The Ten Commandments

Science Workshop

Bible Text: Exodus 20:1-17

Memory Verse: Grades 1-3 The Ten Commandments, Grades 4-6 The Ten Commandments and their meanings expressed in the students own words. A copy of the Commandments and their meanings as printed in Luther's Small Catechism is attached to the end of this lesson plan.

PURPOSE: To construct a working water fountain using a mason jar, straws, and play dough, demonstrating the importance of following all of the commandments, not just the easy ones.

Objectives for the Rotation
At the end of the rotation, the students will:

- know that the Ten Commandments were given to Moses by God and that story is found in the book of Exodus in the Old Testament.
- understand that the Ten Commandments is not a rule checklist, but an attitude of the heart.
- know that the sum of the Ten Commandments is “to love the Lord with all our hearts, with all our souls, with all our strength, and with all our minds and to love our neighbor as ourselves.”
- understand that the first three commandments deal with our relationship with God and the last seven deal with our relationships with our family, neighbors or community.
- Grades 1-3 memorize the Ten Commandments
- Grades 4-6 memorize the Ten Commandments and tell what they mean in the student’s own words

Teacher Preparation in Advance:
- Read the scripture passages and lesson plan and watch the video Bible study on our website: www.gloriadeikids.org
The Ten Commandments

- As you prayerfully contemplate the story and prepare to teach, read Exodus 19, 20, 31, and 32. Also read Exodus 1:1 - 15:21 to find out what happened before the commandments were given. (If you have time, read all of Exodus as a single adventure.)
- Become familiar with the Ten Commandments. A copy of the Commandments and their meanings as printed in Luther’s Small Catechism is attached to the end of this lesson plan.
- For Hebraic/Christian insight from Zola Levitt into the Ten Commandments, see http://www.levitt.com/hebrew/commandments.html. (Optional)
- Consider the age level adjustments needed each week (those included in the lesson plan and your own).
- The design of this workshop is very intentional. The activities and discussion questions for this workshop were designed to meet the goals of the entire rotation and the educational objectives of the Rotation Model (tm) at Gloria Dei. While we feel it is important to follow the serendipitous leading of the Holy Spirit, please do not change the lesson plan without consulting one of our Sunday School Design Team Members.
- Check out the space before your first Sunday workshop so that you know where everything is located.
- Make a prototype of the fountain to understand the process of making it and to show as a sample in class.

Materials:
- Mason jar and lid - 1 per every 4 children
- Play dough or some type of sealant - 1 per every 4 children
- Water - 1 per every 4 children
- Medium sized bowl - 1 per every 4 children
- Large bowl - 1 per every 4 children
- Food coloring - 1 per every 4 children
- A copy of the Fountain Rules - 1 per every 4 children
- Faith Journal sheet (Copies will be waiting for you in the Kitchen.)
- Bibles
- Pencils

Lesson:
Greet the children and introduce yourself. Wear your name-tag. (Remember, you are interacting with a different group of students each week who may not know you.) Make sure the children are wearing name-tags.

Open with prayer: Dear Lord, Thank you for the Ten Commandments that help guide our choices. Help us to follow them and live our lives in such as way as to put you first. Amen.

Explain the purpose of this workshop. Use kid friendly words to give a brief overview of what the children are going to learn and do.
Scripture/Bible Story:
Help students find and read Exodus 20: 1-17.

[Help the children to use their Bibles in looking up verses. Remind them that ‘Exodus’ is the second book in the Bible and where we find the whole story of Moses and the Israelite people leaving Egypt - the Exodus. Exodus is in the Old Testament. NOTE: We restate information about Bible organization in each workshop to be sensitive to visitors and new children in the class who may not have any knowledge of the Bible. We never want a child to feel like they do not belong because they do not know this information before they come to class.]

Activity:
Organize children into groups of four. Give them all the materials to make a fountain and have them attempt the construction without any rules or help.

After they have tried to make it work, review the rules/laws to making a working water fountain.

Fountain Rules
1. Thou shalt make two holes in the lid.
2. Thou shalt push one straw into the middle lid hole so 2-3 inches is inside jar.
3. Thou shalt place another straw in the rim hole so only 1 inch is inside the jar.
4. Thou shalt place putty/sealant around both straws.
5. Thou shalt fill the jar with 2-3 inches of water.
6. Thou shalt fill bowl with water
7. Thou shalt invert jar, middle straw in bowl and rim straw into large bowl.
8. Thou shalt help clean up.

Construct an almost working fountain. Skip rule 4. (Placing play dough around straws.) All the water will drain out of the Mason jar into the large bowl, but no water is pulled from the medium bowl.

Construct the fountain again, but follow all the rules. For further proof, add yellow food coloring to water in Mason jar, and blue food coloring to medium bowl water. When the experiment is finished the water in the large bowl will be green.

If time permits, construct fountain again.

“God gave us the laws called the Ten Commandments so that we may live our lives in such a way as to respect God and put Him first in our lives.”
The Ten Commandments

Closing:
Please pass out the Faith Journal Sheets and ask students to put their name on their sheet and clip it into their Faith Journal. Talk/work through the Faith Journal sheet with the class.

Discussion Points
Were you able to construction the fountain without any rules or help?
Did the fountain work when you didn't follow all the rules?

Retell story of Moses getting the Ten Commandments from God. God gave us the Ten Commandments to help us build our lives and give us help when we are in need. Explain how it is important to follow all the laws, even the ones that are hard and inconvenient.

Closing Prayer
Thank the children coming to the workshop and close with this prayer: “Dear God, Thank you for giving us your laws to help lead us in our lives. Please help us to understand the importance of following them. Amen.”

Tidy and Dismissal:
• Ask children to help tidy the room. Give any specific instructions for clearing the workshop room.
• Shepherds will lead children to Closing Time.

Resources:
• 175 Science Experiments to Amuse and Amaze your Friends, Brenda Walpole.
• http://weirdsciencekids.com/MakeSprayingFountain.html

Additonal Notes for the Teacher:

Rotation Webpage Posts:
posted March 10, 2003 10:21 PM

We tried this science project and were not able to make it work consistently. The kids were able to make it work only once. I'm wondering if we actually made the holes in the lid so close to the size of the straw that we weren't able to get a tight enough seal around the straw. We did find that clay worked better than playdough. It did spark some discussion related to how hard it is to keep the commandments and if you didn't follow them completely, it is still a sin. A "white" lie is still a lie. The kids did have a fun time trying to make their fountains work.

Do you think this project would have worked better if you had "sealed" the straw & hole with a bit more playdough or clay around the connection point?
Blessings
GHJ

A good seal needs to be maintained around the straws. When making the fountain use playdough, clay, or anything that can provide a seal. We put the playdough around both sides of the lid and around the straw. It is hard to maintain the seals. Just give everyone plenty to work with and they'll get the fountain to work.

Science Lady

We recently used this science workshop in our Ten Commandments unit. We too had problems with the seal the first week--clay seemed to fall off when wet and the playdough crumbled.

But the result was still positive. The discussion focused on how hard it is to get everything exactly right and how hard it is to follow God's laws. It became real easy then to insert the message of grace into the lesson on the law!! Thank God for teachers who can go with the moment.

The next week (with younger elementary) I was determined to make the fountains work and brought in a tube of silicone sealant and caulking gun! Of course only adults handled the 'gun' but the children had plenty to do. We walked through the process one step at a time with the children reading the 'laws' out loud and completing each step. They worked in pairs, and we didn't move on until each one had completed the step.

Peace,
Lynn C Wood,  Bream Memorial Presbyterian Church, Charleston, WV

1/8/2013  I found this website online that explains in more detail how to make the fountain pictured at the start of this lesson. - Beth Tobin

http://weirdsciencekids.com/MakeSprayingFountain.html

In this science experiment we are going to make a spraying fountain using jars, straws, water, and food coloring. We will explore the science of gravity and air pressure while building a cool science toy!

Materials
- Power drill and 1/4-inch bit
- Two clean glass jars and one plastic lid
- Two straws
- Caulk
- Water
Procedure To Make A Spraying Fountain

1) Drill 2 holes in the lid.
2) Insert the first straw through a hole so that 2 inches of straw extend above the lid.
3) Insert the second straw through the other hole in the lid so that 2 inches extend inside the lid.
4) Caulk the holes around the straw and the lid to make air tight.
5) Fill one jar half full with water, add five drops of yellow food coloring, stir well, and screw on the lid.
6) Fill the second jar with water, add five drops of blue food coloring, and stir well.
7) Place the jar of blue water in the baking pan. Turn the jar with the lid and straws upside down, and place the shorter straw in the jar, letting the longer straw empty yellow water into the pan.

What Happens
As the yellow water empties into the baking pan, the blue water rises and sprays like a fountain in the sealed jar.

The Science Behind The Spraying Fountain
Gravity empties the yellow water from the sealed jar through the straw, reducing the air pressure inside the jar. The air pressure outside the sealed jar, now greater than the air pressure inside the jar, pushes down on the blue water in the second jar, forcing it to spray out of the other straw. Now go show all your friends how to make a spraying fountain.

Fountain Facts
- While pumps supply the pressure in artificially created fountains, the enormous weight of water in a reservoir generates the pressure for natural fountains.

- The fountain at Fountain Hills, Arizona, is the tallest fountain in the world, creating a column of water up to 625 feet tall and weighing more than eight tons.

- According to ancient Greek legend, drinking the water from the fountain of Castalia on the sacred mountain Parnassus bestows the ability to write poetry.
- The 1954 Academy Award-winning movie Three Coins in a Fountain, following the stories of three women who each toss a coin into the Trevi Fountain in Rome, was remade in Madrid as the 1964 movie The Pleasure Seekers.

**Fountain of Youth**

Spanish explorer Ponce de Leon searched Florida for the mythical Fountain of Youth, a spring whose waters would reputedly make old people young and heal the sick. He did find a spring in St. Augustine that he thought would give him eternal youth, and today you can visit the Fountain of Youth at 155 Magnolia Street and admire a statue of Ponce de Leon that does not age.

So grab your friends and make a spraying fountain.