



SCIENCE, TECHNOLOGY,
ENGINEERING, AND MATH
COLORADO STATE UNIVERSITY
EXTENSION

ST[EM]power



CAREERS

We have been exploring career ideas over the past 5 months. If you missed those issues, you can find activities 38 through 42 located here:

<http://tra.extension.colostate.edu/stem-resources/>.

How did your project go? Did you enjoy it? What aspects were the easiest? What were the hardest? Write down your thoughts and add them to your journal.

Now is the time you compile all your information about you. Spend some time looking at everything you have done (the interest test, the 2 projects, and your journal) exploring your interests, skills, and talents. What are the common themes you find running through everything you have done? What came to you easily? What parts were most fun?

Unfortunately, every job has something that is hard for us. For me, it is paperwork. I am so grateful to Kellie Clark, because she helps me with my paperwork. (Kellie is Colorado State University Extension Western Region Program Assistant, and a remarkable person.) What we look for is to minimize those hard tasks and **maximize the parts that were easy and fun** so most of our time is spent at what we love.

Book Binding Beautiful Journals

Dr. Barbara J. Shaw



BACKGROUND

Information

Bookbinding probably originated in India, where sutras were copied on to palm leaves with a metal stylus. The leaves were dried and rubbed with ink, which would form a stain in the wound. Long twine was threaded through each leaf and wooden boards made the palm-leaf book. When the book was closed, the twine was wrapped around the boards to protect it.

A **codex** (plural *codices*) is a book constructed of a number of sheets of paper, vellum, papyrus, or similar materials. The term is now usually only used of manuscript books, with hand-written contents, but describes the format that is now near-universal for printed books in the Western world. The book is usually bound by stacking the pages and fixing one edge, and using a cover thicker than the sheets.

The codex provides considerable advantages over other formats:

- Compactness
- Sturdiness
- Economic use of materials by using both sides (recto and verso)
- Ease of reference (a codex accommodates random access, as opposed to a scroll, which uses sequential access.)



Objectives

- Bind your own journal
- Make your own cover for your journal
- Make your own end sheet (paper that is glued to the cover to conceal the edges of the cover)

DO:

Materials:

- 7 sheets of paper—you can be creative with the types and weight of paper for your journal (see Junk Journal on page 5—6 for more information)
- Embroidery thread
- Embroidery needle
- Awl (a thin nail or drill will work)
- Bone folder (a pencil will work)
- Metal ruler with metric measurements
- Pencil
- Scissors
- Poster board
- Glue stick
- Cover and end sheet materials (described later in this activity)

Directions:

- The directions are for making a 20 page journal with 5 sheets of paper folded in half. After practicing with a simple journal, your next journal can be a book with a spine and more pages. For now, we are going to start simple to learn.
- Carefully fold 5 pieces of paper in half, one at a time. Once folded, that single paper will make 4 pages in your journal and is called a **folio**. With the bone folder (or pencil) rub the fold line back and forth to form a nice crisp line.
- Take a regular piece of paper to make your template. Fold this paper in half and rub with your bone folder.
- Open the template paper. Measure 5 equally spaced stations (where you will make a hole for sewing the pages together), and mark with your pencil. For example, if you are using 8½x11" paper, the spine of your book pages will be 5½". This is easier to measure in centimeters, so let's switch to the metric system. The spine of your



Spend a little time examining your interest journal. You may be surprised what you pulled out and put in it. That was how I first connected that I love science. Everything in my journal was on curiosity, puzzles, animals and teaching (I am now a 4-H STEM educator and paleo-mammalogist).

Now comes the fun part. What jobs are out there that match your interests, your skills, your talents?

- **DO THIS FIRST!** The public library and the librarians are phenomenal resources. Tell the reference librarian what you are doing, and you are now exploring careers that match your interest. They want to help you! They will find ways for you to match your interests to careers, and provide resources (books, journals, etc.) for you to explore those careers.
- Talk to your teachers. Go to the teachers who teach in the subject areas that are closest to your interests as well as teachers with whom you have a strong connection.
- Spend some time on the internet.
- In your interest journal, list every job you can find that incorporates your interests, talents, and skills.

You now have a list of careers that you would find satisfying and fulfilling. How can you “test drive” a career? Find people who work in these careers, and ask them. For example, if your top interests, skills, and talents are

computers, travel, and art, talk to computer programmers who develop apps or games. If your top interests are Music and Dance, Writing, and Business, talk to the local symphony director (not the conductor, but the management of the symphony) or a music store owner.

Sometimes it is hard to reach out to a stranger and strike up a conversation. You have two advantages. You are associated with 4-H (a member or in a program run by 4-H). Your leader can help you practice. The other advantage is EVERYONE LOVES TO SHARE WHAT THEY LOVE!

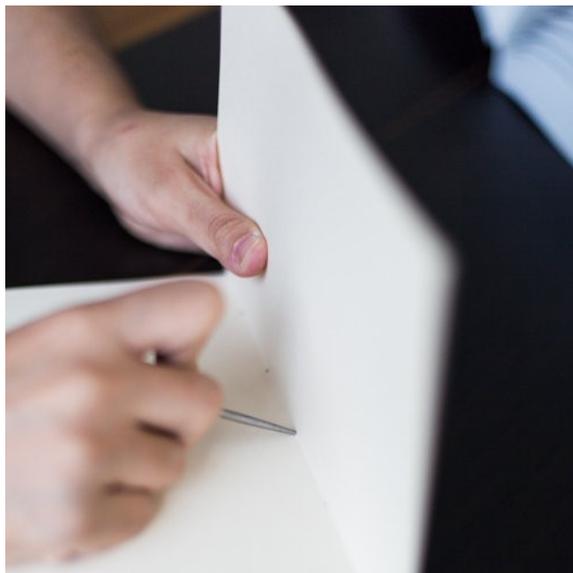
Call the person, briefly tell them that you are exploring careers, and you are interested in what they do. You would like to make an appointment with them for an interest interview.

Arrive at least 15 minutes early, dressed nicely. Bring a pad and paper (tablet, your interest journal, or something else to take notes). Have your questions ready and written down.

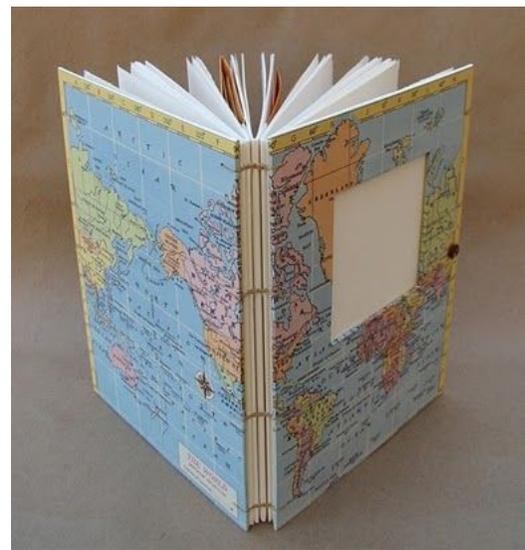
Here are 40 questions in six categories developed by the University at Buffalo School of Management. Select two or three questions from each group. Use them as a guide, to rewrite them for the specific career you are exploring. Write them down, and at your information interview, read them. The person you are interviewing will be impressed that you are prepared.

book is 14cm if you use typing paper. Start at the top of your page at the seam, and measure 2cm and place a dot at that point with your pencil. Continue to measure 2cm and place a dot. You will have 5 dots placed every 2 centimeters.

- The other method of marking your stations is to find the middle point on the fold of your paper. Divide the page above the center into two equal sections, leaving some space from the top edge of the paper. Repeat for the page below the center point, dividing it into two equal sections, with some space from the bottom edge of the paper.
- Collect the five folios that will make the pages of your journal. Nest them to make a signature (also called section). **NOTE:** For larger books, you would nest four or five folios at a time, making multiple signatures or sections. We will only have one signature in our journal with 5 folios.
- Open the folios and align the template with the fold seam in your folios. With the awl (or nail or drill), poke holes at each of the 5 dots marked on your template. Set aside.



REFLECT:



Here are some examples of homemade journals; more on the next page:

- The reflect section is designing your journal cover and end sheet, and making your journal uniquely yours. The materials for this section will vary depending on what you decide to do. Start simple for your first journal. If you are into sports, pick a sports theme. If you raise sheep, cows, or pigs, pick a farm theme for your journal. Design something that reflects who you are, and what you like to do. If you are in the



Make them relevant. For example, instead of asking (question 25): "What qualifications do you seek in a new hire?", look up HR on their company to read what their job qualifications are. Instead ask a question directly relevant to the position or company, like: "Most jobs I'd be interested in listed communication, teamwork and decision-making skills as necessities. Can you tell me how those skills are used in this profession?"

What Work is Like:

1. Could you describe one of your typical workdays?
2. What skills are required in your position on a day-to-day basis?
3. What parts of your job do you find most challenging?
4. What do you find most enjoyable?
5. Are there any negatives to your job?
6. How many hours do you work in a typical week?
7. Which seasons of the year are toughest in your job?
8. How would you describe the corporate culture?

State of the Industry:

9. Is this field growing enough so that there's room for someone like me?
10. Are too many or too few people entering this profession?
11. What developments on the horizon could affect future opportunities?
12. This industry has changed dramatically in the past five years. What have you seen from inside your company? Where do you think the

sewing project, then you might want to do a more elaborate cover.

- Materials that you can select for your cover include heavy wrapping paper, brown painting paper, rice paper, or cloth. Think about recycling old clothing, like blue jeans or a tie dyed t-shirt. After you learn how to make a journal, you can experiment with other covers, like leather.
- If you are artistic, you could marbleize your own cover paper. That would be beautiful. There is a lot of information on the internet about how to marbleize paper. Some easy to follow directions, for example, are on a Martha Stewart website: <https://www.marthastewart.com/920467/how-marbleize-paper-and-cards?slide=3391656>. Believe it or not, but there is a lot of science behind this "craft." Think density

changes will happen in the next five years?

13. How frequently do layoffs occur? How does it affect employees' morale?
14. Why do people leave this field or company?
15. Who are the most important people in the industry today?
16. Which companies have the best track-record for promoting women and minorities?
17. Are there opportunities for self-employment in your field? Where?

Money and Advancement:

18. What would be a reasonable salary range to expect if I entered this field? What is the long-term potential?
19. What is the advancement potential in the field? What is a typical path?
20. How did you get your job?
21. If you could start all over again, would you change your career path in any way? Why?
22. How long does it take for managers to rise to the top?
23. What is the background of most senior-level executives?

Skills and Experience:

24. What educational preparation would you recommend for someone who wants to advance in this field?
25. What qualifications do you seek in a new hire?
26. How do most people enter this profession?

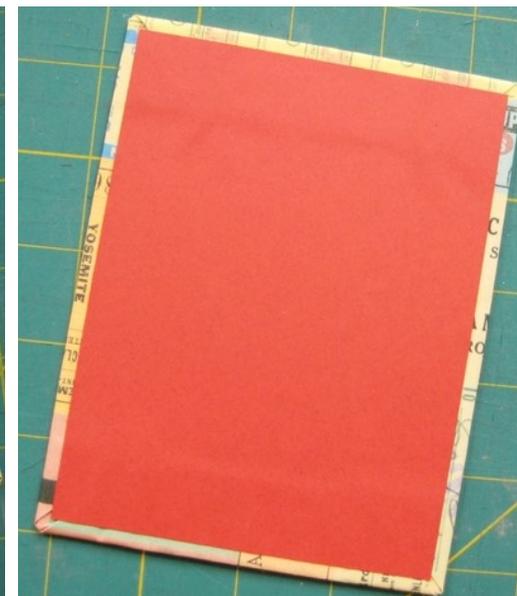
and solvents!

- You can make your own paper to use as the cover or end sheet. This is just one site that has easy to find directions on how to make your own paper: <http://www.instructables.com/id/Homemade-Paper/>. You can add flower petals, bits of bark or grass to give your paper texture and interest. The picture below left is marbled paper, and the picture



on the right is homemade paper.

- The directions for making the journal cover and end sheet will be with the simplest design, and the first journal pictured on page 3. If this activity really sparks your interest, you can really explore both your technology (bookbinding) and artistic (cover and end sheet design) sides.
- The End Sheet is a piece of paper that hides the edges of the cover when folded over the cover page. It is usually white, but below is



pictured in orange.

- If you have an elaborate cover, you may opt to go very simple with the cover sheet. If, on the other hand, your cover is simple (for example, the blue jeans journal pictured on page 4), then your cover sheet can be more elaborate. For example, you could make your own paper end

sheet, and marbled, tie-dye, or illustrate it.

- You may want to make your journal a “junk journal.” That is a journal that is made from recycled materials, different types of paper in different weights, old pictures, cutouts from magazines, old lace and fabric scraps, envelopes, tickets, and anything else you find interesting. Junk Journals can be travel scrapbooks, collections of interesting



memorabilia, or anything you can imagine. More info on page 16.

- Gather together the materials you will need to complete your cover and end sheet. Remember, the directions are for a very simple journal. You can, however, make the cover and end sheet very elaborate as you learn the basic techniques. The supplies included glue stick and poster board, since the directions uses these.
- Cut your poster board so that it is a bit larger than your folios. For example, if you used 8½ x 11” paper, cut your cover to be 9 x 11½”. Be sure to use your ruler to measure straight lines.
- Measure your materials for the cover. It should be even larger than the cover so that you can fold it over the edge of the cover. In our example of using 8½ x 11” paper, cut your cover to be 10 x 12½”.
- Fold your poster board cover in half, and use the pencil to make a nice crisp fold edge.
- Place the cover materials face down.
- Apply the glue stick to the outside of the cover. Be sure that the glue stick glue completely covers the poster board cover.
- Center the poster board over the cover material, and press down, rubbing the poster board to ensure that the cover material sticks.
- Fold the edges of your cover material around the poster board and glue



27. Which of my skills are strong compared to other job hunters in this field?
28. What do you think of the experience I've had so far? For what types of positions would it qualify me?
29. Can you recommend any courses I should take before proceeding further with my job search?
30. What companies or industries do you think I should target?

Fitting In:

31. Do you think my objective is clearly stated, realistic and achievable?
32. Considering my background, how well do you think I would fit in this company and/or profession?
33. How does your company compare with others we've discussed?
34. Would the work involve any lifestyle changes, such as frequent travel or late-night business entertaining?
35. Considering all the people you've met in your field, what personal attributes are essential for success?
36. Taking into account my skills, education and experience, what other career paths would you suggest I explore before making a final decision?

More Information:

37. Where can I write to get up-to-date information on salaries, employers and industry issues?
38. What professional journals and organizations should I be aware of?

39. Is there anything else you think I need to know?
40. Who else would you recommend I speak with? When I call, may I use your name?

Take notes on their replies. You will eventually find something that really grabs you. Ask if you can job shadow that person. Once you have developed a relationship with that person, and the job is still of great interest, ask if they have an intern position (paid or unpaid). Now that is a test drive!

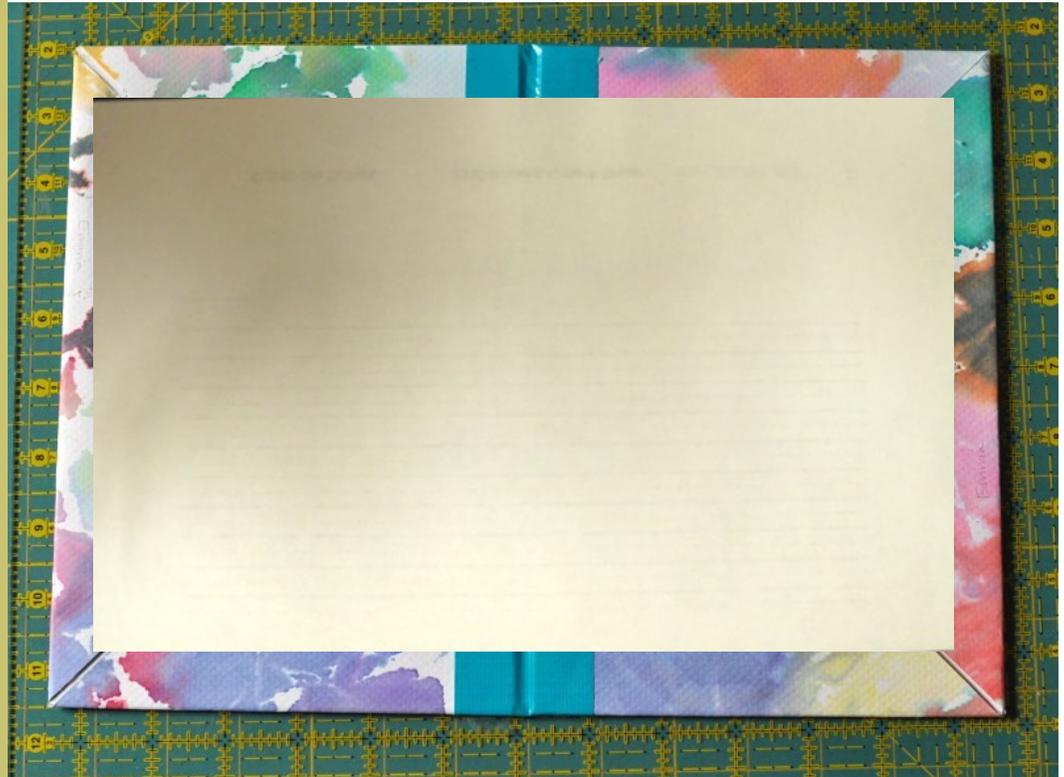
This is the last issue until September.
Have a great summer and see you at the fair!

POWER WORDS

- **end sheet:** a piece of stiff paper folded once in half and attached to the inside of the covers and to the spine of the book block to cover the edges of the cover material.
- **face:** the opposite edge from the spine of the book that is grasped when turning the pages.
- **folio:** a sheet of paper folded once in the middle, making four pages of a book.
- **section sewn:** thread is sewn through folded centers of each signature of pages.
- **signature:** a group of sheets, folded in the middle, and bound into the binding together (also known as section).
- **spine:** the bound edge of a book where the pages are sewn, glued, or otherwise fastened together.

in place.

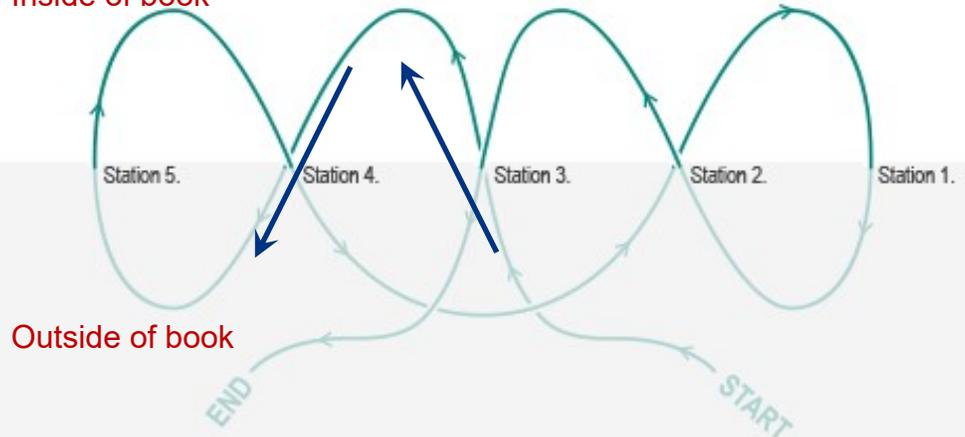
- Fold your end sheet in half. Apply the glue stick to the outside of the end sheet (the inside fold will face out in your journal). Lay the cover face down. Center the end sheet and place down, matching the center fold seam with the cover's fold seam. Press and rub the end sheet to



stick it to the cover.

- Your cover is slightly larger than the folios in the signature. Center the folios on the cover. With the awl, push through the holes you made in the folios to make the holes in the cover and end sheet.
- To stitch the signature to the cover, there is a specific pattern you sew. If you look at the template, each hole was marked station 1-5. Station one is the top of the book, and Station 5 is the bottom of the book. Thread your embroidery needle with thread (any color you choose) but

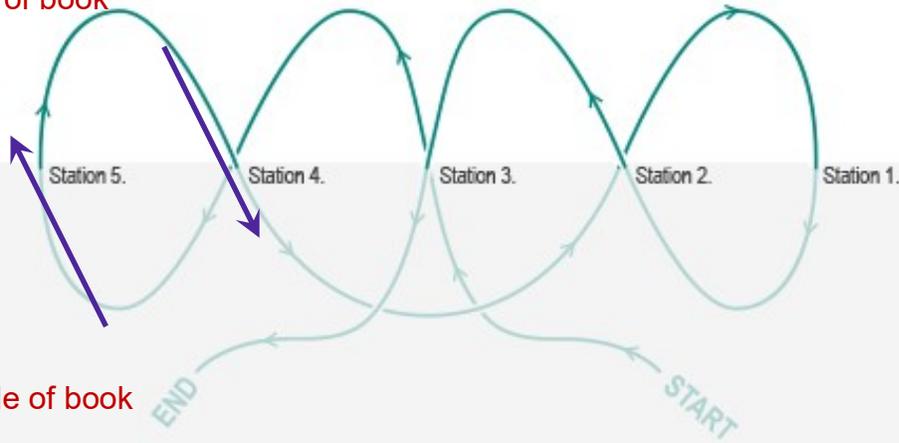
Inside of book



do not knot it.

- Start on the outside of the book, and push the needle through Station

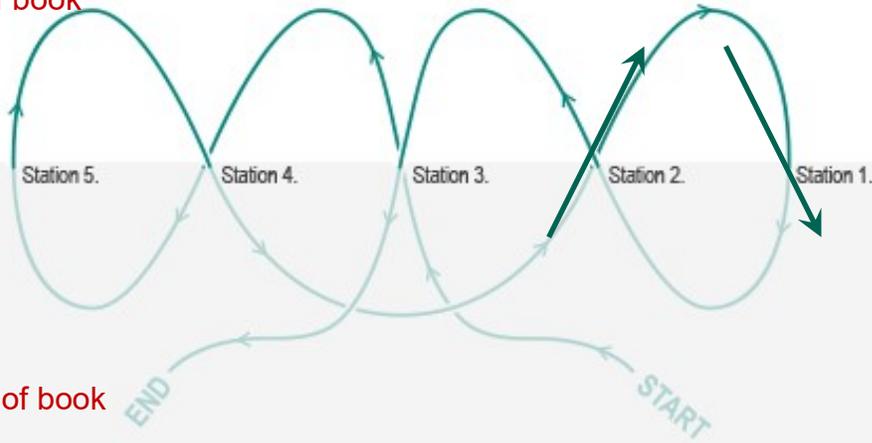
Inside of book



Outside of book

3. Push the needle out of the book at Station 4 (arrows in blue).
- o Push the needle through Station 5 from the outside to the inside. Push the needle into the book at Station 4 from the inside to the

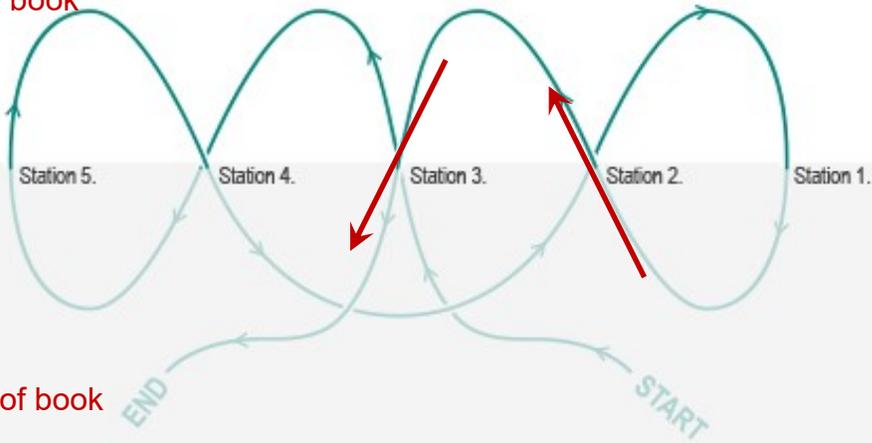
Inside of book



Outside of book

- outside (purple arrows).
- o Push the needle through Station 2 from the outside to the inside. Push the needle into the book at Station 1 from the inside to the

Inside of book



Outside of book

- outside (green arrows).
- o Push the needle through Station 2 from the outside to the inside. Push the needle into the book at Station 3 from the inside to the outside (red arrows).
 - o Tie the embroidery thread on the outside of the journal (see image on

FASCINATING FACTS Stitching

- **Saddle stitching** is used when there aren't many pages. The paper is folded in half and stapled with a special machine.
- **Perfect binding** is what you're most used to seeing. Pages are printed and folded in signatures (most printers use sixteen-page signatures). The pages are then glued to a wrap-around cover, forming the spine.
- **Coptic binding** also uses signatures. However, instead of gluing the pages to a spine, they are sewn together, allowing the book to lay flat when open.
- **Wire or spiral binding** is just what it sounds like. It is the metal or plastic spiral that you can get inserted at print shops. Most notebooks are spiral bound.
- **Japanese binding** is easy to accomplish at home. After poking holes along the spine side of the pages, you sew the pages together by looping thread around the spine. It's an awesome way to put together a travel book of flyers and photos or any other document.

Book Printing

- Chinese first used paper A.D. 105 and lamp black ink AD 400.
- Feng Tao, "Gutenberg of China" set out to print Confucius in the 10th Century. It took him 21 years to carve the

woodblocks for the 130 volumes.

- “Books of Hours” were made for wealthy patrons for prayer but it was really a portable art gallery that showed status.
- “Vade mecum,” a book as traveling companion on a pilgrimage or through life.
- The Codex, a book of bound pages rather than a scroll, came about during the Dark Ages. It was cheaper, more portable and dangerous to the status quo.
- Books today are taller than they are wide because originally the pages were parchment and in this way of cutting hide there was a minimum of waste.
- Invention of spectacles in the 14th Century made it possible for more people to read and they would sometimes carve a spot for spectacles inside the front covers of books.
- That the first word of the Koran is “READ” because the contents of this Holy Book are directly from Allah. Without a priestly class, each person interacts directly with God through the Koran. This is why calligraphy flourished as an art form.
- Islamic mathematicians went to refine old Greek texts calling it “al-jabr” – later. Arabs brought it to Spain and the West, which is now known as “algebra.”
- The sticky sap of bluebells has adhesive qualities and has been used in bookbinding.

this page).

- The completed journal is pictured on the right. This journal has the bow with the embroidery thread on the outside (same as the directions). You can reverse the direction you stitch, starting on the inside, and the bow would be on the centerfold inside your journal instead of outside on the spine.



APPLY:

Now that you have completed a simple journal (with a single signature, they are called pamphlets), there are several things that you can do with it. Mother’s Day is just around the corner. Use the pages to write poetry, draw pictures, insert images of you and your family, etc.

I AM POEM

- The “I AM” poem is probably the simplest poem you can write, and it will mean so much to your mother. You answer questions about yourself, and insert those into the poem format.
- On page 10 is a worksheet to help you develop your poem. Answer the questions about yourself as precisely and completely as possible. DO NOT put down the easy answer. Go for the unusual. You may not use all of the following answers in your poem, but your work here will provide some “food for thought” as you create your “I Am” poem.
- The worksheet for your I AM poem is on page 11. The partial sentence on the left is the poem, and the description in parentheses on the right is what words you use to complete your poem. Have fun exploring who you are!

I AM (Example)

I am curious and smart
I wonder what distant planets are like
I hear the song of Saturn
I see Saturn clouds with my own eyes
I want to hover above this distant world
I am curious and smart

I pretend to fly in a rocket ship
I feel buoyant floating on Saturn
I touch the dissipating gases with my astronaut gloves
I worry about my loved ones on Earth
I cry when I miss them so dearly
I am curious and smart

I understand this is only my dream
I say I love you to my dearest ones
I dream of Saturn so far away
I try to reconnect to this world
I hope someday to be in Space
I am curious and smart

Supplemental Information

I AM Worksheet

1. What makes you different from other 4-Hers?
2. Complete this statement: I wonder...
3. Create two imaginary sounds (example: silence pulsing in the middle of the night)
4. Create two imaginary sights (example: dolphins flying up to the sky)
5. For what would you wish if you were granted three wishes?
6. What do you actually pretend to be or do at times?
7. What four items could you only imagine touching?
8. What makes you happy?
9. What makes you sad?
10. What really bothers you?
11. Complete the following statement: "I understand..." (This is something you know to be true, such as a definition or an observable fact of life.)
12. What do you dream of doing some day?
13. For what do you hope? (example: no homework for the rest of your life)
14. The three words that best describe you are:

Supplemental Information

I AM

I am _____ (2 special characteristics you have)

I wonder _____ (something of curiosity)

I hear _____ (an imaginary sound)

I see _____ (an imaginary sight)

I want _____ (an actual desire)

I am _____ (repeat the first line of the poem)

I pretend _____ (something you pretend to do)

I feel _____ (a feeling about something imaginary)

I touch _____ (an imaginary touch)

I worry _____ (something that bothers you)

I cry _____ (something that makes you sad)

I am _____ (repeat the first line of the poem)

I understand _____ (something that is true)

I say _____ (something you believe in)

I dream _____ (something you dream about)

I try _____ (something you really make an effort about)

I hope _____ (something you actually hope for)

I am _____ (repeat the first line of the poem)

ACROSTIC POEM

- An acrostic is a poem in which the first letters of each line spell out a word or phrase. The word or phrase can be a name, a thing, or whatever you like. You can use their own first name.
- Usually, the first letter of each line is capitalized. This makes it easier to see the word spelled out vertically down the page.
- Acrostics are easy to write because they don't need to rhyme, and you don't need to worry about the rhythm of the lines. Each line can be as long or as short as you want it to be.
- How to write an acrostic poem in five easy steps:
 1. Decide what to write about. Pick a theme. One excellent way to start an Acrostic Poem is to use your name or something that grabs your interest (for example, space).
 2. Write your topic word(s) down *vertically*.

S
P
A
C
E

3. Brainstorm words or phrases that describe your idea. Examples:
 - space
 - emptiness,
 - black (used obsidian instead of black in the poem)
 - moon
 - planets
 - stars
 - constellations
 - galaxies
 - beautiful
 - stargazing
 - silent
 - vast
 - Earth
 - silence
 - black hole
 - celestial
 - sun
 - curiosity
 - wonder
 - peaceful
 - eclipse
4. Place your brainstormed words or phrases on the lines that begin with the same letters.

S—space, stars, silent, silence,
P—planets, peaceful
A—
C—constellations, celestial, curiosity
E—Earth, eclipse
5. You'll notice that the brainstormed list included words that do not start with "S" "P" "A" "C" "E," and it did not have any words that start with "A." Brainstorm words to fill any gaps (the letter "A" in this example). Fill in the rest of the lines to create a poem. Use the words that did not start with a S, P, A, C, or E to power the

Gutenberg

- Gutenberg borrowed 800 guilders from a local financier, Johan Fust, to purchase specific tools and equipment.
- Each metal block contained one character: letters, numbers, and punctuation.
- Gutenberg actually created the printing press in an attempt to offset losses from a failed attempt selling metal mirrors.
- Gutenberg printed the first book by moveable type printing press, known as the Gutenberg Bible, or the 42-Line Bible.
- Gutenberg also created an oil-based ink, which was more effective than the water based inks other printers in the era used.
- Gutenberg was in debt and unable to pay back his loan to Johan Fust. Fust sued and won the suit and took over Gutenberg's printing business.
- Not only is Gutenberg's method of printing credited with revolutionizing the production of books, but also for promoting the development of sciences, arts and religion through text.
- Today's printing presses are electronic and digital machines. These presses no longer operate by hand or steam. It is a lot cheaper and faster to print mass copies. In fact, technology has advanced so much that more printing is done in one second today than in an entire year during the 15th and 16th centuries!

The Gutenberg Bible gets

its name from the man who printed it, Johannes Gutenberg. Gutenberg was born in Mainz, Germany, sometime during the late fourteenth century and is believed to have died in 1468.

The Gutenberg Bible is also known as the Forty-Two Line Bible because the pages are printed with two columns of 42 lines each.

Gutenberg printed the Bible on his newly invented printing press using movable types made from metal. Printing already existed in Europe when Gutenberg developed his printing press but the previous presses used carved wooden blocks and were better suited for printing images, rather than text.

It is believed that when Gutenberg printed the Bible in 1455, he had spent the past twenty years developing his new printing press. In his work, Gutenberg found inspiration from presses used for making wine, paper, and for bookbinding. He also developed a new metal alloy when manufacturing the types and an oil-based black ink which was mixed specifically so that it would stick to the types he had made.

- Gutenberg is believed to have printed 180 Bibles, available through pre-order

feeling of your poem. Example of words starting with the letter A:

- astronomy
- awesome
- amazing
- asterism
- astral
- asteroids
- Alpha Centauri.

Final Poem:

Silent and serene, stargazing at night
Peaceful and vast in soft moonlight
Astral canopy in the obsidian sky
Celestial curiosity sought in a telescope's eye
Eclipsed by wonder as my heart takes flight

DIAMANTE POEM

- A diamante is an unrhymed seven-line poem. The beginning and ending lines are the shortest, while the lines in the middle are longer, giving it a diamond shape. "Diamante" is the Italian word for diamond.
- There are two different types of diamantes; *synonym* diamantes and *antonym* diamantes.
 - Synonym Diamante: the first, and last lines (each one word) are synonyms (same), and the other 5 lines describe them. Example on the next page.
 - Antonym Diamante: the first and last lines (a single word) are antonyms (opposites). Below is an example.

Synonym Diamante

Monsters
Evil, Spooky
Howling, Shrieking, Wailing
Ghosts, Vampires, Goblins, Witches
Flying, Scaring, Terrifying
Creepy, Crawly
Creatures

Antonym Diamante

Cat
Gentle, Sleepy
Purring, Meowing, Scratching
Whiskers, Fur, Collar, Leash
Barking, Licking, Digging
Slobbery, Playful
Dog

- How to write a diamante poem in three easy steps:
 1. Diamantes are seven lines long.
 2. The first and last lines have just one word. The second and sixth lines have two words. The third and fifth lines have three words. And the fourth line has four words.
 3. Lines 1, 4, and 7 have nouns. Lines 2 and 6 have adjectives. Lines 3 and 5 have verbs. Here's an easy way to visualize all three rules:

Noun
Adjective, Adjective
Verb, Verb, Verb
Noun, Noun, Noun, Noun
Verb, Verb, Verb
Adjective, Adjective
Noun

- Decide what *thing* you want to write about. The reason you want to pick a *thing* is that your first and last lines need to be *nouns*. In other words, your diamante will be about a noun, such as a “horse” or “shooting sports,” rather than about a verb, such as “ride” or an adjective like “smelly.” An easy thing to write about is something you like or something you see around you.
- Decide whether you want to write a synonym diamante or an antonym diamante.
 - If you want to write a synonym diamante, you’ll want to select another word that means the *same* thing as your subject.
 - If you are going to write an antonym diamante, choose a word that is its opposite.
- The example is how to write an *antonym* diamante about the “sun,” and “moon,” since the sun and the moon are opposites.
- Once you’ve chosen your two nouns, take a piece of paper and brainstorm as many words as you can that have to do with each of them. For example, make one column for each word and write down everything you can think of. You’ll want adjectives (descriptive words), verbs (action words), and even more nouns. Your lists should look something like this:

Sun (noun)	Moon (noun)
Hot (adj.)	Cold (adj.)
Yellow (adj.)	Silver (adj.)
Fiery (adj.)	Night (noun)
Day (noun)	Still (adj.)
Light (noun)	Orbiting (verb)
Blinding (verb)	Shining (verb)
Exploding (verb)	Beautiful (adj.)
Distant (adj.)	Crescent (noun)
Flame (noun)	Reflecting (verb)
Blinding (verb)	Satellite (noun)
Star (noun)	Rotating (verb)
Nuclear (adj.)	

- It is best to have too many words. That way, you can pick and choose the words that work best for your poem.
- Identify each word if it is a noun (person, place, thing, or idea), verb (shows actions, feelings, or state of being), or adjective (descriptor for a noun or it can be comparative e.g., small, smaller, smallest).
- Put the words together according to the template with Line 4 containing two words from the Sun and two words from the Moon list :

Pattern
 Noun
 Adjective, Adjective
 Verb, Verb, Verb
 Noun, Noun, Noun, Noun
 Verb, Verb, Verb
 Adjective, Adjective
 Noun

Poem
 Sun
 Fiery, Yellow
 Burning, Blinding, Exploding
 Flame Light, Night, Crescent
 Shining, Orbiting, Reflecting
 Cold, Silver
 Moon

only. The average price for one Bible is believed to have been 30 guilder, equaling three years wages for a clerk.

- Gutenberg’s professional training was not in the printing business, as might have been expected. Instead he was trained in metal work, which was crucial to the development of the metal alloy used for the movable types.
- The Gutenberg Bible was available in two versions—one cheaper version printed on paper and one more expensive printed on vellum. The buyer paid a basic price for the printing and then added frills (hand-coloration, illuminations, a binding, and a cover) for an extra fee.
- A Gutenberg Bible contains 1,286 pages. 300 pieces of unique types were used in the printing and each page contains approximately 2,500 pieces of type. It took between three to five years to complete the entire print run of 180 Bibles and each Bible weighs an average of 14 lbs. The printing process was done entirely by hand.
- Of the original 180 Bibles, 49 are known to exist today. 21 of those are still complete.
- There are eleven copies of the Gutenberg Bible in the United States. Four of those are complete and printed on paper, and one, in the possession of the Library of Congress, is complete and printed on vellum. There are only four known complete Gutenberg Bibles printed on vellum in the world.

[Look at a digital copy here!](#)

CITATIONS

Careers

- <https://mgt.buffalo.edu/career-resource-center/students/networking/mentorlink/40-questions-to-ask-in-an-informational-interview.html>

Bookbinding

- <http://www.ahls.us/term.html>
- <http://www.designsponge.com/2013/03/bookbinding-101-five-hole-pamphlet-stitch.html>
- <http://howdidiyoumakethis.com/stab-bound-journal/>
- <https://liagriffith.com/diy-marble-journal/>
- <https://www.designersinsights.com/designer-resources/choosing-the-right-binding-type/>
- <https://modernparentsmessykids.com/diy-book-binding-experience-journals/>

Poetry

- <https://docs.google.com/document/d/1VYTiCrBIYadjzN33UkD-ctgiwQSzjq7RXO6U8cMNV00/edit>
- <https://www.poetry4kids.com/lessons/how-to-write-an-acrostic-poem/>
- <https://www.poetry4kids.com/lessons/how-to-write-a-diamante-poem/>
- <https://www.poetry4kids.com/?s=Haiku>

Fascinating Facts

- <http://inkblotediting.com/friday-fun-facts-bookbinding/>
- <https://minna701.wordpress.com/interesting-facts-about-bookbinding-history/>
- <https://fivefunfacts.wordpress.com/tag/bookbinding/>
- <http://earthcolor.com/2015/08/03/7-little-known-facts-about-johannes-gutenberg-and-the-gutenberg-press/>
- <https://bookriot.com/2016/07/13/10-things-you-should-know-about-the-gutenberg-bible/>

Definitions

- <http://www.ahls.us/term.html>

HAIKU POEM

- A haiku is an unrhymed three-line poem. It is based on a traditional Japanese poetic form. Though there are different ways to write haiku, the traditional pattern in English is to write the first and last lines with five syllables each, and the middle line with seven syllables. In other words, the pattern of syllables looks like this:

Line 1: 5 syllables

Line 2: 7 syllables

Line 3: 5 syllables

- Most often, haiku poems are about seasons or nature, though you can write your own haiku about anything you like. If you don't want to write about nature, and would prefer to write haiku about candy or sports, that is perfectly okay.
- The last line of a haiku usually makes an observation. That is, the third line points out something about the subject of the poem.
- If you decide to write your haiku about a season, you will first want to select a season: spring, summer, fall, or winter. The example is winter. Remember that the last line makes an observation. In the example, the observation is that winter is almost here, but we aren't quite ready for the snow. The leaves still need to be raked before the snow starts. All those thoughts need to be put into a pattern of 5, 7, 5 syllables. Something like this:

Winter is coming.

Snow will be arriving soon.

We should rake the leaves.

- If you count the syllables on your fingers as you read this poem, you will see that the lines have five syllables, seven syllables, and five syllables, just as they should.
- If you decide to write a haiku about nature, you will have many more subjects to choose from. You could write about animals, plants, the sky, the ocean, streams, the wind, and so on. Start by selecting a topic, and then decide what you want to say; what observation you want to make about it.
- For example, here is a haiku about chickadees next to a bird feeder in winter. The observation is that chickadees are always in motion.

Chickadees flutter

Dancing on snowy branches

Busy little birds

- How to write a haiku poem in six easy steps:
 1. Select a type of haiku. Decide if you are going to write a seasonal, nature, or other type of haiku.
 2. Pick a topic. Select one specific season, item in nature, or something else you are going to write about.
 3. Think about what is different about your last line. What observation do you want to make?
 4. Start writing.
 5. Don't forget to count the syllables as you read to make sure you've got the right pattern.
 6. Center your poem on the page like the poems in this lesson.
- Haikus are very rewarding poems. As you read through your poem, you will find words that evoke a stronger image, and use those. Haikus are visual and visceral poems.

TAKING IT TO THE NEXT LEVEL

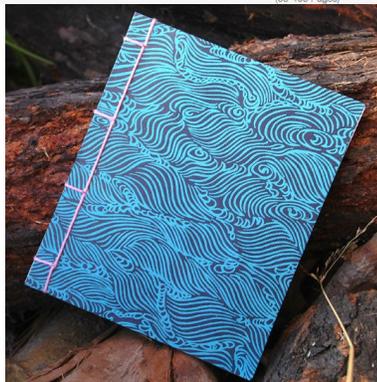
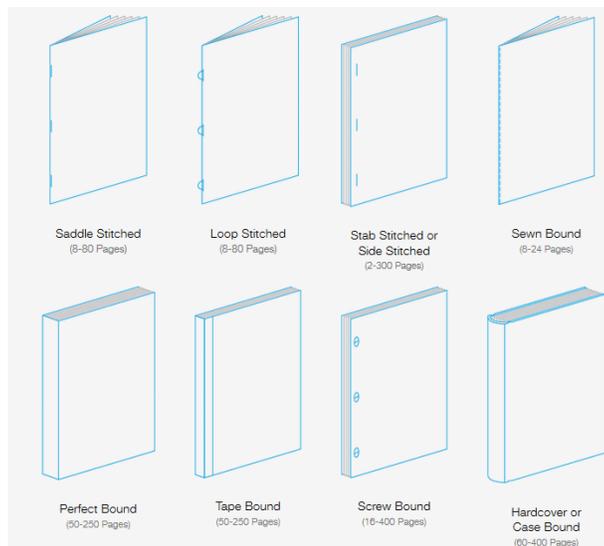
Bookbinding is ancient, and this was the beginning of information and progress. The ability for us to put down our thoughts, ideas, inventions, and imaginations is remarkable. Before, information was painstakingly copied by hand or passed down orally. Copying books led to mistakes amplified with each copy; one book could take years to complete. Story-telling changes with each generation, until the information is diluted.

Many scientists consider the Gutenberg Printing Press (~1440) to be the single invention that most changed human history. That seems so antiquated, but the printing press made mass production of books (in Gutenberg's case, the Bible) available to everyone. Before the printing press, information was not shared. Bookbinding preserved information as well as the sequence of how that information is presented.

If this Maker Project sparked your interest, below is a list of websites that has all kinds of different bookbinding instructions.

TYPES OF BOOKBINDING

- The illustrations on the right depict the different styles of binding books. This activity's instructions are for Sewn Bound books. The order of binding listed is basically from simple to complex. If you would like to try one out, search the internet for clear directions. For example, The Stab Stitched Bookbinding is beautiful, and traces its origins to China's Song Dynasty (~1000 A.D.). It is another way to bind a book that is fairly simple with beautiful results as you learn. This site has clear directions: <https://crafts.tutsplus.com/tutorials/bookbinding-fundamentals-basic-stab-binding--craft-10250>
- Junk Journals are a newer form of maker bookbinding. The purest form only uses recycled materials that you find around your house, junkyard, or resale store. Pages can be uniquely designed by you (e.g. watercolors, aged with tea, stamped), from catalogs, maps, music sheets, etc. You can add pockets to pages with envelopes, lace bands, or anything that your imagination can design. You need to carefully consider what the purpose of your junk journal is before you design it. How big? How small? Is it to record your thoughts or images on a trip? How many pages will you include? What treasures can you find to add to your junk journal?



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