Oct 11 — Choosing Watercolor Paper

scope of this presentation

intended audience

I'm speaking primarily to those who are new to watercolor. Maybe you haven't bought any supplies yet. Or maybe you've tried one or two types of paper and aren't sure if you are painting on a good choice.

what this demo is **not** about

As with the demo on brushes, this is **not a scholarly overview** of all the technical details of paper manufacture. There is no point to regurgitating information you can easily find with a quick search online. I'll include just enough information about the various characteristics of watercolor paper (weight, sizing, fiber content, etc.) to help orient newcomers.

This is also **not the "Consumer Reports of watercolor paper".** I don't have the resources. If you are looking for side-by-side testing and product reviews, others have done that far better than I could. I've provided links at the end of this video to a few to get you started. (Thanks to a viewer for alerting me to the outstanding videos by Jill Poyerd on this topic.)

It's also **not solely a "student vs. professional" paper comparison**. Again, there are already many side-by-side comparisons available. I've provided links to two excellent examples.

This is also **not a video about "special papers you really ought to try".** All you paper geeks probably know *far* more about this than I do already. :) If you love exploring different kinds of paper, probably nothing in this demo will be news to you.

focus: *how* to choose

My goal is to show newcomers some simple tests you can do to quickly learn how a paper responds and whether it is likely to give you a good chance of success with the effects you want to use and the look you want your watercolors to have.

papers in this demo

all 140-lb (but the tests work equally well for 300-lb)

All of the papers I used in this demo are 140-lb cold-pressed papers, except a few of the pre-printed postcards, which are around 110-lb or 120-lb. I don't use 300-lb paper, so I only had a small piece to demonstrate with. I'll talk more about why in the section on paper weight/thickness. But this testing/decision process would apply just as well to 300-lb paper, if that is the weight you prefer.

not a representative sample

Since I'm demonstrating a testing/decision strategy, and not doing product comparisons, I'll be working with whatever papers I happened to have in my studio, plus a few that I ordered to give a bit wider range of behaviors that you might find among commonly used watercolor papers in the U.S. (I have no basis for speaking about papers available in the rest of the world.)

reference spreadsheet included

For reference, I have included a spreadsheet with this handout that shows the full name of each paper, the relative price (at the time I purchased it) "per postcard" (i.e., if you cut it up into 4x6" postcards), and a summary of some of the main characteristics. I have also included a series of labelled photos, showing the front and back texture of each paper (except the precut postcards).

tests demonstrated with 2-3 selected papers

I'll demonstrate each test with 2 or 3 papers that behave differently for that test, so you can get an idea of the different kinds of behaviors you might encounter. Each paper has its own set of behaviors, but there are some general categories.

general categories

student-grade papers

Good quality wood-pulp papers. Confusingly, you may see this type of paper labeled "wood-free". That means the lignin (the component of wood pulp that causes acid breakdown of paper) has been removed, making the paper acid-free (more archival). If a watercolor paper doesn't say "100% cotton", it's likely a wood-pulp paper. 100% cotton papers are stronger and can tolerate more water, scrubbing, etc.. It's a selling point. If it's 100% cotton, it will say so.

Examples:

- Strathmore 400 series (brown cover)
- Canson Montval
- (similar, not demo'd: Arteza Premium)

"hobby-grade" papers (my term)

Student-grade papers of lesser quality than the above. I'm mentioning these because many beginners start here, but I did not demonstrate with any of these. I would not recommend them for anything except sketching with light washes, watersoluble line work, or small amounts of watercolor in mixed-media work.

Examples:

- Strathmore 300 Series
- Canson XL Watercolor
- Artists' Loft

pre-printed postcards

- Strathmore 400
- Canson Montval
- Hahnemühle Burgund and another, lighter weight Hahnemühle postcard I couldn't find a name for
- Etchr Labs (100% cotton; this one stood out as especially close to the behavior of "mainstream" 100% cotton professional papers, but is a slightly lighter weight)

'mainstream" 100% cotton professional papers

100% cotton papers that are commonly used and recommended in the US, and other papers that behave similarly. The first three are probably the most commonly used in the U.S., so I'll refer to them as "the big three". The others have small differences, by largely behave similarly.

- Arches Aquarelle
- Fabriano Artistico
- Saunders Waterford
- Canson Heritage
- Strathmore Gemini
- Lanaquarelle
- Dick Blick Premier
- Cheap Joe's Kilimanjaro (I didn't get these samples in time to include them in testing, but I've painted on this paper quite a bit; similar in behavior to Arches)

other “established brands” of 100% cotton professional papers

Other well-known 100% cotton papers (in the US) which aren’t as similar to the “big three” (in various ways).

Examples:

- Winsor & Newton Classic
- Winsor & Newton professional
- Strathmore Imperial (500 Series)

new kids on the block

These are 100% cotton papers at a somewhat lower price point than the “mainstream” papers. Some subtle differences from the mainstream papers, but worth trying if you want something at a price point between student-grade and the “mainstream” papers.

Examples:

- Bee Paper 100% Cotton
- Speedball Fluid 100 (slightly less durable surface than mainstream papers)
- Stonehenge Aqua (noticeably less durable surface than mainstream papers)

handmade papers

Most are rather expensive and not likely choices for beginners. But handmade paper from recycled cloth is an artisan industry in India, and some of these papers are starting to appear in the U.S. at quite reasonable prices. I’ve included another handmade paper that comes in tiny sheets. Although expensive, per square inch, it behaves much like the “mainstream” papers and might be of interest for a special greeting card or other tiny painting.

- Shizen Professional (India)
- Saint-Armand (4x5” sheets)

- not demo'd, but also one of the more popular handmade papers: Indigo Art flax-blend paper; includes 25% flax fiber, which is an older, traditional paper fiber, prized for its strength

factors to consider

cost

This is probably uppermost in most people's minds when they start out in watercolor. We are all used to buying a whole ream of copier paper for $5-7 at an office supply store, so the idea that *one sheet* of watercolor paper can easily cost $5-7 or more seems outlandish. And intimidating.

you're not buying paper (the way we usually think of paper)

I think the real problem is that we use the word "paper" for both, but they are very different materials, used in very different ways.

You're going to take that $5-7 ream of copier paper, toss it in the copier, and, in a half-hour, you can print out 20 copies of your *Favorite Family Holiday Recipes* booklet to distribute to your cousins.

With watercolor paper, you're going to take that $5-7 sheet, cut it up into 20 postcards, spend a half-hour or hour (or more) *per postcard*, creating 20 unique hand-painted watercolor postcards. And getting 10-20 hours of learning and enjoyment out of it.

you're buying learning and enjoyment

Even if you buy expensive paper, there is perhaps $.50 worth of materials in that postcard. Compared to other things we do for learning and enjoyment, that's an incredible bargain!

From the stand point of learning and enjoyment, the most important thing is to choose a paper that is most likely to help you succeed at achieving the effects you are trying to learn and get the look you prefer.

beware false economies

Besides, if you have a higher proportion of successful paintings on the "more expensive" paper, then it isn't really more expensive. Don't figure "cost per sheet of paper", figure "cost for successfully completed painting:".

so, should you absolutely avoid student-grade paper?

There are reasons for choosing student-grade papers (or lighter-weight) papers besides cost. A lighter-weight paper allows more pages in a sketchbook. Some techniques, such as line-and-wash, work especially well on student-grade papers. My watersoluble-line technique works better on these papers than most 100% cotton papers, for example. They often take an ink link or watercolor marker more smoothly. You may simply enjoy the way the paint floats on the surface and produces unpredictable blooms and blobs (I do!).

but . . . it won't have the same look as most 100% cotton papers

But if you are trying to mimic what you see people doing on one of the "mainstream" 100% cotton papers, and cost is your only reason for choosing "less expensive" paper, please think a bit about whether you're saving a few pennies at the expense of slower learning,

more frustration, and lower chance of success. In the long run, struggling with a "cheaper" paper may just mean you use a lot more of it, and have a lot less fun.

If you know you will still be too intimidated by "expensive" paper, and choose to stick to less expensive student-grade paper, then please, be kind to yourself if your results don't look the same as something someone did on 100% cotton paper. The two types of papers behave very differently, especially with wet-in-wet effects. Don't beat yourself up over differences that are about the look and response of the paper and not the result of "bad technique". Instead, try to embrace and work with the effects this paper produces naturally. It's a different look, but there's no reason it can't be just as lovely.

weight

Watercolor paper weight is expressed as either

- pounds per ream (500 sheets), or
- grams per square meter (gsm)

Expressing paper "weight" in pounds per ream is called the *basis weight* and is the weight of one ream (500 sheets) of the paper in its *basic sheet size*. The trouble is, different kinds of paper have different basic sheet sizes. And of course, a ream of bigger sheets weighs more even if you keep the thickness of the paper the same. Watercolor paper has basic sheet sizes of "Imperial" (22x30"), "elephant" (around 26x40") and "double elephant" (40x60"). A ream of 22x30" sheets of "140-lb" Arches weighs 140 pounds, but a ream of the same thickness of paper in a 25 3/4x40" sheets weights 156 pounds, so it's sold as "156-lb" paper. A ream of the very same thickness of paper in 40x60" sheets weighs 555 pounds, so it's sold as "555-lb" paper in 40x60" size. Aaargh!

On the other hand, since gsm stands for "grams per square meter" this number stays the same for the same thickness paper, no matter how big the sheet is. For 22x30" sheets, 140-lb paper is typically 300 gsm, and 300-lb paper is about 625 gsm.

To add to the confusion, a 9x12″ pad or block or sketchbook made of “140-lb” paper contains the same thickness of paper as a 22x30″ sheet of “140-lb” paper.

The moral of the story is for 22x30″ sheets and smaller sheets, pads, blocks, or rolls, you can just go by “140-lb” and “300-lb”. Sketchbooks and postcards may be found in “90-lb” and “110-lb” and those weights are also based on a 22x30″ basic sheet size. If you are ordering oversize sheets, read carefully to make sure you are getting the paper you want.

Saunders Waterford (and perhaps others) is also available in 22x30″ sheets in a 200-lb weight, if you want something between the usual 140-lb and 300-lb.

So, now that all the tech-y stuff is out of the way, which one do you want?

color

Watercolor papers range from a soft ivory to a bright white. Honestly, once you get paint on the page, the small differences in color aren’t really a big deal. Many of the “big” brands have both “colors”, but I don’t think you need to worry about this much unless you are hanging a show and want all the paintings to be consistent.

In most cases, the amount and type of sizing seems to affect the brilliance of the dried color more than the color of the paper.

format

sheets, pads, blocks, postcards, sketchbooks, rolls or oversize (elephant, double elephant)

- “standard” size watercolor sheet is 22x30″ (from which you can cut 20 4x6″ postcards)
- pads come with one side glued or spiral bound, most commonly these are student-grade papers, but Arches, Arteza and Stonehenge make 100% cotton pads (and there may also be others)

- blocks have all 4 sides glued; the idea is that you don't have to tape them down because all 4 edges are secured NOTE: It is a misconception that paper in blocks won't buckle; it will! More on that when we talk about stretching paper (or not).
- some blocks and individual sheets are also available in unusual sizes and shapes (long rectangles, squares, circles)

material/fiber

Watercolor paper may be 100% cotton, some cotton content and some wood pulp, or all wood pulp. Confusingly, you may see some of these wood-pulp derived papers described as "wood free". What that means is that the paper fiber has been processed so that the lignin from the wood has been removed, leaving just the cellulose. Lignin is the element in wood pulp that is acidic and can cause the paper to break down over time, so removing the lignin makes the paper acid-free, or archival. So, "wood free" actually means lignin-free. It's possible that, for some papers, it may actually mean the cellulose is derived from some other source. Paper formulas are proprietary, so sometimes it's hard to know for sure. Some watercolor papers contain other fibers such as flax, hemp or lotka. I did not have any of these in my studio to test or demonstrate, and they are not as widely available or commonly marketed to students, so I'm not including them in my discussion.

Similarly, I'm not going to discuss all the many other surfaces people use for watercolor, such as Bristol board, print-making papers (Stonehenge, BFK Rives) and cover papers, non-paper surfaces (YUPO, stone paper, vellum, aquabord, watercolor board, watercolor canvas, gesso, watercolor grounds). These are all a lot of fun to try, and some people fall in love with some of them and choose to work primarily on a "nontraditional" surface, but they're out of the scope of this demo.

texture

Watercolor paper texture is usually described as hot-pressed (smoothest), cold-pressed (a.k.a. "not") and rough. Fabriano Artistico also has a "soft-pressed" surface which is between their hot-pressed and cold-pressed textures.

Within one paper line, hot-pressed will be the smoothest surface, often with no noticeable texture. Cold-pressed paper will have some texture and rough paper will have a lot. However, as with pretty much everything in the art world, those terms are relative. Cold-pressed paper in one brand can be rougher than the rough paper of another brand, or smoother than another brand's hot-pressed paper.

Also, some brands have a very uniform, mechanical pattern to the texture of their paper, and others are more "organic" patterns. Some have nearly the same texture front and back, others have small differences in front and back and others are completely different. Some brands deliberately make one side textured and the other smooth to give you a choice.

Seeing paper in person (or better yet, trying it) is the best way to judge the texture. Some retailers have started providing closeup photos showing the paper texture. I have included photos showing the textures, front and back, of all the regular watercolor papers in this demo. (I didn't include the back side of the pre-printed postcards, since presumably you won't be painting on that side.)

sizing

Sizing is a material added to paper to make it somewhat less absorbent. Paper without any sizing at all ("waterleaf") absorbs liquid like a paper towel, with all the liquid quickly spreading out. Sizing is added so that the liquid is prevented from spreading all over, and the shape of the brush or pen mark remains distinct. For painting or writing papers, sizing is added to the pulp slurry (internal sizing) so that it is incorporated throughout the paper. Often, sizing is also added to the surface of the paper as well (external or surface sizing).

Student papers often have quite a lot of sizing (internal and external) since pulp papers are weakened a great deal when saturated. For these papers, sizing performs the additional function of helping to keep the paper from absorbing too much water and becoming saturated. Once all the sizing is "broken" (dissolved in water) or washed away, the paper fibers on these papers are easily disturbed and the paper may "pill" or tear easily simply by normal brushwork. So continuing to "fiddle" with these papers causes more damage (and

faster) than continuing to fiddle with 100% cotton papers (though these, too, will eventually be damaged).

Since sizing holds out water briefly until the sizing dissolves, papers with a lot of sizing may require a bit more pressure on the brush to get the wash to be accepted by the paper. If a paper has a lot of sizing AND a lot of texture, this can make drybrushing or little flecks of white skipped over in an initial wash much easier to achieve.

There are several different materials used for sizing, including rabbit-skin glue, gelatin and various types of starches and cellulose. How much sizing, whether it's internal or external, what type of sizing and what type of paper fiber all interact. This is one of the factors that is best explored through testing, not reading.

deckle

A deckle is the barrier that is used to contain the pulp when paper is made (a wooden frame in handmade paper, or a belt or other "fence" for machine-made paper). The deckle edge is the raggedy or feathery edge that results from a small amount of pulp running under the deckle. Handmade papers usually have 4 deckle edges. Commercial papers usually have two deckle edges and two edges that are torn so that they appear "soft" and match the deckle edge more than a cut edge.

This is, again, not a feature that most beginners will be concerned with, since it's mostly found on more expensive papers, and it's only visible if the painting is "float-mounted" on the surface of a backing mat with the edges exposed, instead of under the usual bevel-cut mat one sees on watercolors. But it can be fun to try small handmade sheets with 4 deckle edges for special greeting cards or tiny float-mounted paintings.

student v. professional (artist-grade)

student papers

- generally around 1/3 to 2/3 the cost of 100% cotton papers (this is the most common reason for choosing these papers)
- generally have a lot of surface sizing, which (as you'll see in the demo) means that paint initially does not absorb right away into the paper, but sits on top in a puddle
- all or part wood-pulp based (or a low percentage of cotton, e.g. 25%)
- confusingly, sometimes marketed as "wood-free"—this means the lignin has been removed, leaving just the cellulose fiber, and making the paper acid-free (and therefore, more archival)
- once the sizing is rinsed off (e.g., through repeated washes and glazing) they generally absorb the paint *faster* than 100% cotton papers, and the surface is easily damaged once the sizing is lost
- for that reason, they are challenging for wet-in-wet effects, softening edges, laying even washes
- generally take ink very well, with nice crisp lines; lifting is easy as long as the sizing is not gone, so they can be wonderful for line-and-wash (often used by "urban sketchers" and travel sketchers, frequently found in watercolor sketchbooks to keep costs down)
- not "bad" paper, just nowhere near as strong as 100% cotton, can't handle a lot of water, many layers of washes, scrubbing, masking, or tape as well as 100% cotton papers
- because they behave distinctly differently from 100% cotton papers, they give a very different "look"; if you are trying to emulate the work of someone painting on 100% cotton paper, it will be more difficult on student-grade paper

professional or artist-grade papers

- typically 100% cotton

- but note: there are a few brands that have wood-pulp papers they market as "professional" —look to see if they say "100% cotton"; if they don't say so, then you can be pretty sure it's a wood-pulp paper (since 100% cotton is a selling point, so they always make a point to tell you when it *is* 100% cotton)
- not all 100% cotton paper is alike, however
    * short-staple v. long-staple (cotton "rag" paper) read more here: https://www.strathmoreartist.com/blog-reader/cotton-paper-vs-rag-paper.html
    * factors such as type and amount of sizing, and surface texture often affect behavior a good deal (as you will see in the demo)
    * there are now a number of 100% cotton papers that are at a price point between student grade paper and the older professional grade papers. Three that I know of are Fluid 100, Bee Paper 100% Cotton and Stonehenge Aqua. My impression of these is that their behavior is roughly also somewhere in between student grade paper and the older professional grade papers, but closer to the other 100% cotton papers than to the student-grade papers.

There are also many lovely handmade papers. Many are expensive, although there are some very interesting less expensive options from India, where handmade watercolor paper is a cottage industry. I will demo one of these, but otherwise, I won't be discussing handmade papers (too expensive and quirky to appeal to most beginners).

tests you might conduct

wash evenness, color brilliance, wet stroke, dry brush

Try laying a nice juicy wash over an area about business-card size or so. Does the paint go down smoothly? Do you feel you have enough working time to keep the wash going? Does the paint sit up on top or quickly move down into the paper? (none of this is good or bad, just personal taste) If you "touch up" the wash or disturb it a bit as you go, does it even itself

out or make blotches? How is the color intensity? How much does it shift in color or value as it dries?

Try a really wet brush stroke. Does the paper help even out any irregularities in how the brush delivers the paint over the length of the brush stroke or do you wind up having to pick up drips to avoid blooms?

Try a normal brush stroke. Do you feel like the paper accepts the paint well? Does it seem to "suck up all the paint" and dry your brush out faster than you like?

Try a few dry brush strokes. How easy are they to achieve? Do you like the pattern(s) they produce?

softening edges, evenness of wet in wet effects

Try putting down some brush strokes and then coming back to soften one edge. How easily can you soften the edge? Do you have enough time? Does the edge "feather" nicely? Is it easy or hard to control the softness?

Drop some color onto a wet area and a damp area. Do you like the way the paint moves?

pace of absorption

Some papers absorb a wash or brushstroke quickly and others keep the paint on the surface longer. This is mostly to do with the amount of sizing, but also with the balance between internal sizing (sizing added to the pulp and incorporated into the body of the paper) and external sizing (added to the surface. There are also several different types of sizing and they all behave a little differently. Texture plays a role here, too.

Both pace of absorption and the ability of the paper to even out a wash (in the previous test) affect how easily you can lay a larger wash with good control. Again, what is "good" or "bad" behavior depends mostly preferences: how you like to load and use your brushes, what kinds of brushes you prefer and what techniques you prefer.

blooms/backruns

How easily can you make them? Do you like their look on this paper?

crispness of hard edges, brushwork, shows textural effects

How well does the paper show a crisp, hard edge, the character of a brush stroke or texture effect? (Often, somewhat smoother papers are better at showing these things, but not always. Sizing plays a role here, too.)

paint on back? similarity of front and back texture?

It's worth trying all your tests on both sides of the paper. You can almost always paint on both sides, but if the two sides look, or behave, very differently, you may find that frustrating. Or, it might give you two options in one paper, so again, it could be good or bad, depending on what you want to do.

wet strength/tearability, can it be stretched without tearing?

If you are going to stretch your paper over stretcher bars, it's a good idea to get it completely saturated and then see if you can pull gently but firmly on one edge without pulling out a chunk of paper. When stretching, you only need to pull enough to take the slack out, so the paper doesn't have to be super strong, but some will get too soggy to even do that.

wet strength/scrubbability (brush, sponge)/resistance to pilling and separating

Some papers will "pill" into little balls, peel into strips or separate into layers if you rub or scrub with a wet sponge (for example, as you try to lift color). Try rubbing a natural sponge over the saturated paper to see how much scrubbing it can handle without peeling, pilling or separating.

staining/liftability/ability to glaze without disturbing underlying wash

It's nice to be able to lift color sometimes. But the easier it is to lift color, the harder it will be to glaze over a previous wash without disturbing or moving the first layer. Try both, preferably with both a staining color (such as phthalo blue or green) and a nonstaining color (such as ultramarine blue or cobalt blue). You have to find a balance that favors what you most like to do. Or pick a paper that's in the middle so you can do a bit of both.

masking fluid and tape

Does the paper handle masking fluid without staining, tearing, or feathering? Be sure to mask at least one good-sized area (dime-sized or so) and then don't paint over that area. Mask several other types of areas and shapes, including some lines and dots, and paint over those. The first area will allow you to compare the color of the masked area with the unpainted paper and detect any staining.

If you otherwise like the paper, and it doesn't tear as mask is removed, but it does stain, you can consider using an untinted masking fluid just as Incredible White Mask.

Does it handle masking tape without a lot of bleeding underneath? Can you get away with removing it from slightly damp paper, pulling straight up, or do you have to be very careful to dry the paper completely, warm the tape and pull sideways? If you only care about taping the paper down, the latter may be fine. If you use masking tape to mask areas you want to protect from paint, you may want to be able to pull tape off of damp paper.

some exercises that are good paper tests:

Try doing a larger version of one of the little balls in the Introduction to Shadows and Highlights video of Watercolor Jumpstart. Project 2 of Watercolor Jumpstart (Marbles in the Sun) or the Eggs in a Glass Bowl Postcard Paint-Along will tell you a lot about how a paper handles.

It's also worth laying some flat and graduated washes over larger pieces, to see if you feel like you have enough working time and help from the paper to get them even and controlled.

do you have to stretch paper?

Can you just use a block, or 300 lb paper, and avoid stretching paper?

Why and when paper buckles

All paper buckles when it gets wet enough. As the water sinks into the paper and the sizing dissolves, the paper fibers absorb moisture and swell, sort of like a sponge. The moisture moves sideways and downward into the paper, and wet section of paper expands.

f the edges of the paper are taped down, the only direction for the paper to expand is up and down. (The same is true for if the edges are secured all around by glue, as in a block.) If the entire page is uniformly wet, the expanding paper may form a sort of dome as it swells upward. More often, some areas are wetter than others, some are expanded more than others, and the paper forms hills and valleys. This is called buckling or cockling.

The only way to completely prevent this from happening is to change the way painting surface absorbs and transmits water (or doesn't). This is why alternative surfaces like YUPO, stone paper, Aquabord and watercolor canvas don't buckle. But the absorption and movement of water through the paper is also a big part of how watercolor makes those beautiful gradual color blends. So watercolor on all those non-buckling surfaces doesn't behave the same way as watercolor on paper. They can be fun to paint on, but they don't give the same look and they require changes to traditional watercolor techniques.

If there is only a small amount of water for the paper to absorb, the top layer of fibers simply swells a little bit, maybe not even noticeably, and then flattens back as the water evaporates from the surface. But if enough water is absorbed in a portion of the paper, the paper may expand more noticeably in that area. If there is water in the deeper layers of the paper, or

absorbed all the way through to the back side, it can take a long time for all of it to move back up through the paper surface to evaporate, and for that area of the page to flatten out again. If this is going on all over the page, the buckling generally won't go away until the paper is completely dry again.

If buckled paper is left taped down (or left on a block) until it is completely dry again, it will shrink back flat again. So taping paper down, or using a block does not prevent buckling while you are painting, but it does force the paper to return to its flat state as it dries. If buckled paper is not secured along the edges, so areas generally dry to the point where the paper is unyielding while other areas are still wet and expanded, so the buckling may be sort of locked in place by the dry, more rigid areas. If that happens, the paper can be flattened for framing with a steam iron or by lightly misting the back and placing the paper under a weighted board.

What if you don't want your paper to buckle while you're working?

There are basically two strategies:

- tape the paper down (or use a block) and don't let any area of the page get wet enough to start expanding too much and causing buckling
- get the paper fully saturated, let it expand as much as it will expand, and secure it in that expanded position (by taping or stapling to a board, or using one of the commercial paper stretching systems that have some sort of clamp system)

The first method works fairly well for most people at postcard size, because we just don't spend that much time working on any one area of a postcard, and the water can usually even itself through the entire card pretty quickly. So when the paper swells, it usually "domes up" and the excess runs off the sides. This doesn't usually cause any problems with painting.

How large you can go simply taping paper down before you run into problems with buckling depends a lot on how much water you use and how much layering of washes

before you start to get annoying buckling. You have to experiment and decide for yourself. For me, somewhere around 8x10" or so, the annoyance of buckling outweighs the nuisance of having to stretch my paper, but I use a lot of wet-in-wet techniques, pouring, etc.

If you are using this first strategy, 300-lb paper does help, simply because the additional thickness means that the paper can absorb more moisture before any particular area gets saturated all the way through and starts to expand. Another alternative is watercolor board, which is watercolor paper laminated to a backing board similar to mat board. And the same is true of a block. The paper underneath can absorb some of the water that moves all the way through to the back of the first sheet, so it takes more water to reach the point where the top sheet starts to expand.

So 300-lb paper, watercolor board and blocks give you more water-absorbing capacity before you reach the point where you have buckling, but they *will* buckle if you use enough water. And there's a downside: once these thicker surfaces are wet all the way through, it takes a long time for all that moisture to move back up through the surface of the paper to evaporate.

Many plein air painters like these thicker surfaces for their rigid support and ability to handle more water without buckling, so often they develop a style of working on a fairly steep angle, or even with the paper vertical on an easel, so excess water is more likely to run off the bottom of the page than sink into the paper. They either learn to not bring too much water to the page, or to simply allow drips and runs to happen and make them part of their work.

In the second strategy, we don't really "stretch" the paper the way an oil painter stretches canvas. There's no need to pull on it. What we do instead is get the paper completely saturated and fully expanded and then secure it in that expanded form and let it dry. The drying paper does contract (enough to actually make a drum)/ That introduces tension into the board or bars that hold the paper. As the paper gets wet and expands again, the board or bars exert enough tension to keep it flat as it expands.

The variations in stretching methods have to do with how the paper is secured (stapled to a board or bars, clamped to a frame, taped down with gummed paper tape), and the method for saturating the paper (soaking, or using a sponge or brush to add water as the paper rests

on a flat surface). I use a soft brush and try to add just barely enough water to fully saturate the paper, because the other methods remove the surface sizing. My method removes some as well, but if I'm careful to add water slowly as the paper absorbs it, there is little excess to run off and most of the surface sizing dries right back onto the page after the paper is stretched.

A final method of "stretching" paper is to saturate the page completely, use paper towels to blot the front surface dry, and do the entire painting on the saturated paper in one go. This can be a useful method if you want a lot of time for manipulating wet washes.

I've included links at the end of this handout to videos showing the various alternatives for stretching paper. No matter what method you use, it seems like a big pain the first 4 or 5 times you do it, but quickly becomes just part of your studio routine.

main criteria I would suggest that a beginner consider are:

cost/quality

If you need to economize, buying less expensive paints and brushes will probably affect your learning less than buying inexpensive paper. (Except for those doing travel sketching, urban sketching, line-and-wash or something similar. Since many people use sketchbooks for this—and many sketchbooks have wood pulp paper—choosing a wood pulp paper for these styles might be the perfect choice.)

But, if you know that you will be too intimidated to actually paint on more expensive paper, then buy paper you will actually use! The best paper for you is the one you will actually paint on! The thing that will teach you the most about watercolor is mileage on the brush.

For some people, that means spending a bit more on paper that is more forgiving of fiddling and reworking (and more like what most of the people doing tutorials are using), so you are not frustrated, and so you throw away fewer paintings as "unsuccessful" (One point about

"cheaper" paper people forget to consider is that the "success rate" might be a lot lower. It's not cheaper if you are throwing away twice as many paintings!)

For others, that means buying less expensive paper so you feel free to just get in there and try things, and simply embracing the different behavior of the paper and not expecting your results to look like what you see on 100% cotton paper in a tutorial.

paper matches the type used by most people working in the style you are trying to learn

If you are using student grade paper, and the demo is on professional paper, you may not get the same results you see in the demo simply because the paper behaves differently, and not because there is something wrong with what you are doing. If you aspire to use the same techniques and get the same results as what you see in tutorials on 100% cotton paper, you probably want to also use 100% cotton paper.

On the other hand, if you are focused on the kinds of sketching often done in sketchbooks, student-grade paper may actually be more likely to give you the kind of look you see in books and tutorials.

consistent availability

You'll learn faster if you settle on one paper and stick with it for a while. Give yourself some time to experiment, but then pick one and try to stick with it for at least a few months to a few years. That means it's worth paying attention to whether the paper you choose is readily available at a reasonable price where you live.

That might also mean you wind up going with one of the "big names". That's not a bad decision for beginners. Papers that are widely available are also more likely to be similar to the papers being used by many of the artists making tutorials and writing books and teaching classes. They're also often widely used because they are what I call "middle of the road" papers. Not as in "mid-level quality", but as in they are not too extreme or quirky

with respect to sizing, texture, wet-in-wet behavior, ability to take tape and masking fluid, etc.

What are some of these papers? In the US, the three most commonly used professional papers are probably Arches, Fabriano Artistico and Saunders Waterford. Some others that would have similar behavior are Blick Premier and Cheap Joe's Kilimanjaro. Sometimes, but not always, these "house brands" are less expensive. Pay attention when ordering, as Blick also has lesser-grade papers. It's their "premier" paper that is most similar to Arches.

Some newer 100% cotton papers that might be slightly less expensive are Fluid 100 and Bee Paper 100% Cotton. Fluid 100 is one that many of my students have liked. (Can't say about Bee because it's too new.) Stonehenge Aqua took washes nicely, but has a less durable surface, not suitable for masking.

Watch for sales & consider buying 10 or 25 sheets at a time to get a price break. But again, I encourage you to perhaps try several and then try to settle on one paper to stick with for at least 6 months or a year, instead of "bargain shopping" and changing papers each time you order. Paper is one of the biggest factors in the way watercolor techniques work. When you switch papers, you may have to change the amount you load your brush, how much pressure you apply, how wet your paper is for wet-in-wet effects. When you are still learning the basics of controlling all these things, it's best to keep the paper constant.

quirky papers

Can you begin on a quirky paper? Sure! Just be aware that you'll likely get different results than if you are using a more "mainstream" paper. So you'll need to adapt and experiment, instead of assuming you can just copy techniques you see in most books and videos. But some of us are in love with the beauty of unusual papers, and want to make that a part of our art. If that's you, embrace it and just don't beat yourself up if you are getting different results from what you see happening in a tutorial on "mainstream" paper.

That interesting handmade paper I showed in the full sheet and the 5x7" sheets is Shizen, which sort of sounds Chinese, but it's made in India from recycled cloth. I found it a

pleasure to paint on, and it's not especially expensive, so might be worth a try if you like a lot of texture. Not strong enough for masking, but that's common with handmade papers.

The other tiny 4x5" handmade paper is Saint-Armand. Not cheap (about $1.25 per sheet), and too small to use as a postcard, but would make lovely special greeting cards with the beautiful deckle edge.

If you want to buy pre-printed postcards and would like a paper that behaves more like one of the "mainstream" 100% cotton papers instead of a student grade paper, I would suggest Etchr Labs postcards. At $39 for a box of 100, the cost is comparable to cutting down a full sheet of 100% cotton paper. The Etchr postcards are slightly lighter weight, but still perform very similarly.

I happen to really like the oddball texture of the Hahnemühle postcards, but they are more challenging to paint on. The Canson and Strathmore postcards are student-grade paper. So, if you are using student-grade paper in your studio practice, you may prefer those.

Manufacturer's/distributor's sites:

Arches: https://arches-papers.com/watercolour-and-wet-techniques/arches-aquarelle/

St. Cuthbert's (Saunders): http://www.stcuthbertsmill.com/st-cuthberts-mill-paper/saunders-waterford-watercolour/

Fabriano: https://fabriano.com/en/22/artistico_traditional_white

Hahnemühle: (Lanaquaralle, Turner, Hahnemühle postcards): https://www.hahnemuehle.com/en/artist-papers/lana-beaux-arts/p/Product/show/14/144.html

Mullberry and More: (Indian handmade cotton papers in a bunch of interesting shapes and sizes) https://www.mulberrypaperandmore.com/c-624-watercolor-paper.aspx

Legion Paper:

Some articles providing more information:

https://www.art-is-fun.com/watercolor-paper

https://www.jacksonsart.com/blog/2014/03/16/everything-ever-wanted-know-watercolour-paper/

https://www.artsupplies.co.uk/blog/how-to-choose-the-right-watercolour-paper/

Two excellent videos comparing student and professional quality papers:

Jill Poyerd: https://youtu.be/Ug2igUQ9OTg

Steve Mitchell of The Mind of Watercolor: https://youtu.be/zEC0-PRmw10

If you are looking for comprehensive testing and comparison of many different papers, have a look at the paper section of handprint.com. The author has far more patience and expertise than I do. This information is a bit out of date (c. 2005), but still useful: _[]_ https://www.handprint.com/HP/WCL/wpaper.html

Here are some videos testing numerous papers against each other:

Again, a wonderful video from Jill Poyerd comparing professional-grade papers: https://youtu.be/DZhswCAM32Q

And two others in the same vein:

https://youtu.be/eyO8Uvsb_8I

https://youtu.be/l03rytDVcIs

My video on stretching paper, and some methods suggested by others:

The method I use (stapling to a board or stretcher bars): https://youtu.be/f39ozXO2j7s

Another video showing how to do the method I use, which is professionally produced and might be easier to follow: https://youtu.be/8Ts0uNI2LdE This artist also shows how to wrap the paper all the way around the stretchers in a "gallery wrap" style, so you could simply leave the painting on the stretchers, varnish it, and frame it like a canvas is framed, or present it unframed.

Stretching with gummed paper tape: https://youtu.be/9c6OWKyYNKI

This artist uses a method of taping down the paper with masking tape, wetting it and drying it with a hair dryer to shrink it: https://youtu.be/WyTxuzCdXAU. I haven't been able to make this work, but it might work for those who don't use the crazy amounts of water I use.

This video shows how to "stretch" paper by actually just working on the saturated paper. There is no need for tape, since the paper is basically floating on a thin film of water on the support board, and held in place by surface tension: https://youtu.be/TifVl-TvAzY I can never finish a painting in one go, so that's why I don't use this one. You can rewet the back, and keep working in a second session, but I find that way more hassle than stretching the paper the way I do.

Which method is best for you depends a LOT of your favorite painting strategies, and what you find most annoying or tedious. You'll have to experiment.