Arnold Grummer's

CURRICULUM FOR HAND PAPERMAKING

by Mabel Grummer

Developed by Arnold and Mabel Grummer
Photos by Arnold Grummer

15 Field Tested Lesson Plans

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3 Extra-Curricular Events Organized and Run by Students:

Two Fund Raisers
One School Service Project

Adaptable For:

Art Clubs • Science Clubs • After School Programs
Gifted & Talented Programs • Arts & Crafts Programs
Community Activity Centers

Arnold Grummer's

CURRICULUM FOR HAND PAPERMAKING

Table of Contents

Introduction

This curriculum was developed to implement a series of hand papermaking activities for an extra curricular club formed by science students.

In this curriculum, the club is referred to as **HOPE** Club (**H**elp **O**ur **P**lanet **E**arth).

Connie Roop, an award winning science teacher, initiated the development and implementation of this curriculum and program for HOPE Club members at **North High School** in **Appleton, WI**.

Mrs. Roop is enthusiastic about hand papermaking. She met with Arnold and Mabel Grummer to see if they would work with the HOPE Club program to accomplish several goals:

1) To involve students in an exciting club activity that can be easily implemented.
2) To provide students with a chance to volunteer in the community by planning an Earth Day event that would be fun for participants and volunteers alike.
3) To provide some small business experience by:
   a) showing students that handmade paper creations have value
   b) organizing a sale of club members' handmade paper creations to build funds and finance club activities.

Arnold and Mabel Grummer, both former educators with interest and experience in classroom paper making, agreed to work with the club and developed this curriculum. Most sessions include notes of their experiences with HOPE Club.

This curriculum is set up so any club director or teacher can choose from the parts of the paper making program that fit his/her goals.

If the teacher thinks it feasible, the curriculum can be turned over to a student or students. Teachers of gifted programs report that they have given a group of students the **VIDEOS**, the **BOOK** and the equipment and have let students proceed by themselves with wonderful results.


Connie Roop


Mabel and Arnold Grummer


The HOPE Club

Guidelines for Success

The author suggests the following general guidelines for success with this curriculum:

- Teachers or directors can be involved in just the start-up of the program, or for the entire paper making project. Continued interest by the teacher or director is a must, however.
- The teacher or director should take the lead in early sessions. After session 7 the curriculum can be turned over to an adult volunteer leader. It should not be too difficult to attract a few volunteers. Volunteers can be involved with the activities and learn with the students.
- It's not critical to do every session outlined in this curriculum. The teacher or director can choose sessions that fit his/her goals.
- Speed of progression through the curriculum is adjustable to any schedule. If students proceed on their own, have the group stay together and work with an instructor or the teacher for the first seven activities. If some of the students are impatient to proceed, let them know that liberation is on the horizon.
- Individuals should accumulate their papers in a folder. Students can increase the beauty of their sheets when the **PAPER PRESS** is introduced.
- Do not allow students to rush through the techniques. Require several finished paper samples made with each technique before moving on to a new session. Make arrangements to follow up on the experiments or questions in the sessions.
- Group meetings will be necessary for events such as Earth Day planning and preparations, or to plan sales of papers, cards and gift tags.
- Frequently remind students to be careful with the equipment:
    - Watch for clogged screens caused by trapped fibers which can result in holes in the paper. Directions for care of screens can be found in the kit or on the web site www.arnoldgrummer.com.
    - Couch sheets will last longer with thoughtful care. Put them aside carefully and after each session lay them out in a place where they'll be undisturbed to dry.
    - Save leftover pulp by adding a drop of wintergreen to the pulp (difficult to locate) or storing it in the refrigerator. Otherwise, pulp will sour (get smelly) in a week or two.
    - Be kind to the plumbing system. Dispose of the fiber-filled water by dumping it in the flower gardens or shrubs, disposing of it in a toilet, or straining it through a fine-mesh sieve as it is poured down the drain.

Paper Making Supply List

Paper Making Supplies:

Book: Arnold Grummer's Complete Guide To Easy Papermaking
By Arnold Grummer, Krause Publ, 2000

#99

Videos: Arnold Grummer's Fun With The Papermill™, Vols I, II, III
Instructional videos, VHS, 30 mins each

#206

Kit: (see Note below) Arnold Grummer's Papermill Station For Groups
Makes 5 ½" x 8 1/2 " paper

#304

Arnold Grummer's Papermill PRO Station For Groups
Makes 8 ½" x 11" paper and matching envelopes

#502

Press: Arnold Grummer's Paper Press: Standard size

#400

Templates: Arnold Grummer's Medium Templates
Use with the Papermill™ Station for Groups
2-4, assorted styles

Arnold Grummer's Large Templates
Use with the Papermill™ PRO Station for Groups
2-4, assorted styles

#353

#556

Other: Arnold Grummer's Botanicals: Assorted
Arnold Grummer's Metallics: Assorted

#150,151,152

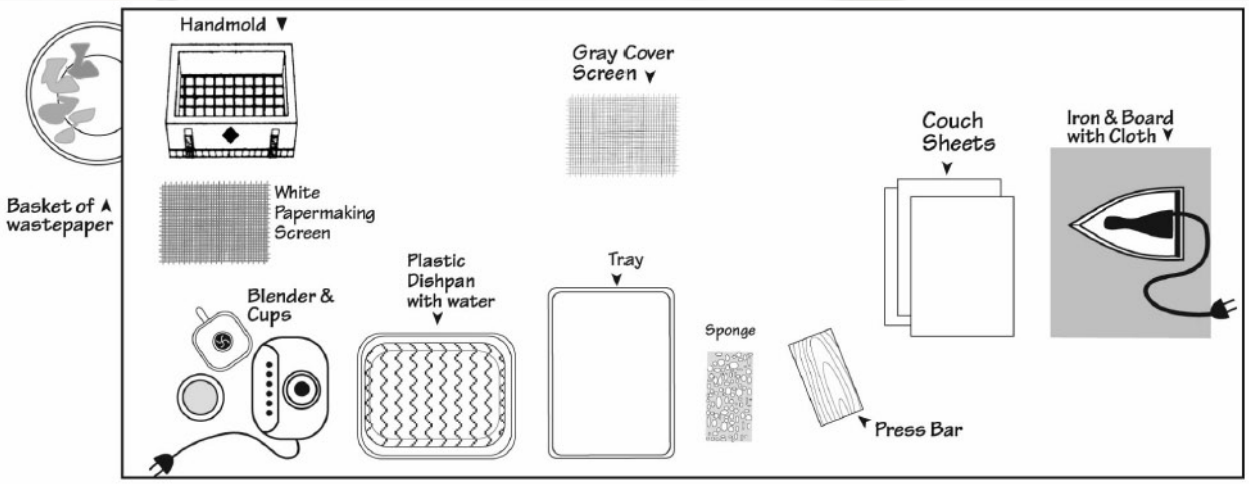
#286

Note:

- It's ideal to have one kit (station) for every 6-8 students. However, one kit can serve up to 20 students per session. All kit items are reusable. All supplies needed to form, press and dry the paper are included in kits.
- On a tight budget, start out the book, videos, a Papermill Station for Groups and a few medium templates. Add the press and Pro Station if funds become available. Botanicals and Metallics are nice but not essential; you can substitute flowers, leaves and petals available locally.

General Supply List & Set Up guide

Table Set Up Diagram:



General Supplies For Each Station:

- Assorted paper to recycle
- Vat: plastic dishpan or storage container
- Blender
- Tray
- Bucket, water
- Electrical cord
- Plastic cups and containers
- Iron, ironing board*
- Other household supplies listed as needed

* Make a portable ironing board: Find a 10 x 12 inch piece of wood. Lay a 10 x 12 inch piece of felt on one side. Tightly wrap the wood and felt with a 14 x 24 piece of cloth (like you'd wrap a present) using duct tape to close it on the back side.

Session 1
Introducing Paper Making

Goals

Introduce goals for paper making activities
Learn the basic steps for paper making using recycled paper

Materials:

- Assorted paper to recycle, precut to 8 ½" x 10".
  Avoid construction paper.
- Video: Fun With The Papermill™ Vol. 1, ready at 'Basic Sheet Making'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 46
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Give students an overview of goals and expectations for paper making sessions.
2) Watch the first segment of the video: "Basic Sheet Making."
3) Review information found on p. 46 in the book. This information discusses how to regulate thickness and thinness of the paper, a key concept to paper making.
4) Direct students to review the steps on the illustrated direction sheet showing how to make handmade paper by recycling. They can refer to steps anytime.
5) Make a sheet of paper if there is time.

Notes from HOPE Club's 1st Session:

We, Arnold and Mabel, arrived at science lab a few minutes early. High lab tables provided easy access to water and electricity. We set up a single station and did not plan to use the video or the book because we had a paper maker (Arnold!) there to demo the process.

About 12 students were expected, but about 25 showed up. This included 5 special needs students who were accompanied by 2 adults. There is no seating in the room so the first session was presented with all students standing.

We were told we would have 25-30 minutes for each session we presented. This will make it difficult to enable all students to complete a sheet. Students will help with set-up and clean-up once the routine is established.

The goals of the project were discussed. The layout of a station was pointed out and the quick set-up and quick break-down was described. Arnold demonstrated the steps to make paper.

The students were invited to bring papers to recycle for the next session. One student wanted to bring orange peels. Mrs. Roop wisely said, "We'll get to that later".

Session 2
Recycle! Make paper!

Goals

Make a sheet of paper using recycled paper.

Materials:

- Assorted papers to recycle, precut to 8 ½" x 10". Avoid construction paper.
- Video: Fun With The Papermill™ Vol. 1, ready at 'What Can Be Recycled'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 47
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Illustrated Direction Sheet For Papermaking from kit: Laminate and post

Steps:

1) Watch video segment: "What Can Be Recycled".
2) Have students select one sheet from stack of pre-measured sheets, or use the pre-measuring template provided in the kit.Explain to the students that recycling the right amount of paper will ensure correct thickness of finished paper.
3) Have students make sheet of paper, following posted directions.
4) This session will be the first time the group has a chance to pitch in with cleaning up. Organize the clean up and expect everyone to help. Three to five minutes should be enough time. Carefully pour vat-water through a sieve, dump outdoors or flush. Do not pour down sink!

Think About It:

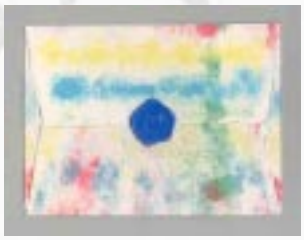
Compare finished sheets, noting the different results from coated papers, newspapers, envelope stock, grocery sacks etc. Write on different papers with ball point pen, felt tip pen and markers. Note the effects of the different writing materials on the different paper surfaces.

Notes from HOPE Club's 2nd Session:

Pre-measured sheets of varied papers were provided. This gave club members a better idea of how much paper to use to make a new sheet. The pre-measuring template (from the kit) was also available to help students use the right amount of paper when recycling various wastepapers brought from home.

Many students were still unsure about how much paper to recycle to make a good sheet of paper. Four sheets were so thick that their owners couldn't dry them. One sheet was so thin it had holes in it. Some had fibers stick to iron during the ironing stage. Special needs students required more time to finish.

Session 3
Create Swirls of Color



Goals

Add swirls of color to handmade paper.

Materials:

- White envelopes or white paper to recycle, precut to 8 ½ " x 10"
- Preblended colorful pulps in 16 oz plastic cups, or other containers
- Turkey basters
- Video: Fun With The Papermill™ Vol. 1, ready at 'Adding Color in the Deckle'
- Book: Arnold Grummer's Complete Guide To Papermaking, p.55
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Prepare cups of pulp ahead of time for this technique: Tear a half sheet of colorful paper and blend thoroughly with 2 cups water, 60 seconds or more.
2) Repeat for add'l colors. Pour each color of pulp into its own plastic 16 oz. cup.
3) Have students watch video segment 'Adding Color In The Deckle' or refer to the book, p. 55.
4) Select a white sheet of paper to recycle, make pulp in blender.
5) After pouring pulp into the handmold, students can fill turkey baster with one of the premixed colors of pulp, and follow directions from video or book to add color to recycled sheet.
6) Complete steps for forming, pressing and drying sheets in the usual way.
7) Time permitting, refer to 'Alternatives' described on page 56 of the book.

Think About It:

Why have the colors dispersed so differently on each side of the finished sheet?
(The book will help with the answer.)

Notes from HOPE Club's 3rd Session:

Arnold gave a brief demo. Containers of red, yellow and blue pulp along with turkey basters were placed at each station.

There was some difficulty with holes in finished sheet where fibers were too thin or screens had become clogged. We reminded students to check screens before using and if screens appeared clogged to use the wonderful pressure water taps in the science lab to clear the spot.

Several of the papers were exquisite and were even nicer when placed in a second set of dry couch sheets and allowed to dry under a stack of books until the next session.

Session 4
Mottled, Not Motley!

Goals

Make paper with a mottled surface (see examples in book, p. 52-54).
Discover relationship between paper strength and blending time.

Materials:

- Newspaper to recycle
- Labels from cans, gift wrapping paper, Sunday funnies, etc to recycle
- Three mottled test sheets prepared ahead of time
- Book Arnold Grummer's Complete Guide To Papermaking, p. 53
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Make three mottled test sheets ahead of time, following directions 1 – 9 on page 53 of the book. For step 7, alter the blending time for each of the three test sheets. Blend 30 seconds for the first sheet, 20 seconds for the second, and ten seconds for the third.
2) Have students make as many mottled sheets of paper as time will allow, following directions on page 53 of book. Use portions of newsprint or Sunday funnies for step 7, or prepare pulp ahead of time for each station.

Think About It:

At the end of class, use the three mottled sheets prepared ahead of time to test for bonding strength. Take first mottled sheet (the one that was blended the longest) and hold it from both ends. Snap sheet to see if it's strong enough to remain whole. Repeat process with the other two sheets.

The bonding test should have a result like this: The shorter the blending time in step 7, the more likely it is that the test sheet will tear when snapped. Ask students why this might be. (The answer to this question can be found by reading page 22 and 23 of the book.)

Basically, a longer blending time will expose more fibers to bond with other fibers when recycling, thus making a stronger sheet of paper.

Notes from HOPE Club's 4th Session:

To expedite this lesson, a container of prepared recycled newspaper pulp to use for pulp in step 7 on page 53 of the book was provided at each station.

Colored advertising sheets were torn into large pieces and added to about a half-cup of prepared pulp in the blender. More water was added to this combination until the blender was ¾ full. This meant water from the tubs had to be drained often.

These sheets were hard to iron. Some students chose to put a fresh set of couch sheets on their sheet and put the sheet under books at the end of class time to continue the pressing and drying.

Session 5
Use Templates and Metallics

Goals

Use templates to make paper shapes and projects. Enhance pulp with metallics. Observe how templates affect water and fiber flow.

Materials:

- Assorted papers to recycle - avoid construction paper
- Finished samples of paper made with templates
- Video: Fun With The Papermill™ Vol. 1, ready at 'Using Inclusions and Botanicals'
- Book: Arnold Grummer's Complete Guide To Papermaking
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Templates: Arnold Grummer's Medium Size Templates, any
- Metallics: Arnold Grummer's Metallics: Dusts or Sprinkles (ass't colors)
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Watch the video segment 'Using Inclusions and Botanicals' or demonstrate proper insertion and use of templates in the deckle.
2) Students proceed to make paper, using templates and metallics.
3) Students can add metallics to the blender for the last few seconds of blending, or directly into the deckle during Step 6 of papermaking (see illustrated direction sheet).
4) Students should make paper a bit thicker for template projects since finished papers will be folded and decorated.

Think About It:

Have students compare results and experiences. How does blender time affect pulp and metallics? How do templates work? Why do fibers flow into the openings in the templates to make paper shapes? How could you make a template of your own design?

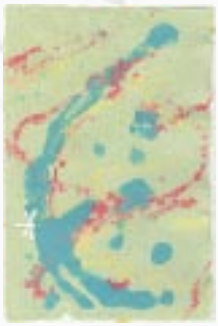
Note: Fibers follow water flow. Water flows across plastic and into openings (path of least resistance). Students can make their own templates by cutting a pattern in a Styrofoam tray like those found under meats or pastries at the grocery store.

Notes from HOPE Club's 5th Session:

Some template projects need to be folded after they are ironed dry. The fold can be ironed. Make sure the mailer made with the 'Invitation and Thank You Note' template is at least 3 ½" x 5" to meet the requirements of the U.S. Postal Service.

The students were delighted with the templates. The metallics made a hit and opened up to them the exciting possibility of adding things to their pulp for a dramatic effect. Pre-measuring such a small amount of pulp was a challenge. Some very nice finished hearts, gift tags and mailers were made.

Session 6
Pulp Painting



Goals

Learn pulp layering techniques or how to "paint with pulp."

Materials:

- Assorted paper to recycle in white or pastel colors, precut to 8 ½" x 10"
- Squeeze bottles (catsup bottles) filled with preblended pulps
  or
  16 oz plastic cups or containers filled with different preblended colors of pulp and turkey basters
- Video: Fun With The Papermill™ Vol. 2, ready at 'Painting With Pulp'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 60-70
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Watch video segment: 'Painting With Pulp'. Stop at 'Sheet Layering'.
2) Read p. 60 – 70 in book (optional).
3) Perform steps 1-9 of posted direction sheet.
4) Paint with pulp on grey screen as described in video and book.
5) Transfer painted pulp onto wet sheet (step 10 of posted direction sheet.)
6) Proceed to steps 11 – 21 on posted direction sheet.

Think About It:

Why are the painted pulps added to a sloppy wet sheet and not a dry one? Why are the pulps painted on the cover screen instead of directly on the wet sheet?

Note: Answers to the above questions can be found on page 23 of the book, or in the video sections viewed for this session.

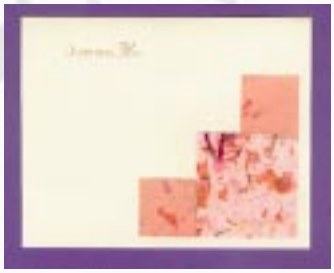
Notes from HOPE Club's 6th Session:

The first time through students should simply paint with pulp using the turkey basters and the cups of pulp, or the catsup bottles.

During the pulp painting, sure enough, one student wrote her name in pulp. We cautioned her that she had to write it backwards, which she did. It wasn't the prettiest or most dramatic sheet, however.

Try framing, veining and other techniques later. Student lines at the vat should be determined by the color of the paper to be recycled. Lighter paper should go first, darker paper last.

Session 7
Add Botanicals in the Blender



Goals

Add botanicals in the blender to embellish handmade paper.

Materials:

- Assorted paper to recycle, 8 ½" x 11" size. Avoid construction paper.
- Thin cloth for ironing sheets with botanicals: 10" x 12"
- Botanicals: Arnold Grummer's Angel Wings; Mixed Petals, or any dried botanicals
- Video: Fun With The Papermill™ Vol. 1, ready at 'Using Inclusions and Botanicals'
- Book: Arnold Grummer's Complete Guide To Papermaking
- Kit: Arnold Grummer's Papermill™ PRO Station for Groups
- Press: Arnold Grummer's Paper Press: Standard or Large
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Watch the video segment: 'Using Inclusions and Botanicals'
2) Each student can select 1-2 angel wing petals. Remove brown seed from angel wing petals.
3) Recycle chosen paper, stopping blender when pulp is ready.
4) Make paper as usual, adding flowers to pulp in blender. Blend just a few more seconds. The longer botanicals are blended, the smaller they will become.
5) Introduce using the press: Place handmade sheet, sandwiched between two couch sheets, in press.
6) Press for 30 seconds or so (multiple groups of couch sheets can be pressed at one time)
7) Remove couch sheets from press. Carefully remove handmade sheet and place between two dry couch sheets. Carefully lay wet couch sheets out on a flat, clean surface to dry for later use.
8) Place new sheet between dry couch sheets back in press, and press for an hour or so.
9) Repeat step 8 and 9, only press for 4 hours or so, until sheet is dry.

Notes from HOPE Club's 7th Session:

We combined sessions 7 and 8 for this meeting.

Sheets do not have to be completely dried in the press. At any stage of the drying process, ironing can be involved to speed up drying. Be sure to iron on side of paper that has least botanicals, or cover sheet of paper with thin cloth and iron on cloth instead of on paper.

The students were eager to use the large deckle. The Papermill PRO Station includes an envelope template. Making an envelope is a good way to start with the large deckle. Less pulp is used than when making a full sheet and the water removal is not so daunting. Everyone likes to make an envelope!

The angel wings were spectacular. They were added in the blender when the pulp was ready for 5-10 seconds. One student blended hers very little, and there was a whole purple angel wing plopped in the middle of her sheet. That drew some "Oooohs."

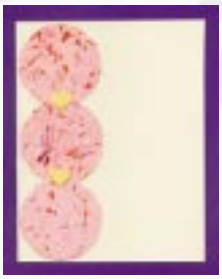
Session 8
Add Botanicals in the Deckle

Goals

Add botanicals in the deckle to embellish handmade paper.

Materials:

- Assorted papers to recycle, precut to 8 ½" x 10". Avoid construction paper.
- Botanicals from florist, greenhouse, personal garden, leaves, grasses
- Flat items such as string, thread, pieces of shiny paper, webbing, etc.
- Thin cloth for ironing sheets with botanicals: 10" x 12"
- Video: Fun With The Papermill™ Vol. 1, ready at 'Using Inclusions and Botanicals'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 82-85
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Press: Arnold Grummer's Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit: laminate and post



Steps:

1) Put desired botanicals into water to soak for a few minutes.
2) Blend a full 8 ½ " x 11" sheet of paper plus ½ sheet more.
3) Follow steps 1-6 on page 83 of the book. However, do not iron directly on botanicals. The iron has a tendency to catch on exposed botanicals and tear the paper.
4) Dry papers one of these ways: Use the press as in the previous session, or place a cloth over the paper to iron paper dry, or let the paper air dry on the paper making screen.

Notes from HOPE Club's 8th Session:

Students chose from the following botanicals brought to the club meeting: pressed autumn leaves, pressed ferns from the North high School prairie, dried flowers from a Thanksgiving bouquet, and unpressed dried petals from a summer garden.

The students' choices were delightfully different. One problem that occurred was that some botanicals didn't bond to the paper sufficiently; they loosened up and fell off when the sheet was dry.

One solution to that problem is to presoak the botanicals a little longer. Another is to save a little pulp from the blended batch of the sheet and carefully dribble some pulp around and over the flowers with a turkey baster. Dribble pulp, don't squirt!

We used the press exclusively to dry the sheets. It was so exciting to see the finished sheets. The pulp, water, and flowers combinations plus the work by the students resulted in some lovely sheets.

Session 9
Pulp Layering

Goals

Layer decorative pulp shapes onto handmade paper.

Materials:

- Assorted papers to recycle. Avoid construction paper
- Turkey baster and preblended colorful pulps in 16 oz plastic cups, or preblended colorful pulps in squeeze (catsup) bottles
- Cookie cutters
- Tin cans in various sizes with both ends open
- Video: Fun With The Papermill™ Vol. 2, ready at "Making Paper Shapes"
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 60-64
- Kit: Arnold Grummer's Papermill™ Station for Groups
- Press: Arnold Grummer's Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) View "Making Paper Shapes" on video. Look at samples in book, p. 61-64.
2) Do papermaking steps 1 – 9 from posted illustrated direction sheet.
3) Set aside new sheet on a drain rack. Do not remove any water from new sheet.
4) Place grey cover screen from the kit on a different drain rack.
5) Place cookie cutter or can with both ends open on cover screen.
6) Use turkey baster and pulp from cups (or squeeze pulp out of bottles) to fill the shape inside the can or cookie cutter. Use one color or multiple colors to fill the space.
7) Carefully lift can or cookie cutter from screen. Pulp "shape" will be left on cover screen.
8) Lift cover screen off of drain rack. Turn screen, pulp shape side down, onto the surface of the wet sheet set aside in step 3. The shape can be placed wherever the student wishes.
9) Use sponge pressed on top of cover screen to remove as much water as possible.
10) Carefully peel back and remove cover screen. The pulp "shape" is bonded to new sheet.
    Note: The cover screen's weave is coarse and some fibers might wrap around the weave. When the screen is lifted from the newly formed sheet these fibers will cling to the weave and might lift up other fibers too, damaging the surface of the newly formed sheet. Remove the cover screen slowly to minimize any damage.
11) Complete steps 10 – 20 of the posted illustrated direction sheet.

Think About It:

Compare sheets. Did anyone get the added layer too thick? What tips would you give to someone trying this technique for the first time? What factors affect the finished paper design? What other techniques we've learned so far do you think will combine effectively with this technique?

Notes from HOPE Club's 9th Session:

The students enjoyed this session more than we had anticipated. As always, they came up with ways to use this technique that we had never thought of.

Session 10
Make Projects to Give, Send or Sell

Note: If funds are not available for a PRO Station and Large Templates, this lesson can be accomplished using the Papermill Station and Medium Templates.n

Goals

Make handmade envelopes and other projects using the 'PRO' station
Make projects for personal satisfaction and enjoyment
Evaluate projects students can make to sell

Materials:

- Assorted papers to recycle - avoid construction paper
- Turkey baster and preblended colorful pulps in 16 oz plastic cups, or preblended colorful pulps in squeeze (catsup) bottles
- Cookie cutters
- Tin cans in several sizes with both ends open
- Botanicals: optional
- Metallics: optional
- Templates: Arnold Grummer's Large Papermaking Templates, any
- Video: Fun With The Papermill™ Vol. 1-3
- Book: Arnold Grummer's Complete Guide To Papermaking
- Kit: Arnold Grummer's Papermill™ PRO Station for Groups
- Press: Arnold Grummer's Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit

Steps:

1) Explain the use and purpose of all available templates.
2) Demonstrate use of 'Folding Guides' included with templates to get crisp, professional folds on finished projects.
3) Encourage students to use techniques learned in previous sessions.
4) Don't give students too many directions. Let class evolve.
5) Stand by to help.

Think About It:

Display finished projects on a dry, clean table. Ask students what qualities a project needs to be saleable. Ask students how much they think a handmade card could sell for. Ask how much they would pay for a handmade card. Group brainstorm: What would be involved in a handmade paper card sale? Topics to address: goals, tasks, budget items, materials list and timeline.

Notes from HOPE Club's 10th Session:

Students tended to undervalue their finished papers. This was partly due to their opinion that they had not achieved quality results, but also because they did not put a value on their time.

Session 11
Embed a Leaf, Fern, or Cartoon

Goals

Embed a leaf, fern, cedar sprig or newspaper cut out.
Gain control over sheet design by specific placement of embedded items.

Materials:

- Assorted paper to recycle
- Ferns, cedar sprigs
- Leaves: pressed and dried work best
- Dried flowers: pressed, thin flowers work best, or petals pulled from dried flower heads
- Cut outs from newspaper: sports figures, comic characters, celebrities
- Turkey baster and preblended colorful pulps in 16 oz plastic cups, or preblended colorful pulps in squeeze (catsup) bottles
- Metallics: optional
- Video: Fun With The Papermill™ Vol. 1, ready at 'Surface Embedment'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 86 - 88
- Kit: Arnold Grummer's Papermill™ Station and Papermill™ PRO Station for Groups
- Press: Arnold Grummer's Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Review steps to embed a leaf, fern or newspaper cutout.
2) Proceed to papermaking. Follow directions on page 87 or 88, depending on item embedded.
3) After students are comfortable with the process, consider placement of embedded item for finished project design, i.e.: where will the leaf be on the card after it's folded?

Think About It:

Why does the embedded item stick to the paper without glue? (p. 22-24 in the book) Why is it harder to embed a maple leaf, or other waxy-surface leaf, than a dried flower or newspaper cutout? What is the advantage of dipping or soaking an item in water or pulp before embedding?

Notes from HOPE Club's 11th Session:

We used both a PRO station and Papermill™ station set up. Since the Papermill™ makes a smaller sheet, papermakers using that equipment always move through the process more quickly.

There are two sets of directions in the book for surface embedment (p. 87, 88). Check to determine which method will work best for the items students select. Fibers in cartoons and newspaper photos allow an easier embedment experience (p.87). Some leaves have a waxy type surface which might make embedment with a pulp gun the best choice (p.88).

Session 12
Two Tone Paper!

Goals

Students will perform various art techniques using a deckle divider.
Students will evaluate factors affecting outcomes in their sheets.

Materials:

- Assorted papers to recycle, precut to 6" x 8 ½ ". Avoid construction paper.
- Foam food trays like those found under pastry or meats in the grocery store
- Preblended colorful pulps ready to go in small containers: 5 oz. plastic cups work well for this session
- Botanicals, threads, snippets of fabric, metallics to add to pulp (optional)
- Video: Fun With The Papermill™ Vol. 2, ready at 'Deckle Division'
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 92 – 95
- Kit: Arnold Grummer's Papermill™ Station
- Press: Arnold Grummer's Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Make deckle dividers (as suggested in the book on page 93) ahead of time. Make one for the length and one for the width for the first session.
2) Several colors of pulp should be prepared ahead of time and put in the 5 oz. cups. Note: Don't make pulp in these cups too thick as it will be poured into a restricted area in the Papermill™ deckle.
3) Watch the video segment and review steps in the book.
4) Colorful paper can be recycled during the session as well, keeping in mind that the pulp shouldn't be too thick.
5) Since the deckle dividers have been precut, begin papermaking at step 5 on page 93 of the book, and proceed through step 12.

Think About It:

Have papermakers hold finished sheets to the light to check for thin spots at the line of the divider. Compliment their success when fibers are of equal thickness at that line. What factors affect how these sheets turn out? (Thickness of pulps used, timing of removing the divider, coordination). Which factor is easiest for a hand paper maker to control? Which is most difficult? What projects do you envision for sheets made with this technique?

Notes from HOPE Club's 12th Session:

The next session involves creating textured surfaces and embossing techniques. Look ahead to decide what items you would like the students to bring.

For simplicity, collect strips of burlap, brass embossing plates, sheet sized pieces of textured fabric, arbor vitae sprigs, small crocheted pieces, or similar items. Assign specific students to bring any or all of these items. There has to be one for each person, as items will stay on the sheet of paper throughout the drying process.

Session 13
Emboss Paper or Create Surface Texture

Goals

Emboss or add texture to the surface of a sheet of handmade paper.
Consider how paper is embossed on a manufacturing level

Materials:

- Assorted papers to recycle, precut to 8 ½“ x 10”
- Items to use to emboss or texturize paper: String, fabric, flat jewelry, metal or plastic embossing plates, small crocheted items
- Heavy book in plastic bag for each student
- Video: Fun With The Papermill™ Vol. 3, ready at “Creating Texture,” then “Embossing and Glazing”. Both sections will be viewed.
- Book: Arnold Grummer’s Complete Guide To Papermaking p. 89-91
- Kit: Arnold Grummer’s Papermill™ Station
- Press: Arnold Grummer’s Paper Press Standard or Large (optional in this session)
- Illustrated Direction Sheet For Papermaking from kit

Steps:

1) View the video segments or demonstrate the technique.
2) Follow the steps described on p. 90 of the book.
3) After each sheet is pressed with the press bar, place the sheets where they can dry for several days undisturbed.
4) Place a book wrapped in plastic or a weight on each set of couch sheets to prevent curling as the paper dries.
5) One student should take responsibility for exchanging damp couch sheets with dry ones every day for about three days.
6) Remove embossing items from sheets at the next session. Exciting!

Think About It:

What else could you use to emboss or texturize paper? Instead of laying something on the paper, what could the paper be laid onto to give it texture? (A brick wall, mosaic surface, wood plank, etc).

Why might it be easier to create texture in a wet sheet than to press it into a sheet after it’s dry? (Fibers move more easily and are moldable when they’re wet.)

Have students collect samples of textured paper they find around school or at home, and consider how the paper making company achieved their results!

Notes from HOPE Club’s 13th Session:

The next session will involve two methods of sizing paper. Calligraphy pens and inks will be needed. (If this equipment is not available, felt tipped pens can be substituted.) The lesson also calls for waxed bakery sacks (like the ones bakeries use for donuts) and a roll of waxed paper.

Session 14
Experiment With Sizing

Goals

Experiment with two different methods of sizing.
Define the term 'sizing', and describe possible uses.

Materials:

- Assorted papers to recycle, precut to 8 ½" x 10"
- Waxed bakery sacks (usually white, used for donuts; Krispy Kreme bags)
- Roll of waxed paper
- A set of calligraphy pens and inks, or felt tipped pens
- A paper towel, a section of watercolor paper (if avail), a sheet of photocopy paper
- Book: Arnold Grummer's Complete Guide To Papermaking, p. 42-43
- Kit: Arnold Grummer's Papermill™ Station
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) Divide students into 2 groups. Students can choose a piece of paper to recycle. Have one student in each group use newsprint.
2) Direct one group to use only half the amount of paper they would normally recycle, blending that with an equal amount of waxed bakery sack to make up the difference.
3) The other group can recycle paper as usual.
4) Proceed with the usual steps to make paper. Iron sheets dry.
5) Have the group that DID NOT use any bakery sack lay a piece of waxed paper, waxed side down, over their sheet. Iron the waxed paper, melting wax onto the surface of the new sheet.
6) Have paper makers in both groups write on the new sheets using the pens provided. Have them write on the paper towel, watercolor paper, and photocopy paper as well.
7) Have everyone try the drop of water test described on p. 43 in the book to determine to what degree the sizing has been successful.

Think About It:

Compare results of all sheets. On which sheets did the ink feather the most? The least? What would you say the purpose of 'sizing' is? (Provides a better surface for printing and writing). Why doesn't water color paper have sizing? (Artists want their colors to 'feather' and blend). Why does photocopy paper have sizing? (So printer ink and pens don't 'feather' and printing is readable). Some sizing in paper remains when it's recycled into handmade paper. Discuss possible uses for sheets with more sizing (bakery sacks and calligrapghy paper are examples).

Notes from HOPE Club's 14th Session:

Prepare for next time. Preview the video, Vol. 3 "Watermarks", or read "Watermarking" p. 110-116 in the book. Prepare a few screens for watermarks, choosing from simpler methods shown. Gather examples of watermarks from typing papers and business mail. The five, ten, twenty or larger dollar bills have good examples of shaded watermarks. Supplies you'll need: twisters, wire or soldering wire, sharp-nosed pliers, needle and heavy thread, self-stick letters.

Session 15
Create Simple Watermarks


Goals

Experiment with watermarks.
Examine watermarks that are part of their everyday lives.

Materials:

- Assorted papers to recycle, including newsprint, precut to 8 ½“ x 10”
- 3 screens prepared with watermarks: see instructions in book, p.112-114
- Video: Fun With The Papermill™ Vol. 3, ready at “Watermarking”
- Book: Arnold Grummer’s Complete Guide To Papermaking, p.110 -116
- Kit: Arnold Grummer’s Papermill™ Station
- Press: Arnold Grummer’s Paper Press Standard or Large size
- Illustrated Direction Sheet For Papermaking from kit: laminate and post

Steps:

1) View the video segment on watermarks.
1) Assemble the papermaking deckle using the prepared screens.
1) Go through all the papermaking steps on the posted illustrated direction sheet, including steps for drying paper.

Note: The sheets the students make should be thin. Therefore, it’s very important that they not use too much pulp when making their sheets, and that what pulp they do use is well-blended (no chunks).

Think About It:

Compare the clearness of the various watermarks. Were there some holes? Were some barely visible? What can be done to make the next watermarks better? Why does holding paper up to a light allow you to see a watermark? List factors that affect making a clear, clean watermark.
Discuss factors that make watermarks a deterrent to currency counterfeiters.

Notes from HOPE Club’s 15th Session:

This concludes the sessions HOPE Club members chose for the paper recycling focus of their meetings.

The following pages are other activities they incorporated or spun off from these sessions, including their fund raisers, ‘VALENTINE’S DAY SALE’, and ‘MOTHER’S DAY SALE’, and their school service project, ‘EARTH DAY EVENT’.

HOPE Club's
VALENTINE'S DAY CARD SALE

Preparation:

The HOPE group completed the 9th session of this curriculum in December.

In January it was agreed that the members of the club would stop learning new techniques as it was time to get inventory ready for the February sale of cards and papers.

The club goal was to make as large a batch of Valentines, general purpose cards and mailers as possible. The next meeting times were scheduled after school to allow more time to work on projects for sale.

Some students made the papers, mailers, gift tags and hearts, while others put on decorative finishing touches, and others packaged papers that were ready. Commercial envelopes, card stock, tiny metal hearts and other decorating trinkets were donated by club members' families, friends of the club, and teachers as they heard about the project.

Mrs. Roop brought out all the previously made papers that had been stored in the press. Those papers were either folded and placed with an envelope in a plastic sleeve ready for sale, or cut into various shapes to decorate card stock. Every card or sheet was packaged in a clear cellophane sleeve. The sale took place during the week before Valentine's Day.

Results:

- The gross proceeds for the club were over $200.
- The students charged from $1.00 to $3.00.
- The more expensive cards were purchased by teachers.
- Five of the students purchased back their own cards.
- The cards with botanicals sold the most easily.
- The reaction heard most often was surprise at the beauty of the cards.
- The group felt that their sales could have been even better if there had been more publicity. Since it was a first time event, the student "customers" didn't know what to expect.

Samples of cards HOPE Club members made and sold are shown below and on pages throughout this curriculum

HOPE Club's
EARTH DAY EVENT

Mrs. Roop had planned several activities for her 5th hour science class during "Earth Day" week.

On Thursday of that week, Arnold Grummer was the featured speaker. He presented his acclaimed lecture, "The Magic of the Cellulose Fiber," complete with electron micrographs and humor.

On Friday of that week, available HOPE Club members helped the Grummers set up two papermaking stations in the North High School lunchroom. During the first lunch period, club members assisted students of the 5th hour science class in making a recycled sheet of paper.

Club members decided to use the technique of including botanicals and dusts in the blender with recycled pastel waste papers. They felt the technique would be easy to teach and that the results would be very satisfying for first time high school papermakers. Angel wings were the botanicals used. Things went excitedly/smoothly, and soon students who had finished lunch were getting in line to make a sheet. The HOPE crew was kept very busy.

During the second lunch period, the activity was immediately made available to lunchroom students. Again, it was a hectic, busy hour, and it was not surprising to see some students go through the line a second time.

The club members were pleased with how their small environmental club could create awareness of Earth Day at a big high school. Mrs. Roop is sure the club will have little difficulty in recruiting new members next year.

HOPE Club's
MOTHER'S DAY SALE

The HOPE Club members made papers that were folded into cards. Many of the cards were stamped with "mother" greetings using rubber stamps and stamp pads in appropriate colored inks. The cards were matched with store-bought envelopes and put into cellophane sleeves.

The students also made cards just from pieces of handmade paper, punching out circles, hearts, and squares or cutting out zig-zagged rectangles which they glued onto card stock. This way they were able to make more than one card from a sheet of handmade paper.

Some of them used techniques learned from their scrapbooking moms to add beautiful touches to their cards.

The sale netted about $150.

Samples of cards HOPE Club members made and sold are shown below and on pages throughout this curriculum