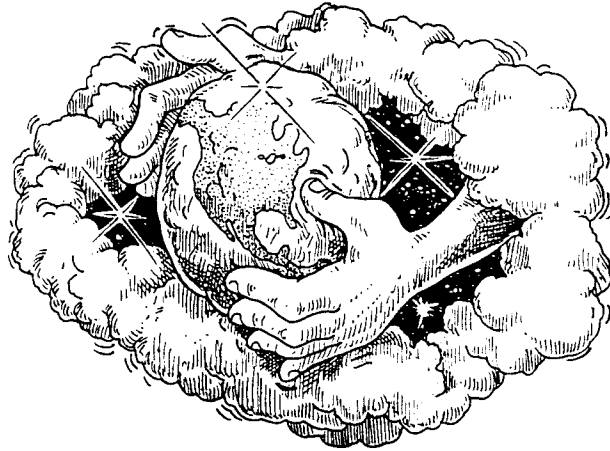


**Calvary Chapel Children's Ministry
Sunday School Teacher's Training Workshop**

**SCIENCE DEMONSTRATIONS WITH
SPIRITUAL APPLICATIONS!**

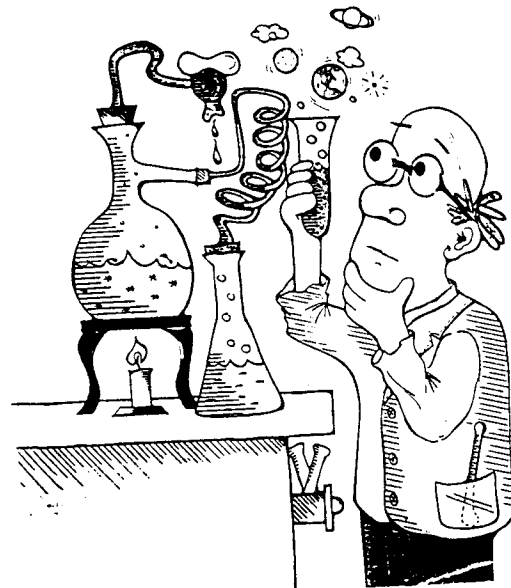


For since the creation of the world, God's invisible qualities, His eternal power and divine nature, have been clearly seen, being understood from what has been made, so that men are without excuse.

Romans 1:20

**"Hands-on" activities
with spiritual applications
to present God's truth
in ways kids will
remember.**

Presented by Jim Blackie,
Science Teacher,
Calvary Chapel Junior High



Science Object Lessons!
Calvary Chapel Costa Mesa
Children's Ministry Workshop



1. God Sees our Heart
2. The Cross of Christ
3. The House on the Rock
4. Our Sins Forgiven
5. Victory over Sin
6. Pride Puffeth Up
7. Keep Your Heart Pure
8. Bondage
9. Plug Into God's Power
10. Drawing People to Jesus

But these are only the beginning! There are tons of fun and easy science activities today that are kid-and-teacher-friendly. A trip to any large bookstore will reveal dozens of simple, hands-on science books for kids that **you can turn into a spiritual lesson** that they'll really remember!

If you like this kind of stuff, pray that God give you wisdom and insight! Kid's love science; it's a great tool for teaching them spiritual truth!

I particularly recommend a the following if you really want to get into it...

Berg Christian Enterprises: color changing chemical demos with spiritual applications. They send you a cool kit with everything you need for some real eye-catching demos. Easy to use, no science background needed, and no weird disposal. Simple kits range from \$15.00 -25.00. Contact them at (503) 777-4101 for a catalogue

Science & the Bible. (Volume 1 & 2) Two books available by Donald B. Deyoung. Each book has 30 demos similar to the ones in this packet. It's available from the Institute for Creation Research (ICR), (619) 448-0900. ICR has a whole line a science and creation material for children and adults. Ask them for a catalogue!

Things to Remember...

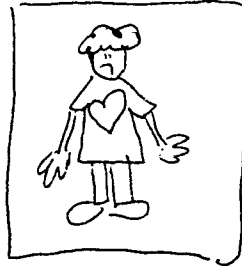
1. **Practice first.** Famous last words: "watch this" and nothing happens!
2. **Be safe.** Closely supervise anything that could be potentially dangerous
3. **Prayer!** The greatest demos and most flamboyant delivery are useless unless the Holy Spirit uses it to impress God's Word to the hearts of those your ministering to.

God Sees Our Heart!

And the Holy Spirit Can Reveal Our Heart to Us!

Materials

1. Ex-Lax tablet
2. Rubbing Alcohol
3. Spray Windex
4. Drawing of happy & sad person in permanent marker
5. Q-tip for paint brush



SALLY
SINFUL



SUZIE
SAINT!

Preparation

For this demo you'll use the "Ex-Lax" tablet to prepare a "phenolphthalein" solution. Grind the Ex-Lax into a powder by putting it in a zip-lock bag and use a hammer or spoon to smash it into a powder. In a cup, mix the Ex-Lax powder with one tablespoon of rubbing alcohol and swirl until it dissolved. You can filter this with a coffee filter if you want it "cleaner."

Draw "Sally Sinful" and "Suzie Saint" with big hearts using permanent marker. Dip your Q-tip in your phenolphthalein solution and write "sin" in Sally's heart and put a cross in Suzie's heart. When this dries, it will be invisible.

Teach

Explain that only God sees our heart. We may look good to others on the outside, but God knows what we are like on the inside. A person may be polite, popular, rich, and even go to church, but in her heart, there is sin she is hiding that only God can see!

Demonstrate

Show your pictures. What we see is the outside. Not even an "X-ray" can see the spiritual condition of their hearts! But the Holy Spirit is like this spray bottle. Spray the two hearts to reveal your invisible messages!

What's Happening

Phenolphthalein is an "indicator" used in acid / base tests. It changes from clear to pink in the presence of a base, such as the ammonia in Windex!

Scriptures

1. Man looks on the outside, but God looks at the heart (1 Samuel 16:7)
2. Create in me a clean heart, Oh God, (Psalm 55:10)
3. Examine my heart, Oh Lord, and prove me (Psalm 26:2)

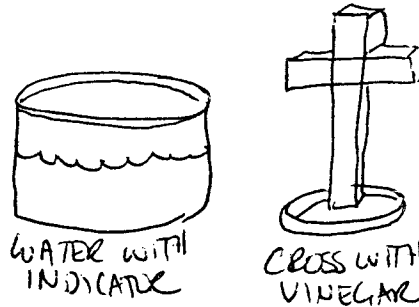
** "Suzie" and "Sally" illustrations at back of handout!

The Cross of Christ!

Receiving Jesus Cleanses You of All Sin!

Materials

1. Clear plastic bucket
2. Wooden cross nailed to metal lid
3. Amonia
4. White Vinegar
- 5 Ex-Lax tablets
6. Rubbing Alcohol



Preparation

For this demo, you'll use the "Ex-Lax" tablet to prepare a "phenolphthalein" solution. Grind the Ex-Lax into a powder by putting it in a zip-lock bag and use a hammer or spoon to smash it into a powder. In a cup, mix the powder with one tablespoon of rubbing alcohol and swirl until it dissolves. You can filter this a coffee filter if you want it "cleaner."

Assemble the wooden cross with a metal lid (such as a peanut butter lid) firmly attached to the bottom of the cross. Test to see if it is water-tight.

Fill your clear bucket with water and stir in 1/4 teaspoon of "phenolphthaylin"

In the lid of the cross, put three tablespoons vinegar (make sure it doesn't leak)

Teach

Show the bucket filled with water. Explain that this represents our life. But no one's heart is completely clean like this. Sin stains our heart (pour 1/2 teaspoon of amonnia into the water and stir; it should turn a bright pink color!) The Bible describes our sins as "crimson" or "scarlet" (Isaiah 1:18).

When Jesus died, he paid the penalty for our sins. When someone asks Jesus into their life, he will clean up their life, and take away all of their sins.

Demonstrate:

Swirl the cross into the water and it will become clear!

What's Happening.

Phenolphthaylin is an "indicator" that turns pink in the presence of "basic" (alakali) solutions but stays clear in the presence of an acid. Amonia is an alkali that turns phenolthayalin pink; vinegar is an acid that turns it clear.

Scripture

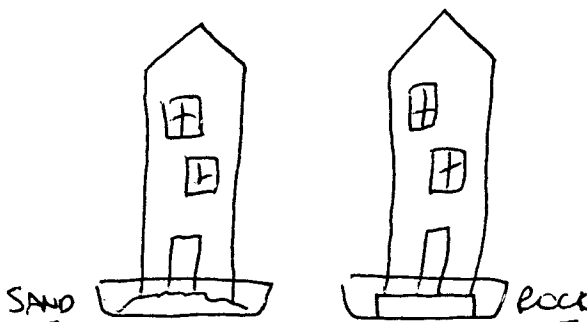
1. Though your sins be as scarlet, they will be white as snow (Isaiah 1:18)
2. Anyone who is in Christ is a new creation, they old is gone (2 Cor5:17)

Build Your House Upon the Rock!

God's Word Provides Stability for Life!

Materials

1. Two large glass cake pans
2. Large pieces of styrofoam
(Available from Home Depot)
3. 8-16 ounces Acetone in closed glass jar
4. 8-16 ounces water in similar jar
5. a cup or two of sand and a small brick
6. Spray bottle with water



Be aware that acetone is flammable, has a strong odor, and is an irritant to eyes and skin. Use reasonable caution when presenting this demonstration.

Preparation

Make and decorate two tall houses from styrofoam that will fit inside your glass cake pans. Large, inexpensive sheets of styrofoam are available from Home Depot; the thinner stuff (like 1/4 inch) works best.

Teach

Tell the story of the houses built on the rock and sand. Both experienced the storms of life, just as Christians and non-Christians will experience difficult circumstances. But the person who builds his life on Jesus' words will be able to withstand the storms; the other person's life crumbles.

Demonstrate:

As you tell the story, pour sand into the bottom of one cake pan and place the brick in the other. These are the two foundations. Position the two houses on each "foundation" (volunteers can hold each one up). Explain that each house is very similar, except the foundation! Explain that storms (spray bottle) and floods (liquid in the glass jars) come to both houses. Spray the house on the rock with water and pour in the water to the cakepan. This house will survive the storms. Then spray the house on the sand with the water and pour in the acetone into the pan. The house will begin to dissolve into slime. Teacher can pick up slime (then wash hands) as added effect!

What's Happening.

The acetone is a solvent that breaks down the molecular bonds in the styrofoam. The slime that's left is the styrofoam without the air spaces.

Scripture

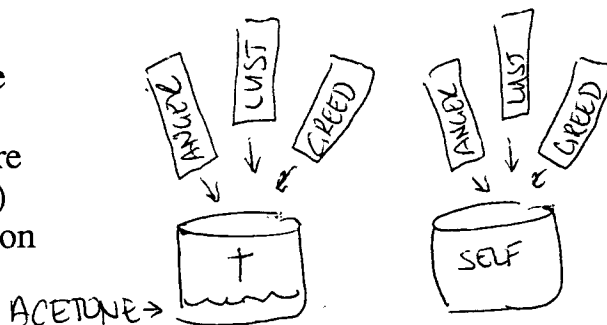
The parable of the house on the rock! (Matthew 7:24-27)

I Will Remember Your Sins No More!

Confessing your sins brings forgiveness!

Materials

1. Two glass jars (shorter, wide mouth is best)
2. Acetone from hardware store (Finger nail polish remover)
3. Styrofoam sheets -- to write on with perm marker



Preparation

Set up two glass jars. In one jar have a small amount of acetone (about 1/2 inch in the bottom of the jar). The other jar is empty. Note: Keep the jar with acetone covered until ready to use; it really stinks!

Obtain some sheets of styrofoam to write the names of sins on, such as anger, selfishness, greed. Big sheets of styrofoam are available at home-center stores. Cut the styrofoam with an exacto-knife so the pieces will fit in your glass jars. Make two sets of "sins" -- one for the Christian, one for the non-Christian.

Teach

A Christian is a person who loves God. But even Christians sometimes sin. The Bible says that if we admit (confess) our sins to God, he will forgive our sins and cleanse us from that unrighteousness.

Demonstrate

The two jars represent two people: one is a Christian, and one is not. The Christian has a love for God in his heart! (swirl the liquid-- the acetone in the jar). The other jar is empty, no love for God.

One by one, put the styrofoam pieces in each jar. Notice how the sins in the Christian's jar are being forgiven. In the other jar, they just continue to build up and pollute the person's heart

What's Happening.

Acetone is a solvent that easily dissolves styrofoam

Scriptures

1. If we confess our sins, God will forgive them (1 John 1:9)
2. He will cast all our sins into the deepest sea (Micah 7:19)
3. As far as east is from west, he separates our sins (Psalm 103:12)

Victory over Sin!

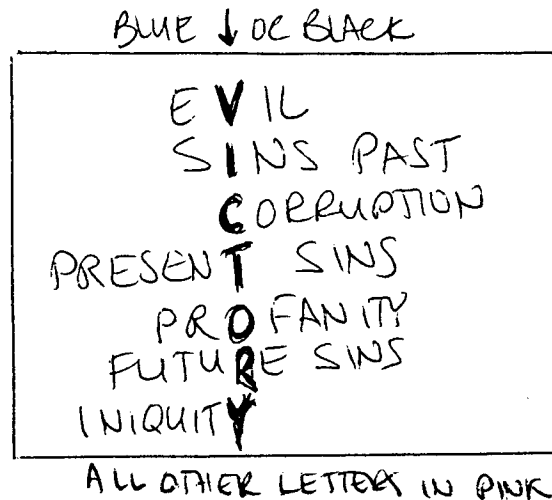
The Blood of Jesus "Covers" our Sins!

Materials

1. Card-stock heavy paper
2. Red plastic acetate cover same size as heavy paper
3. Felt marker pens: pink and another dark color

Preparation

On the heavy paper, write the words at the right. Write the bolder words in dark marker, all the others in pink marker



Attach one edge of the acetate to the heavy paper so that it can fold back or fold over the front like turning pages of a book.

Teach

The Bible says our sins separate us from God. But the blood of Jesus can take away those sins, and even turn those scars from the past into "victory"!

Demonstrate

Explain the card with the names of various sins. This is a messed up life! Show the red acetate and explain how it represents the blood of Jesus. When Jesus enters our life, he takes away those sins, and turns them to victory! Fold the acetate over so it covers the letters and leaves the word "victory!"

What's Happening.

The red acetate "absorbs" the red light being reflected by the pink marker.

Scriptures

1. Blessed is the man whose sins are covered (Romans 4:7)
2. We have redemption through His blood (Ephesians 1:7)
3. God causes all things to work together for good (Romans 8:28)
(Even past mistakes & sins can be used by God for good!)

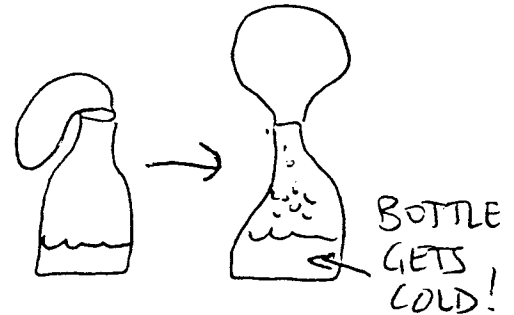
***Special Thanks to Ben Robledo, Canyon Lake, for this idea!**

Pride Puffeth Up!

Pride Puffs Up and Chills Our Relationship with God!

Materials

1. Soda bottle, glass or plastic
2. Kitchen funnel
3. White vinegar, about 1/2 cup
4. Baking soda, about 1/4 cup
5. Large balloon, to fit over mouth of bottle



Preparation

Before class, use the funnel to pour your baking soda into the balloon. Pour the vinegar inside the bottle.

Teach

Explain "pride" (wanting to be more important than we are) and God's rebuke to the prideful. Suggest that pride will do at least two harmful things to us. It will inflate our head and chill our love toward God.

Demonstrate:

Put the mouth of the balloon over the mouth of the bottle, but don't let the baking soda fall into the bottle until you're ready.

When ready, lift the balloon so the baking soda falls into the vinegar. The ingredients will fizz and bubble. Carbon Dioxide quickly fills the balloon. You'll also notice the temperature of the bottle become cold. Make the applications of what pride does to our head and our heart!

What's Happening.

Vinegar and baking soda create a chemical reaction producing carbon dioxide gas. The coldness occurs because this is an "endothermic reaction" (gets cold). (An exothermic reaction, like fire, is one that produces heat.)

Scripture

1. Worldly knowledge puffs up with pride (1 Corinthians 8:1)
2. The love (agape) of many will grow cold (Matthew 24:12)
3. God opposes the prideful (1 Peter 5:5-6)

Keeping Your Heart Pure!

Being In the World but not Of the World!

Materials

1. Baby oil
2. Black ink
3. Food colors
4. Water
5. Clear cups
6. Eyedroppers



Preparation

Set out ink and food colors. Fill one cup half full with water (non-Christian, John 4:13) the other half full with baby oil (Christian, Psalm 23:5).

Teach

The Bible says we are in the world, but not of the world. The forces of the world are constantly trying to pollute our hearts and mind, and stain our relationship with God. Staying close to the Lord enables you to keep your heart clean even though faced with temptations and ungodly influences.

Demonstrate:

1. Show your two cups. One represents a non-Christian (cup with water) and one represents a spirit-filled Christian (cup with oil, like Holy Spirit)
2. Drop in various colors of food coloring, each representing different kinds of temptations, such as "green = envy" or "yellow = fear" or "red = lust" or "blue = depression" or "black = greed" (or something worse!)
3. Soon the glass with water will be mucky and polluted, but the glass with the baby oil will be clear (the Christian stays pure from these temptations.)
4. At this point, you can mix the two cups together. This is like the non-Christian who tries to drag the Christian down with him. Notice the two liquids don't mix; in fact, the baby oil floats on top of the water, just as God desires us to rise above our circumstances and keep our life pure!

What's Happening.

Water and oil don't mix (they are "insoluble"). The food colors and black ink are soluble in water, so they'll dissolve, but not in the oil. The oil will float on the water because it's less dense, or lighter.

Scripture

1. Be separate from the world (2 Corinthians 6:14-18)
2. Be unspotted from the world (James 1:27)
3. In the world, but not of the world (John 17)

Bondage!

Sin Enslaves, But God Delivers!

Materials

1. Old audio cassette
2. Scissors
3. Volunteer!



Preparation

Have an old audio cassette handy--one you can pull tape out easily!

Teach

Sinful actions often create habit patterns that become hard or impossible to break! What begins as "small" sins (or "just trying it") soon controls your life and brings you into bondage! But God can deliver you from bondage!

Demonstrate

Your volunteer stands before the group. The tape from an old cassette represents a sin. Wrap the tape around him once or twice around his arms and chest and tie it off. Ask the person to break loose from his "sin" and he can easily snap the tape and be free.

Next, using the same volunteer, begin tying him up with the tape over and over again. Explain that people rarely commit sin once or twice. Actions develop into patterns, and patterns into habits, and soon it is difficult or impossible to break out. After the tape is wrapped 30 - 40 times, it will be almost impossible to break out of! Bondage!

However, God can deliver us from even the deepest bondage. Bring out your scissors; they represent the Holy Spirit! But the Holy Spirit will wait until invited. Have the volunteer ask to be "saved" from his troubles. Cut the tape and it falls limply to the ground.

What's Happening.

One strand of tape is easily broken. But it takes 30 times as much strength to break 30 loops of tape. The many small sections add up to a strong barrier!

Scripture

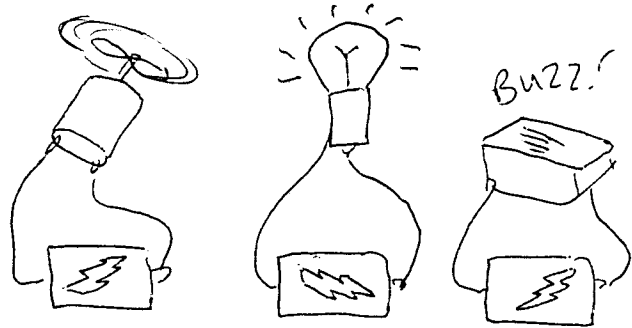
1. If you present your body to sin, you become its slave (1 Cor. 6:11-23)
2. He who commits sin is a slave to sin (John 8:33-36)
3. Don't be entangle with a yoke of bondage (Galatians 5:1)

Plug Into God's Power!

We are effective as Christians only in the Power of the Holy Spirit!

Materials

1. "C" or "D" battery
2. Wire or aluminium foil
3. Gadgets from Radio Shack:
 - * 1.5 volt hobby motor
 - * 1.5 volt (or less) light bulb
 - * 1.5 volt (or less) buzzer



Preparation

Practice connecting the "circuits" to get your bulb to light, your buzzer to buzz, and your motor to spin. If you don't have simple wires for the circuit, a thin (1/4 inch) strip of aluminium foil will work as a wire!

Teach

Motors are machines of service, like your washer, dryer or blender. A light bulb enables you to see in the dark. And buzzers give warnings of danger or alarm. But none will work unless they have electricity for power!

We Christians are called to serve God and each other. We are called to be light in the darkness. And we are called to warn others of the dangers of sin. But we will not be effective unless we depend on the Holy Spirit for power! And sin in our heart can separate us from God and cut off our source of power

Demonstrate:

1. Show your motor, light, and buzzer. Each has an important purpose, but none will work unless it is connected to its power source. That's like us! God has a plan for our our life! We have important purpose, but we can't fulfil that purpose unless connected to our power source!
2. Show the battery and connect your circuits! The battery provide energy! The Holy Spirit is our power source. We need to be connected to Him if we desire to be used by Him for His purpose in our life!
3. When you disconnect the circuit, the power ceases to flow. Sin causes the circuit to be broken in our life. Even if the electrical device is right next to the battery, it won't work unless it's connected! By confessing our sin, and allowing the Holy Spirit to fill us, we can become reconnected to God!

What's Happening.

Connecting the battery to the items makes a circuit; electricity can flow!

Scripture

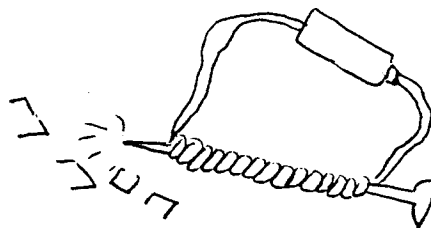
1. You shall receive power when the Holy Spirit come upon you (Acts 1:8)
2. You sins have separated you from God (Isaiah 59:2)

Drawing People to Jesus!

Only Through the Power of the Spirit will We Bring Others to Jesus!

Materials

1. "C" or "D" battery
2. Low voltage electrical wire (4-5 feet)
(available from Radio Shack)
3. Large steel nail (3-4 inches long)
4. Separated Staples (about 30-40)



Preparation

"Strip" about one inch of insulation off each end of your wire. Practice making your electro-magnet before class, but be careful not to drain battery.

Teach

God desires to use us to draw others to Himself! Our life should be a witness of God's love and goodness which He can use to bring others into His kingdom. But we can only effectively draw others to God in the power of the Spirit; witnessing in our own efforts is ineffective!

Demonstrate:

1. Scatter the staples on the table. These represent non-Christians.
2. Show your nail. This represents a Christian who is trying to witness in his own strength. Move the nail among the staples. Are any staples drawn to the nail? Perhaps a few (from natural magnetism in the nail) but most are not!
3. Begin wrapping the wire around the nail, but leave about six inches of wire on each end so you can attach them to the battery terminals.
4. Connect the ends of the wires to the ends of the battery and hold them there.
5. Move the nail among the staples. It will pick up most or all of the staples! Your electromagnet will work as long as the wires are connected. After the wires are disconnected, the nail will gradually lose its magnetism. Just like we will be effective witnesses only when connected to Jesus!

What's Happening.

Connecting the battery to the wires creates an "electro-magnet." The electricity in the wires creates a magnetic field that will attract the staples, which are mostly made out of iron.

Scripture

1. The Holy Spirit provides power to witness for Jesus (Acts 1:8)
2. Jesus desires to draw all men to Himself (John 12:32)
3. If we follow Jesus, he makes us fishers (magnets?) of men (Matt 4:19)



