



## Experimenting with Extremes...

You may have heard on the news that parts of America are experiencing severe **drought**. Do you know what that means? Basically, it's called a drought when you have less rainfall than you expected over an extended period of time, usually several months or a 'season'. Drought is a normal part of **climate** and it can occur almost anywhere in the world. Rainfall (precipitation) replenishes our water supply, and it is stored in lakes, rivers and streams, as well in our reservoirs. If the expected precipitation does not occur for extended periods of time, the water supply may not be sufficient to meet everyone's needs.

When it comes to water, people often observe that we either have too much...or too little. Our water experiment this month has to do with what happens in just those kinds of extreme weather conditions. Remember what happened during Hurricane Ike last September? That storm dumped too much rain, too quickly and lots of areas were flooded. Today, while our area has had some rain recently, just about 175 miles west of us, the Texas Hill Country has had very little rainfall for six months or so...and streams are running dry.

After completing our experiment, you will have a very good idea of what happens to life when there is too much water...or too little water. You will need to ask your parents or an adult to work with you because our experiment involves preparing a cake mix (any brand will do) and using the oven.

**Now, let's get started.** We're going to bake a chocolate cake because the color is close to that of nice, dark, rich soil. Prepare then divide the mix and pour into three pans — shape doesn't matter — or use one larger pan (after it cools, you can cut it into 3 equal pieces). Bake the cake according to the instructions on the package. Set aside one piece to use in your final comparison.

We'll use the three pieces of cake to represent



the land we live on. With one, we're going to create **flood** conditions. So, place a piece of the cake in a pan (or keep it in the one in which it was baked). Sprinkle it lightly with water *repeatedly* until you begin to see the texture change. Then keep sprinkling even more water! What is happening to the texture? Is the cake falling apart, getting mushy, becoming soggy? As you observe the effects of the water, think about what happens in your neighborhood when it rains and rains. The soil becomes **saturated** and can wash away just like the cake does. In extreme flooding, plants drown, crops fail, and damage can be done to buildings, too.



Now, let's simulate another extreme weather condition, drought. Place your second piece of cake back in the hot oven for another 40 minutes or so. Watch what happens. Does the cake shrink? Does it get hard and darker in color? What you see is basically what happens to the earth without **precipitation**. Cracks appear on the surface and, depending upon what is in the soil (sand, clay, loam, etc.), it becomes like cement...or dries into dust and blows away.

Next, place all three pieces of your cake next to each other; touch them, look carefully at them. Which piece of edible "landscape" would make the best place to live?

Finally, add some frosting to the piece of cake that didn't experience extreme "weather," get a nice cold glass of milk... and ENJOY! 💧