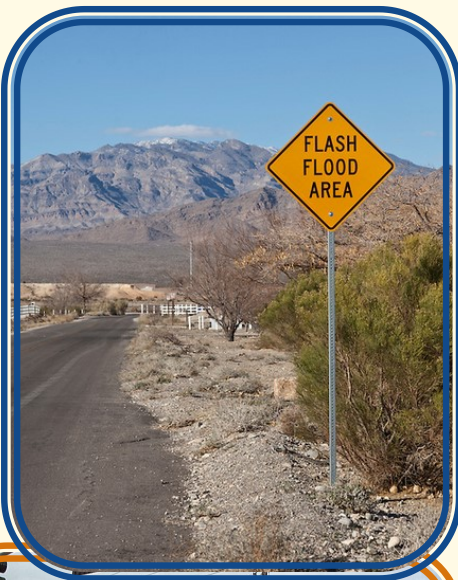
Find us on Facebook and follow @RegionalFlood on Twitter.

Download our app, Flood Spot, for iPhone and Android.

www.befloodsafe.com

Flood Facts

- ◆ **The Las Vegas Valley is like a bowl tipped on its side.** Water runs from the west side of the Valley to the east: from Red Rock Canyon to Lake Mead.
- ◆ **On average, we get about 4 inches of rainfall per year.** In some of the Valley's most severe storms, we have seen more than 3 inches of rainfall in 90 minutes.
- ◆ **Floodwater can rush as fast as 30 miles per hour.** When floodwater rushes through the streets and flood channels around town, it gets moving really fast. It only takes an inch of water to knock someone off their feet.
- ◆ **Flash Flood Season is July, August and September.** That is the most likely time for a flood, but flooding can occur any time of the year.
- ◆ **Multi-use facilities are detention basins and channels that can also be used as recreational facilities during dry months.** The parks, ball fields and trails are great features for the community, but it's important to remember their primary purpose is for flood control. While it's raining, or during Flash Flood Watches and Warnings, stay out of these areas.
- ◆ **Floodwater is not treated when it reaches Lake Mead.** Everyone can help protect our environment by throwing trash in a trash can and cleaning up after your pet. Pet waste and trash clog stormdrains and cause flooding... Not to mention contaminating our primary source of drinking water, Lake Mead.
- ◆ **Approximately two feet of floodwater can lift a car off the road.** The air in tires can make a vehicle more buoyant. This means cars with bigger tires, including trucks and SUV's, can be even more dangerous.



Classroom Activities

- ◆ **Show the *Desert Floods* video.** Discuss the dangerous things people are doing in the video.
- ◆ **Discuss a 100-year flood.** Demonstrate the one percent chance of a storm of this magnitude occurring in any given year. Use 99 blue marbles and one red marble. Place them in a jar. Without looking, have students choose one marble from the jar. With each pick, students had a one percent chance of choosing the red marble.
- ◆ **Students enjoy telling their flooding experiences.** Have them write a story about a storm.
- ◆ **Discuss Flash Flood Season and the reasons summer storms are more likely to cause flooding in Southern Nevada.** Explain that while flash flooding is more likely to occur in hot summer months, historically floods in Clark County have happened almost every month of the year.
- ◆ **Have students discuss what precautions they should take during a storm.** Include a discussion about lightning. Have them include precautions their parents or family members should take, especially concerning driving during storms.
- ◆ **Talk about the types of contaminants students can determine are in stormwater (trash, fertilizer, pet waste, motor oil, etc.).** Encourage a discussion of ways children and their families can help prevent pollution in stormwater and urban runoff that flows to Lake Mead, our primary source of drinking water.
- ◆ **Using protective gloves, have students collect a sample of urban runoff (from over-watering lawns) and grow the bacteria.** Compare the sample to bacteria collected from playground equipment, tables, floors, etc.
- ◆ **Determine the flood dangers in students' neighborhoods.** Is the school near a natural wash, channel or detention basin?
- ◆ **Flood control facilities, like detention basins, are increasingly being used for dual purposes like playgrounds and ball fields.** These are great places to play when it's not raining, but their main purpose is for flood control. Discuss ways to stay safe and make smart decisions if rain is in the forecast or a flood is predicted.
- ◆ **Eat lunch at a multiuse facility.** These facilities maximize taxpayer dollars in their community but residents must also take precautions when using these facilities. Talk about the warning signs that tell people what to do and how to stay safe during a flood.
- ◆ **During a storm, have students log on to the Regional Flood Control District's website, www.regionalflood.org.** There, you can calculate where the most rain is falling and where it is falling the fastest. Have students track the movement of the storm through the Valley.
- ◆ **Discuss the Valley's geography.** Explain that the west side of Las Vegas is 2,800 feet higher than the east. When it rains, all of the water flows west to east and ends up in Lake Mead.
- ◆ **Discuss the effects of urban runoff and stormwater pollution to Lake Mead.** Floodwater from storms goes into Lake Mead untreated. Check out www.lvstormwater.com for more information about stormwater and what you can do to help keep it clean.



Clark County School District K-5: Heath Curriculum Objectives

Kindergarten

7.4 List types of health care workers.

1st Grade

7.4 Identify health care workers and their duties in the community.

7.7 Identify environmental health messages found in the community, such as "Give a Hoot, Don't Pollute," "Don't Be a Fire Bug," "Only You Can Prevent Forest Fires."

2nd Grade

7.5 Identify situations that require individual decision making or decisions made with assistance.

7.6 Discuss environmental community resources, such as recycling center, water district, Springs Preserve, farmer's markets, and national and state parks.

3rd Grade

7.3 Explain how the media influences consumer health choices both positively and negatively.

7.4 Identify situations in which a health care worker is needed.

7.6 Discuss environmental community resources, such as recycling center, water district, Springs Preserve, farmer's markets, and national and state parks.

4th Grade

7.2 Identify community programs which help promote community/environmental health, such as recycling, waste management, energy conservation, and water conservation.

7.3 Describe strategies that advertisers use to sell their products.

7.4 Discuss when professional health services are needed.

7.6 Describe how community resources assist with making personal health decisions, such as recycling, littering, water conservation.

7.7 Distinguish between consumer and environmental health messages. Discuss the effects of consumer and environmental health messages on the community.

5th Grade

7.1 Demonstrate personal responsibility when making decisions to protect oneself against environmental elements.

7.3 Provide examples of how media literacy can assist in making smart, responsible consumer choices.

7.4 Discuss health services that are provided in the community.

7.5 Identify types of assistance that can be used when making a health-related decision.

7.6 Discuss how community resources assist with making other personal health decisions.

7.7 Distinguish between consumer and environmental health messages. Discuss the effects of consumer and environmental health messages on the community.



Remember the 3 D's!

1. Dangerous
2. Dirty
3. Don't Drive

Floodwater is full of trash, wood, nails, oil, soda cans, chemicals and even pet waste. Never play in floodwater!



Key Terms

- ◆ **100-year flood:** A flood event that has a one percent chance of occurring in any given year. It is NOT a storm that only occurs once every 100 years.
- ◆ **Flash Flood Watch:** Indicates that flash flooding is possible.
- ◆ **Flash Flood Warning:** Indicates that flooding conditions are already occurring or are imminent.
- ◆ **Channel/Wash:** A ditch or gully where a natural stream of water runs. These can be natural or concrete lined.
- ◆ **Stormdrain:** A flood channel underneath the ground. Stormwater can drop down into the drain through a metal grate beside the curb. These help prevent flooding on streets and neighborhoods.
- ◆ **Detention Basin:** A flood control facility designed to detain the flow of water. These facilities look like a huge bathtub and allow a lot of floodwater in quickly and release that water slowly through stormdrains and flood channels.
- ◆ **Caliche:** A layer of hard subsoil or clay; also called "desert cement."



The District has a smartphone app, FloodSpot, available on iPhone and Android that helps the public stay safe during floods. You can identify flooded areas, explore flood facts, find more information about flood insurance and report clogged stormdrains.

The app is also home to a flood-fighting superhero that helps teach kids about the dangers of floodwater through a fun, interactive game.