MATERIALS and METHODS

Papier mache is the ultimate recyclers dream. So if you're a tree hugger like I am, this is the place for you. At its most basic, papier mache is paper and paste.
What kind of paper? Why, whatever lights your fire. Old newspaper, discarded phone books, grocery bags, junk mail, paper towels, shirt cardboards, paper boxes, old gift wrapping paper, paper egg cartons and paper separators for bulk eggs, shredded computer and copier paper, wallpaper ends, etc. You don't have to stick with paper either. You can recycle old bed sheets, washer and dryer lint, torn and worn out T-shirts, socks and jeans, burlap. Again the list goes on and on. But why stop with the paper mache shell. The armature as well may be constructed from discarded items. The armature, for the uninitiated, is the support structure or skeleton of a sculpture under construction. For the armature you may use PVC plumbing pipe, toilet paper and kitchen towel tubes, tubes from inside new carpeting, bits and pieces of wood, coat hanger wire, chunks of packing foam (from TVs, VCRs and the like), foam peanuts (in a bag), bundles of rags and ratty old clothes, etc. As far as colors go, you probably have drawers and desks full of marking pens and colorful felt-tip markers. These work great for putting designs on your paper mache - especially if your final coat of paper is white. There are many protective finishes available, use clear, gloss lacquer, shellac; water based urethane and solvent based Marine Spar Urethane. Most of these materials are available is spray cans, but I prefer to bush or pour on my finishes. If you desire a finish that is extremely durable and highly moisture resistant, it's the solvent based, Marine Spar Urethane that would be the most effective. But for the ultimate in protection, consider using a two-part polyester resin. It does take more time and effort but it is pretty much unbeatable for protection. Materials of this sort are available at boating supply places and warehouse style building material suppliers.

PASTES AND ADHESIVES

My paste of choice is white PVA glue such as Elmer’s, Dap or Resitol. Traditional paste is made from plain old wheat flour, salt and water. It's very easy to create, and you'll find the simple recipe elsewhere in the manual. If you have some leftover liquid starch, you may use that as a paste - but don't dilute it, because it isn't all that strong to begin with. Wallpaper paste is very popular with a number of paper mache artists, and it mixes well with cellulose fiber to make pulp papier mache. Don't make too much at one time, though - like flour and water, it may spoil.
FLOUR PASTE: Traditional papier mache paste is made from a mixture of flour, salt and water.
An exact formula for the flour paste is not possible as the desired consistency will vary for each user and what it is used for.
Bring a small pot of water to the boil. Turn off the heat. Slowly stir in flour (breaking up the lumps as you go) until you have the consistency of thick, smooth library paste. Optionally, add ¼ cup of table salt to a quart of paste. Allow to cool. Use. That's it! Only make enough flour paste for one or two sessions, otherwise it might spoil on you. Store it for the second day in a covered container in the refrigerator.
WALLPAPER PASTE: Many paper mache artists and teachers report great success

with wallpaper paste - both for strip paper mache and for mush (pulp papier mache, paperclay). There are many different brands that will vary with your location and country. From my experience, however, they all are “pretty much” the same. Mix them according to the directions on the box, and, as was the case with flour and water, only make enough for a day or two.

LIQUID STARCH: If you must use this material, use it straight from the bottle - no dilution. It is not a very strong adhesive.

WHITE PVA GLUE (Elmer’s, Dap, Resitol, etc.): This is my adhesive of choice. It's more expensive than the others, however it dries strong, clear and slightly flexible; it has a relatively long working life; it doesn't spoil; and it doesn't attract bugs. If you buy it in large containers, a gallon or more, the price is greatly reduced.

TIP - For further savings, you can use a mixture of flour and water paste or wallpaper paste and PVA white glue - the more white glue the stronger and grabbier the mixture. PVA does NOT mix well with starch. When creating works for long term outdoor display, you can use portland cement with a PVA admixture. The admixture makes the cement easier to work with and helps prevent cracking.

PAPIER MACHE PULP

The most traditional papier mache is a plastic material that can be modeled solid like clay, pressed into a mold or applied over an armature. Back in the “good old days” you would have had to tear paper into boiling water and allow it to cook itself to mush. Into this mush you would have kneaded flour and water paste, until you obtained a product that closely resembled potter's clay. No one is sure, but it is rumored that this sort of papier mache dates from the invention of paper, some thousands of years ago.

Nowadays, papier mache is much easier to produce. Go to the local craft store for paper pulp, or to the builder's emporium for “blown-in cellulose insulation,” mix it with glue or paste, and there you are: no boiling, no cooking, no nothing. If you'd prefer to use more conventional materials, toilet paper breaks down fast and easily - and it's not too expensive if you buy it in bulk at a big discount store.

TOILET PAPER pulp: Slowly feed and stir toilet paper into a container of tepid water - breaking up the lumps as you go. Keep adding paper until all the water is nicely absorbed - you don't want a soupy mixture, you want it thick and almost stiff. Knead this mixture with your hands, to make sure all the lumps are gone and that the mixture is smooth and even. Now knead in your glue or paste of choice: PVA (Elmer’s type white glue), flour and water paste or wallpaper paste. Starch is not recommended for this application. If you opt for flour and water or wallpaper paste, store the mixture in a covered container in the refrigerator and use it up within a couple of days. If you use a PVA white glue, it may be stored for use twice as long.

EGG CARTONS pulp: Tear up the paper cartons (or bulk egg separators) and allow them to soak for several hours in tepid water.

Squeeze out the water, and wedge the pulpy paper against a scrub board to break up all the fibers. Knead in your adhesive of choice.

NEWSPAPER pulp: Proceed as above using the newspaper. You may also use shredded

copier paper, but it will have to be soaked much longer.

CELLULOSE FIBER pulp: Fluff fiber into a container, and slowly knead in the adhesive until you reach the consistency you desire. If you use PVA, you might have to add a bit of water.

WASHING MACHINE pulp: No, this is not a misprint. If you have access to shredded paper or a shredder to do your own paper, this pulping method maybe just the thing for you. Stuff a pillowcase with shredded office paper, and double tie it closed, so it can't possibly pop open. Place the stuffed pillowcase in the washing machine, set the machine for the longest possible cycle, and use hot for both “wash” and “rinse.” After the final spin, the paper should be reduced to a “creamy pulp,” damp dry, and ready for the addition of paste or PVA glue.

To speed the initial setting of the pulp papier mache, you may add one small handful of plaster to each two large handfuls of mush. This mixture will allow you to remove your project from the mold after only a few minutes, but you will still have to set it aside to dry.

CREATING WITH PULP PAPIER MACHE

Paper clay is workable much like potter's clay, except overly thick applications take forever to dry, and may mold: it's best to gradually build up the thickness. In addition to being able to model solid objects, such as puppet heads, arms, torsos and legs, you may also apply the stuff over an armature. Armatures might consist of wads of newspaper held together with masking tape, wooden dowels or coat hanger wire inside a puppet's arms and legs. The use of armatures often adds strength and can reduce drying time due to the thinner application of mush. To make topographical layouts, pound brads (headless nails) into a baseboard, and model your hills and valleys over the nails. The nails/brads give the mush something to grab onto so it will stick tight and not come apart. You may use this same system for creating mountain backboards, and bas relief sculpture. Paper clay is also a fine material to use for pressing into open faced molds. However, you should use a mold release (such as a sheet of food wrapping plastic in the mold first), and you should probably back up the dried mush with a layer of strip paper mache for extra strength. To achieve a smooth surface with paper clay, you may do a bit of refining with a damp finger. However the surface may still retain a somewhat granular appearance. To get the desired absolutely smooth working surface, “paint” on a minimum of four coats of artist's gesso, sanding lightly between coats, but not sanding the final coat. Onto this surface you will apply color and detail, and finish with multiple coats of clear, gloss lacquer or urethane. If you are careful, the results are as smooth as fine porcelain.

TORN STRIP PAPER MACHE

Even though mush is the traditional method, torn strip is what comes to most people's minds when they think of paper mache. Used copier paper, newspaper or paper torn from brown grocery bags work well, and you may use all three on the same project. If you can find it for a good price, the rolls of painting paper that is used for masking off areas when paint a room work very well and are close to the same texture and weight as brown paper bags. They come in several widths and colors. I get different colors to use so that I can tell by the color when I have completely covered my project for one layer. Brown bag paper, especially from LARGE bags, is the strongest and heaviest, and requires the

fewest layers. You may use phone book paper if you have many curves to cover: a bowl or globe for example. Because it is so thin, phone book paper hugs curves better than heavier stuff. However, also because it is thin, it is weaker and requires more layers than the others. Hence, I only recommend it for special projects.

To build strength, stripped paper mache requires multiple layers. To keep track of layers and to assure complete coverage, it's a good idea to alternate at least two different types or colors of paper: newspaper and brown bag paper, for example. White copier paper is useful as a final layer before painting. Cover your working surface with a cheap plastic drop cloth. Put aside a couple of pieces of waxed paper to rest your work on when it's drying.

Cut down a couple of gallon plastic bottles, one to use for glue or paste, and the other for plain water. Tear, rather than cut, paper into strips. Tearing gives a “feathered” edge that lies smoother and tighter than a cut edge. Using the fingers, smear glue all over a strip of newspaper: enough glue to cover both sides, but don't make it goopy. Skim off any excess. Apply the strip to the armature (basic form), getting it down as smoothly as possible, without air bubbles. Continue adding strips and overlapping about 1/3, until the armature is completely covered. Rest your project on a piece of waxed paper so it doesn't stick to the work surface. Take a break. The container of water is for keeping the fingers damp and for dipping when fingers get too sticky.

Using a different color, add a second layer of paper mache. You may add up to three layers in a single day. Anymore than three and you might have drying problems. The differing colors are to control for complete coverage and to keep track of layers. Continue adding layers until the piece is as strong and hard as you'd like it to be. If you make your final paper layer white, it will provide excellent contrast for your final colors. If you wish an extremely smooth surface, consider the application of several coats of artist's gesso.

OUTDOOR PAPIER MACHE

If you’re working with pulp papier mache, wait until the object is completely dry, then coat it liberally with boiled linseed oil. Allow the oil to soak in, then apply another coat. Continue the process until the paper mache won’t accept anymore oil (usually three to five coats), then wipe off any excess and allow it to dry. Not only does the boiled linseed oil improve weather resistance, but it also increases strength. For the strongest practical finish for strip paper mache, is the clear gloss, solvent-based, Marine Spar Urethane. This is the stuff “they” use to coat boat decks, and it stands up to all sort of abuse. The surface of your paper mache must be clean and free of all grease and oil, and the finish must be applied with a brush. Four coats of solvent-base Marine Spar Urethane is the minimum, and six coats wouldn’t be too much. While this stuff is truly strong, it will only render your project highly weather resistant, NOT waterproof. To further protect an outdoor display, keep it elevated out of the earth, and out of standing water. It also wouldn’t hurt if you gave it some overhead shelter. Going from the “practical” to the “truly serious,” you might opt to coat your project with a clear two-part polyester resin.

Two-part polyester resin is a real bother to mix and apply, but it will provide the highest level of water and weather resistance. These resins may be found in boating supply houses, and in some large warehouse-type building supply stores. When creating specifically for out of doors display, replace the glue with portland cement (with a PVA admixture), and the paper with torn strips of old bed sheeting, muslin or canvas.

MOLDS AND ARMATURES

Keep your eyes open and your imagination ready as there is always stuff all around you that may be pressed into service as a mold, or as a ready made armature. When creating bowls, candy dishes, containers for dry flowers and potpourri, trays and serving platters, common paper picnic ware can be used by covering it with stripped paper mache and decorating it.

For creating the above items, without an armature, molds can be made of flexible plastic bowls, and the tubs you use in the kitchen sink for dishes. If you turn the tub over, and cover it, the bottom only, with strip paper mache, you get a great platter. A major advantage of using flexible plastic items is, you don't have to use a mold release. Just flex the mold and your work of art usually just pops off. If it doesn't pop off, that means it isn't completely dry, or doesn't have sufficient layers of paper mache. Antique candy molds are also great for paper mache. First lay a sheet of thin plastic food wrapping film into the mold. Then press in, or apply, the paper mache. When the paper mache is dry, lift the film, and your project should easily be removed. If you absolutely MUST use fine crystal as a mold, coat it first with liquid detergent. Apply paper mache and allow it to almost dry through. Split the paper mache with an Xacto knife, and remove the shell in two or more pieces (hoping for the best). Glue together the paper mache pieces, and continue with your project.

MOLD RELEASES

If you are using rigid plaster or metal molds, a release is often necessary. Most books recommend petroleum jelly. Not me! Petroleum jelly is a mess to remove, and if not completely removed, further layers of paper mache will separate. In addition, you can't apply paint over grease. If you've already used petroleum jelly before reading this manual, try cleaning it off with rubbing alcohol. The simplest and most straightforward release, is to lay a thin sheet of food wrapping plastic into the mold before pressing in the paper mache. Then, when the adhesive has set, all you do is lift the plastic, and no muss-no fuss. Other releases that can be used is a light coating of Pam, cooking oil or baby oil. These work, but they contain grease, and must be completely removed before proceeding. Now, when a mold release is absolutely necessary, I make up a slurry from liquid detergent with a few drops of water. The best solution I've found is, whenever possible, use flexible plastic molds. Then, when your object is dry, stiff, strong and hard, all you do is “flex” the mold, and your creation POPs right out. If it doesn't pop right out, that's an indication the piece isn't dry, stiff, strong and hard enough: add more layers and let it dry through. Then flex and pop again.

MASKS FOR DISPLAY

Display Masks are the easiest to make, because they don't have to fit a face. The backing may be created of foamcore (used for mounting posters and pictures), poster board (illustration board, bristol board), corrugated cardboard, plywood, masonite or similar material. The first step is to cut your backing to shape. With the paper materials, this is a cinch: just use a very sharp matte knife (aka utility knife). With plywood and masonite you may use a coping saw, a scroll saw or a band saw. Cover the shaped backing with several layers of strip paper mache. This provides strength, stiffness and a nice working surface for what's to come. Once the paper mache is dry, lightly draw your mask on the backing. For the 3D areas, cut shapes from cardboard or foamcore and glue them to the backing. You don't have to be satisfied with applying only a single 3D layer - these may be glued one atop the other until you achieve the effect you desire. More rounded 3D shapes may be created from wads, rolls and "sausages" of newspaper and masking tape. You may also use small boxes, bottles, balls, machine parts and other "found" items. Once the 3D areas are in place, and dry, cover with another layer or two of strip paper mache. Paint the unfinished mask with flat, white, water based undercoat, and allow to dry. Now is the time to apply your colors and designs. You may also add extra frill, such as material, jewels, dangles, feathers, fur, etc.

MASKS: WEARABLE

The easiest way to make a wearable mask is to begin with a commercial Halloween or party mask, and build upon that. The most artistic and creative way, is to sculpt the mask first in oil-clay, then cover that positive form with multiple layers of strip paper mache. Another, similar procedure, especially if you want to make several masks (for a theatrical performance, for example), would be to create a female plaster mold from the oil-clay original. Press paper mache into the female mold. When dry, remove, and you'll have a mask with an extremely smooth surface. To create a mask to nicely fit your own face, double over a sheet of heavy-duty aluminum foil and press and mold it over your face. Back up the mask with paper wads to keep it from deforming too much, and cover the front with a layer of strip paper mache. When the front layer is dry, cover the back with a layer, and allow it to dry. All this fooling around will have deformed the mask quite a bit, so dampen it slightly and reform it to your face.
TIP: After molding the foil to your face, "paint" both sides of the form with four coats of undiluted PVA glue (Elmer's, Dap, Resistol or the like). Allow each coat to dry before applying another one. The glue should make the form stiff and hard, and less likely to deform while you're adding the paper mache strips. Cut out the eyeholes and do a general trimming with a sharp scissors. "Bind" all the cut edges with paper mache. For adding exaggerated details like a big nose, cheeks, brows and the like, use wads of newspaper and masking tape, or cut and folded shapes of cardboard. These additions

should be covered with one or more layers of paper mache.
The most common starting point for a mask is a balloon. For some reason, middle school art teachers just love using balloons for just about everything. If you want to begin with a balloon, more power to you. The process is the same. Cover the balloon with multiple layers of strip paper mache, cut out the eyeholes and trim. Add the exaggerated features and other details, cover with more paper mache, and VOILA, you're ready to paint and decorate. If this is a project with young kids, you might want to make the final layer of paper white - this will make your colors jump out. You could decorate the mask with black marking pens, colorful felt markers, poster paint or even bits of colored paper. If you want it to last, apply several layers of clear, gloss sealer. For more advanced artists who'd like a really smooth finish, gesso is the secret. Once the basic mask is finished and completely dry, "paint" on a minimum of four coats of artist's gesso. Sand between coats, but don't sand the final coat. This will give you a very smooth working surface. After applying color and multiple coats of clear, gloss lacquer, the surface can be almost as smooth as glass.

BAS RELIEF

Bas relief projects can range from volcanoes for science projects to plaques. Since this is a Halloween site, this will lean more towards this theme. The materials are few, simple, cheap (or free) and easy to work with: a choice of plywood, masonite, foamcore, or corrugated cardboard; old newspapers and masking tape; heavy-duty aluminum foil; a choice of white PVA (Elmer's) glue, flour and water paste or wallpaper paste; acrylic paints; urethane sealer; assorted brushes and containers and a covered work surface.
You'll need a baseboard or platform to start. Plywood or masonite work well, and are very strong. All you need to do is paint them, and you're ready to go. For a lighter weight baseboard, begin with foamcore (used for mounting posters and pictures) or several glued together sheets of corrugated (box) cardboard. To gain the strength you'll need, foamcore and cardboard laminates should be covered with at least three layers of strip paper mache. The inner structure will be created from wads of newspaper secured with painter's masking tape. The size and number of wads depends, of course, on the finished size of your project.
To make a simple plaque or raised design, lightly sketch the shape of the base of the design on the baseboard. Wad up pieces of paper and secured with masking tape in the appropriate location on your project. The sizes of the paper wads might vary from ping-pong ball size up to grapefruit size. Tape wads to the baseboard, filling in the sketch. Now, begin piling up and taping down, wads of paper to form the shape. You can cover the whole works with heavy-duty aluminum foil to make the surface easier to papier mache.
Cover the aluminum foil with two or three layers of torn-strip paper mache. When the paper mache is dry, either paint it with acrylic paint, or add another layer of paper mache . After painting the project, seal it with several coats of clear urethane.

ALLIGATOR / CROCODILE

The first thing you need to do is collect several good pictures (photographs and or drawings) of alligators and crocodiles - crocodiles are funnier, they have long skinny snouts with a bump on the end. The next thing to do is create the armature, or basic form. For this you use big wads of crumpled newspaper and lots of masking tape. The body is an extremely elongated oval, flat on top. The head is long, lumpy and bumpy (especially over the eyes and nose) and consists mostly of mouth, with the teeth sticking out. The legs are stumpy and the feet pudgy. If you are really ambitious (or just plain nuts), you can make the reptile in one piece but making the parts may be easier to do and less stressful. Squeeze and pinch the newspaper wads, adding more paper and tape until you get the shapes the way you want them. The teeth can be cut from cardboard or poster board, or you could form them from little tight wads of paper and tape. The same process can be done for the toenails. Tape all the body parts together. Cut rectangles of various sizes from cardboard, and tape them to the back of the head, body and tail for "armor plating." Cover the entire armature with multiple layers of torn-strip paper mache. If you're going to paint, the final layer of paper mache should be white which provides a good contrast for the colors you paint it. Seal with multiple coats of clear, gloss urethane.

Paper Mache Tips:

1. Paper mache doesn't like to be hurried. Take it slow and easy, and do it right.

2. If you live in a humid area, stay away from flour and water paste or wallpaper paste – they
have a tendency to mildew. Use a white PVA glue like Elmer's or Dap.

3. Allow your paper mache layers ample time to dry. Apply only a couple of layers, then go on
to another project while the first is drying.

4. If you find bubbles or loose areas in your work, cut them open, tear them back and re-glue
securely.