

Kitchen Chemistry



MAY 1998

RECIPE FOR A HAPPY DEN

6-8 boys
3 c eagerness
2 c devilment
2 c courtesy and helpfulness for each other

2 den leaders
1 gal patience
3 c love for each boy
1 c ability to do crafts and read direction

Mix well together
Add a generous amount of cooperation from each boy's parents.
Serve one hour each week.

NATIONAL SUMMERTIME PACK AWARD

For many packs May is the last month of their regular Scouting year. Cub Scouting is a year-round program. For the next three months, plan to give the members of your pack a quality Cub Scout Program and earn the National Summertime Pack Award, too. A boy registers for a year and deserves a full year of Cub Scout fun and activities. Having a summer program keeps a pack healthy, parents interested, and Cub Scouts eager to re-register for another year. Also the summer time program is one of the requirements for the Cub Scout Pack National Quality Unit Award. For more on the National Summertime Pack Award, please read pages 17-22 to 17-23 in the Cub Scout Leader Book (chapter 16 in books published before 1997).

LEADER RECOGNITION AND “THANK YOU” TO PARENTS

“Thank you” might be the two most important words in our vocabulary, especially for volunteers in Cub Scouting. It is very important to thank leaders, parents, and friends of Scouting who help dens, the pack or individual Cub Scouts. The surest way to get support is to express appreciation for their help. This may be done any time of the year; it’s much more effective to show appreciation right after the deed is done instead of a few months later. May is a good time to show the appreciation to those who have worked throughout the year and, especially for those leaders and parents who are leaving the pack.

Recognition can be done in many different ways. It can be serious or humorous. It can be formal or less formal, expensive or inexpensive. It up to you.

A serious recognition ceremony would be more appropriate for someone who has been with the pack a long time and is about to leave. Humorous recognition may be used to show the appreciation for a special task such as organizing the pack’s Scouting for Food drive, helping at the Blue and Gold, or just being there whenever help was needed. Be creative and have fun ceremonies. We included some humorous awards in this month's ceremony section. Also please see Chapter 10 of Cub Scout Leader How-to Book.

Formal recognition items may be purchased from the Scout Shop. There are plaques you can have engraved, statuettes, pen and pencil sets, book marks, paper weights, key chains and more. Items do not have to be store-bought. You can make a wall plaque covered with felt and mount all the position patches the retiring leader has held in the pack along with the council patch and the pack numerals. A scrap book or photo album with photos gathered from others would be a nice going away gift.

An inexpensive recognition might include homemade items. Certificates are an inexpensive but effective way to show your appreciation. Attractive certificates are available at the Scout Shop. Or you can make one by hand or on your computer. Certificates can be formal or humorous. Make sure to include signatures of the individuals, leader or Scouts, appropriate for the occasion.

Families could present a thank you to their den leader. The thank you may be a certificate, a T-shirt, an apron, a carry-all or some such item signed by all the boys in the den, or an item the boys made.

Finally, don’t forget the parents. The den leader can arrange thank you notes or handmade certificates from the graduating boys to the parents to thank them for their support for all those years. This may be presented at the den or at graduation.

LEARN FUN FORMULA AT THE DISTRICT ROUNDTABLE!

SEARCH THE ELEMENTS

There are nine elements hidden below. Can you find them all? Don't forget, they may be hidden diagonally too.

CALCIUM
CARBON
HELIUM
HYDROGEN
IRON
GOLD
NITROGEN
OXYGEN
SILVER

X	I	R	O	N	D	L	S	Q	H	O	N	I	J
T	N	X	L	I	E	O	D	M	U	I	L	E	H
U	J	E	M	X	R	G	U	Z	T	C	H	S	D
N	T	Q	G	E	J	I	O	R	A	L	D	L	I
S	H	N	V	Y	C	M	O	R	M	X	O	T	O
B	T	L	H	L	X	G	B	J	D	G	J	M	T
L	I	T	A	C	E	O	H	T	C	Y	L	I	D
S	P	C	N	N	N	Z	C	I	Z	O	H	C	Z

KITCHEN CROSSWORD

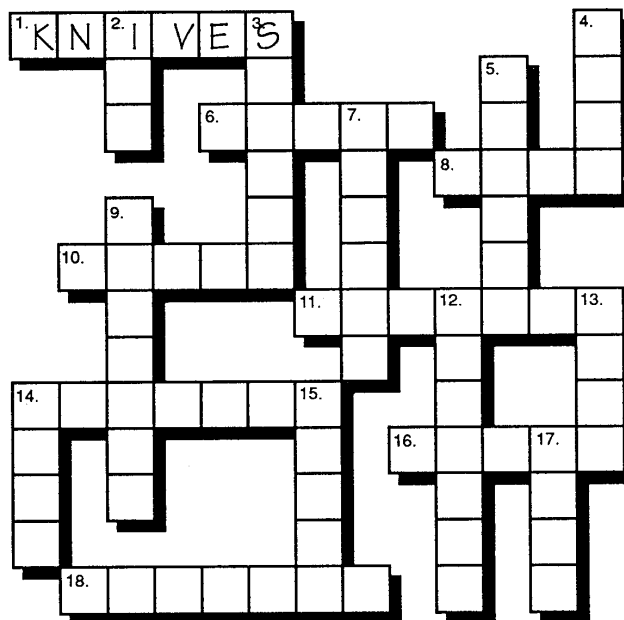
Each of the words below rhymes with something you find in the kitchen. The first one across is done for you.

Across:

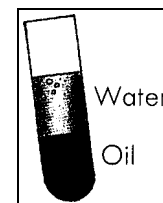
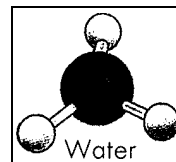
1. Wives
6. Corks
8. Fans
10. Holes
11. Classes
14. Catches
16. Block
18. Squeezer

Down:

2. Mice
3. Moons
4. Dots
5. Dates
7. Petal
9. Coaster
12. Elves
13. Rink
14. Rugs
15. Cove
17. Pups

**CHEMISTRY QUIZ**

1. Elements are made of different types of molecules. True or False?
2. Plants, during the day, are producing oxygen. True or False?
3. Hot water will dissolve salt better than cold water. True or False?
4. Vinegar is a weak acid. True or False?
5. Carbon dioxide helps fires to burn brightly. True or False?
6. Our bodies are made mainly of water? True or False?
7. What is wrong with these pictures?



1. False. All elements are made of only one kind of molecule.
2. True. During the day plants use photosynthesis to make food and produce oxygen.
3. True. Hot water can "hold" more dissolved substances than cold water.
4. True. Acids such as vinegar have sharp tastes. Lemon juice is also acidic.
5. False. Carbon dioxide will put out a fire. Flames need oxygen to burn brightly.
6. True. The human body is about two thirds water.
7. Oil will always float on water because it is less dense.

A water molecule is made up of one oxygen atom and two, not three, hydrogen atoms.

ZIP! ZAP! POP!

Form a circle with the leader in the center. When he points to someone and says, "Zip!" the player must give the name of the person on his right before the leader counts to 10. If the leader says, "Zap!" the player must name the person on his left. If the leader says, "Pop!" the player must give his own name. Anyone who gives the wrong name or is too slow becomes the leader. Reshuffle the circle occasionally.

RECIPE FOR A WONDERFUL DAY OPENING

May be read by Cubmaster or a group of Cub Scouts, each boy reading a few lines.

We are going to read you a recipe for a wonderful day.

- 1 cup of friendly words
- 2 heaping cups of understanding
- 2 cups of milk of human kindness
- 2 heaping tablespoons of time and patience
- 1 dash of gentle humor
- 1 pinch of spice of life
- 1 drop of warm personality

Measure words carefully. Add cups of understanding to milk of human kindness. Blend well to make a smooth paste. Cook with gas on the front burner. Keep temperature low so it never boils over. Season with gentle humor, warm personality and spice of life. Serve in individual molds. Works best with a good mixer.

KITCHEN CHEMISTRY OPENING

Personnel: Cubmaster in white lab coat. Five Cub Scouts, if possible, in lab coats.

Cubmaster: Welcome to our kitchen chemistry lab. In this lab, the boys learned amazing things in the past month.

Cub Scout 1: We experimented with vinegar and baking soda and flew our rockets.

Cub Scout 2: We grew Crystal gardens with charcoal, salt, ammonia and laundry bluing.

Cub Scout 3: We found we could make a battery out of a lemon.

Cub Scout 4: We make fire-extinguisher gas that blew out a candle.

Cub Scout 5: We even cooked something yummy too.

Cub Scouts 1-5: Tonight we are proud to show you some of the things we learned.

Cubmaster: Please rise and join us in repeating the Pledge of Allegiance.

See Staging Den and Pack Ceremonies for more ceremonies:

“Flag Recipe” (pp. 36 to 37)

“Wolf Gradation to Bear” (pp. 75 to 76)

“Bear Neckerchief Ceremony” (pp. 77 to 78)

KITCHEN CHEMISTRY CLOSING

This month Cub Scouts learned about chemistry by conducting experiments. I'm sure they have a clearer understanding of what's going on when a cork cap flew off a bottle when vinegar was mixed with baking soda.

There is an old saying: "What I hear, I forget. What I see, I remember. What I do, I understand."

Like the kitchen experiments, in daily life we should remember this saying. As adults, not only should we tell and show the boys, we should experience the life with them.

CLOSING THOUGHT

Let me tell you about hydrogen. Hydrogen is a very active element. It is also the most common element in the universe. It's found in water. Our body is made of hydrogen and other elements. Rocket fuel for the space shuttle is hydrogen combined with oxygen in an explosive manner. This reminds me of boys. They are very active, though in a different way. They are found everywhere. And, when combined with the right elements, they can launch something wonderful. For the boys the right elements are assurance, good value system, love, education, understanding...things we find in a solid family and Cub Scouting.

DAN BEARD'S RECIPE FOR SCOUTING

Take a bowl full of unbounded love for boys, one pint of absolute faith in American institutions, two teacups of American pioneer blood, one tablespoonful of romance, two heaping tablespoons of adventure, a teaspoonful of Indian traditions, a teacup of vigor and grit of the Puritans, a teacup of chivalry of the cavaliers, a quart of the idealism of Thoreau, John Burroughs and Henry Van Dyke, one heaping cup of sentiment, the whole seasoned well with patriotism and character and stirred up with the Golden Rule, after which sprinkle well with the Stars and Stripes and SERVE RED HOT!

(Daniel Carter Beard (1850-1941), a writer and illustrator, was one of the first organizers of the BSA.)

A HEAP OF WORKING

(Closing)

It takes a heap of working with a boy to make a man;
A heap of care and patience, and you've got to understand
That he won't be any better than you were as a lad,
Unless a spark is kindled to show him what is bad.
He looks to you for guidance, and he looks to you with pride.
It's up to you to demonstrate; you can't just let it slide.
For with that eager mind of his, he watches you each day;
And judges you by what you do, not just by what you say.

THOUGHTFUL YEAR END CLOSING

Place a chair and a small table in front of the group. A large book is placed on the table. Turn the lights out. Have the Cubmaster light a candle, walk across to the table and light an oil lamp or another candle: "Let us close this evening by placing a bookmark in another chapter of our Scouting Tales." (Put a bookmarker inside a large book and close it). "But let us in the near future, re-open our book and proceed to the next chapter. Good Scouting to us all." (Blows out the lamp or candle and ends the meeting).

THANK YOU - CLOSING THOUGHT

(Hold up a card with the words THANK YOU printed on it)

Two simple words. Two important words that tell someone else that you are appreciative, courteous, and thoughtful. We do many good turns for others...but do we always take time to thank others for a good turn done for us? Let's all remember that a sincere "thank you" is your way of expressing gratitude for a good turn received. Remember to say "thank you."

T-H-A-N-K Y-O-U CLOSING CEREMONY

Prepare eight large placards, each with a large letter painted on it to match the initial letter of each verse. As each verse is recited by a Cub Scout (or group), the proper letter is displayed so that at the end of the eight verses the words, "Thank You," are visible to all.

T stands for TEACHERS
Ours bears the test,
As Cub Scouts, we promise
We'll do our best!

H is for HELPFUL
Which we try to be
As each helps the other
In the highest degree.

A is for ADVANTAGES
We all enjoy.
We try to be grateful,
And wisely employ.

N is for NATION
Whose future depends
On all of us Cub Scouts
Who want to be friends.

K is for KNOWLEDGE
We're going to need.
We'll work hard to gain it
And hope we succeed.

Y is for YOUTH

All over the land.
God bless and keep us
And steady our hand.

O is for OPPORTUNITY
Around every one.
We'll grasp and hold tightly
Until we have won.

U stands for USEFULNESS
We like to serve
We do what we can
All praise to deserve.

(All together)
As together we stand
A "THANK YOU" we give.
We mean it sincerely.
We'll never outlive
The lessons we're learning -
The character you mold.
We Cub Scouts say,
"THANK YOU"
As our futures unfold.

SEALED BY FIRE--ARROW OF LIGHT CEREMONY

This is a very impressive ceremony if conducted correctly. Practice before you do it at the pack meeting. See Special Instructions below.

Supplies: Magic Solution (actually 60% water and 40% acetone). Candle. A stick. Webelos neckerchief with the emblem removed. FIRE EXTINGUISHER (class BC).

(Candle is lit. Room is only dimly lit)

Cubmaster: Long ago a Webelos Scout started on the trail of the Arrow of Light. Much work and many hard hours went into his preparation.

Tonight this Scout is ready to receive the special award of the Arrow of Light. Will _____ and his parents come forward? Also the Webelos Den Leader for this Scout.

Webelos Scout _____, I now ask your Webelos leader if you have tried to follow the Cub Scout and Boy Scout Promises and Laws. Has this Scout learned from the trails of the Bobcat, Wolf, Bear, and the Webelos?

Den Leader: Yes, he has!

Cubmaster: I now ask you one question. Have you tried to do your best?

Webelos: Yes!!

Cubmaster: This is indeed a proud moment for our pack, when we can see you advance. It symbolizes your cooperation in the pack and den. You have shared many experiences and much knowledge. Without this sharing and caring along the trail of the Arrow of Light, it would have been much more difficult. As your parents take the Webelos scarf from around your neck, I want you to repeat the Boy Scout Promise with me. (Repeat the promise) Now we are going to seal it by fire. We will dip the scarf into the magic potion and pass it over the flame of the Spirit of Scouting. It will flame up but will not be consumed by the fire. (Tie the scarf on a stick, dip partially into the solution, squeeze out excess solution and pass it over the candle) Now your promise is sealed by the flame. Congratulations.

SPECIAL INSTRUCTIONS FOR THE FIRE CEREMONY

The Webelos emblem must be removed off the scarf that you intend to burn. You cannot use a Webelos Leader's scarf. The emblem and the cording around the leader's scarf will soak up too much of the acetone. The Magic Potion should be put in a jar with a tight fitting lid. It can be used more than once. A wide mouth jar like a peanut butter jar works well. Do not leave jar open for very long because the acetone evaporates very quickly. During the ceremony the jar should be placed in a large basket or box. Have the scarf to be burned already in the basket, then when the boy's scarf is put in, no one is the wiser. The scarf you use (with the emblem removed) must be squeezed out until only damp. Do this very quickly as the acetone will evaporate. Immediately pass the damp scarf over the flame of the candle. It will go into flame for a few seconds and then go out as the acetone is burned. The flame is best seen in a dimly lit room. **REMEMBER YOUR FIRE EXTINGUISHER!!!**

This ceremony should be done in a room that has at least an 8-foot ceiling and enough room for safety.

LEADER RECOGNITION CEREMONY

Equipment: Three tree branches, each about one inch thick and two feet long. Binder twine or cord. Pack Leader Appreciation Certificates or homemade certificates.

Personnel: Chartered organization representative or pack committee chairman. Leaders to be recognized.

Chartered Organization Representative:

(Lashing two branches together) You have all heard that Cub Scout is a family program. To be successful, our pack needs active, concerned parents as well as boys. Here I have those two elements--one branch representing the boys and one the parents.

But, you can see that it won't stand by itself. Something is missing.

Now I'll add the missing element. (Make tripod by lashing third branch to the others.) The third essential element is leaders. Now our triangle is complete--boys, parents, and leaders. As you Webelos Scouts have learned in working on the Engineer activity badge, the triangle is a very strong structure. Our pack is strong, too, because our leaders are dedicated and faithful. And so, it is a pleasure to honor them tonight.

(Speak briefly about the service of each leader as certificates are presented. End the ceremony by calling on the pack to give the leaders three big Hoorays.)

BOUQUET OF FLOWERS RECOGNITION CEREMONY

Props: Package of flower seeds. A bouquet of flowers hidden in a box in the shape of a flower pot. A watering can.

(Have parents, leaders or others come to the front for a special presentation. Explain to the audience that these individuals have worked hard helping out the pack.)

Cubmaster: I have here a package of flower seeds. Let's see what happens if I plant these in a pot with special soil. I also have magic water to sprinkle over the seeds. (Cubmaster deposits the seeds, sprinkle water--avoid the bouquet inside--and pulls out a bouquet of flowers.) I would like to present these flowers to _____ for a job well done. Thanks for all your hard work!



MAD SCIENTIST APPLAUSE: Pretend to hold up a test tube in each hand. Pour the contents of one into the other, then go, "Boooooooooom!"

EUREKA APPLAUSE: Pretend to hold up a test tube in one hand. Pour something into it, then smile and shout, "Eureka!"

A STIRRING ROUND OF APPLAUSE: Move hands in a flat circle in front of you as if stirring a pot while clapping.

FUN WAYS TO SAY "I APPRECIATE YOU"

The following items may be presented as they are or may be mounted on a piece of wood or cardboard. You may want to hang them on a ribbon to go around the recipient's neck (if the item is small and light!). Be creative and have fun!

COMPASS	As thanks for leading the way.
GLOBE	The World's best...
MINIATURE HAT	Hats off to...
YARDSTICK, RULER, OR MEASURING CUP....	You measure up. For un-measurable service.
CAN OF NUTS	We're nuts about you.
SUNGLASSES OR MIRROR	Here's looking at you.
LIGHT BULB, CANDLE, OR FLASHLIGHT	Because you light the way. You light up our pack.
RECIPES	You have all the ingredients of a ...
SPICE	You really spice up...
PITCHER	Thanks for pitching in.
SANDPAPER	You smooth out the rough spots.
PLAY MONEY	You're worth a million to us.
KEY	You're the key to...
GLOVE	For a helping hand.
CHIPS	For coming through when the chips were down.
CLOCK OR WATCH	For the time you give.
DECORATED PAPER OR CLOTH BAG	Because Scouting is your bag.
SCISSORS	Because you're a cut above the rest.
TAPE OR GLUE	Because you stick to it. You help hold us all together.
JAR OF HONEY	Because you did a honey of a job
TOY TOP	For the person who is "tops."
PEAR	For a great pair (best husband and wife team).
BAND-AIDS OR FIRST AID KIT	For giving aid when needed
PACKAGE OF LIFE SAVERS	For being a life saver.
BOX OF TOTAL	For being totally awesome.
TOY MUSICAL INSTRUMENT	A note of thanks for...
SMALL FAN	For being a greatest Scouting fan.
SPARK PLUG	For adding an extra spark.
ALMOND JOY BAR	For being a joy to be around.
SMALL TRAIN	For seeing that everyone was trained.
TOY TELEPHONE	For keeping everyone informed of changes.

More leader appreciation ceremonies in Staging Den and Pack Ceremonies:

“A Den Leader Farewell and an Induction” (p. 135)

“Den Leader Appreciation” (pp. 135-136)

“Den Chief Appreciation” (pp. 136-137)

“Den Chief Service Award Ceremony” (p. 138)

“Leader Appreciation” (p. 139)

“Appreciation Bouquet” (pp. 139-140)

Cub Scout Leader How-to Book, Chapter 10 “Prizes and Special Awards”

THE VISION PROBLEM

Murray: Blinking eyes while squinting and looking side to side and wiggling the nose

Wesley: “Snicker, snicker”

Glasses: Cup hands around eyes like binoculars. (Be careful not to respond to a glass of water!)

Card: “Home run!”

MURRAY Mole was excited because he was finally going to buy a genuine Mickey Mandrill rookie CARD from WESLEY Weasel. All his life MURRAY had saved for this baseball CARD, and today he would finally get one.

Before getting out of bed, MURRAY put on his GLASSES. Being a mole, MURRAY's eyes were very weak, and he needed GLASSES to see the slightest distance ahead. Even with his GLASSES MURRAY was a bit unfocused, but at least the GLASSES helped.

After getting dressed, MURRAY gathered up all his savings and ran to WESLEY's. “Can I see the CARD now?” MURRAY asked. “Did you bring the money?” WESLEY demanded.

When MURRAY said yes, WESLEY brought him inside. “Wouldn't you like a nice glass of water first?” WESLEY said. “Okay,” shrugged MURRAY. WESLEY went to the kitchen and came back with a big glass of water. As he approached MURRAY, WESLEY tripped and spilled the water all over MURRAY. “I'm so sorry,” WESLEY said. As he tried to dry the water, WESLEY knocked off MURRAY's GLASSES. The GLASSES fell to the floor, and WESLEY kicked them under a table to hide them. “Oh, no,” MURRAY cried. “Now I won't be able to see the CARD, and I need to make sure it's the real thing.” WESLEY sadly shook his head. “Would I sell you a phony CARD? Here, see for yourself.” WESLEY handed a CARD to MURRAY. It felt like the right size and weight, but without his GLASSES, MURRAY couldn't see what was printed on the CARD. “You'd better hurry up and decide. Bubba Bear will buy this CARD if you don't take it.” MURRAY swallowed hard. He felt very hot. “Can I have another drink of water first?” WESLEY shrugged and went to the kitchen. When the weasel returned, MURRAY was still squinting, but he had a big smile. “I thought of a way I can examine this CARD before I buy it,” MURRAY said. WESLEY grumbled unhappily as MURRAY discovered he had almost bought a fake CARD.

Can you tell how Murray examined the card without his glasses?

(He looked at the card through the glass of water, which worked like a magnifying glass.)



RUN - ONS



What is as light as air yet can't be held for long?

Your breath.

What stays hot in the fridge?

Mustard.

Teacher: Jimmy, can you name five things that contain milk?

Jimmy: Butter, ice cream, cheese, and two cows!

THE MAGIC POTION

Cast: 4 boys (Boy 1 is stirring a pot. Boys 2, 3 and 4 walk in.)

Props: A big pot. Spoon. Magic ingredients.

Boy 2: Hey, what are you doing?

Boy 1: I'm making this magic disappearing potion.

Boy 3: Disappearing potion? How did you come up with that?

Boy 1: I was cleaning out my grandpa's attic and I found this really old magic book. It says right here "Recipe for Magic Potion, that will make your friends disappear."

Boy 4: You don't really believe all that mumbo jumbo, do you?

Boy 1: I don't know. This is a pretty old book. It may just work.

Boy 2: Well, let's try it and see. What's in it?

Boy 1: First, you add a gallon of turnip juice, then a quart of sauerkraut.

Boy 4: Nothing's happening yet. What's next?

Boy 1: Three tablespoons of hot sauce and an old sneaker.

Boy 3: Still nothing. Is that all there is?

Boy 1: No, there are a few more ingredients to go...let's see...one moldy onion, five cloves of garlic and one pair of socks left over from day camp. That's it.

Boy 2: Well, I don't see any magic happening, but that stuff is starting to smell pretty gross.

Boy 3: It sure is. It's starting to smell like something my sister made for dinner the other night.

Boy 4: I don't know about you guys but I've had enough. Let's get out of here. (Boys 2, 3, 4 run off stage)

Boy 1: Well, what do ya know. It really works...



Den Leader: What is the chemical formula for water?

Cub Scout: H, I, J, K, L, M, N, O.

Den Leader: May I ask what that is?

Cub Scout: H to O.

THE BIGGEST BALLOON

You will need a pop bottle and a balloon for each player. In advance put 3 tablespoons of vinegar into each bottle, and 2 tablespoons of baking soda into each balloon. At the word GO, have each boy attach his balloon to his pop bottle and shake it vigorously. When the soda mixes with the vinegar, the balloon will expand. Have the boys tie off the balloons to see which is the largest.

HOW GOOD IS YOUR NOSE?

Eight numbered dishes are placed around the room. Each dish is covered by a paper napkin in which several holes have been punched. In each dish there are: 1. Garlic; 2. Grated orange rind; 3. Peppermint; 4. Cinnamon; 5. Pineapple; 6. Coffee grinds; 7. Grated lemon rind; 8. Onion. Each player is given a piece of paper and a pencil and tries to identify each of the dishes by smell.

PING-PONG BLOWOUT

Cub Scouts line up on one side of the room, each with a straw and a ping-pong ball. The first to blow his ping-pong ball across the finish line wins. String may be used to mark the finish line.

ICE CUBE BALANCE

Give each player an ice cube and a fork. Players must keep the ice cube balanced on the fork as they race the designated distance. If the ice cube slips off, the player must put it back on the fork and continue. This may be run in a relay fashion.

KITCHEN UTENSIL KIM'S GAME

Arrange 20 items from the kitchen on a tray or table. Keep the items covered until the game begins. Lift the cover and have the boys study the items silently for one minute, then cover again. Each player has two minutes to write down as many items as he can remember. (They can write description if they don't know the name.) This can be played as an individual or team game. Examples of kitchen items are spatula, wooden spoon, measuring cup, measuring spoon, funnel, tea strainer, egg timer, silverware, drinking straw, coffee mug, etc.

CHAIN REACTION

Boys are sitting or standing in a circle. Choose one player to be "it" and have him leave the room while you choose another player to be a leader. Call "it" back. The leader starts moving around a lot. He can clap his hands, pat his head, for example.. The other players must carefully watch the leader and copy everything he does until "it" guesses who the leader is. Leader then becomes "it."

BE A SCIENTIST

(Tune: Are you sleeping?)

Be a scientist, be a scientist
 Experiment, experiment.
 Give science your attention
 And make a Cub invention,
 Do your best, do your best.

99 TEST TUBES ON THE RACK

There are 99 test tubes on the rack
 99 test tubes on the rack
 We use one to mix this and that
 Now there are 98 test tubes on the rack.

SODA BOTTLE ROCKET

(Tune: Hickory, Dickory Dock)

It's time to see if it goes pop
 When we mix in a bottle of pop
 Baking soda and vinegar
 Shake and aim at a star
 The rocket flew off with a POP!

HOW TO GET IDEAS

(Tune: Row, Row, Row Your Boat)

Use, use, use your brain,
 Put your mind in gear.
 Bright ideas aren't a strain,
 You have some, never fear.

Think, think, think so hard,
 Service you can give.
 Help some other people and
 Your life's more fun to live.

Do, do, do your best.
 Do a good deed now.
 It will make you happy and
 Cub Scouting shows you how.

CUB SCOUT SCIENTIST

(Tune: My Bonnie)

The scientist works with his theories
 The scientist works in his lab
 The Cub Scout learns by discovery
 The answers to questions he's had.

Mix this, mix that
 The scientist tests his theories
 Try this, try that
 The Cub Scout makes a discovery.

LOOK UP TO ALL OUR LEADERS

(Tune: Tom Dooley)

Look up to all our leaders
 Look up to them and say
 Thanks to our Akela
 For showing us the way.

Met them in Cub Scouting
 From them we learn a lot
 From Bobcat to the Webelos
 Many things were taught.

Now and in the future,
 I know what I will be
 A more well-rounded person
 Cub Scouting is the key

Look up to all our leaders
 Look up to them and say
 Thanks to our Akela
 For showing us the way.

CUB PLEDGE

(Tune: America)

Cub friendship, pure and deep
 We promise we will keep
 Our pledge to thee,
 We'll honor and obey
 Akela all the way
 And when we graduate
 Good Scouts we'll be.

CRYSTALS - TWO KINDS

CRYSTAL GARDEN

You will need: Some porous rocks or charcoal briquettes (plain kind, with no lighter fluid).

A shallow bowl or pie tin. A small bowl. A spoon.

6 Tablespoons EACH of salt, laundry bluing, and water

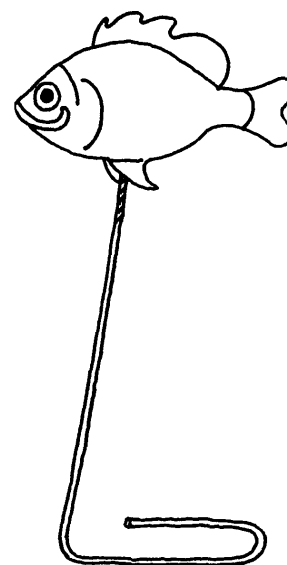
(bluing is available in the supermarket and comes in a bottle).

1 Tablespoon ammonia.

Food coloring

1. Arrange the charcoal briquettes or rocks in the shallow bowl.
2. Combine salt, bluing, water, and ammonia in a small bowl and mix well.
3. Pour mixture over the briquettes with a spoon.
4. Add a few drops of different food coloring over the briquettes. (If you want blue crystals, use blue food coloring because the bluing DOES not make blue crystals.)
5. Let stand a few hours. (Crystals will begin to grow in about 30 minutes.) They will grow to be colorful and interesting for several days.
6. If you want, pour more solution and add more coloring every day, and the garden will continue to change and grow.

Your crystal garden may remind you of coral growing in the sea. You can add to this effect by adding fish to the garden. Bend a few large paper clips so that they can stand on their own. You can add seaweed made of green pipe-cleaners or construction paper as well.



CREEPING CRYSTALS

You will need: 1 Tablespoon Epsom salts

1 Tablespoon water

1/2 teaspoon food coloring (any color but yellow)

2 2" jar lids

saucepan and pot holder

spoon

1. Measure the Epsom salts and water into a saucepan. Cook and stir over medium heat until the salts dissolve. Take the pan off the heat and set on a heat-proof surface. Stir in the food coloring.
2. Pour the mixture into a jar lid. The lid should be almost full. Pour any extra into a second lid.
3. Crystals grow as the liquid evaporates. Some form long rods. Some look fine and feathery. Others look like cactus. During the first week, they'll creep up and over the lip of the lid.
4. Creeping crystals grow slowly for days and last for months.

You can use liquid creeping crystals as a paint. Brush it on paper, cardboard or glass. As the liquid dries, it frosts, which are crystals forming.

RED-CABBAGE INDICATOR--ACID OR BASE?

This kit will let you test liquids to see if they are acids or bases. Acids and bases play important roles in our lives. They are in the foods we eat and the medicines we take. They are used to make virtually every product people use, from soap to glass to dyes for our clothes. Acids are sour-tasting chemicals. Lemon juice and vinegar contain acid. So do green apples, grapefruit, tea and yogurt. Your stomach produces an acid that helps digest food. Not all acids are safe to eat or even touch.

Bases are bitter-tasting chemicals that often have a slippery feel. Soap is made from a base. Egg whites and ammonia are bases. So is your blood. Oven cleaners and drain uncloggers contain the powerful base known as lye. It can burn the skin.

An important idea to remember is that acids and bases are chemical opposites. When you mix them together in the right amounts, they neutralize each other. For instance, if you put a drop of lemon juice (an acid) on your tongue, it will taste sour. But if you add a pinch of baking soda, which is a base, the sour taste will disappear.

You can tell if a substance is an acid or a base by testing it with an indicator shown below.

RED CABBAGE INDICATOR JUICE

You will need: 1 whole red cabbage. A grater. Water. 2 large bowls. A very clean glass jar and cover. Small white dish.

1. Grate the cabbage and let it sit in a bowl of water for several hours. Stir occasionally. (This part can be assigned to the boys. Have them bring to the den the cabbage soaked in water. Water should just cover the cabbage.)
2. When the water is a strong red, drain the red cabbage water into another bowl. (You can use the grated cabbage to make coleslaw.)
3. Put about a tablespoon of your cabbage-juice indicator into a small white dish. Test for an acid by adding a substance you know to be an acid to the cabbage juice. Notice the color it becomes in acid. (Red) Now use a fresh sample of cabbage juice and add a substance you know to be a base (baking soda dissolved in water). Again notice the color change. (Purplish green)
4. Now add acid to the base-and-indicator mixture to reverse the color change. What happens? An acid and a base will neutralize each other.
5. Store the indicator juice in a clean glass jar.

RED CABBAGE INDICATOR PAPER

You will need: Red cabbage indicator juice. Blotter paper, coffee filters or any heavy, white, non-shiny paper.

1. Cut the blotter paper into strips around 6 inches long by 1/2 inch wide.
2. Soak the strips in the red cabbage indicator juice for a few minutes until they turn bluish purple. Lay the wet strips flat on a smooth surface.
3. You can use the papers while they are wet. Dry the remaining strips and store in a Ziploc bag or a clean empty potato chip can ("Pringles") to keep the strips dry and dark. (Decorate the can with self-adhesive paper).
4. Try dropping small amounts of different liquids onto a strip and note what happens.

RED-CABBAGE INDICATOR--ACID OR BASE? (continued)**TESTING**

Using the indicator juice or paper, test some liquids for acidity. Using markers or colored pencils, record the indicator color. Keep a record of the different colors caused by the different test liquids. When you test a liquid of unknown acidity, compare the color of its indicator strip with a known liquid's color. Show the results at the pack meeting.

Some suggestions of the liquids to be tested--Make your guess and test!

Cooking water from boiled vegetables, including beans, peas, onions, carrots, turnips, celery, asparagus, etc.

Liquids from canned vegetable and fruits. Cream of tartar. Soda pop. Egg whites. Fruit juices. Tomatoes. Cottage cheese. Toothpaste mixed with a little water. Rain. Stream water. Soil mixed with water.

ANGRY ANTS--another experiment: Find an anthill and, using a stick, stir up a small section to alarm the ants (be careful not to get bitten). Now put a piece of indicator paper over the ants and wait a few minutes. Pretty soon tiny pink spots will appear on the paper--from the formic acid that ants spray into the air when they feel threatened!

LEMON BATTERY

A simple battery which produces only a small, safe amount of electricity can be made from a lemon.

In a battery, there is a central chemical called the electrolyte. This is placed between, and in contact with the electrodes, which are usually made of metal. When a wire and bulb are added to make an electrical circuit, the chemical reaction between the electrolyte and the electrodes creates electricity. This flows around the circuit and makes the bulb glow.

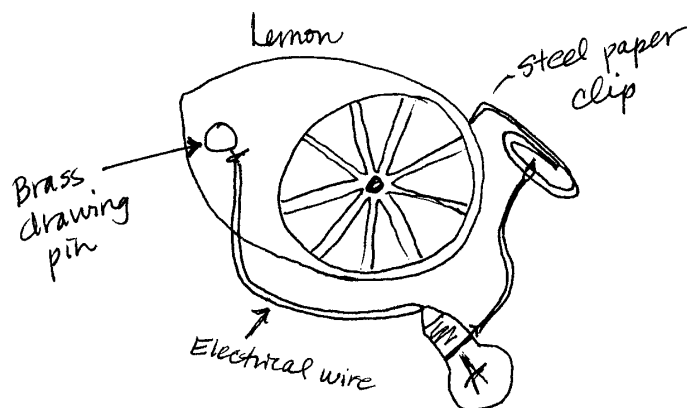
In the lemon battery, the acidic juice of the lemon is the electrolyte. The paper fastener and the nail are the two electrodes.

You will need.: 2 pieces of copper wire with insulation removed from the ends. Galvanized nail. Brass paper fastener or penny. A small low voltage flashlight bulb (less than 3 volts). A lemon.

1. First, make sure the citric acid in the lemon is free to move around within the fruit and not kept in separate cells. To do this, you have to break down the cell structure inside by squeezing the lemon hard or by dropping it on the floor. But be careful not to split the skin.
2. Now insert the nail in one side and the brass paper fastener or penny in the opposite side of the lemon. Make sure these two do not touch each other inside the lemon.
3. Wrap a piece of wire around the paper fastener and another wire around the nail.
4. Touch the side of the metal part of the bulb with one wire and the bottom of the bulb with the other. The bulb should light up.

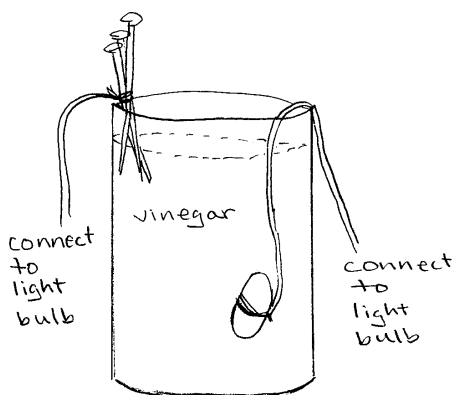
The amount of electricity produced this way is very small and may not be enough to light the bulb. You can then make it with a jar of vinegar instead of the lemon.

Wrap the copper wire around several galvanized nails just below the heads. It is important that the wire be in contact with all the nails and that the wire is not dipped in the vinegar. The other wire is wound around a penny which is placed in the vinegar. Connect the two wires to a small bulb as described earlier. This should light the bulb.



Cross - cut view

(Note: In this picture, a brass drawing pin and a paper clip are used instead of a paper fastener and a nail. We found the larger paper fastener and nail work better.)



THREE GOOEY SLIMY CONCOCTIONS

It doesn't matter what you call them, they are just great fun!

GAK--SLIME--GLUEP

Bounce it! Stretch it! Roll it! Flatten it into a thin sheet! Pop it! Snap it!

For all 5 "servings" you will need:

2 cups white glue (Use Elmer's or Tacky glue. Sobo white glue doesn't work well.)

1 1/2 cups water

One big bowl

For each "serving" you will need:

1/3 cup water

1 scant teaspoon borax

4 drops food coloring

small bowl

1. In a big bowl, mix the glue and 1 1/2 cups water. (You use this for all five "servings.")
2. In a small bowl, mix 1/3 cup water, borax and food coloring.
3. Pour the contents of small bowl into middle of big bowl. Stir for about 1/2 minute. The borax solution causes the glue mixture to congeal. Scoop out and put back into small bowl.
4. Knead mixture in small bowl for several minutes until all liquid is absorbed.
5. Repeat steps 2-4 with each boy.

Store in a sealed container. It will keep for several weeks. Gak dries out after a lot of handling.

NUTTY PUTTY

Use to bounce, pick up pictures from comics or newspaper, and mold into shapes.

You will need: 1 Tablespoon liquid starch

2 Tablespoons white glue

3 drops food coloring

One bowl

1. Put starch in bowl. Add glue and let set five minutes.
2. Add coloring.
3. Mix until starch is absorbed and color is spread smoothly. The more you mix, the better it gets.
4. Store in a small jar or a plastic Easter egg overnight before using to pick up pictures from comics. (You may want to make one batch ahead of time so the boys can play picking-up pictures from newspaper during the den meeting.)

Add 1 teaspoon more starch for a tougher, more rubbery putty.

Lasts several days if stored airtight. If left in open air, it will melt and then turn hard. If putty dries out or gets tough, just dip into warm water and knead.

THREE GOOEY SLIMY CONCOCTIONS (continued)

OUBLECK--GENIUS GEL--GOOP--GLOP

If you pick it up quickly, you can take a chunk and make a ball in your hand. But when you just hold it, it will melt like liquid. If you pound your fist on it, it is hard. If you push on the top, your finger will sink in. But when you try to jerk your finger out, it will hold on. Roll a ball of it between your hands to make a snake. Hold the snake by its tail and watch what happens.

This can be messy, though it cleans up easily. Cover the work and play surface with plastic.

You will need: One box of cornstarch

Water (about 5 parts cornstarch to four parts water)

Small amount of food coloring

Bowl

1. Give each boy a bowl with about 1/8 cup water.
2. Sprinkle cornstarch slowly on the water, letting cornstarch soak up the water.
3. Keep adding cornstarch and SLOWLY knead it with one hand as it begins to thicken. If you try to mix too fast, it will crumble instead of mix.
4. Add a small amount of food coloring, if you wish.
5. Add enough cornstarch so that you end up with a thick gel substance.

Oobleck will keep a few days if covered, but it can mold. If it gets too thick, you can add water by wetting your hand.

GREEN, FIZZY LEMON DRINK

Bicarbonate of soda is a weak base. It is used in cooking; it can make gingerbread rise. The chemical reaction between lemon juice, a weak acid, and bicarbonate of soda, a base, can put fizz into your drink.

Add a few drops of green food coloring to a pitcher of water. Stir in two tablespoons of confectioners' sugar and three teaspoons of bicarbonate of soda. Then add six teaspoons of fresh lemon juice. The acid lemon juice and bicarbonate base react to make carbon dioxide. Now taste your drink!

Try adding baking soda to some other acidic things such as buttermilk, sour cream, yogurt and apple cider; and watch them bubble.

When baking soda is added to dough made with acidic liquids, bubbles form and cause the dough to rise.



VINEGAR ROCKET LAUNCHER AND CANNON

Do this outside, where you have plenty of altitude available.

You will need:

One cork with streamers attached by thumb tacks. (Make sure the cork fits the bottle snugly.)

One quart soda bottle containing 1/2 cup water and 1/2 cup vinegar

1 teaspoon baking soda

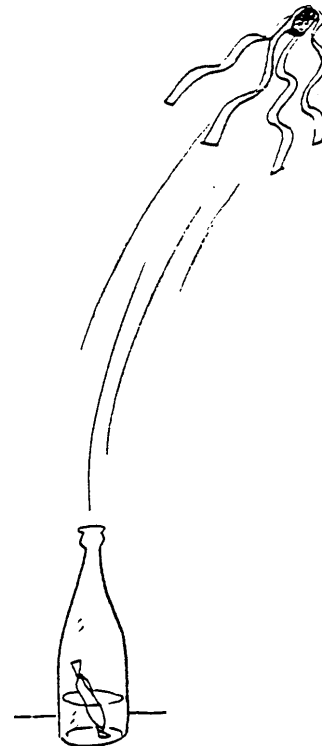
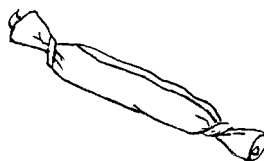
4" x 4" piece of paper towel.



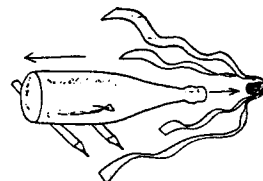
1. Put baking soda on the piece of paper towel. Roll up paper towel and twist ends.
2. Drop the paper towel twist into the bottle.
3. Place cork on top and stand back and watch.

As the liquid soaks through the paper towel, the baking soda reacts with vinegar to produce carbon dioxide gas. As the gas forms, pressure builds up.

Soon comes the pop and the rocket is launched.

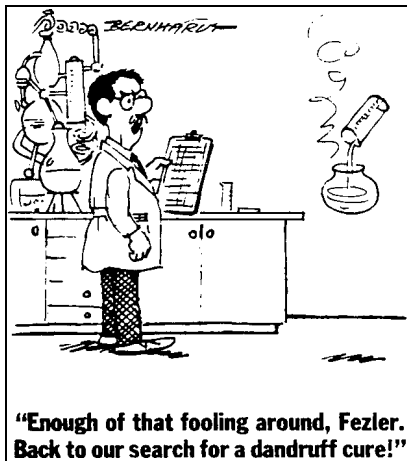


Turn bottle on its side and resting on 2 pencils so you can see the recoil in the opposite direction. This makes a cannon.



SODA FOUNTAIN

In 2 cups of water in a tall bottle, dissolve 1 tablespoon baking soda and a few drops of liquid detergent or a pinch of soap powder. Then pour in a few tablespoons of vinegar. The chemical reaction produces tiny soap bubbles filled with carbon dioxide gas. The foam rises up and flows over the top of the bottle in a fountain of bubbles.



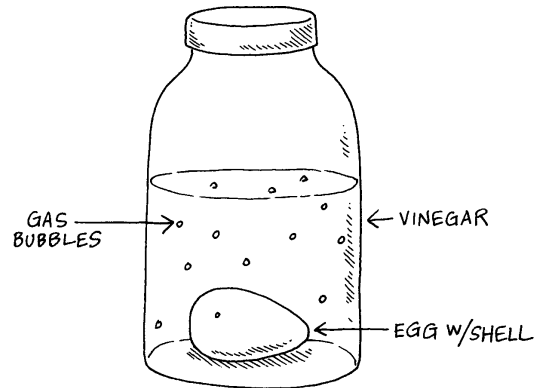
NAKED EGG AND RUBBER BONES

NAKED EGG

How to remove the shell from a raw egg without breaking it!

Vinegar's chemical name is acetic acid. Egg shells are made of calcium carbonate. The reaction between acetic acid and calcium carbonate causes the egg shell to disappear and carbon dioxide bubbles to form.

Place the whole raw egg into a glass jar and cover the egg with clear vinegar. Close the lid on the jar. Observe immediately and periodically for the next 24 hours.



Bubbles start forming on the surface of the egg shell immediately and increase in number with time. After 24 hours the shell will be gone, and portions of it may be floating on the surface of the vinegar. The egg remains intact because of the thin see-through membrane around the outside. The yolk can be seen through the membrane. Keep the egg in the vinegar till the following den meeting. Let the boys GENTLY hold the naked egg.

RUBBER BONES

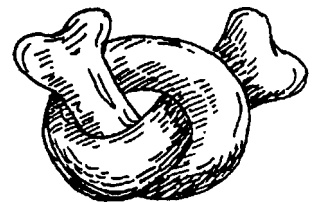
Bones are made up of two main things, apatite and collagen. Apatite is a calcium compound that makes bones hard. Collagen is a protein which makes bone resilient. From the NAKED EGG experiment, you know that vinegar reacts with calcium and makes it disappear. Here the vinegar will dissolve the apatite, leaving only collagen. Because collagen is soft and rubbery, you can literally bend the old bone any way you like!

Save some bones after a chicken dinner. Use several bones varying in size, like drumsticks, and wishbones.

Clean the bones by boiling them in water. Scrub off all the meat and cartilage with an old toothbrush and soapy water.

Place the bones in a container filled with vinegar and cover it to keep the smell of the vinegar from filling the house. Leave the bone in the vinegar for a three to four days.

By the following den meeting the bones will be pliable. They bend as if they were made of rubber. Make a wish on the wishbone and see what happens. Try tying it in a knot.



TWO WAYS TO MAKE YOUR OWN PLASTIC

PLASTIC JELL-O

Plastic is artificial. Well, this is artificial plastic!

You will need: 1 envelope unflavored gelatin
3 Tablespoons water
few drops food coloring
plastic coffee can lid or other container lid.
saucepan, pot holder, spoon, scissors, paper punch, needle, thread

1. In saucepan over medium heat, cook gelatin, water, and food coloring.
 2. Stir constantly until dissolved.
 3. Remove from heat.
 4. Pour mixture into a coffee can lid. Push any bubbles to the edge.
 5. Let dry 1 to 2 days until hard.
 6. Lift when edges are hard and sharp.
 7. Cut with scissors to make a window ornament, a guitar pick, tiddlywinks, or...anything!
- Punch out tiny rounds of plastic and string on thread for Mother's Day.
Color with a permanent marking pen to make stained glass. Thread and hang in windows.

PLASTIC FROM MILK

Many plastics are made from petroleum oil. Oil formed in rocks over million of years, from the bodies of billions of small sea creatures. You can make a similar "plastic" in a few minutes--using milk, another organic (carbon-containing) substance.

You will need: Heavy cream, saucepan (not aluminum), vinegar

1. Warm some heavy cream in the saucepan.
2. When it is just simmering, slowly stir in a few teaspoons of vinegar. The acidic chemicals in the vinegar react with the organic milk chemicals.
3. Keep stirring until it becomes rubbery.
4. Let it cool and wash it under running water.

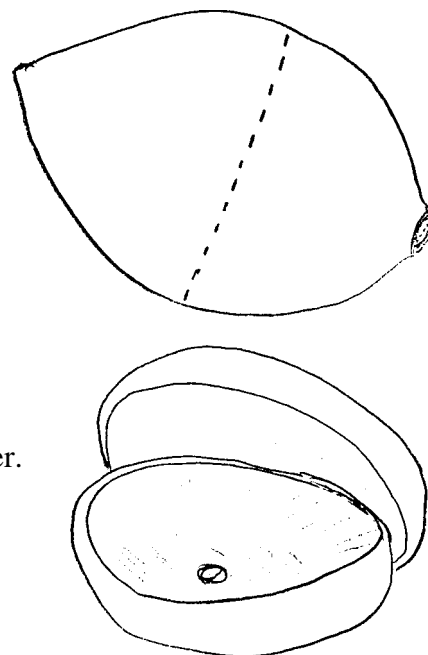
You now have your own plastic, which you can bounce around.

LEMON BOX

Amaze your friends! They'll wonder how you could possibly make a box out of a lemon.

You will need: One large soft lemon. Two round bottles or lids that are almost the same size as the lemon (one should be a little smaller than the other). Salt. Sandpaper.

1. Cut the lemon in half (width-wise)
2. See if you can eat the lemon without making a face. (Or you can use the juice for GREEN, FIZZY LEMON DRINK listed on page May - 19.)
3. Very carefully, remove all the white stuff and turn the lemon peel inside out. If it tears, get another lemon and start all over. (You may wind up with a big pitcher of lemonade!)
4. Shape each half of the peel around the lids or bottles.
5. Sprinkle salt on the peels to help them dry faster.
6. Leave it in a dry place till next den meeting.
7. Remove lemon peels from bottles or lids.
8. When lemon is completely dry, sand the edges. Fit large half over smaller half for a lid. Or if the two halves do not fit as a box, use them as two small dishes!

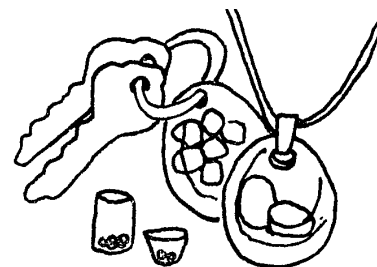


PILL BOTTLE JEWELRY

Here is a quick way to make colorful jewelry or a key chain tag for mothers. They look good as neckerchief slides, mobiles or window decorations too.

You will need: Clear or semi-clear plastic bottle, like pill bottle or film canister. Colorful beads (clear or speckled beads are pretty). Aluminum foil. Clear glitter powder (optional)

1. Remove the lid from the bottle. Fill the bottle part way with beads. You can do the same with the film canister lid. (You can heap the beads on a lid. Beads may spill while melting but it will give the jewelry a unique shape.)
2. Set the bottle upright on a sheet of foil (have separate foil for each boy). Place the bottle and foil on a cookie sheet.
3. Bake in the oven at 500 degrees for about 5 minutes in a well-ventilated kitchen. Keep a close eye; don't let it burn. (If the oven has a window, boys will enjoy watching the bottles and beads melt.) The bottle and beads melt down into a pretty, flat piece. If you wish, sprinkle clear glitter while the piece is hot.
4. Let it cool. Peel off the foil.
5. To make holes in the pieces, heat a nail or a large needle and poke it through the plastic near the edge. Be careful, the nail will be hot.
6. To make a neckerchief slide, glue a small section of PVC pipe onto the back.



Try with a black film canister lid. With black, colorful beads (not clear) work well. Heap the beads on the lid.

TWO SIDEWALK CHALK RECIPES

Both of these work very well on sidewalks, but not on chalkboards.

ONE

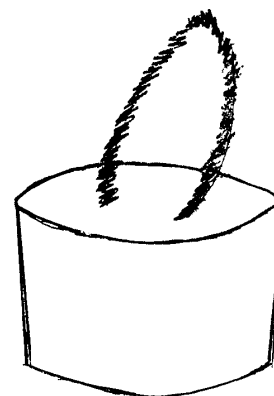
You will need: 6 eggshells. 1 teaspoon flour. 1 teaspoon very hot tap water. Clean, smooth rock. 2 dishes. Spoon. Strip of paper towel.

1. Wash and dry eggshells.
2. Grind them outside on clean, smooth concrete with a smooth rock.
3. Grind until you have a powder.
4. Sweep up powder with hands and put into a dish.
5. Pick out any big pieces of shell and throw them away.
6. Measure flour and hot water into another dish.
7. Add 1 tablespoon of the eggshell powder.
8. Mix and mash until it sticks together.
9. Shape and press firmly into chalk stick shape.
10. Roll stick up tight in a strip of paper towel.
11. Dry for 3 days until rock hard.
12. Write with chalk. Erase with shoes.

TWO

You will need: Disposable bowls. Disposable spoons or stirring stick. $\frac{2}{3}$ cup plaster of Paris. Slightly less than $\frac{1}{3}$ cup cool water. 2-3 Tablespoons liquid tempera. 3 oz. Paper cups (waxed Dixie cups). Thick yarn or cord.

1. Mix plaster of Paris and water.
2. Add liquid tempera.
3. Continue to mix thoroughly until all lumps are gone.
4. Pour equal amounts into 2 paper cups.
5. Knot a piece of yarn in a loop and push the knotted end halfway into the plaster.
6. Let dry 1 to 2 hours.
7. Tear off paper cup.
8. Write with chalk. Erase with shoes or water. Carry chalk by the rope.



Have two boys team up, each making different colored chalk. Each keeps one of his cups and gives the other to his partner. Now they each have two chalk pieces in different colors.

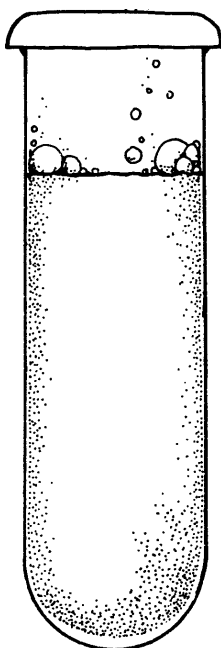
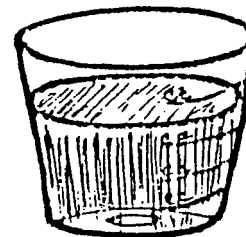
What is plaster of Paris?

Plaster of Paris is made by grinding a clear, shiny crystal called gypsum into a powder. The powder is heated to remove all of its moisture. This dry powder changes back into a solid when water is added, but it never looks clear and shiny again. Heat is given off when the plaster of Paris is setting-up or drying.

BEAKER NECKERCHIEF SLIDE

You will need: One plastic medicine measuring cup (ask at the pharmacy).
Paint.

Drill a 1/2" hole in the bottom of cup for the neckerchief. Paint inside to look like there is liquid in the beaker.

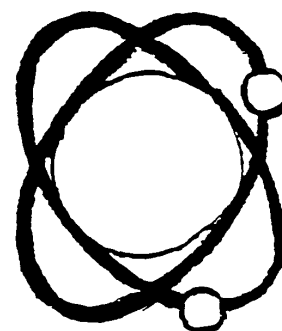
**TEST TUBE NECKERCHIEF SLIDE**

Copy the pattern on thick paper or copy on regular paper and then glue it onto cardboard. Color the pattern. Cover with clear adhesive plastic. Cut out the pattern and glue onto a wide craft stick (5/8"). Glue a 1/2" length of 1/2" PVC pipe onto the craft stick.

ATOM SLIDE

You will need: One 1" styrofoam ball
One 1/4" red bead
One 1/4" yellow bead
One 4" pipe-cleaner
One 12" pipe-cleaner

Cut the 12" pipe-cleaner in half. Thread the red bead on one piece of pipe-cleaner and the yellow bead on the other. Form the pipe-cleaners to make ovals big enough to go around the 1" styrofoam ball. Glue the ovals on the ball at angles to each other. Make a loop out of the 4" piece of pipe-cleaner and glue the loop onto the back of the styrofoam ball.



WHAT HAPPENS WHEN YOU COOK CUSTARD?

BAKED CUSTARD

3 eggs
1 1/2 cups (360 ml) milk
1/3 cup (80 ml) sugar
1 teaspoon (5 ml) vanilla

1. In a medium saucepan, heat the milk over medium heat until steam comes off the top and the milk is about to simmer.
2. Stir in the sugar and continue to stir until the sugar dissolves.
3. Let the milk cool for 10 minutes.
4. Stir the vanilla into the cooled milk.
5. Preheat the oven to 350 degrees.
6. In a medium bowl, beat eggs with an electric mixer until bubbly, about 3 minutes.
7. Pour the eggs into the cooled milk mixture and stir.
8. Ladle the mixture into 4 custard cups.
9. Place the custard cups in a baking pan. Pour 1/2 inch of water into the pan.
10. Bake for 20 to 25 minutes or until a knife inserted in to the custard comes out clean.

STIRRED CUSTARD

3 eggs
2 cups (480 ml) milk
1/4 cup (60 ml) sugar
1 teaspoon (5 ml) vanilla

1. Combine the eggs, milk, and sugar in a medium saucepan. Cook over medium heat, stirring constantly until the egg mixture just coats a metal spoon.
2. Remove the pan from the heat. Stir in the vanilla.
3. Cool the custard quickly by setting the saucepan in a large bowl of ice water for 3 minutes, stirring constantly.
4. Pour the custard into a medium bowl, cover with plastic wrap, and refrigerate.

WHAT HAPPENED

Compare the two custards. Do they look different? How about the taste?

Custard is a mixture of milk and eggs. Although custards are made with the same ingredients, either a sol or a gel may form when the mixture is heated, depending on what happens during the cooking process. Continuous stirring during cooking results in a stirred custard, called a sol. Stirred custards are creamy. When the mixture is baked in the oven without any agitation, the custard gels (becomes solid) and is called a baked custard. In both cases, the protein in the eggs thickens the custard.

TOASTING MARSHMALLOWS

Most of the foods we eat were once living things, either plants or animals. So they contain lots of carbon. Often, when organic chemicals are burned, the carbon changes into its powdery black form. This is why food turns dark or black if it's burned during cooking.

Toast marshmallows safely near a gentle flame. You can see the sugary marshmallows burn slightly and carbon appears as a dark substance.

SALAD DRESSING: A LIQUID SUSPENDED IN A LIQUID

If you shake oil and water together then let them stand, they will separate into two layers. Liquids that do not form solutions are said to be immiscible.

Classic French salad dressing (or vinaigrette) is a mixture of oil and vinegar and seasoning. Vinegar is a water-based substance and is immiscible with oil. In order for all the flavors of the dressing to be evenly spread throughout a salad, it must be thoroughly mixed. A vinaigrette is usually given a number of hard shakes and immediately poured on a salad before the two liquids have a chance to separate.

1/3 cup vinegar
1/2 teaspoon salt

1/4 teaspoon pepper
1/4 teaspoon garlic powder

1/4 teaspoon paprika
1 cup salad oil

You need a jar with a tight cover

1. Put the vinegar in the jar and add the salt, pepper, garlic powder, and paprika. Screw the lid on tight and shake.
2. Pour in the salad oil and let the mixture stand for a few minutes.
3. Do activities below. Then have a den salad party or have the boys take the dressing for their families.

Observation

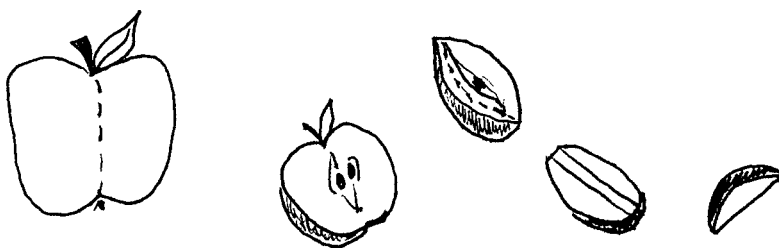
1. Cover the jar and shake about 10 times. Use a watch to see how long it takes for the mixture to separate.
2. Shake the jar hard about 20 times. Does the dressing take more or less time to separate? Look for droplets of vinegar suspended in the oil.
3. Shake the jar different numbers of times and examine the size of the droplets immediately after shaking. When does the dressing have the smallest droplets?
4. Put the mixture in a small bowl and beat hard for about 4 minutes with an eggbeater or an electric mixer. Quickly pour the dressing back into the jar. Examine the droplets with a magnifying glass. How long does the dressing take to separate into two layers? What did shaking and beating do to the size of the droplets?

FRUIT SALAD: OXIDATION OF FRUIT

Ever notice how certain fruits and vegetables turn brown when a cut surface is exposed to the air? This happens because there is a pigment in fruit that reacts with the oxygen in air. Oxygen is a very reactive element, which combines with many substances in a reaction called oxidation. Rusting iron is an example of oxidation.

Apples, peaches, pears, and bananas are all easily oxidized. A fresh fruit salad can be protected from oxidation by keeping it from the air or by treating it with vitamin C. Lemon is full of vitamin C.

Water
1 lemon
1 apple
1 peach or pear
1 banana
2 shallow bowls



1. Squeeze lemon. Put the lemon juice and about 1 cup of water in a small, deep bowl.
2. Cut the apple in half. Peel and cut out the core of one half quickly. Slice this half into the bowl of lemon water. Make sure each slice is covered with the solution. Remove the apple slices with a slotted spoon and put them in one of the shallow bowls.
3. Peel, core, and then slice the other half of the apple directly into another shallow bowl.
4. Repeat this procedure with the other fruits: Slice half into the lemon water and leave slices from the other half untreated.
5. Arrange the fruit so that as much surface is exposed to the air as possible.
6. Let the two fruit salads stand for a while and see where browning occurs.

Lemon is not the only fruit that can slow the browning of other fruit. Kiwi is great too. Both lemon and kiwi contain vitamin C, also called ascorbic acid.

Cut an apple in half. Place a slice of kiwi on the cut surface of the apple. Place a piece of clean sponge about the same size as the slice of kiwi on the other half of the apple. Leave it for a while. Lift the kiwi slice and sponge piece and see what happened. The sponge shielded the apple surface from the air but that was not enough to slow down the browning reaction. It needed the vitamin C in the kiwi to slow down the process of oxidation. Now enjoy the fruits.

