

The ANIME Survival Kit

Genga Section Draft

Developed by Tonari Animation

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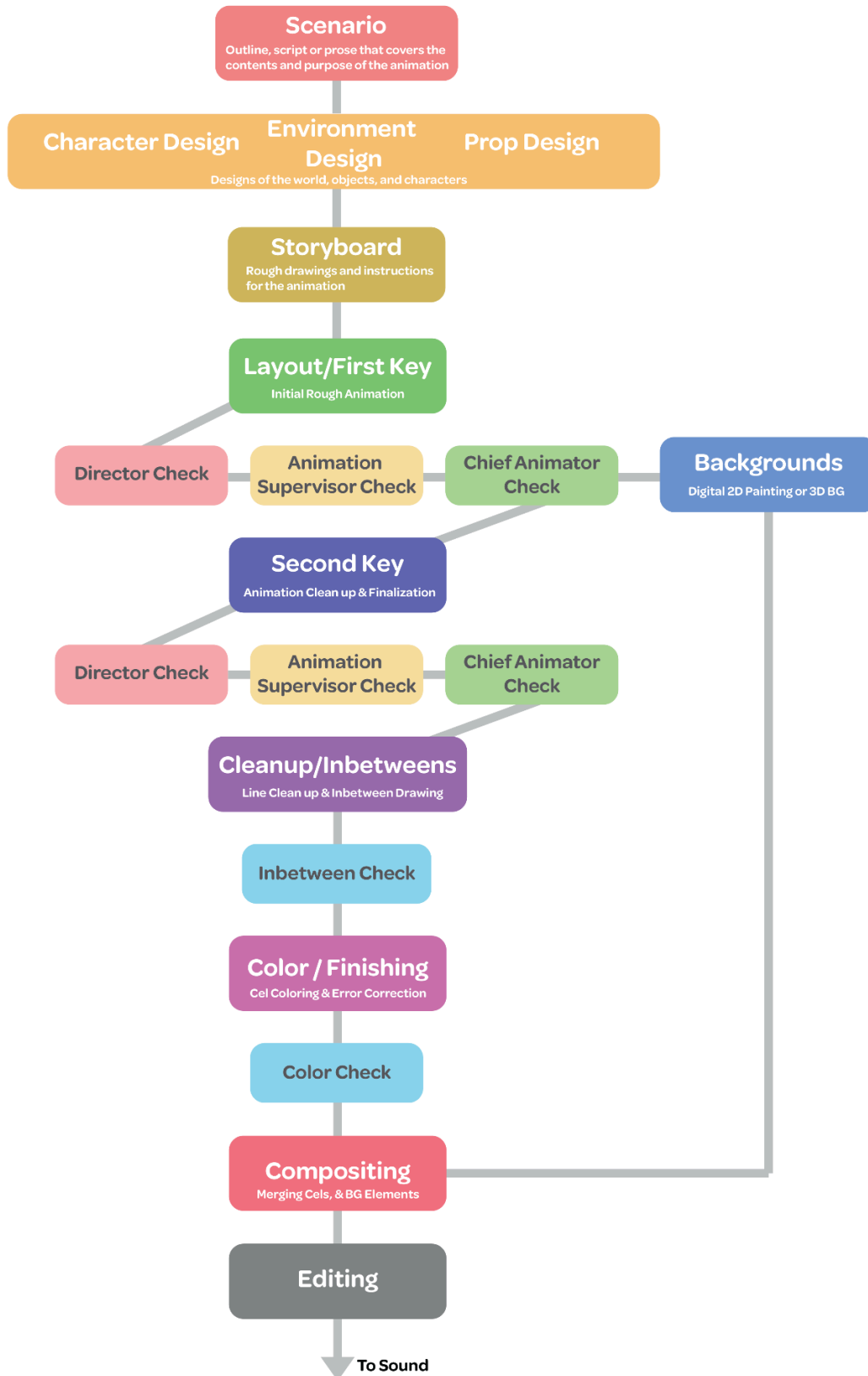
Bellamy Brooks

Pre-Production

Animation Production

Video Production

Animation Production Pipeline



Note From the Author

Hi, my name's Giuseppe! I'm an animator and designer with Tonari animation. I started back in 2021 as a freelancer, but I became a full-time member of the company in early 2022. I bet you're thinking "that isn't enough time to understand anime and write a book!" You're right. I'm not a one-man animation encyclopedia. Instead, I'm more like a researcher. Tonari has experts in every field of animation, but they're all busy—so they talk and I write. I've tried to cross-verify and vet everything in this book over multiple drafts and rounds of feedback. What you're getting here is my explanation of their work, edited to make it as clear and approachable as possible. I hope you learn a ton!

(adding a section introducing the people we interview would be awesome)

Beast

Jarrett

Julius

Nyki

Stephen

Tommy

Hiya! My name is Bellamy. I'm just as excited for this book to exist as the rest of you! A book like this has never existed before for people outside of Japan. The barrier to entry for this industry is huge, and it's great that we can help break that barrier down. I've worked in the animation and education industries for nearly ten years. I graduated college from the University of Arkansas with a degree in journalism in 2016. When I joined Tonari, I immediately spread my tentacles to every single department I could get involved in, for better or for worse! I am responsible for many duties: animation, production assistant work, pre-production, character design, costume design, prop design, clean-up, promotion, and more. Anyways, my broad base of practical experience helps me to catch mistakes and keep the perspectives balanced as I edit. I spent so long trying to get out of education to join the anime industry, yet here I am educating people about animation. It's funny how things work out.

Bellamy Brooks, May 9th, 2022

Variation, Communication, and Clarity: Some Words of Caution

This book is an attempt at gathering all the basic information needed to make anime. I think we've made something really impressive here, but the anime industry isn't a monolith. People and companies all vary significantly in their standards, working styles, terminology, and expectations. For example, how Studio Trigger (the studio that made Kill la Kill) produces a crazy action anime will be quite different from how a tiny indie studio might produce a simple slice-of-life show.

Why the variation? For more reasons than I can count. Some of this comes from experience, some of it comes from different specializations, and some just come from differences in personality or style. It's OK! These differences give us a ton of amazing work from all kinds of people. We'd be worse off without it.

Great! So you can do whatever you want! It's anime, get crazy. Make big explosions, throw in some light flares, maybe some menacing poses. Anything g—

Hold up.

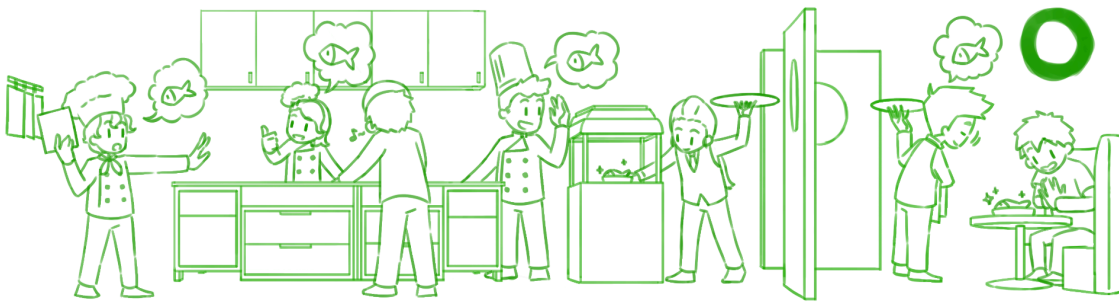
It's the shared basics that allow variation. Can you cook a complex cake without knowing how to operate an oven? Nope! Is it a good idea to pilot a helicopter with no prior flight experience? Still nope. Can you write a book all by yourself in a language you can't speak, read, or write in? No sir, no how! Anime is the same. You need some basic knowledge of the core processes before you can join the industry, and you need context and experience before you can break those boundaries and start making your own rules.

How much information, how many experiences? I wish I could tell you! You're the one that gets to decide exactly where these lines are—but it's usually not too hard to tell when a lack of basic skills is getting in the way of your ambitions. Take it easy and don't fret too much about struggling with the basics. Roll with the punches and accept the frustrations. I guarantee there's some stuff you'll need to learn in anime production that's going to drive you crazy. It's a little different for everyone. I, for one, can't stand writing out time sheets. Some people hate cleanup, others love it. Some can't stand the idea of douga work, others do nothing but douga. You're going to find your own strengths and weaknesses—but at least knowing a little about everything is absolutely key.

What advice can I give? Well, a common theme in almost every interview and conversation I've had when working on this book is this: **Clarity is key**. If the next person in the pipeline can look at your work, understand what you're doing, and do their job, you're golden. Making anime requires the combined efforts of dozens and dozens of people toward the same ultimate goal, that only works when they understand what they need to do. As a matter of fact, this even extends out to the viewing audience. The animation team behind a show is just trying to communicate an idea to their audience, and how well that idea gets transmitted is mostly up to how they share ideas amongst themselves.

So, if you can answer the question “**is this clear?**” with “**yes**” then, great! What you're doing is good. If the answer is “no” then you need to find a different way to do things. Just remember that YOU don't actually decide what clear communication is. The people who need to understand your instructions do. You can do almost anything you want in animation, but not if other people in your team are confused or it doesn't properly communicate the story. Be responsive to who they are. Sometimes they might be able to work from very little. Other times you might need to be extremely specific. This process of learning to communicate is never-ending. Ask for feedback, try different things, see what other people are doing and if it's working, play with ideas. As long as you have a solid working foundation, and you're always trying to expand your knowledge, you'll find a way to make it work!

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Good communication carries the basic idea through to completion, allowing everyone to work efficiently. If we think of this using a cooking analogy, then a head chef says what they want, everyone understands, and the final meal is perfectly delicious.



Bad Communication adds more and more questions at each stage. Before long, nobody is sure what needs to be done. In the cooking analogy, each person is more confused or tries to course-correct without understanding the original recipe. The result is something truly disgusting!

Genga 原画 (げんが)

Genga (原画) is the Japanese term for *Key Animation*. It consists of **Layout**, where the animation work and composition is created, and **cleanup**, where corrections are applied and clean drawings are made.

Layout

Layout is where animation really starts. It's the groundwork that lays the basic foundations of perspective, movement, and design suggested by the director in the **e-conte (storyboards)**. The best way to think about it is like the frame and foundation of a building. Fail to put in the foundations properly and the entire structure falls apart. Same thing with layout. If none of the pretty final details actually locks together, the whole animation will look off. Do it right, though, and even a simple cut will feel unshakable, a clear positive addition to the work it's part of. As a result, layout artists rarely focus on making their drawings look pretty so much as they want to make sure that they **clearly communicate how the final cut is composed and moves**.

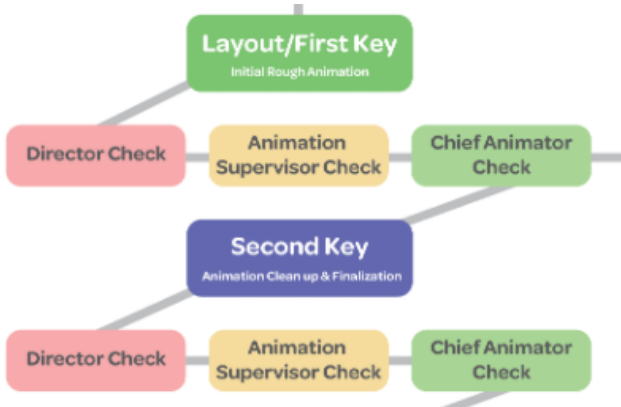
(LO EXAMPLE HERE)

Cleanup

After the layout stage there are checks by the **Enshutsu (演出 - director)** and **Sakkan (作画監督 - animation supervisor)**. Once those fixes are done, a new set of drawings are made which incorporate fixes into clean drawings that capture the final look of the characters and motion. This stage has a *ton* of different terms: Tiedown, cleanup, final key, sometimes it's just called **genga (原画)**. They all mean basically the same thing. One term that's used often but is actually slightly different is **nigen (第二原画)** "second line". Nigen actually refers to an artist other than the one who did layout cleaning up drawings. So, if you say you're doing nigen, you mean that you're finishing someone else's drawings. For simplicity, I'm going to be referring to this stage as clean up most of the time.

(CLEANUP EXAMPLE HERE)

As this chart shows, there are *a lot* of checks to make sure that animations are working in both layout and cleanup–these stages are a major reason that artists of such different experience levels and styles can all animate for the same show. We'll talk about these much more in a later section, but for now, breathe a sigh of relief knowing that you'll have these people to check your work at pretty much any stage of animation. Even seasoned layout artists like Beast and Stephen get corrections and notes on their work. In fact, it's usually more worrying when those corrections aren't happening—it means there are limits in time or money for a show severe enough to impact the standard pipeline!



Animation Pipeline Steps:

1. **Layout** レイアウト
2. LO Enshutsu Check (LOチェック)
3. LO Sakkan Check (作監チェック)
4. LO Sou Sakkan Check (総作監チェック)
5. **Nigen** 第二原画 (第二原画)
6. Genga Enshutsu Check (演出チェック)
7. Genga Sakkan Check (作監チェック)
8. Genga Sou Sakkan Check (総作監チェック)

LO Enshutsu Check		LOチェック	The Enshutsu (Director) is focused on making everything match a cohesive vision. Their corrections are based on acting, storytelling, and correcting shots and angles. They don't typically fix mistakes in drawings.
LO Sakkan Check		作監チェック	The Sakkan (Animation Supervisor) is focused on form, drawing quality, and pose clarity. They help to put characters <i>on model</i> and improve

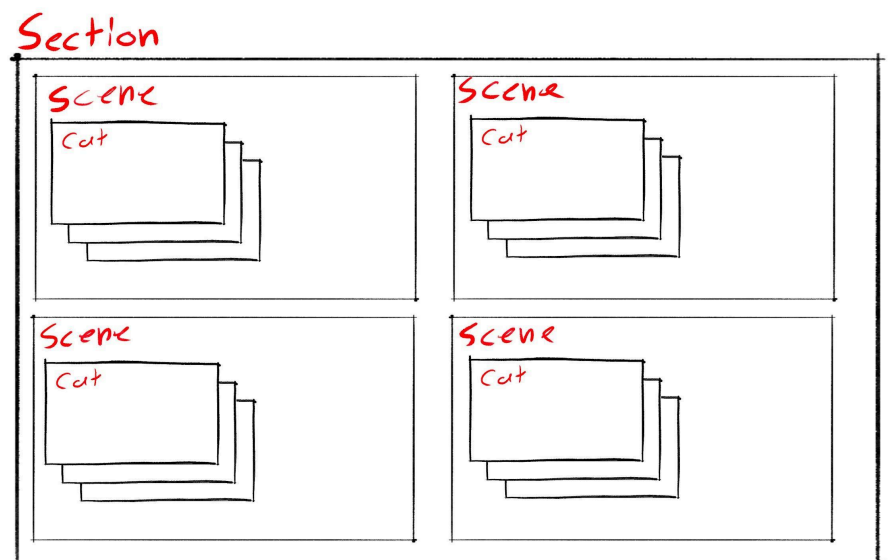
			animation quality.
LO Sou Sakkan Check		総作監チェック	The Sou Sakkan (Chief Animation Supervisor) are senior to the Sakkan. They have final say on drawing style and quality, and may also make some more major revisions to posing and acting. Very often they are also a lead character designer.

Over the course of this chapter, we'll be digging into both layout and cleanup in detail, but animation is much more about being prepared and understanding the work you're doing than it is just making nice drawings. With that in mind, we'll be spending a good amount of time examining all the stuff you need to understand *before* pencil hits paper. If you understand the purpose, goals, and methods needed to get the results you want, then the actual process of drawing becomes much more productive.

Genga Part 1–Layout (レイアウト)

Layout Step 0: The building blocks of layout

Layout follows e-conte. As I said above, it's all about laying strong foundations that everyone else in production can use. When you draw a layout, you're actually making almost every major decision in the animation. That might sound intimidating, but remember that you're going to get all of your work checked by some very experienced professionals whose job is to help you make the right decisions.



(ADD AN LO EXAMPLE WITH PAGE REF AS AN INTRO)

Layout Step 0: The building blocks of layout

Before we get into the process of actually drawing a layout, you need to understand how sections are assigned and what materials you'll be provided with. An animation is made up of **cuts**, those cuts are organized into **scenes**, those scenes into **sections** and those sections stitch together into an episode, with anywhere between 10 and 30 sections in a given episode. This is all organized on an *Assignment Sheet* or **Warifuri Hyou** (割り振り表). Usually, this is going to be a PDF or Excel document you can look through.

In most cases, anime studios want you to take an entire section of animation, which is around 1-5 scenes and between 5-25 cuts. This is because having the same person draw all the related scenes in an episode improves consistency. Even with lots of checks and redraws your personal style is going to come through in a layout. If every cut in a single section were drawn by a different person, those style changes would become really distracting.

Sometimes you'll be approached to do a section, other times you'll have the choice. When you do get to choose, most studios will label the e-conte with the section letters so you can figure out what any given section requires. It's *really* important to check and see what you're getting yourself into before taking a section, so don't just choose something because it looks cool! Think about how much time it will take, what other commitments you have, and when the deadline is. I can't stress that enough!

Important Note: A studio isn't going to give an extension to a deadline just because you took a really tough assignment and you want to go out to a party, or help your family move, or run from a zombie outbreak. Do your best to plan ahead, and try not to leave anything until the last minute.

Once you've got your section, some studios will want to arrange an animation meeting or **Sakuga Uchiwase** (作画打ち合わせ), **Sakkuchi** for short. This is a meeting where the director and anyone else from the production company with input on the storyboard get together with contracted animators to explain the e-conte and answer questions.

Be forewarned that these meetings are almost always in Japanese and it's pretty rare to have the studio provide a translator. Sometimes freelancers don't attend these meetings because they can't understand Japanese (or they're not invited), but even if your Japanese is abysmal and you're not sure about attending, see if you can find a way of joining and understanding a Sakkuchi meeting. Most of the time it's your only chance to speak directly with the main production staff for a show, and being able to clear up problems here can save you a ton of heartache and wasted time over your work on a production. In some cases you might be lucky enough to get a video recording to reference later. Make sure you download and reference the video as needed!

Even if you know a meeting is recorded, taking notes in these meetings is really helpful. When the director discusses your section, pay special attention to how they describe the tone of each scene. You don't want to draw a serious fight scene like it's a slapstick comedy, or accidentally draw a quiet kuudere character with a big grin (believe me, it's a lot

easier to make those kinds of mistakes than you think!). Beyond tone, check to make sure there aren't important details that are hard to understand from the e-conte. Sometimes characters are wearing different clothes than they normally do, or there are special notes about sound effects, camera moves, references to real-world locations. Making a mistake on any of these points can be costly in time and resources.

Here's a list with a few more things you might want to listen for:

- Any special instructions for a scene that may differ from the storyboards
- Any emotional beats the director may want to show in a way that isn't obvious.
- Any changes in character clothing or style
- Any unusual props or settings that might require extra resources or work
- Major changes or missing materials, like storyboard revisions or incomplete settei
- Anything that is missing or unclear

At several points in the meeting you'll have some time for questions. Ask them! Both you and the studio staff want a smooth, easy production—so take the time to clear up problems while it's easy to get feedback.

After the Sakkuchi a **Production Assistant (PA)** will be your primary point of contact. They're the ones in charge of distributing cuts, tracking progress, dealing with contract animators (that's you!) and so on. Usually, any given production will have several PAs per episode. Pretty much everyone I interviewed for this book agreed that the PA you have drastically changes your experience working with a studio. Some PAs are extremely helpful and very understanding, others are always pressed for time and can be pretty pushy. Some are multilingual, others aren't. Who you get isn't up to you, but it's always a good idea to be polite to your PA and respectful of their time.

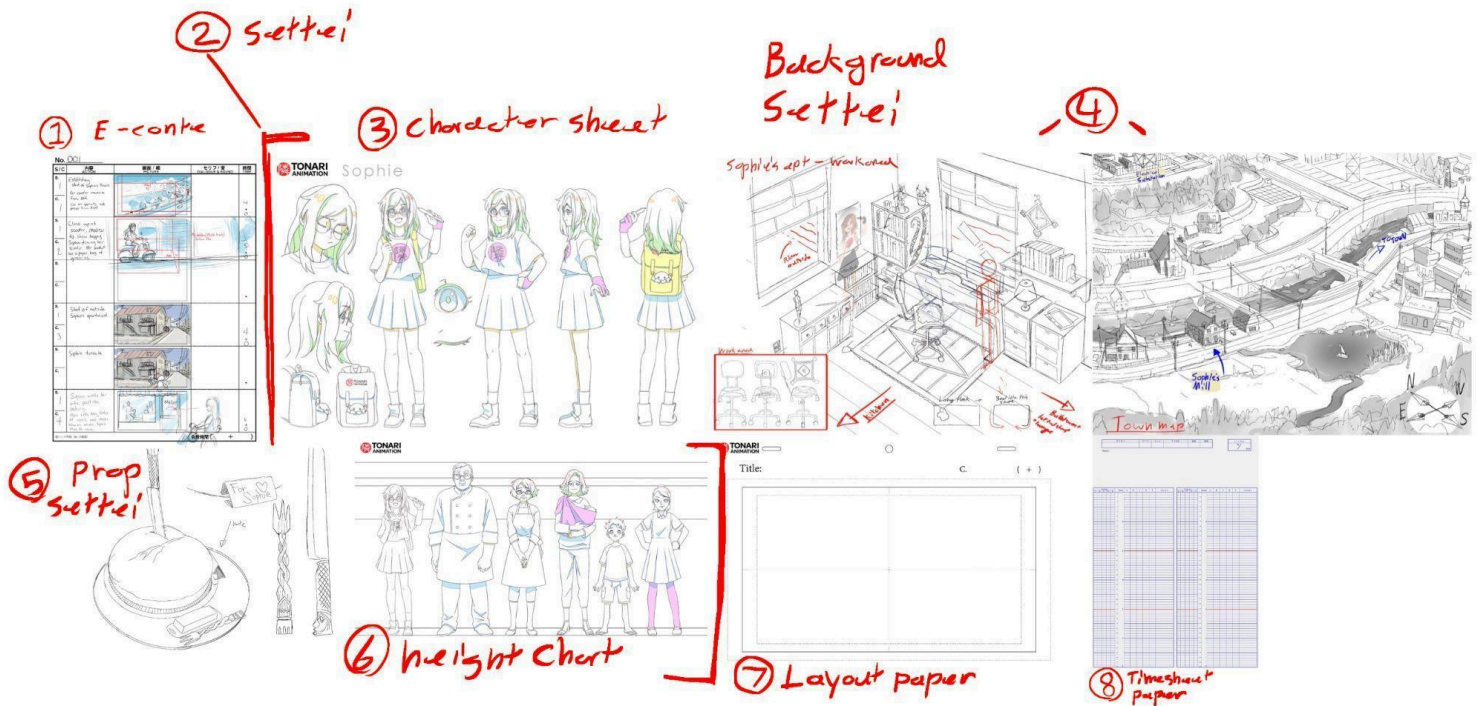
Important Note: PAs do a lot for their studio! You can learn more about the job in the section on PA work in this book. Anime couldn't be made without the stuff they do, and understanding how they work will make working with them much easier for you!

Alright! So, you've got a section assigned to you. You've taken copious notes, stayed in polite contact with your PA, and asked any important questions you can think of. What else can you do to prepare for your work as a layout artist? Review the gigantic bundle of files the studio you're working for dumps on you, of course!

PA work is intense!



Cut Package



Honestly, opening a **cut package** like this is one of my favorite things to do working in animation. If you've even gotten a new art book and flipped through it for the first time, you'll know the feeling. Nothing really beats getting to look through heaps of cool characters, places, and storyboards. Still, this stuff is all-important, so let's calm down and take a second to talk about it all.

1)	E-conte (絵コンテ)	Storyboards for the section or episode you are working on
2)	Settei 設定	Design sheets for the production or section, including characters, backgrounds, and props.
3)	Character Settei キャラクター設定	Design sheets for the characters
4)	Background Settei 美術設定	Design sheets for the backgrounds (sometimes just pictures!)
5)	Prop Settei プロップ設定	Design sheets for props, weapons, and vehicles
6)	Character Height Chart 対比表・キャラクター	Comparison chart of the character heights
7)	Layout Paper LO手紙**	Layout paper template for making sure you have the correct resolution and aspect ratio for your work.

8) Timesheet Paper シート手紙	blank version of the timesheet for you to fill out
Cutting/CT sheet	timesheet pre-filled by the director
Cautionary Notes 注意事項	Notes on how to avoid common drawing or design mistakes for the production.
3d Layout 3D LO/3D BG	Material for you to use in place of the background drawings, or 3d character models to trace.
Miscellaneous Reference 資料:	Photographs, Manga References, Promo Art, Other media inspiration

Most of the time this is going to be given to you with Japanese labels, which is why I've included the translations for this stuff. **You're going to be seeing Settei, e-conte, and timesheet labels a lot.** It's probably best to memorize the kanji for those and/or keep a little cheat sheet you can use to ctrl+F search with. It'll save a lot of time.

The very first thing you should do when reviewing all of this is to make sure you're not missing anything important. If you know you're supposed to be drawing a character or background but their settei sheet isn't in the files you're given, ask about it right away! Sometimes the PA might tell you they don't have the settei ready. When that happens, double-check how they'd like you to handle the missing settei. Sometimes you might just have to use other references. For background characters or minor locations, they may actually have you design it yourself!

After you've made sure everything you need is there, spend some time familiarizing yourself with it. Do some practice drawings of the characters you'll be animating, try to break down and understand the e-conte on your own. Have fun with it!

Most of the files you're given are pretty simple, but there are four really important documents worth giving special attention: e-conte, layout paper, settei sheets, and the timesheet.

E-conte

E-conte (絵コンテ) is a japanese term roughly equivalent to "storyboards" 絵 (E) means picture、 and コンテ (conte) is short for continuity. e-conte is made up of a column for **action, pictures, dialogue, and sound**. Exactly what's on storyboard paper and where it is varies by studio, but this little chart shows you most of the other important sections you'll find.

Like the Sakkuchi, e-conte for anime is pretty much always in Japanese, and it's handwritten *fast*. That makes it a real nightmare to read, even if you've got some serious Japanese language skill. Luckily, a good number of studios understand this, so it's usually possible to get the written portions of e-conte typed up cleanly. A few studios might even be able to give a rough translation, but that's not a guarantee. At the minimum, you should be able to use a translation scanning app to help you with reading typed notes.

② Page #

① SCENE CUT

③ ACTING, ACTIONS, INSTRUCTIONS

④ STORYBOARD AREA

⑤ Frame

⑥ Bleed area

⑦ DIALOGUE + SFX

⑧ Time

⑨ Total time

合算時間 (Sec + Frame)

1) Scene / Cut	Scene number and cut number. One scene has multiple cuts.
2) Page #	Number indicating how far into an animation the page is
3) Action	Action and instructions, including acting and camera moves
4) Storyboard Area	Thumbnail drawings showing composition and basic acting
5) Frame	Size of the final output image, matches an HDTV ratio.
6) Bleed Area	Extra space not shown on TV, to allow for adjustment
7) Dialogue and SFX	Spoken words and onomatopoeia for sound effects
8) Time	Length of a cut in (seconds+ コマ*) *frames
9) Total Time	Length of a whole page of e-conte.

The drawing area of e-conte matches the aspect ratio of most home HDTVs, 16 x 9, just like layout paper. It's common for a storyboard artist to draw outside this box for camera moves, shots with lots of detail, or any number of other reasons. Movement is shown in sequence. Drawings lower on the page come after higher drawings. A new frame doesn't mean a new cut or scene though. Those are tracked by the Scene/Cut column.

Sometimes a single cut might take a dozen drawings to show. Other times you might have a single drawing (for example of a city as an establishing shot) which is the only drawing for a scene+cut together. **Always follow the labels in the Scene + Cut column. never assume you're moving on from one cut to the next based on the drawings alone.**

The **time** column is used to show how much time passes with each bit of motion. It's measured in parentheses as (seconds + コマ). Koma means "frame."

Animation is typically made at a rate of 24 frames per second. A 1.5 second cut is (1 +12) a 0.75

REMOVED CUTS

No.

S/C

内容 ACTION

画面 / 絵 PICTURE

セリフ / 音 DIALOGUE & SOUND

時間 TIME

合算時間 (Sec + Frame)

second cut would be (0 + 18). This takes a little getting used to, but actually makes timing out cuts much easier once you are familiar with it. Imagine how confusing it would be if you had to deal with decimals each 0.041666667 seconds long! Timecodes would be a nightmare.

Important note: When a director writes the timing for the total length of a cut, they mean it. You'll get some wiggle room in a scene to play with the precise timing of movement, but the second you start trying to change the length of a cut, expect trouble. Anime budgets are extremely tight and often have their funds accounted for down to the frame. If you start lengthening or shortening cuts without express permission, you can completely throw off that careful accounting.

If the CT sheet (the pre-filled timesheet) has a different cut length or timing from the E-Conte, follow the CT sheet.

Sometimes, sections of e-conte are removed or replaced. These are shown with a big "X" or scribble through them. It should go without saying, but don't draw something that has clearly been scribbled out. Occasionally, there will be a note to refer to a different section of the storyboard for the correct drawings. Other times, the new material might actually be pasted over the old drawings.

When a character speaks, they'll always be labeled with their name in the **dialogue + sound section**. Pay special attention to this for characters you'll be drawing, as you will need to know who's saying what to animate dialogue. If a character speaks but isn't shown, it's indicated with **OFF** or **O.S.** (off-screen) If they're doing the typical anime trope where they think through a problem mentally, it's indicated with **MONO** (Monologue). Don't be the animator that wastes hours drawing a cool anime protagonist's mental anguish with a bunch of unneeded mouth flaps. Sometimes onomatopoeia is indicated in the sound section. This is used in e-conte the same way you'd see it in comics. Sound effects are always written in katakana, and they're usually not too hard to figure out. Sometimes, you'll need to time your animation to particular sound effects.

Since e-conte is created by the director and a small team of storyboard artists, it's going to drip with personal style. Some directors, like Hayao Miyazaki (almost every Ghibli film) and Satoshi Kon (Paranoia agent, Patlabor, etc.), are renowned for their detailed e-conte and extremely rigid standards. Others, like Hyrouki Imasihi (Kill la Kill, Gurren Lagann, etc.) draw so rough and fast that their work looks more like hieroglyphics than anime. Time and experience will teach you how to work with a given e-conte style or director, but it's usually a good idea to see how other work by the director looks—from the same show and any previous work they've directed.

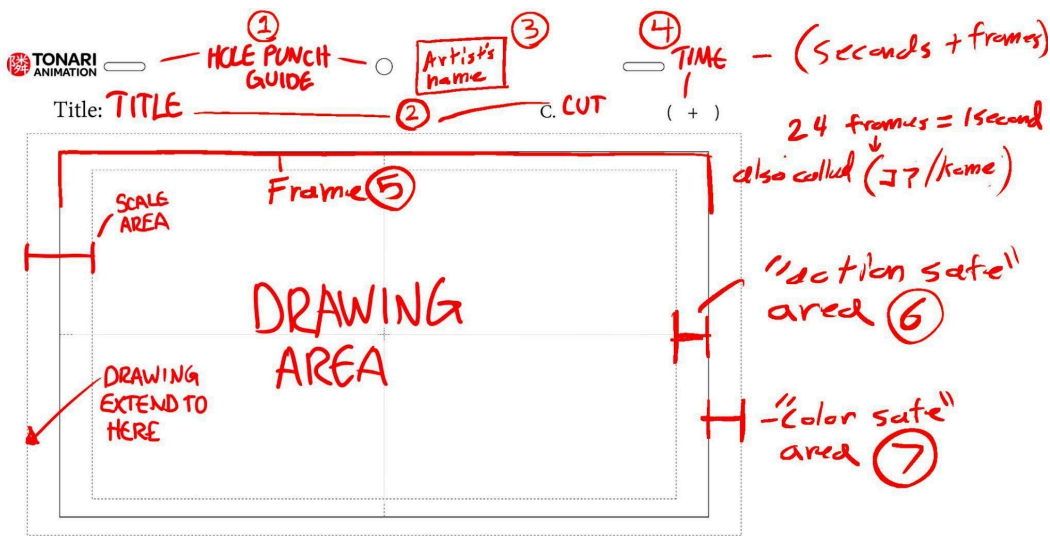
One thing I don't have a picture of up above is an **animatic**. An animatic is the first video made for a production, taking images from the e-conte and timing it along with sound according to the **CT sheet**.

Once layout work begins, daily and weekly updates are made to the CT sheet, importing those layouts so those working on the episode can better imagine the final product, and so the overall flow of the episode can be visualized. The animatic is called an **offline** for the duration of this process. Once it goes on air, it's sometimes called an **online**.

Depending on where in production a project is, the animatic/offline can have dialogue, music, sound cues, effects, and animation at various stages for every scene. It's always helpful to refer to these videos before starting your work. It will help you understand where your cuts fit into the overall episode, and makes timing much easier to visualize.

The animatic is always extremely helpful, especially if you're having trouble imagining the timing of motion from static storyboards alone. The animatic will include a timecode in minutes+seconds+frames, along with a big character name exactly timed to dialogue. I can't stress enough how useful watching this is! If it's not provided to you, ask your PA about it and see if you can get it.

Over the course of working on an episode, the animatic is updated with more and more cuts, first in rough layout form and eventually in more complete edits. By the end of production, it's functionally a complete episode. If you're ever wondering why you have such tight deadlines for a show that's months or even years from airing, it's probably because the director is trying to update the animatic as quickly as possible so they can correct and improve the episode as a whole. Since the animatic is so important, most studios now require you to send a "render" of your work as part of the submission process, usually as a .mp4 or .mov (gifs aren't usually accepted).



Layout Paper

Layout paper is much less complicated than e-conte. Though different studios all have their own versions, they all look just about the same. Even so, **you should never, ever, ever use the layout file one studio provides you with another studio or transform the size and/or resolution of the paper itself.** The file sizes for digital layout paper are in the precise dimensions and DPI needed for production. Messing with these dimensions can completely throw off later artists working on your cuts, and mixing production materials between studios is technically a breach of a non-disclosure agreement. You really don't want to throw out a bunch of beautiful drawings just because you decided to pump up the DPI to mega levels and stretch the layout paper into a spaghetti string.

1) Hole Punch Guide	Also called peg holes, what a pegboard fits through on traditional animation paper to keep drawings aligned, used in the same fashion digitally and should never be moved
2) Title/cut	title of the animation project being worked on, and the cut number, for ease of tracking

3) Artist's name	name of the layout artist must be included so they can be asked questions and/or returned work if needed
4) Time	given in (seconds+frames) for a cut 24 frames in one second of animation. A cut that is exactly 1 second long would have (1+00) written, one that is 1.5 seconds long would have (1+12) written
5) Frame	solid black line indicates the outer limit of what is normally shown in finished animation—anything outside this line is cut off, although drawing somewhat outside this area is necessary to help other stages of animation
6) Action (inner) safe area	Inner dotted line is the “animation safe area”; important drawing elements should not be placed on or beyond this line
7) Color (outer) safe area	Outer line which indicates the “color-safe area.” Drawings should extend to this line so that background artists, editors, and other people that work on animation have a safe area in the case of camera movements, slides, and other effects or changes

There’s not much more to say beyond what the chart shows, but it is worth mentioning that you **can** change the size of a file in some circumstances.

Making the size and shape of the layout paper different from the base sent to you is a no go!



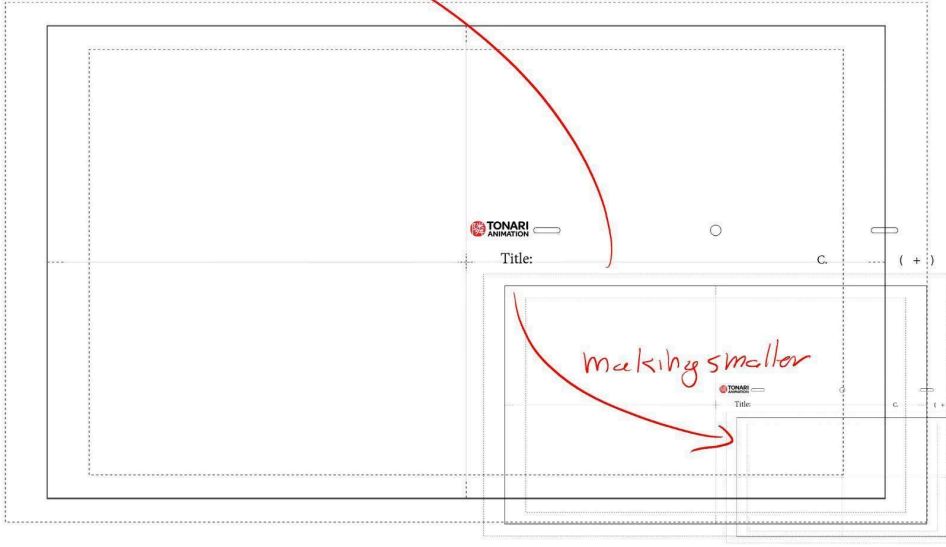
Do not Transform the basic template!



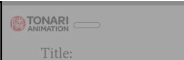
Title:

C.

(+)



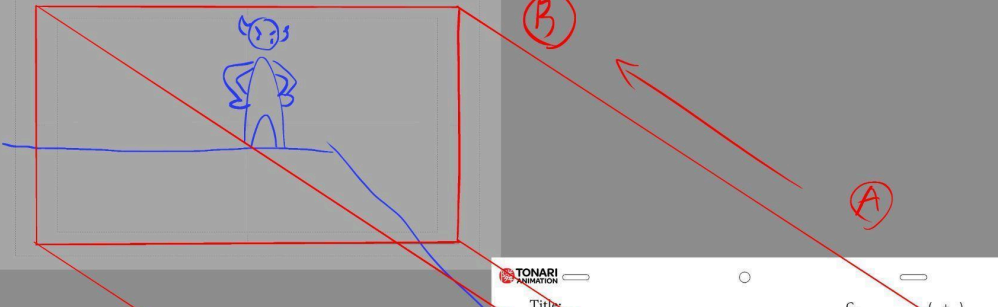
You can change the size of the .clip or .PSD file sent to you for something like a camera pan as long as the size of the basic layout paper does not



Title:

C.

(+)



You just don't want to mess with the actual size of the "paper" or its resolution. You can mess around with the dimensions of the canvas if the cut requires you to move the camera. Sometimes you can even draw a layout at 200% size for crowd shots, you just can't have the final output frame be any different than whatever dimensions the studio set. I promise it's not as annoying as it sounds.

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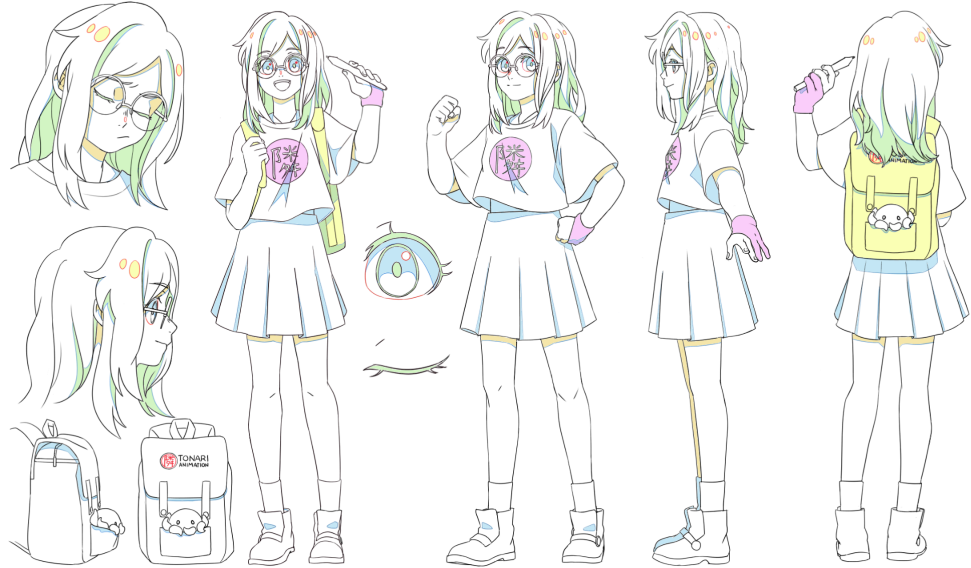
OK! Last one for now:

Settei

Settei (設定) is the Japanese word for any images relating to a character, location, or object. It's one of the most important words for you to know since the settei informs how and what you draw.

As a layout artist, you'll be working with the *genga* version of the settei most of the time. These aren't

colored, but feature clean drawings and often come in versions with and without shadow maps. The shadow map colors in settei aren't arbitrary. They relate to the kind of material a shadow is on and the intensity of the shadow. If the character designer creating settei was rushed or the character depicted is of secondary importance, they might just have flat blue shadows.



Even when the settei itself has flat shadows, it's helpful to add color variation for different objects in your layout if you have the time. Like with everything else, exactly which colors indicate what varies from studio to studio. The chart to the right has some pretty common color variations.

Just having different colors for different materials helps douga artists a lot, especially in situations where there's complex overlapping. Imagine trying to figure out whether a little dot of blue shadow poking through Sophie's hair is her backpack, her shirt, her skin, or the shirt of another character when everything is the same flat blue. Yuck! Just having different shadows distinctly marked can save cumulative hours as a cut is cleaned up and colored. Alright, that's enough on the files you'll get for now. Let's spend some time looking at how to actually use this stuff when making a layout.

BLACK LINE	Outlines and lines that don't disappear
BLUE LINE	Shadow line that indicates the division between light and dark. Does not appear in final paint.
RED LINE	A line that disappears but is used for special color fills, especially for the whites of eyes and highlights
GREEN LINE	Hidden features, like hair under a hat or a torso under a cloak, used to make better drawings without being shown in the final animation.
BLUE FILL	shadow on clothes, eyes, teeth
GREEN/PINK FILL	shadow on hair
YELLOW FILL	highlights
GREEN FILL	areas filled with black, sometimes used for other purposes
OTHER FLAT	Various purposes, usually dividing a particular color or feature, like a logo

Layout Step 1:Planning a Cut

I think planning and preparation make up 90% of the work in layout. Remember that cooking analogy from the start of this section? It's back! If econte is the recipe, your planning and file set up for a cut is the gathering and preparation of raw ingredients. No point in trying to choose spices if you don't know what you're cooking! With anime, you're trying to efficiently assemble and arrange the files you get into a preferred workflow. What that actually is will depend on you, but remember: **the key is clarity**. You're making something other artists to work on, not a personal sketch.

Basic assembly goes something like this:

1. Double-check that all settei and materials are present. If anything is missing, **ask the PA for it!**
2. Import the layout template (don't change its size!)
3. Import the storyboard into software or print out a reference
4. Create the animation timeline in software based on the cut length indicated in the E-conte.
5. Review notes and special instructions from the animation meeting for any specific timing. If anything is unclear, **ask the PA about it!**
6. Make sure to understand the intent of the cut. For example, if it should be more complex or more simple. Also, be sure you understand the emotional tone.
7. Gather reference pictures/art, study similar cuts, and film personal references.

The last two points are worth adding more context to.

Point six: Animators, even very experienced ones, sometimes look at a cut and start thinking about how to "upgrade" it. To some extent, you *should* do this. You're there to make the best version of the e-conte possible. Be

careful, though. it's easy to go too far. If you add a bunch of motion the initial storyboard does not call for, like complex acting or new characters, you might find pushback from the studio. The production staff are trying to make something with a budget in mind. If you make what was a simple dialogue scene into a crazy fighting animation, they might not have the time or money to finish that animation. Push where you can, but be practical about what you change. Most of the time the director will specifically mention if they want a particular cut to stand out. They'll tell you specifically if cuts you have are supposed to be particularly impressive

Point seven might be pretty obvious to most people reading, but I feel it's important to understand that you *should* be looking for references in animation and life. There's nothing shameful about it, and it's not cheating. In fact, most successful anime productions schedule in time for the pre-production crew and senior animators to specifically shoot and study references before and during production. This goes all the way back to the golden age Disney films, where senior animators would draw while looking at live models dancing or acting to help them nail their animations. Nowadays reference is usually in video form. Satoshi Kon took a couple of weeks before starting production of *Tokyo Godfathers* to walk around Tokyo taking photos of locations. After that, he and several other crew members dressed up in costumes for characters and shot pose references. They even shot acting and running footage out in a park that they heavily referenced while animating most of the film. You should *absolutely* be doing this, too.

Here are a few reference sources I recommend:

1) Personal Photo and video references

You can shoot yourself in a webcam or with a mirror. It's surprisingly helpful. You can make expressions, take poses, hold props, whatever works. Rope friends and family into it, too. Maybe you're drawing a big, buff guy and you happen to have a friend into bodybuilding—ask if you can take some photos of them in key poses.

2) Expert photo and video references

There are a lot of books and videos out there designed to be used as reference. Pose books, nude figures, books and diagrams on vehicles or anatomy—they're all great. Don't just focus on drawing resources, though. Find videos or books from experts in fields, too. HEMA or fencing matches can be great for swordfights, for example—and there are thousands of really instructive videos on dance, fighting, parkour, or anything else you might want a visual reference for.

3) Similar cuts from a previous episode or similar anime

Sakuga Boru and *Youtube* are your best friends here. Watching a show to learn animation style and expectations is a great start. You can learn a ton about characters' personalities and how the show is animated. Similar shots to yours can do the same thing. Remember that anime is largely about pacing and style. There's nothing wrong with learning how to execute that style through studies.

4) Pose Dolls

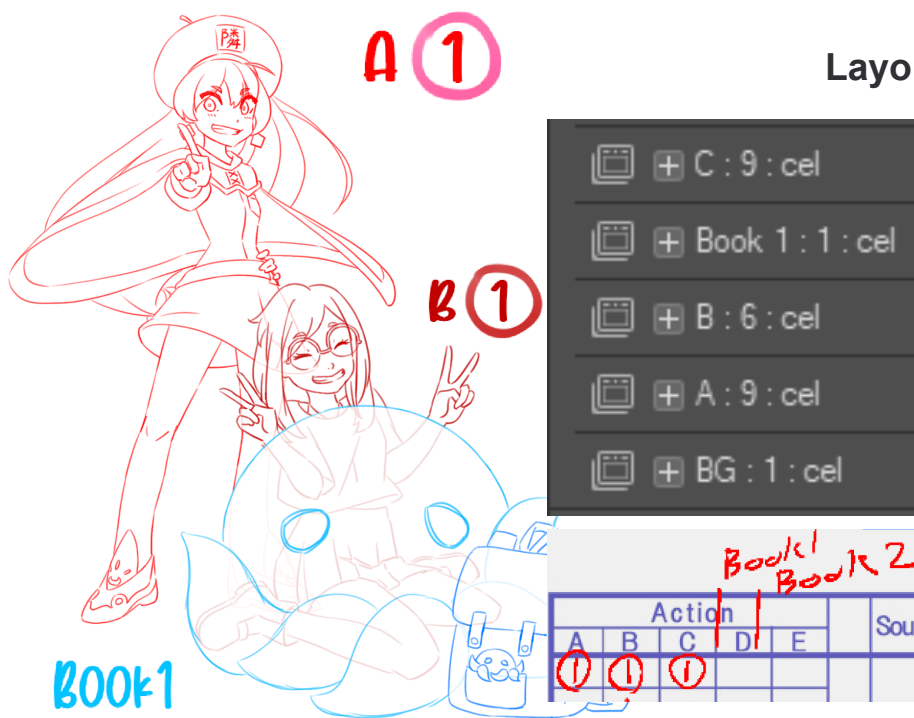
Growing up I thought using dolls for drawing reference was silly, but brands like *FIGMA* are incredible and can help to find anatomy solutions even for very difficult poses.

5) Found Objects

I'm not talking about things you take photos of here, I'm talking about stuff you have around you that you can draw for reference. Some of this is really standard, like using your own phone when you need to draw one in a cut. Other stuff is really handy, too. Toy

(or real!) swords, airsoft guns, weird little rocks...anything that inspires or acts as a reference.

important note: You might have noticed that anime shows almost never directly reference each other. Even shows like *Gintama*, which is built from the ground up using references, rarely use another show's ideas 1:1. That's because Japanese copyright laws are pretty strict. They give the original owners of the work a lot of control over where and how those images appear. Most companies go really easy on fanart and even popular small businesses like doujinshi circles. This leniency **DOES NOT** extend to work at a professional level between studios or the artists working for them. Don't directly copy anything from another anime or Japanese IP into the layout work you're doing. You can reference it or study it, but don't decide to exactly recreate a character from a show by a different studio into your work unless you want to be fired.



Layout Step 2: Creating a Working File

Layer order follows Japanese timesheet logic. The furthest back layer is the background, with “A” being the file (called a **Cel** in animation) farthest from the front. It then goes as far forward as far as needed. In this cut “C” is closest to the camera.

I still get this backwards sometimes, but a good way to remember this is by recalling how animation cells were stacked on top of each other in the golden age of animation. You would

want the first layer to be A because it was the

first cell layer that you placed down. So any subsequent cells would need to go on top of it after.

Besides cel folders, there are also **books**. A book is a piece of the background that's on a different layer. It gets the same painting pass as a background, but the separation allows it to sit in front of animation to add depth. Books are also used for special 2D camera effects like parallax. Book 1 is always farthest from the camera. I'll go into much more detail on what cels are and how to use them in a little bit when we talk about timesheets. For now, just know they exist and they need to be separate layer folders ordered from A forward. This never changes between productions, so stick to it.

Once you're happy with your book and cel folders, take a few seconds to write out the basic information needed at the top of the timesheet and layout paper. None of this should be too confusing, and it's mostly the same between the two documents.

24 frames = 1 second
↑
(Seconds + frames)

Title	Scene	Cut	TIME	Gengaman	Compositor
タイトル	シーン	カット		原画	撮影
ANIME SURVIVAL KIT	1	1	6 + 0	Sophie	

TONARI ANIMATION

Title: ANIME SURVIVAL KIT

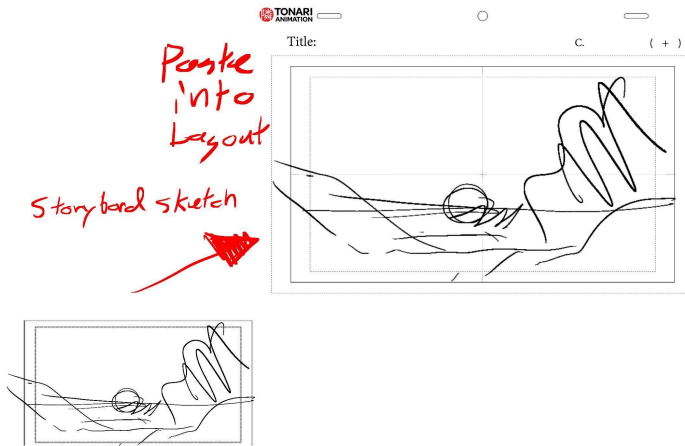
C. 1 (6+0)

There we go. Those are all the basics you need before you start animating. I can guess what some of you are thinking: “twenty pages just to get to the animation part? This is horrible! Forget it!” but all of this gets much easier with time, and the prep work is there to help make it so that you can focus on the animation once you get to it. Also, reading about it first can be a little intimidating, and even just setting up a file is genuinely complex enough that you can make mistakes, but the anime pipeline is designed to make sure that a cut-in layout comes out looking as good as possible. The senior staff you're working with are there partly to help catch and fix beginner mistakes, and as long as you show you're willing to learn, you don't have to worry about messing up now and then. Do your best setting up a groundwork done right, excitement of actually

file and getting all the but don't let it ruin the getting to animate

Layout Step 2: Composition

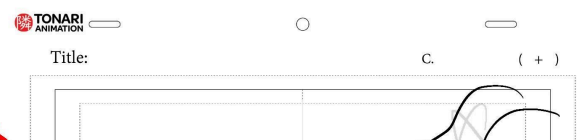
The first major step in the compositional sketch can copy-paste in the layer at low opacity to Drawings at this stage their size and placement final effect that you want. small number of layers, very good way to approach this stage. Doing so stops you from getting confused by different layers, folders, timing, line colors, and so on. You can always copy-paste out elements later to form the basic sketch for cels, books, and the background.



Solidifying the

creating a layout is creating based on the e-conte. You e-conte itself as a base guide your composition. should still be simple, but should be very close to the I've found that working on a or just a single layer, is a

Keeping things simple also help you to iterate and find the best composition. Don't go with the first lines you lay down. Try changing features and see if you can improve the story and emotional impact of your cut. You can come back to composition throughout the course of your work.

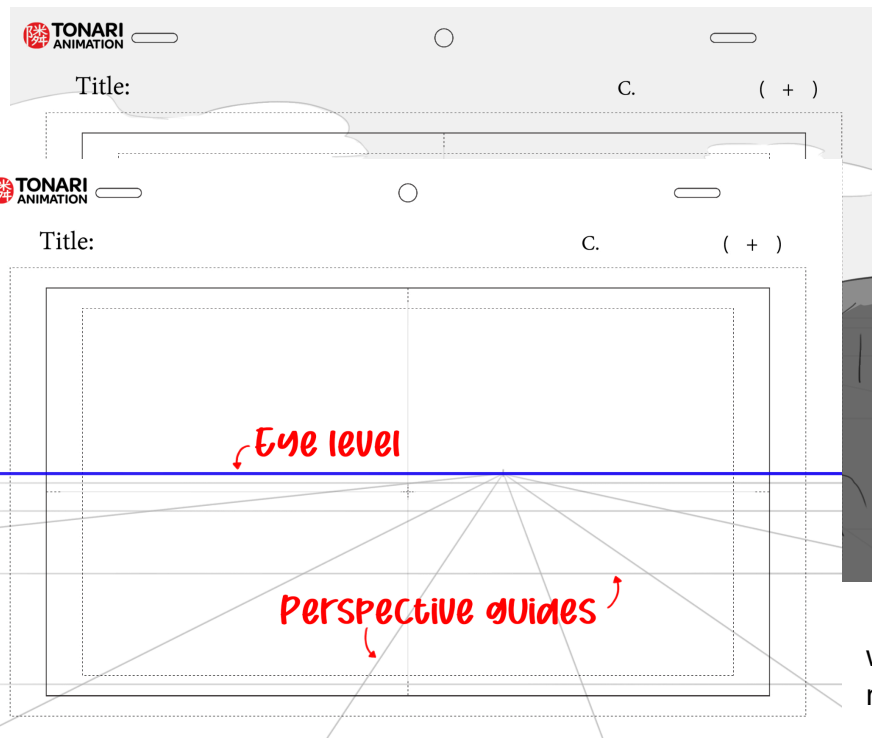


What makes a good composition goes way beyond the scope of this section, but there are a few things to think about. Your goal is to make the arrangement of shapes on the screen interesting and conducive to the story your cut is trying to tell *without distracting or confusing the audience*. Paying attention to how similar cuts use compositions is good. So is flipping your canvas to see if the elements of your cut feel interesting but not lopsided. Don't be afraid to make small adjustments to your composition in later stages, too. Sometimes the difference of a few pixels can massively improve the way a cut reads.

Layout Step 3: Establishing Perspective and Background

Improving the perspective and background is usually a good next step. You won't be expected to complete a perfectly rendered image of the background or paint anything, though. Instead, you're trying to make sure everything is clear for the enshutsu and background painters to work from in their future passes. This gets much more information in the *Background Layout* section.

Adding stick figures of the characters in the background to check proportion is a really good idea. You can leave these drawings on a separate layer and use the "transform" function to scale them into perspective for characters at different distances. Sometimes I just paste in the actual character settei, too.



Most of the time, you're the one who decides exactly what the perspective is since a lot of e-conte is a bit ambiguous. Despite how often anime uses crazy angles compared to most western shows, the majority of cuts are still done in one or two-point perspective. Three-point and curvilinear perspectives are used for more complex cuts, so knowing them is also important, but don't assume every shot needs to be dynamic.

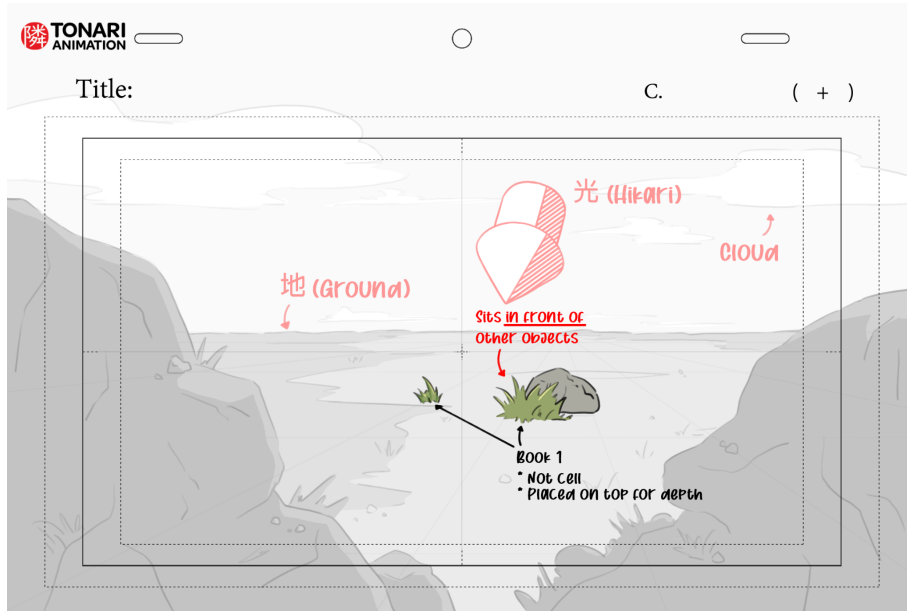
Light sources are notated with 光源 (こうげん) Though most of the time only 光 is written. Use a 3D arrow when showing lighting, not just a little stick arrow.

It's good practice to label anything even slightly confusing in your background. A cloud might be obvious to you, but it can very easily be painted as a clump of trees even if you have carefully drawn them. Save everyone the headache and add labels. Writing it in Japanese is best, and you can even copy-paste the text from google translate.

You can also write out the name of the background you're drawing to help the painter find it quickly. Usually, referencing the full file name is best, something like "TONARI_BG_SETTEI_210_IN."

Drawing Books

Drawing books is almost identical to drawing backgrounds, except you need to make sure they're on a different layer. In this layout, the entire storefront is a book that will have animated cels placed behind it to create a sense of depth.



A book is usually filled with a color to show that it's sitting in front of other things. Keep the color light since they're often printed. If there are multiple objects all at the same depth, you can make them the same book layer. Just think of it as a flat piece of plastic sitting at a certain depth in the image with objects painted on it. Label your books, too. It keeps everyone happy.

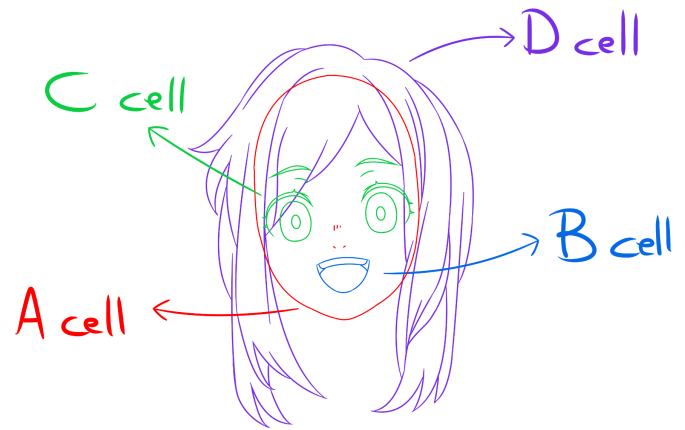
Layout Step 4: Drawing the cels

Anime has all different levels of animation. A pretty good number of shots in anime are called **tome** 止め or "still" cuts, which is what most beginning layout artists dip their toes into. These have only minimal animation, like blinks or lip flaps. Sometimes, though, you can also get stunning pieces of extraordinary complexity where characters throw mountains at each other or fly through complex cityscapes. Regardless, the basic rules that govern animation remain the same.

All 2D animation is made up of individual drawings called **cels** (セル). The term "cel" originates from the analog animation process, which uses transparent celluloid film for drawing paper. So, the layers in your animation software and the columns on a timesheet correspond to a particular set of drawings grouped by their depth in an image. Start with A as the furthest back and work your way forward from there.

Cels are used to chop up a shot into different objects and characters. A person far from the camera walking might be the A cel, while a car driving by close-up would be on the B cel. It's also common to put different parts of a character into different cels. Hair, eyes, mouths, and clothing are often put on different cels so that they can all move at different times.

Another common term is **Frame** (コマ or **koma**). These make up the horizontal rows in a timesheet. As I said before, animation is almost always 24 frames a second. What I didn't mention is that one drawing can be **held** for multiple frames. Most shots in anime use only 12 new drawings per second, with each drawing being "held" for two frames. Sometimes even fewer than this are used. This is partly a cost-saving measure, but it's also a major contributor to how snappy anime looks. Smooth animation isn't always more desirable.



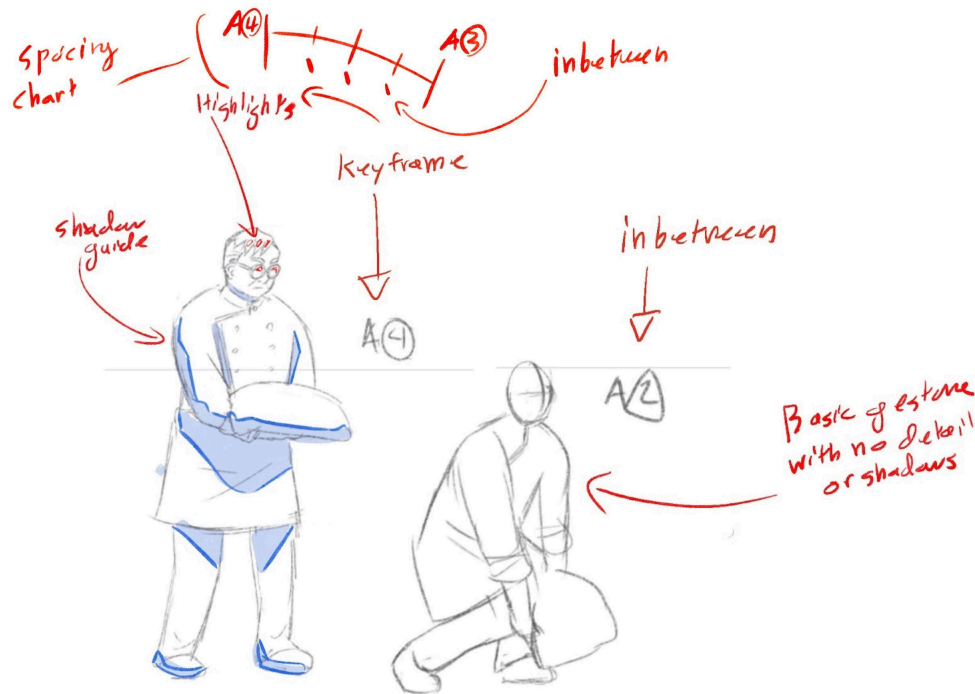
Since there's a focus on budget and efficiency, most anime work is done **pose to pose**. You'll be expected to pick out the most important poses and then you (or another artist) will fill in the connecting motion afterwards. Diving in with **Straight ahead** animation, where each frame is drawn in sequence from the start of the end of a cut, is much less common, and usually only reserved for special scenes. Don't worry about the process of pose-to-pose animation stifling your ability to express ideas, though—just think of it as a way of keeping yourself from going overboard!

In anime, the more important drawings you find first are called **keys** or **keyframes**. These are usually the "extreme" moments of poses. A character pulling a sword out could be the first keyframe, A1. A2 is the sword high over their head, and A3 is the end of an arc as they swing it down. Not everything has to be that dramatic though. An eye open is A1, A2 is closed. Simple! These keyframes are the defining moments of the animation. If you don't have them, you don't have enough information to understand how the character is moving.

Keyframe drawings are labeled with the Cel they're from (A, B, C, etc.), numbered, and circled. The number indicates how late they come in the cut, in order from one to the last frame.

Important Note: Both the letter and circle are **mandatory**. Most anime studios still print out their cels, it makes things an absolute nightmare if you don't label which drawing goes where. Also, speaking from personal experience, make sure you write the correct label on the correct layer! It's really easy to get caught up in drawing and write "A1" on the background layer, or even another cel layer, rather than the actual drawing it belongs with. This gets out of hand really quickly and can take hours to fix. *Be careful!*

In many cases, keyframes only make up about a third of the total frames in a cut. Every other drawing is called an **Inbetween**. If the name didn't make it obvious, these are the drawings that come in between the keys. They smooth out the motion and give a sense of life. In the vast majority of cases, you won't actually draw your own inbetweens as a layout artist. Instead, these are left for the **douga** (動画) artists, who specialize in creating inbetweens from provided keyframes in a layout. If you want to learn more about that stuff, check out the douga



section.

Inbetweens are marked in one of two ways. Most are given a small tick mark “-” as part of a spacing chart (explained more in the douga section). As a layout artist, you won't draw these—you'll just indicate the timing and spacing you want for them. Others have a triangle drawn around a number. These are called “**Douga guides**” (動画参考). They do get their own drawing, but with less detail. You should only really use these if you think the douga artist won't understand how to get between two keyframes. In general, most simple animations won't need the extra inbetween guides.

As I said when discussing settei, shadows are really important for keyframes. Most of the time a studio will prefer you have a dark blue line actually separating the areas of light and shadow (rather than just filling in an area) because this helps douga and shiage artists know where to stop the shadow precisely.

It's really common for even experienced artists new to anime to get intimidated by how clean the final drawings in anime look. Don't be! Layout keyframe drawings should be drawn with a focus on proportion, gesture, and acting, not perfect line quality. You definitely don't want to draw a scribbly mess that nobody but you can understand, but it's fine to keep your drawings natural and loose. Lines don't have to be perfectly smooth and nobody is expecting you to perfectly nail a character's exact design from the getgo. Aim for a clear sense of volume, make sure the

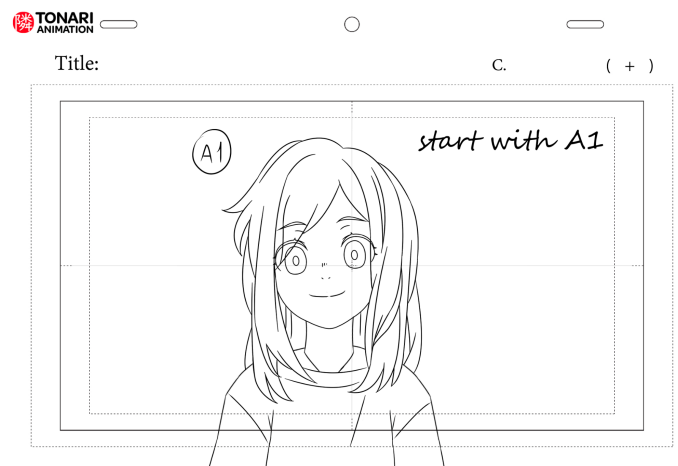
drawings feel properly placed in perspective, and try to pump up the animation. Worry about nice drawings when you're cleaning things up.

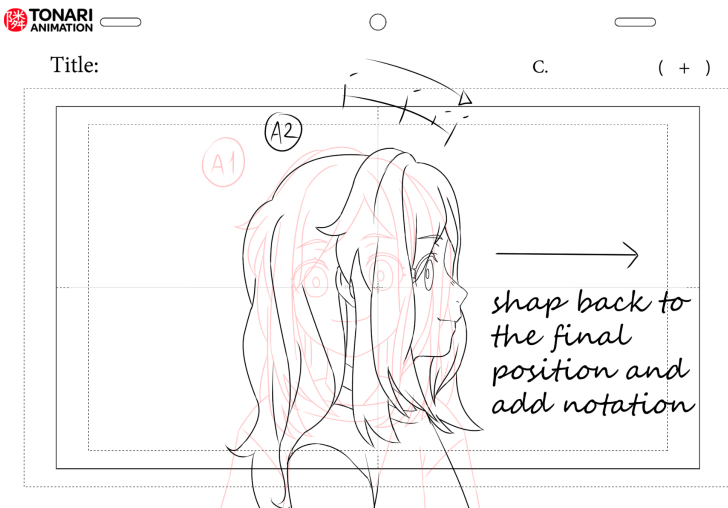
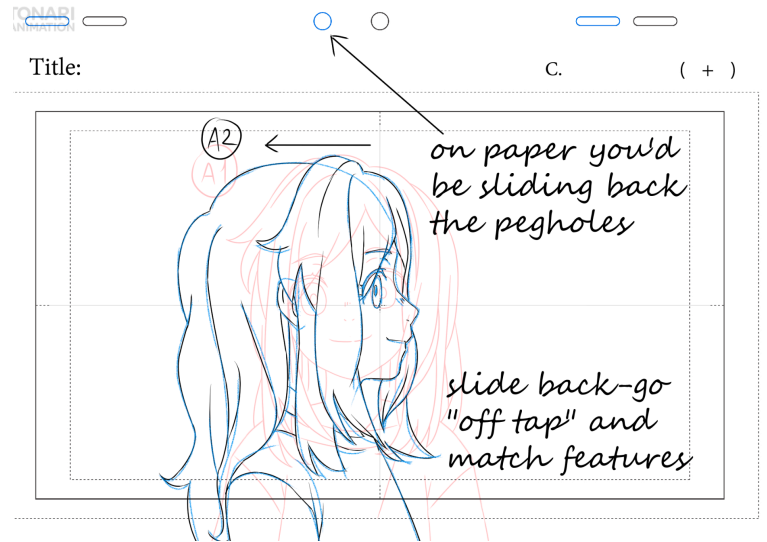
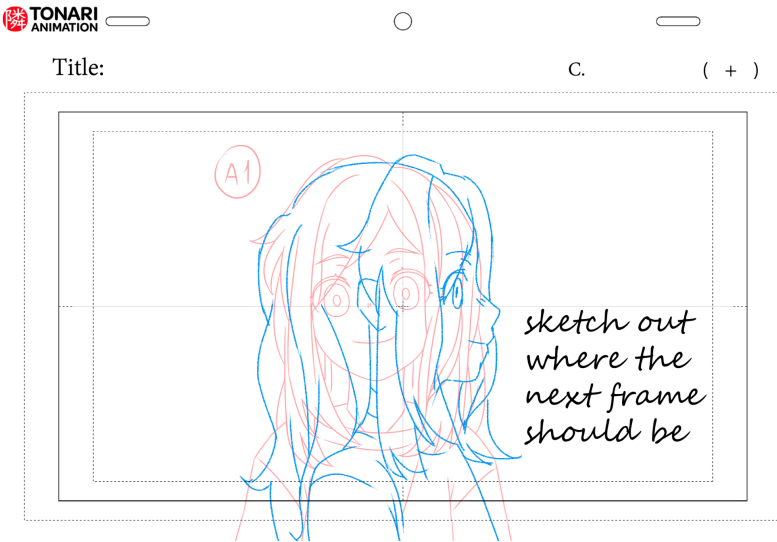
Whenever you have a small gap in a character's pose, add a little red "x" in that area showing it's not part of the drawing. This is done to help the paint stage, but I guarantee it'll help you, too. I've repeatedly stepped away from a cut for a day, came back, and drew what should have been a gap as part of a character, completely messing up future drawings in the cut, then had to redo them all. Save yourself the pain!



Tap Wari

There's an extremely useful technique called **tap wari** or **off tap**. On paper, this means you unhook the sheet you're drawing on from the holes that connect it to a pegboard (also called a tap) and slide it around over the others to match up different parts of a drawing as precise guides. This lets you keep difficult areas, like faces, on model by overlapping the faces between drawings even when the character is moving across the page. It's also used to measure the arc between keyframes by rotating different cels to find an arc.





Digitally, it's exactly the same except much less annoying. If you're working in Clip Studio, the light table function even lets you slide drawings temporarily then snap them back

You can slide, rotate, and do anything else you need off tap. Need to match a leg bent in a run to the previous (straight) leg? Slide the new drawing to match it up, then snap it back. Want to double-check the eyes aren't getting squished as they move? Untap and check. Digitally, you can do quick checks like this with parts of a drawing, too— you can draw a head over the previous frames, then lasso it and drag it to match up with the next frame of movement. Whatever

works!

Tap Wari also helpful when preserving volume between drawings is important, or when you just want to double-check how the next frame you've drawn matches up to the previous. It becomes progressively more important as the animation makes its way down the pipeline. By the time a cut hits douga, volume and proportion from frame to frame is everything and tap wari is used constantly.

Now, before we dig into the next section, let me give a word of warning: focus on keyframes first. If you get bogged down trying to figure out spacing charts for inbetweens before you're happy with how your keyframes are working, you'll almost certainly end up having to redo timing and spacing anyways.

Layout Step 5: Understanding Spacing Charts and Planning Inbetweens

So if we're not actually drawing keyframes, how do we communicate where they should go? With beautiful little charts!

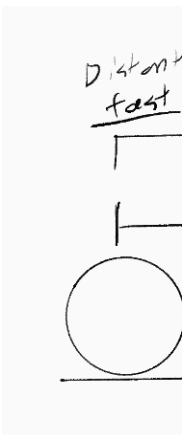
Animators typically include spacing charts on every keyframe. However, there is no need for a spacing chart in the first keyframe of a cut, since there are no previous drawings that need guiding. When it comes to in-between guides, don't worry about adding spacing charts since they are already included in the keyframe spacing charts. The beginning shows the previous keyframe's number, the endpoint is labeled with the current keyframe.

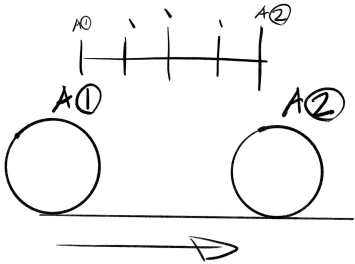
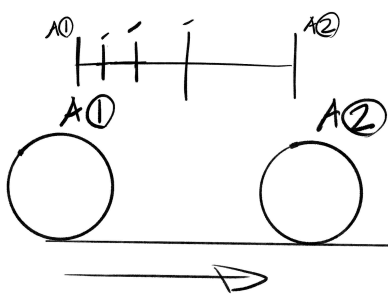
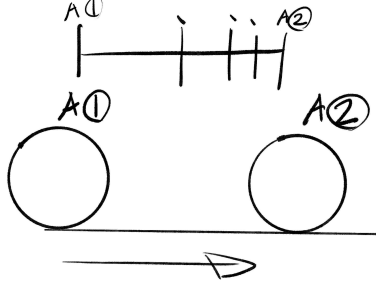
The center of the chart should always be shown to help the douga artist measure how the spacing relates to that point, even if there's no actual inbetween at the exact center (they call this **ghosting** the inbetween, which is pretty cool). The actual physical distance between these points is what gives your chart its spacing. Usually, you should divide each new space in half each time you add an inbetween tickmark. You *can* create uneven spacing, but it's always helpful to keep the ghost inbetweens so douga artists know what you're trying to do.



"But wait!" I hear you say. "What the hell is **Spacing**? Why do I need these!?" Well, spacing is pretty simple. It's the distance between two drawings. Close spacing makes it feel like something is moving slowly. Distant spacing makes it feel like something is moving quickly. Spacing has nothing to do with **timing** (which is what the timesheet is for), instead, it lets you take the same timing and change how it feels. The little example gif to the right shows this: the timing for each new drawing of the circle is the same, but it feels like it moves through the first space faster since the spacing is farther apart. z

There are three general kinds of spacing you'll see. Even, ease out, and ease in. They can be mixed and matched as needed.



		
even spacing creates an even movement, like a ball rolling on a flat surface at a steady rate	ease out increases the spacing near the end, creating a sense of acceleration, a ball rolling down a slope, increasing speed	ease in decreases the spacing near the end, creating a sense of deceleration, a ball losing energy as it rolls up a hill

You can also use individual spacing charts for parts of a character (even ones on the same cel) if they move at different rates. Just make sure you label or otherwise indicate what part of the character the chart relates to.

Some really common motions—especially walks, runs, blinks, and lip flaps—break these spacing chart rules. I’ll be explaining them in more detail down in the *Standard Animations* section.

Layout Step 6: Drawing camera notations and filming effects

Many cuts in anime have camera motion, cel slides, and filming effects. You have to draw these on their own layer, along with notes explaining how they should be applied. The **compositing staff**, also called **satsuei** (撮影) are the ones that actually apply these effects.

Filming effects are a complex topic that need their own section—or book—to be explained properly. I’m going to touch on it more in the *camera effects* section, but you should also find yourself a copy of the **Satuma** book. You can find it by searching for this:

撮ま！～アニメーターのための撮影基礎知識～

It’s a pretty comprehensive guide of anime film effect terminology. There are some translated versions out there, too—which help a lot.

Layout Step 7: Filling out the Timesheet (ADD FULL TIMESHEET NEXT TO LAYOUT)

Most people get into animation because they want to express themselves and create beautiful stories, not because they like complex paperwork and memo-making. Timesheets are exactly that—but without them anime couldn't really be made. A timesheet is like a tax form for your cut, requiring you to account for everything you did—where every frame goes, what every camera effect is so that others can build off your work to finish a cut. That can be really hard sometimes, but once you master the process it's a flexible and powerful tool.

Of course, I'm willing to bet some of you enjoy organization and accounting in your work. If so, I think you'll be right at home once you understand the basics!

Regardless of how you feel about timesheets, **Clarity** is still your number one priority—if others understand it, it works—and most production teams don't expect you to have absolutely perfect timesheets on every cut. They get changed around all the time. Just get the basics down and take your time with the rest.

Why do we still use timesheets? Partly they're a relic of the old process for animation. Japanese companies tend to be surprisingly slow to change. Many don't have the infrastructure (or desire) to update a method they've mastered and which fits well into productions. Timesheets aren't a complete relic, though. They're actually extremely useful for a couple of reasons. First off, they're what let animators on different software (or working on paper) work on the same cut. As long as you know how to fill out and read one, you can animate your cut with anything. They also serve as a sort of go-to place for everyone checking the cut when looking for special instructions. Also, since it's just paper, notations can be flexible. You're not locked into what a program can interpret, and sometimes that lets you get away with some pretty cool effects in the same way as creative solutions in your drawings can have awesome results.

Personally, I think we'll probably see a more comprehensive replacement of them by new studios at some point in the next few decades, but learning how to fill a timesheet out is still a good exercise. It forces you to understand timing on a really basic level and you can still explain how to animate even if you're stuck without electricity!

Alright, without further adieu, here's the fabled timesheet:

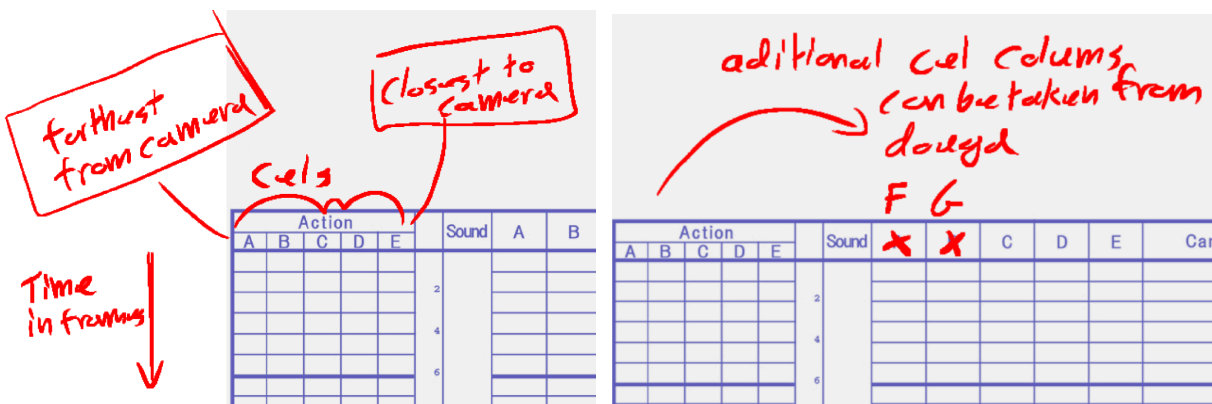
1) Title	Title for the show, so cuts are not mixed up between projects
2) Memo	Space for any notes from the layout artist, directors, douga artists, etc. Often indicates special effects or camera moves
3) Time	Time of the cut in Seconds + Frames
4) Animator name	Name of the animator
5) Compositor name	Name of the compositor (not filled out by the layout artist)
6) Genga column	Column filled out by the layout artist, indicating keyframes and inbetweens
7) Frame count	Indication of the frame and second count, arranged vertically.
8) SFX and dialogue column	Indication of sound effects or spoken dialogue
9) Douga column	Section used by the douga artist (not filled out by the layout artist)
10) Camera column	Section for indicating type and duration of camera moves
11) Sheet number	Number of the timesheet out of total number for a cut (X/total)

I'll be honest. The first time I saw one of these, I was pretty scared. Fortunately, understanding a timesheet is manageable with just a little practice. The top is mostly straightforward. It's the same information you need on the layout, with a few straightforward additions. Still, we'll go through and talk about most of these one-by-one. Just take it slow!

Let's discuss the areas you'll be spending most of your time: the **genga**, **sound**, and **camera columns** along with the **Memo** section.

Genga Column

The **genga column** is where you'll write all the information from your spacing charts. It's like a timeline you'd see in animation or editing software, but vertical. Each row indicates a single frame, labeled along the right side in small numbers. Every 24 frames is labeled as a second rather than a frame. The individual letter columns are your cels. Remember that A is the furthest back. If you end up needing cels past E, you can actually cross out the douga columns' letters and continue from F.

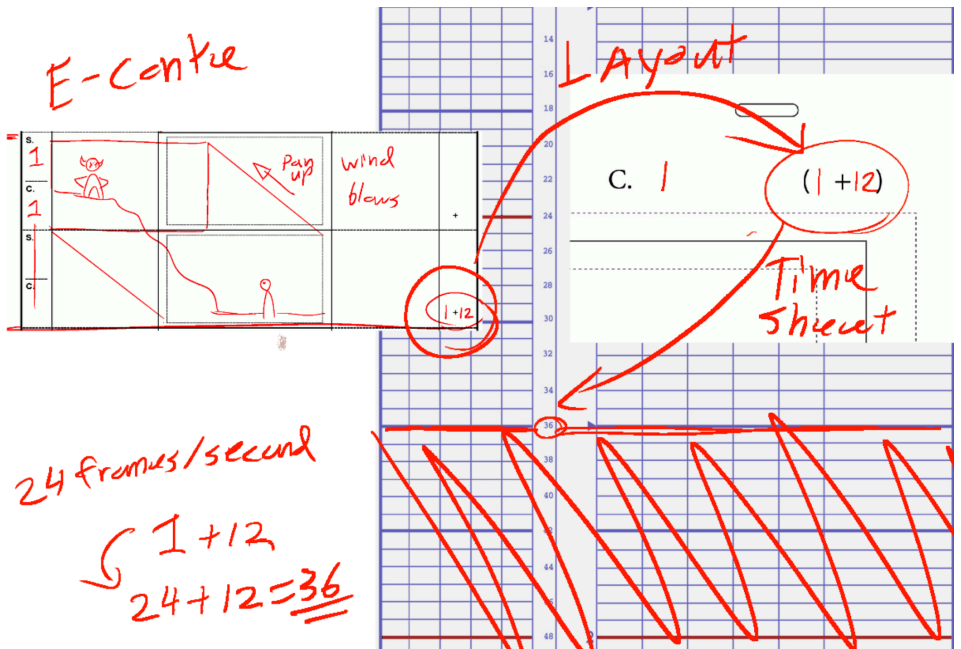


There are a total of 144 frames on a single timesheet—that's only six seconds. If your cut goes for less than six seconds, then you need to scribble out the timesheet after the last frame of your animation.

Since the timesheet is usually shown as a number of frames, you have to convert your (seconds + frames) to raw frame count. Just multiply the seconds by 24 and add any frames to get your total.

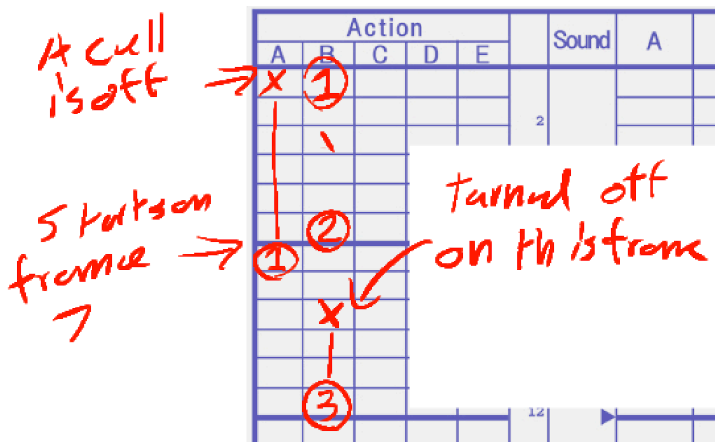
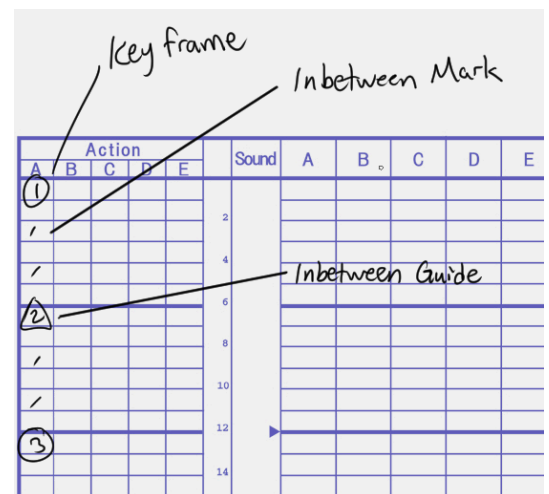
If you have more than 6 seconds of animation, you'll have multiple sheets. Make sure to mark them in order at the top (starting from "1"), and count to the last frame on whatever your final sheet of animation is.

This can get a little confusing for long cuts, but just remember that each previous sheet holds 144 frames, and add them together. For example, if you had a cut that's 13.5 seconds long, that becomes (13+12) or 300 frames. You'd need three timesheets for it. The first two come to 288 frames (144+144), and you'd have 12 frames left over—so you'd scribble out everything after that on the final timesheet.

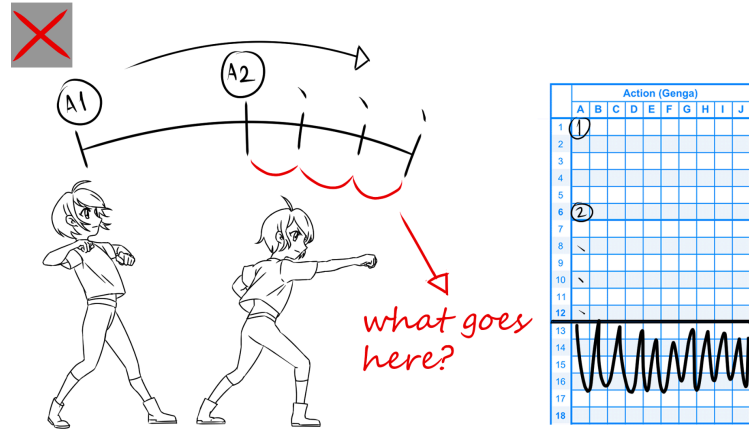


Genga Column

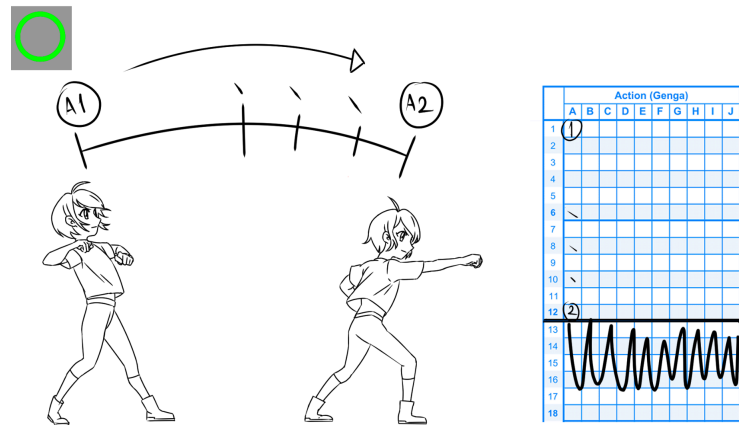
Now let's talk about filling out the genga column. You can probably guess most of the basics. Keyframes are marked with a circled number, guides get triangles, and inbetweens are tick marks. You will also see an "X" sometimes. This is used to show that a cel is turned off. It's common if a character or object isn't visible at the start of a cut, or disappears partway through a cut. Most of the time using this is pretty normal, like characters walking on and off-screen or falling out of frame, but it's also used for flickering effects, like when a character disappears and then reappears close to camera.



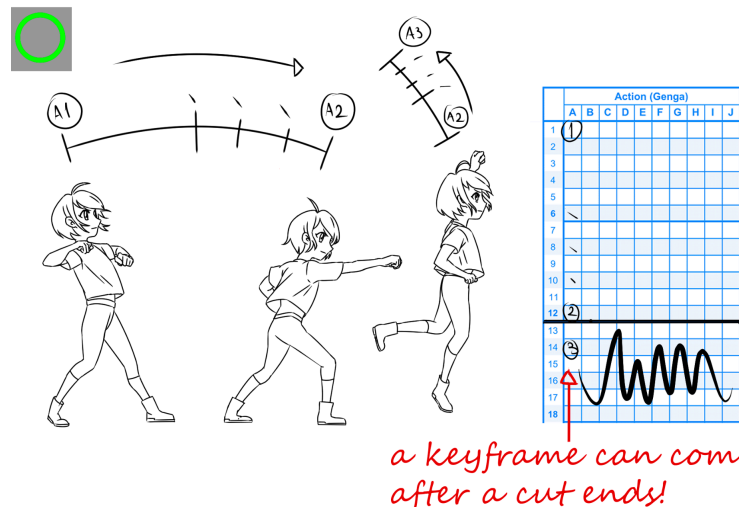
You always have to start and end your genga column on a keyframe. This is because douga artists only work between those drawings. If they don't have two drawings to work between, they can't figure out what their frames should look like! If you look at this example, it should illustrate the problem. The douga artist could create drawings between A1 and A2, since they know the start and end points of the posing, but what about for the inbetweens after? Since there's no indication of what the character is doing after A2, they have no way to make their drawings.



In this example, we start on A1 and end with A2. Our inbetweens are all between the keyframes, so the douga artist can use them as reference for making the inbetweens. A spacing chart like this is exactly what we should be going for!



But let's say we actually wanted to keep the inbetweens from the first example where they were. In that case, we'd need to add A3, which shows what new pose those new inbetweens are going towards. As you can see from the timechart snippet, **you can add keyframes after the cut ends!** This means you can have a smooth motion that would continue even after the cut is finished, which is really useful in scenes where you want a character still in motion as the cut ends. A keyframe that comes after a cut ends still needs to be well drawn because the douga artists will base



the drawings that *are* in the cut off of it. Bad keyframes means bad inbetweens.

Common Notation 1: Long Vertical Line

Another common notation is a long, straight line. This indicates the same frame is being held for an extended duration. If a single keyframe is shown for an entire cut, then it's marked with **tome** (止め) and a line to the last frame. You don't need to draw a line between cels that are held for just a few frames, only for long holds, more than 10-15 frames.

Hold for an entire cut

hold between keyframes

Action					Sound	A
A	B	C	D	E		
①	①					
	止め				2	
	め				4	
					6	
					8	
					10	
					12	
					14	
					16	

Book 1
Book 2

Action					Sound	A	B	C	D
A	B	C	D	E					
①	①	①							

Common Notation 2: Books

Last are books. They're noted with a line indicating which cels they sit in front of. This can get confusing if there are many different books, so try to keep it neat!

This list is by no means exhaustive, but all of these are very common and extremely consistent. There are a few other ways of marking the genga column, but most of these are used for standard notation. Sometimes studios (or individual animators) use special notation for other effects. I've seen a wavy line used to indicate vibration and an arrow used to "jump" all or part of one cel to another. If you're not sure how to do something, check resources like the Satuma book. If you still don't see what you need, ask other animators and look for examples online. Chances are, if you can imagine it, there's a way to communicate it in a timesheet.

Timing

Count the frame
a drawing appears
on when deciding
on spacing

①	1	12
1	2	14
1	1	16
2	2	

held for 2 frames

Action				
A	B	C	D	E
①	①	①		
②	②	②		
③	③	③		
④	④	②		

on twos
on ③s

With the basic notation out of the way, let's talk more about **Timing**. Since you have 24 frames in each second of animation, the maximum number of frames you can show in one second is 24—but anime very rarely does this.

Most drawings are **held** for at least two frames. Exactly how long they're held for is counted with the box the drawing is noted in and the number of blank boxes after it.

If you hold each drawing for one frame, it's animated **on ones**. Hold them for two frames and it's animated **on twos**. And so on.

Most of the time when you're animating, it's a safe bet to draw on twos or threes. Twos are used for motion you want to feel fairly smoothed out, and threes are for animation

you don't mind being a little more snappy. Ones are used in some special cases, like the *Naruto* run, where motion is so fast that you need a new drawing every frame to capture it. Fours, fives, and greater are used less often. For really big, slow movements and some particular effects.

Remember that your keyframes can make up any amount of the total drawings in a cut, and the timing is about the number of frames each drawing is held, not what kind of drawing it is! As the image to the right shows, you can mix keyframes, inbetweens, and inbetween guides all on the same timing. It's also possible to vary the timing of your cut within a single cel. You can start on ones, change the timing to threes, and come back to twos. Whatever benefits your cut!

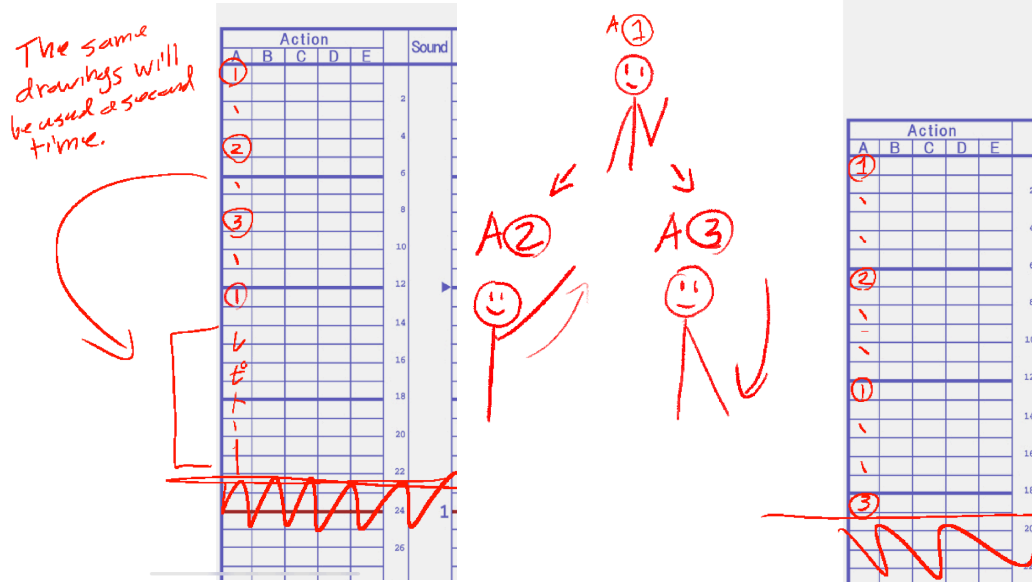
Anime uses a lot of repetition. Walk cycles, blinks, mouth flaps, hair blowing in the wind, all of this is done on a loop. When you need something to repeat, the convention is to write one full "cycle" of it out, then write レピト(repeat) and a line for the duration it loops. Unfortunately, a lot of standard

animated on
2s, with a mix of
keys and inbetweens

Action					Sound			
A	B	C	D	E		A	B	C
①								
②					2			
③					4			
1					6			
1					8			
④					10			
1					12			
⑤					14			
1					16			
⑥					18			
1					20			
1					22			

animations are special cases that don't quite fit this rule. Again, more on those topics at the end of this chapter.

You also don't have to use your keyframes in order, even outside of repeat notation. It's really common for an enshutsu to re-order keyframes as they make corrections, and you can do the same! Say you're animating someone who raises their hand up, then swings it back in and around in another direction. You can use the same keyframes to accomplish this! The effect can look a little cheap, but there are plenty of times when you can do this to get a particular effect.



Timing makes up a huge part of the appeal of your animation. Good timing can transform a decent layout into something amazing, and bad timing can ruin an awesome set of drawings. I admit It can feel pretty intimidating at first—even with the ability to check timing in animation software. Unfortunately, practice is key—more time experimenting means better decisions and less mistakes (yes, like always, I'm sorry!).

Now, I do have a few recommendations for other ways of practicing timing. One way to do this is to reverse-engineer the timing from anime clips. Do reference drawings of the cut and see if you can match the timing in animation software and a timesheet. There are also a few "art of" and "Groundwork" anime books which include excerpts of timesheets you can use to double-check your work. One of the first ones I found I like is the groundwork for *Daibuster* and some versions of the *Gurren Lagann* groundwork books do, too. I'm sure there are many more I'm unaware of. Beyond that, it's all back to practice, practice, and more practice.

Sound Column

Can you guess what the sound column deals with? Yep. Sound! Fortunately you won't have to write down every single sound effect that happens in a cut you're animating. For the most part, sound is reserved for two things. セリフ (**serifu**) and special **Sound Effects (S.E.)**.

セリフ (**serifu**)

Serifu includes normal spoken dialogue, which requires lip flap animation, as well as offscreen and internal monologues, neither of which are animated. I've had some layout assignments where the dialogue was actually pre-written by the director, no work on my part required.

Sometimes, you'll need to add the information yourself. Assuming you have an animatic with sound to work from, Adding dialogue is pretty simple. Use the timestamps from the animatic as a guide. Put a line where the character first speaks and write their name (in Japanese, usually) then write out what they say in long-form, with another line at the last frame of their spoken dialogue. Scribble out the space after that. If a second character speaks, write their name at the start of their dialogue section. If you don't have sound, there are usually approximate timing markers that you can work from. If the dialogue is spoken aloud, you'll need to add □パク (**Kuchipaku**) or lipsynch notation to the cut. As you can see from the example on the right, these are a little weird. Don't worry about them just yet, we'll discuss them more in standard animations.

Sound Effects (S.E.)

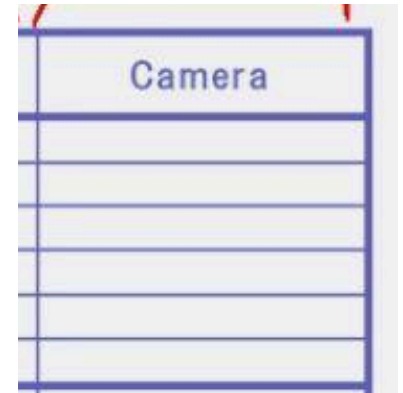
The second use for the Sound column is **Sound Effects (S.E.)**. This is filled in with オノマトペ (*onomatopoeia*), which covers any sound effects that are written out in the timesheet. Most sound effects aren't important enough to be noted this way. You'll usually see these sound effects when they directly bear on the timing of your animation. examples might include precisely timing a gunshot to a screen flash, water dripping into a pan, or an off-screen sound effect that cues a big effects explosion. These get the exact same treatment as lip-synching, except they're indicated with "SE" rather than a character's name at the top of the sound.

As annoying as it might be, both sound effects and serifu are written in Japanese. On the plus side, you'll have the dialogue written out in the storyboards, so you won't have to listen and add it. Most of the time you can just copy-paste it in. Dialogue is written in kanji and hiragana. Sound effects almost exclusively use katakana, just like you'd see in manga.

Action					Sound	A	B	C	D	E	Camera
①	②	③	④	⑤	Sophie						
①	②	③	④	⑤	HELLO!						
①	②	③	④	⑤	Hi!						
①	②	③	④	⑤	TAP						
①	②	③	④	⑤	S.E.						
①	②	③	④	⑤	TAP						

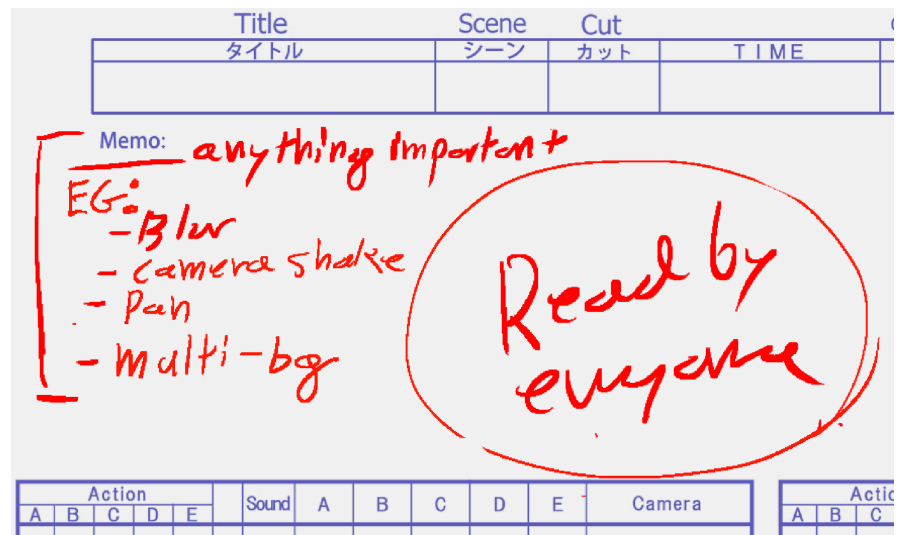
Camera Column

The camera column is going to get more of an explanation elsewhere. For now, just know that it's set up in exactly the same way as the genga column. You'll mark the start and end of camera effects based on the frames they start and end on. The only major difference is that it's not cut up into little boxes for different cels. This is because camera effects can be indicated with different notations and so you have extra space to write out specific requests like the speed of a pan or the kind of camera shake you want.



Memo Section

The Memo section is pretty simple. If you need to explain something to others working on the cut after you, write it here. Generally, standard animation won't need extra memos. If it's something more unusual, like a camera effect, a blur, or another complex effect, add it here. When you're starting out, it's better to note something than to omit it until you know for sure the studio understands it.



Important Note: write legibly. It's very hard to guess from context what special instructions you might have left for other artists to work from, so take a few seconds extra to make sure other people can understand what you're trying to tell them.

File Submission

File submission was the part of the job I found the most stressful when I started out. It's the point at which everything for a cut is absolutely final, with no take backs. After you've sent a cut, you might not hear back on it for days, weeks, or even months. So, I really do recommend double and triple-checking your work before you send stuff off.

As a rule, PAs prefer you to submit your cuts on a per-cut basis. Anime studios are constantly trying to stay ahead of rolling deadlines. Getting your cuts early means they can move them onto corrections and cleanup faster, and

that makes them very happy. Also, the layouts you submit are going to be added to the animatic as soon as they're received. The animatic is a major factor in helping to visualize the finished episode, so studios want it up-to-date as much as possible.

That said, I've always found it frustrating to finish a cut and then immediately stop to export everything and send it, so I sometimes work on a few cuts at once and send them as a small batch. This is usually OK as long as the cuts have the same deadline and you're not pressed for time. You mainly want to avoid submitting all of your cuts at once in the last few hours and don't wait more than a few days to turn in something you have done. Just get it out of the way.

I recommend you check with the particular studio you're with to see if they have special submission requirements. The PA you're working with should update you on everything relevant—but it never hurts to be sure.

Most of the time they'll want something like this:

- .psd or .csp file of everything
- Flat export of the layout with notes, all cells, and the background as a .jpg
- Exported cels as .jpgs with each cell labeled properly
- .mp4, .mov, or GIF of the layout with proper timing
- Exported Books as .jpg
- Exported Backgrounds as .jpg
- Completed X-sheet in .jpg form
- Exported camera move notation.

Exactly how you get all this is going to depend on the software you're using. Every program has quirks, and you'll need to get used to the ones your setup has.

Let me give a personal example: when I export stuff from the portable Mac OS, folders can't be shared on platforms like Google Drive. I have to upload images and files individually, and the search function never remembers where I'm uploading from or saving files to, so I have to go through the entire file path each time. I've gotten better at it over time, mostly by memorizing where to tap and finding a few shortcuts, but it's still a timesink. I guarantee you'll have some similarities. Plan ahead and try to optimize your export process. It's part of every cut, and making it efficient will save you dozens of hours.

Most animators I've spoken with do a few checks as they export their files:

First, make sure all the info you need is actually being printed in the right spot on the layout paper. If you accidentally wrote everything on a cel layer, it might only be there for one frame! Take a few seconds to re-write anything illegible, too.

You should export the start of your cut as a flat .jpg with the background and all cel layers on. Usually, you want to lower the BG layer to ~50% opacity so it's easier to pick out the cels from other elements. The label you give this file is usually something like SHOWNAME_CUTNUMBER_LO. Make sure you're exporting the background paper!

You don't want a preview image of your cut to show up with just the lines. This goes for every image you export for anime.

Next, export the whole thing as a .mp4 or .mov. Some studios accept .gifs, but those are harder to add to an animatic, so don't export as a gif unless you're asked to. Keep every layer on for the movie export, and make sure you're exporting only the portion inside the drawing frame (the pegholes and outer safety line don't need to be exported).

Next, you can export your individual cels. Most programs have a function that allows these cels to be exported automatically (in Clip it's under "export" as "export individual drawings"). When you're doing layout, you need the layout template and peg holes to appear on all the drawings for each cell. You also need to have the cel number and spacing charts. Convention for Cels is that their files are named as CEL_00X. So the first keyframe in an A cell is going to be A_001.

I recommend doing one final check of all the drawings just before you upload them. An image viewer that lets you tab through is best, just check to see if anything obvious is missing, or if you've accidentally mislabeled or omitted a cel. It happens *A LOT* and double-checking is going to save you a ton of headaches.

Backgrounds and Books are really simple to export. Just isolate them (still with the layout template!) and export flat .jpgs. Backgrounds can just be labeled BG, or SHOWNAME_CUTNUMBER_LO_BG if you want to be really safe. Books need to be exported into different files with BOOK_X as the names.

The X_sheet can be exported as a flat image, too—usually named something like CUTNUMBER_XSHEET_00X or CUTNUMBER_TIMESHEET_00X. If your cut is under six seconds and you have just one timesheet, it's fine to call it "TIMESHEET." I upload a .csp of my timesheet with layers, too in case someone else wants to modify it by changing a few numbers without having to re-write the whole thing.

Finally, you need to export camera movement notation. Luckily, this is much simpler than actually doing most camera notation. You just need to export the start/end points of camera movement drawn as two boxes the size of the camera frame and label the kind of move it is. For example, Slide, shake, zoom in, and so on. Again, you can find more about this in the camera section.

Once you've got all that done, you're ready to send it off. Most studios seem to prefer you send everything in one folder. As long as you've got consistent naming it's easy to check that everything is there and it saves the PA some time having to bundle everything into one file themselves before checking and printing your work.

Take a breather, hug a cat, and talk to a friend

Once you send off your cuts, breathe a sigh of relief! You did it! I know this process seems really long and a bit brutal. Honestly, it is. The first cut I took in anime was working on some simple cleanup for *Boruto*. I figured it would be pretty difficult, but I think just one cut took me almost ten hours of solid, consistent work—including some time sitting at my desk in my second job frantically working just before the deadline. I was completely, totally exhausted when I finished it, and I was terrified I did it wrong. We've all been there! Working freelance can be

really unforgiving, but try to keep a positive attitude and remember that messing up or struggling is part of the process. When you're feeling overwhelmed, get through what you have to then try to take a step back and have a short break. Go for a walk, hug a cat, and chat with friends—even if only for an hour. Once I submitted my first cut, I had the PA make sure there was nothing massively wrong with it, then I went out to dinner with friends. It was exactly what I needed, and it made me excited to work on more the next day. Be kind to yourself, and find ways to keep your energy up!

If you can, I recommend trying to find others that work in animation you share your passion and can help you out. Building a sense of community with other freelancers is one of the best ways to give yourself a sense of perspective and balance in your work.. Animation is all about teamwork, and working on it in a vacuum can be really difficult. Find people you trust to share the load with you. Who knows, work together long enough and you might even find yourselves working as a studio!

Layout Checks

After you send your cuts off to your PA, they'll prepare them for a round of checks by various staff at the studio you're working with. This happens to each cut several times, and each round of checks has different people focus on different things. For this first layout stage, there are two regular kinds pretty much any cut gets:

- Enshutsu/Kantoku Check (演出/監督チェック)
- LO Sakkan/Sou Sakkan Check (作監/総作監チェック)

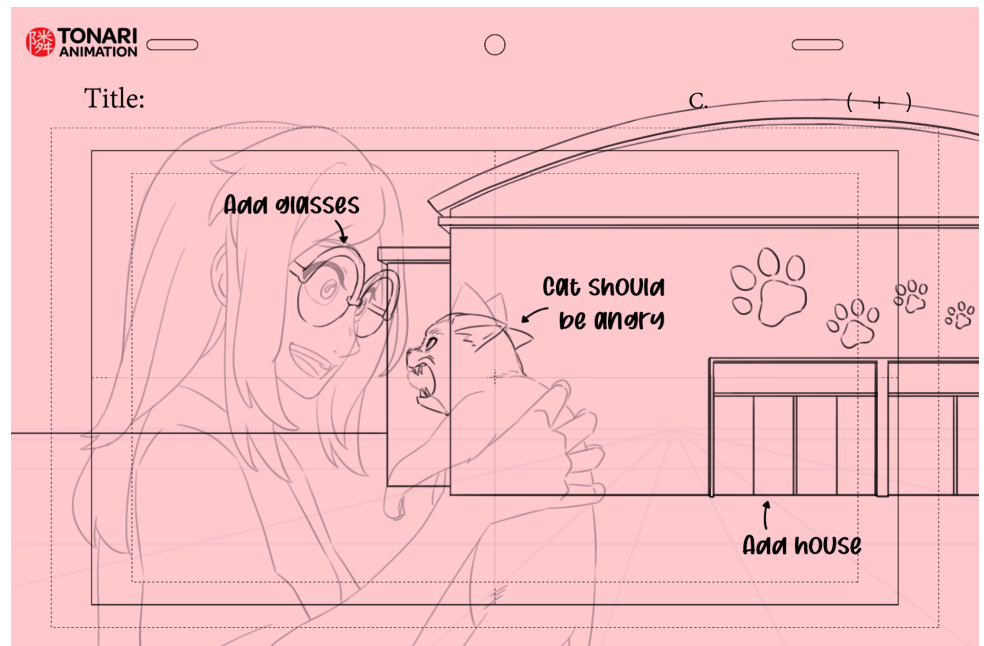
Action focused productions will sometimes include:

- Mecha Check
- Effects Check

When you're doing cleanup work you will be using these instructions as a guide. Unfortunately, they'll be in hand-written Japanese most of the time. For people who can't read handwritten Japanese, an **interpreter or 翻訳者 (honyakusha)** is really helpful. Sometimes a PA will do this for you by typing out the notes so you can auto-translate them,

Enshutsu/Kantoku Check (演出/監督チェック)

The **enshutsu** (演出) is the episode director. They handle continuity and story for an episode, while the **kantoku** (監督) is the series director. They handle continuity and story for everything in the series. Both do pretty much all of their corrections using a light pink paper which is very distinctive, though some studios use a different color. Ask a PA if



you're not sure what color the corrections you're looking for are.

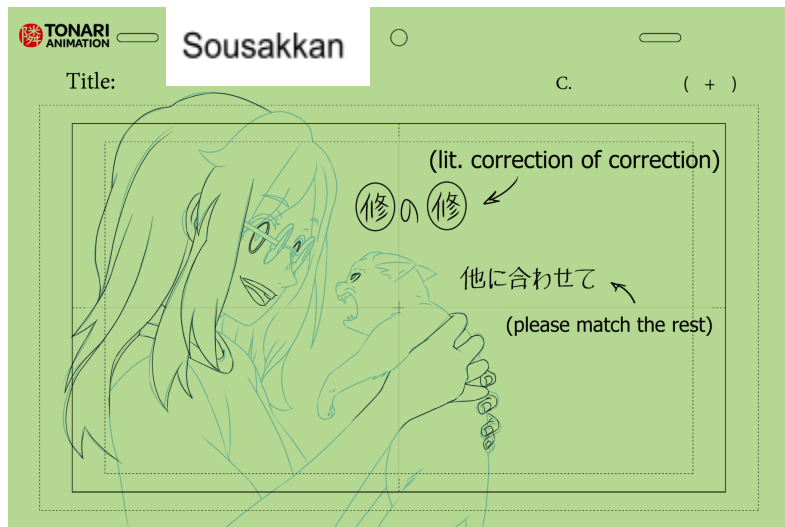
Most Enshutsu want to make sure characters are acting true to their personality, that the style of animation feels solid, and that there are no errors in consistency that could confuse an audience. Most of the time these corrections aren't nicely drawn since a single enshutsu needs to get through dozens of corrections a day. That said, enshutsus can have a wide variety of backgrounds. Some are very experienced draftsmen in their own right, and they might take the time to draw cleaner, more solid drawings to help improve poses or fix errors in the background.

An enshutsu will also check your timesheet. Sometimes they'll change just a few small things. Other times they might redo the timing from scratch. If the enshutsu adds new keyframes or inbetween guides in their drawing corrections, those will be added into the timesheet.. Extra notes and corrections are appended to the memo section. Sometimes, if there are enough change,s you will just get a completely new timesheet.

The Kantoku won't check every cut, but they also use pink correction paper most of the time. In the majority of situations, their instructions will be similar to an enshutsu's, though their checks tend to carry a little more weight.

LO Sakkan/Sou Sakkan Check (作監/総作監チェック)

Once an Enshutsu finishes their checks, the cut moves to **Sakkan** (作監) or animation director. They usually draw on yellow paper. Sakkans are experts in draftsmanship and animation. They ensure that a layout maintains quality and stays on-model for a cut. Most will expand on some of the changes requested by the enshutsu and kantoku. Sakkan fixes are usually drawing-heavy. Their work is a major reason most anime looks fairly consistent from scene to scene. If the sakkan has enough time, they might correct mistakes for the majority of the drawings in a cut, but it's not uncommon for them to redraw only a single frame—or small set of frames—and write 他合わせて (*Ta awasete*) which roughly translates to “match the rest.” This means that the corrections they've shown must be used as a guide for every frame in the animation. You're going to need to get very used to this phrase. It usually means you have a lot of hard work ahead of you!



After the sakkan comes the final check, the **sousakkan** (総作監) or senior animation director. Most of the time they draw on green or darker yellow paper. They're in charge of all the drawing and animation corrections for an episode. Sometimes they don't change anything. Other times they fix just a few small things like eyes or jawline, and in some cases, they completely redraw everything to match their vision of the show. Whatever they end up doing, sousakkan gets the final say, since their check is last.

After passing through these checks the cels are sent on for cleanup, while the background is sent to paint (unless that has corrections, too.). In most cases, you will be sent corrections on your drawings for the cleanup phase, but it has also become fairly common for studios to send out cuts done by one artist in layout to a different artist for cleanup.

Cleanup and Nigen (第二原画)

Cleanup is where you come back in. You will be taking all the corrections made to your original layout and modifying it to account for your fixes. You might remember from the start of this chapter that if you're not cleaning up your own work it's called **Nigen**. Either way the process is very similar, and I'll be calling it all cleanup for simplicity's sake.

. When you're doing cleanup your focus needs to shift a little bit. You'll be making nicer drawings that account for the changes from layout checks, but you can't lose sight of what made the initial layout work. I've found that it's really easy to make a drawing stiff and boring if you get too nervous about making every line perfect. Just remember that these still aren't the final lines that go up on the screen. Appeal, form, and volume are still more important than a perfectly even line.

Assembling the Files

Nigen cut packages are pretty much the same as layout cut packages, except that you'll have corrections to go along with your drawings:

- **E-conte** 絵コンテ: The Storyboards for the section or episode you are working on.
- **Settei** 設定: The design sheets for the production or section.
- **Original Layout Drawings**
- **Scans or Digital Enshutsu Corrections**
- **Scans or Digital Sakkan Corrections**
- **Scans or Digital Sou Sakkan Corrections**
- **Filled X-Sheet**
- **Adjusted X-Sheet**

Your corrections are going to be labeled as an extension of the scheme used in your layout submission. For example, if you have corrections for A_001 you'd have A_001S (A1 Sakkan) A_001S or SSK (Sousakkan), and A_001EN(Enshutsu). Other times, they'll just have the same names as the cel they match. In that case, you can match them by color. I've never found sorting these out too difficult since it's pretty obvious what the old layout

drawings were compared to the corrections. In the worst-case scenario, you can always ask your PA for clarification.

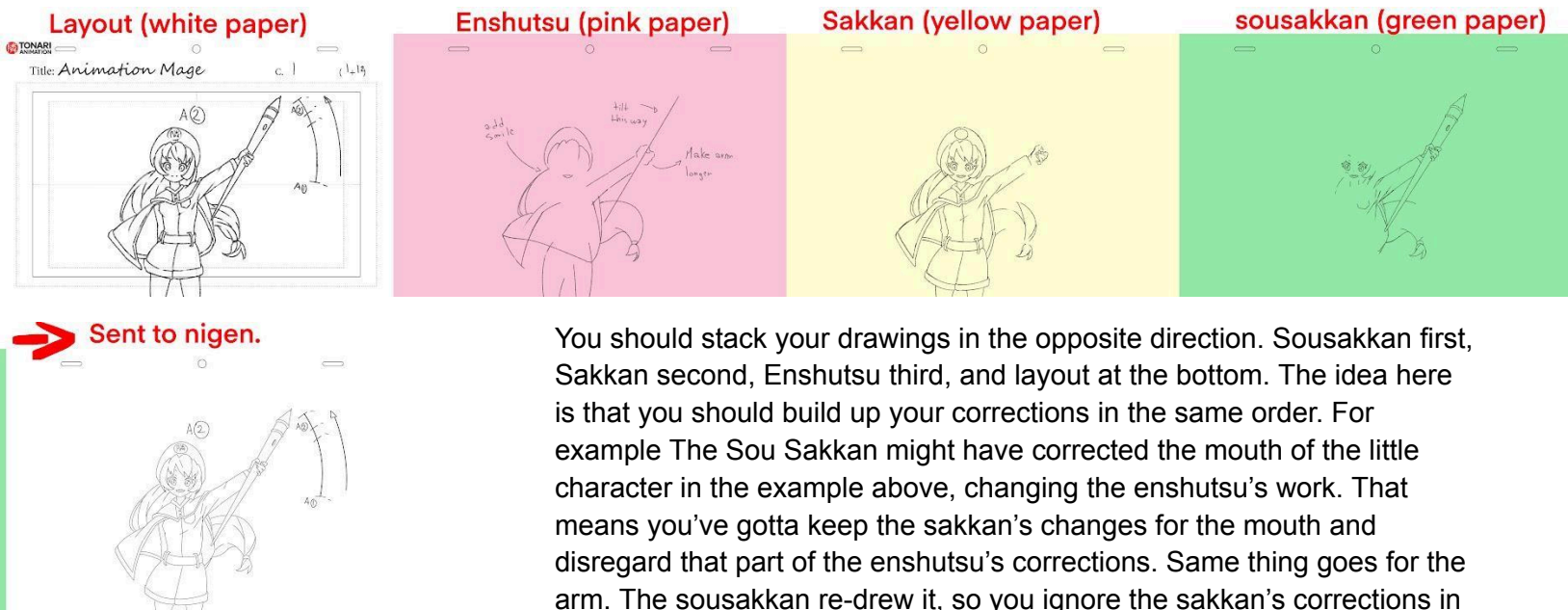
Constructing cut files from scans

I'd say about 90% of the time the corrections you get will be scanned from paper corrections since the vast majority of Japanese senior staff have stuck to drawing on paper. Even when you do get digital corrections, they'll usually be in the form of .jpg exports, not an updated .csp or .psd for you to work from. In either case, you need to import both the drawings and corrections into a file and properly align everything. This is done with the peg holes on a cut. Bring all of your drawings into a single file with a layout template from the studio you're working with (or your original layout file). Go through and align each cel to the layout template's peg holes. When they're not aligned, they'll look like this:



You'll be able to see the different peg holes ghosting between each other. I usually just zoom in pretty close on the peg holes and use arrow keys with the transform/slide tool to tap the holes into alignment. This is one of those times when it pays to be really *really* careful. You should never, ever assume that drawings are aligned without looking at the peg holes. Taking just a few minutes to double-check this means you won't accidentally be drawing a character's face off the side of their head, or awkwardly overlapping poses.

When you're importing corrections, you should stack them according to seniority on top of the original drawings. Remember, the layout correction stages go like this:



Sent to nigen.

You should stack your drawings in the opposite direction. Sousakkan first, Sakkan second, Enshutsu third, and layout at the bottom. The idea here is that you should build up your corrections in the same order. For example The Sou Sakkan might have corrected the mouth of the little character in the example above, changing the enshutsu's work. That means you've gotta keep the sakkan's changes for the mouth and disregard that part of the enshutsu's corrections. Same thing goes for the arm. The sousakkan re-drew it, so you ignore the sakkan's corrections in those areas. If the Sakkan/SousSakkan didn't redraw the entire character,

you still need to draw in the rest of the character following the layout, but with a level of clarity matching the cleanup work matching the corrections.

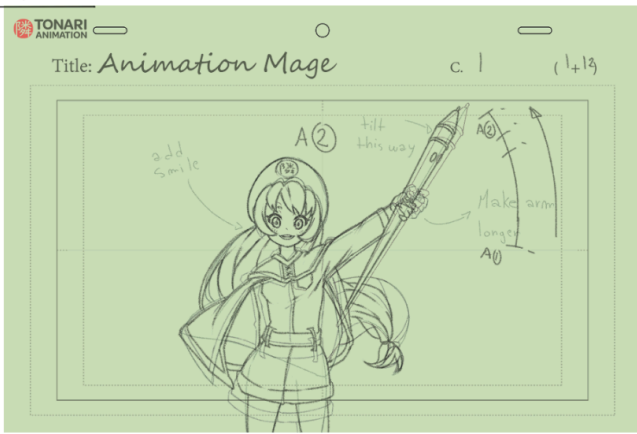
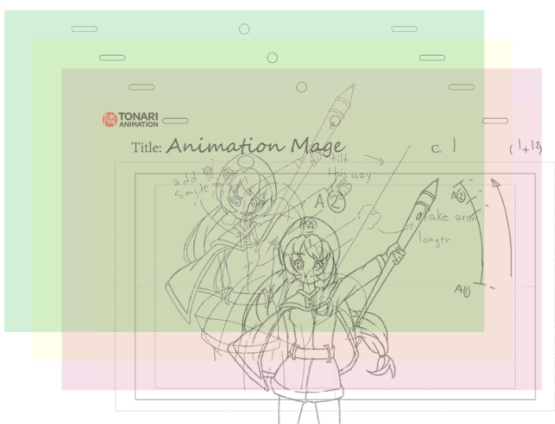
Trace according to seniority!

Most senior

- ① Sousakkan (trace first)
- ② Sakkan (trace second)
- ③ Enshutsu
- ④ Genga (trace last)

Least senior

- | | | | |
|--------------------|-----------------|----------|--------|
| # 1 | # 2 | # 3 | # 4 |
| Trace
Sousakkan | Trace
Sakkan | Enshutsu | Layout |



The genga artist stacks the drawigs according to seniority

Trace parts drawn by the most senior corrections

Sometimes there are multiple sets of corrections for a cut. Usually, this is because the same cut has been sent for revisions multiple times. If there are multiple versions of corrections, you should always be working from the most recent ones—ignoring seniority this time. That is, if you’ve got a new set of pose corrections from an enshutsu that were made after a character redraw by the sousakkan, you need to go with the enshutsu corrections. Look for 修正 (Shusei) or “Fix” notation. The way the most recent fixes are shown usually falls into one of these categories:

Appending “Fix”

修正	“Fix”
修の修	“Fix of a fix”

修の修の修	“Fix of a fix of a fix”
-------	-------------------------

Other times the most recent fix might be marked by the date. Use the one that’s most recent.

修 (4/13)	Fix (4/13)
修 (4/27)	Fix (4/27)

Finally, fixes scan be noted with “S” (short for Shusei), use the one with the most “s” on the end.

A1_s	Cell A1_Fix
A1_ss	Cell A1_Fix Fix
A1_sss	Cell A1_Fix Fix Fix
A1_s4 (if too many s)	Cell A1_Fix4

These situations don’t crop up a ton, so if you find yourself unsure what to do, feel free to ask a PA—chances are they can set you straight.

General Cleanup Tips

Let’s talk a little about how to actually make nice nigen drawings. You already know the routine. Practice. Don’t sweat some small mistakes, blah blah blah. It’s still true, but I know you’re tired of hearing it. Instead, I’ll get to some actually useful tips.

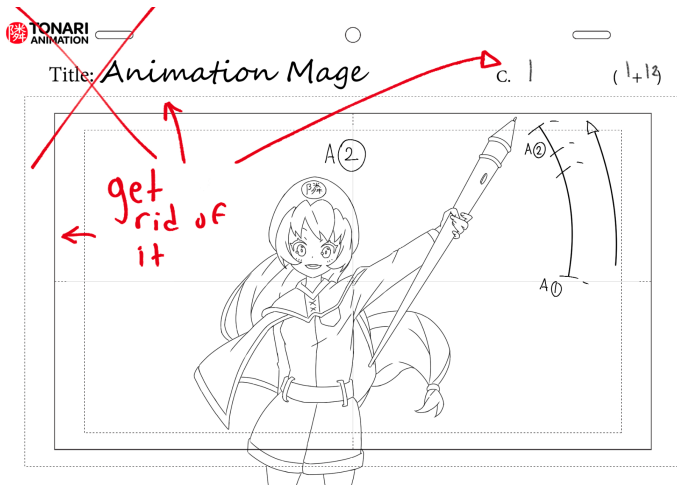
First, when you’re drawing, I highly recommend “flipping” your work. Flipping is kind of an ambiguous term, and as far as I can tell it means at least three different things, depending on who you’re asking. The first one—which is the only one I knew before interviewing people about this book—means literally flipping your drawings back and forth with the “mirror canvas” function most drawing software has. This helps you to pick out mistakes in symmetry and proportion. The second is flipping back and forth between keyframes to see if volumes are staying consistent. The third is turning on and off everything but your cleanup drawing to judge how well your new drawing stands on its own. Which one should you use? All three! Anything you can do to improve your drawings is worth it.

Cleanup File Submission

Submitting cleaned-up files is really similar to layout. You can follow the exact same naming conventions and export procedures. Your exports should include:

- .psd or .csp file of everything
- Exported cels separated into Letter folders as .png
- X-sheet
- Updated .mov or .mp4 video

The main difference is that cleaned up drawings should only be exported with peg holes, no layout template.



All the same rules from layout submission apply here. Double-check your file names, make sure you're not missing frames, and so on. Do one last set of checks for any notes you might have missed...then call it good and submit. Again, getting stuff submitted as soon as it's done is best practice. Don't leave your PA waiting.

There you have it! Once you're done with cleanup and you've sent off your work, you have officially cleared the last stage counted as "genga" in the anime pipeline. Your cleanup drawings are still going to get a set of checks to make sure they're up to snuff, but short of retake corrections, your job on those cuts is finished. Pat yourself on the back and take another well-deserved break!

Standard Animations

This section deals with a couple of really common animations that have special instructions in anime. I highly recommend you read through all of these, because you'll be doing a lot of these animations on almost every assignment you take, and none of them work in quite the way you might expect.

In order, we'll be tackling:

Serifu
Blink

Head Turn
Walk Cycle
Run Cycle

Serifu and kuchipaku (口パク)

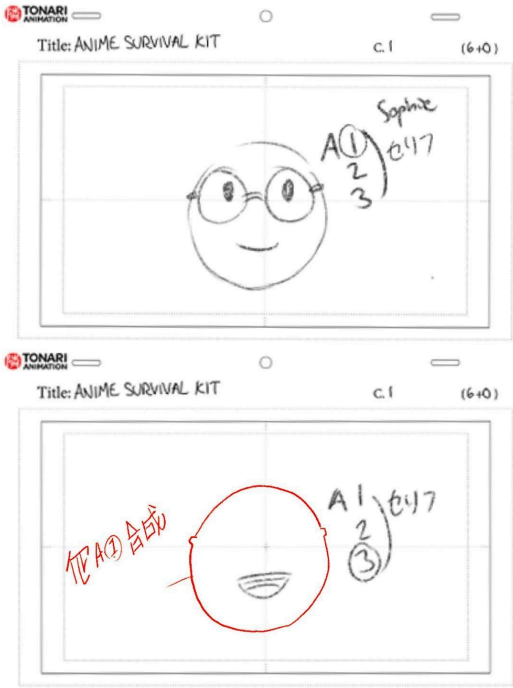
Serifu is the Japanese word for dialogue. Animating to dialogue is usually called animating **kuchipaku** (口パク) “lip flaps.” Serifu notation in Japanese productions is quite a bit different from western lipsynch. First off, mouth shapes aren’t usually mapped to particular sounds. Instead, they’re roughly timed to the peaks and troughs of speaking rhythm generally. Second, only three drawings are used. These are the **Akiguchi** (アキ口) or open mouth, the **nakaguchi** (中口) or middle mouth, and the **tojiguchi** (トジ口) or closed mouth. They’re ordered 1-3.

There are two common methods for serifu animation. In both cases, standard notation for the spacing chart in the layout and the keyframes in the timesheet is modified with セリフ to indicate the drawings are lip flaps.

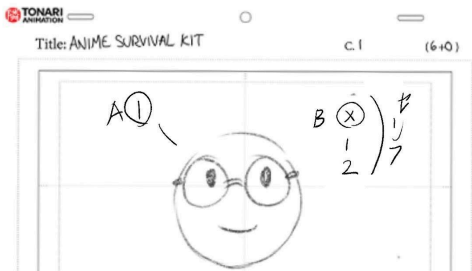
The first way of creating lip flaps keeps everything on one layer. The first keyframe is the character’s full model with a closed mouth. The third keyframe is the mouth fully open, with the rest of the body replaced by a red outline with the notation 他A①合成 which means “hold cel A1.” **Gousei** (合成) is a really useful tool that allows you to keep parts of a drawing the same between cels while changing only some parts. It basically tells the douga artists not to bother re-drawing all the details between cels, since nothing in the red areas changes. Keep in mind that these keyframes don’t have to be 1-3. They could be 7-9 or 26-28. It’s just a group of three frames that are all clumped together.

On the timesheet, you write 1 2 3 セリフ when dialogue starts and a line to the end of the dialogue section. You’ve probably noticed that the second keyframe isn’t circled or drawn. That’s because it’s considered an inbetween—which makes sense, considering it’s also literally called the “middle mouth.” You won’t need to worry about it in layout.

As the time chart indicates, you also don’t have to keep the ordering as a strict 1-3. If the character starts out standing still



Action					Sound
A	B	C	D	E	
①					Sophie
②					
③					
①					
②					
③					Sophie
①					
②					
③					
①					
②					Sophie
③					
①					
②					
③					

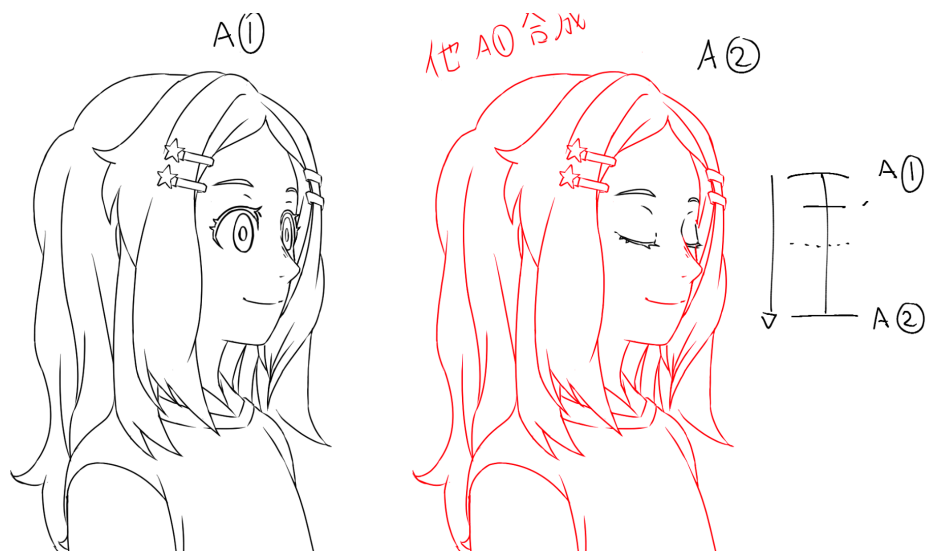


Action					Sound	A
A	B	C	D	E		
①	x				Sophie	
②						
③						
①						
②						
③					Sophie	
①						
②						
③						
①						

3 frame blink

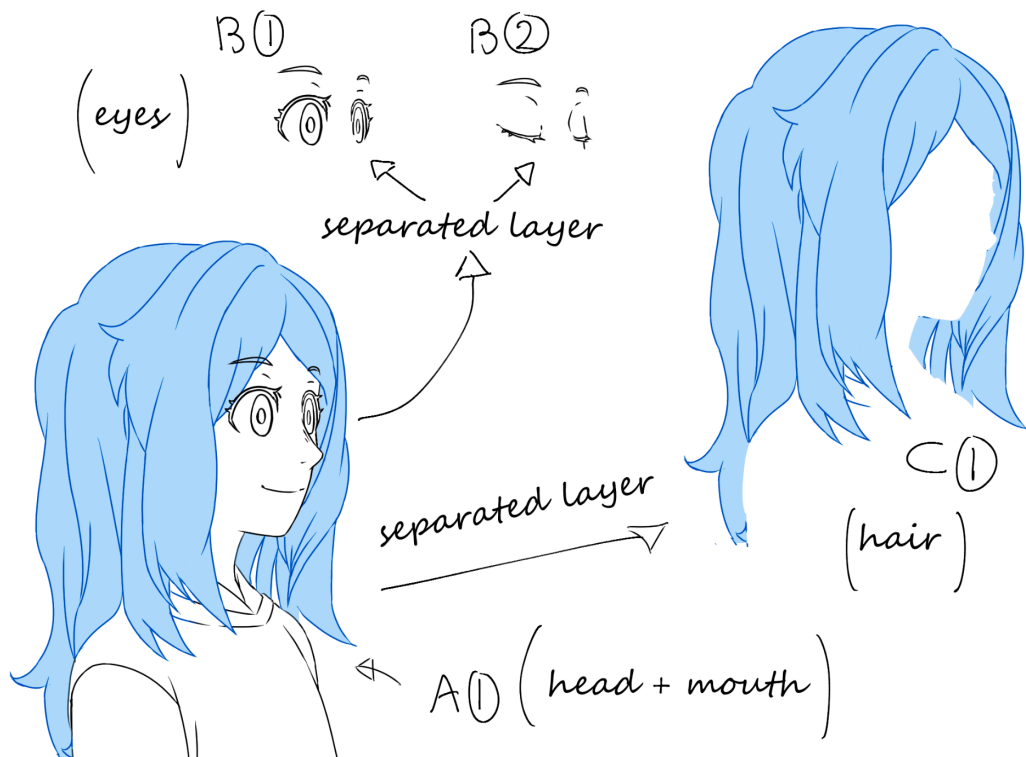
You can use uneven timing for on effect.

	A	B	C	D	E	F
2	①					
3						
4						
5						
6	②					
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						



If

If the eyes are partly covered and *especially* if what they're covered by is also moving, it's usually best to separate them onto a different cel so the cleanup and douga stages are less difficult.



The average blink is done on 2s or 3s, but the spacing and timing can be biased to adjust the feeling of the blink pretty easily. Different animators I've interviewed have their own preferences on whether easing into or out of the blink is better and, as always, it's also going to depend on the project you're working on and the acting you want to get across.

Head turns

In the layout stage, head turns tend to be surprisingly simple. The minimum expectation for a layout artist is drawing the start and endpoint of the turn.

It's useful to go "off tap" (Tapiwari) when doing head turns. You can do this to match up different parts of the head exactly and ensure you're not going completely off model. This is really useful with the eyes, since they change drastically between front and side views but you need to keep the size and proportion consistent. In some cases, it's helpful to use either a third key or an inbetween guide at the halfway point.

A lot more goes into turning your head than just swiveling it on a flat plane. Most experienced animators I've spoken with recommend that you draw the head tilted down slightly with the eyes closed if you include the middle drawing. It makes for a much more natural head turn.

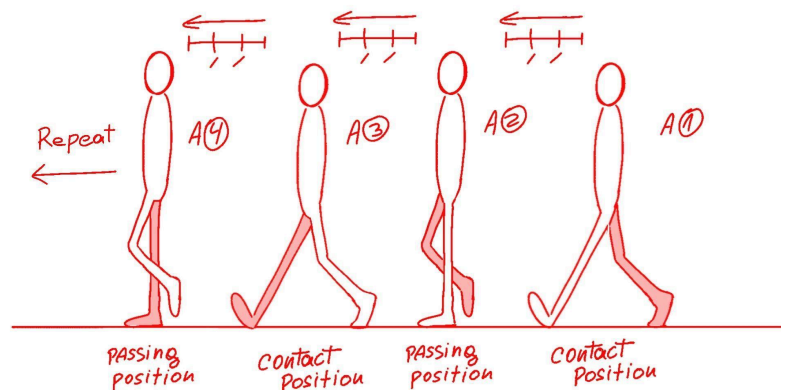
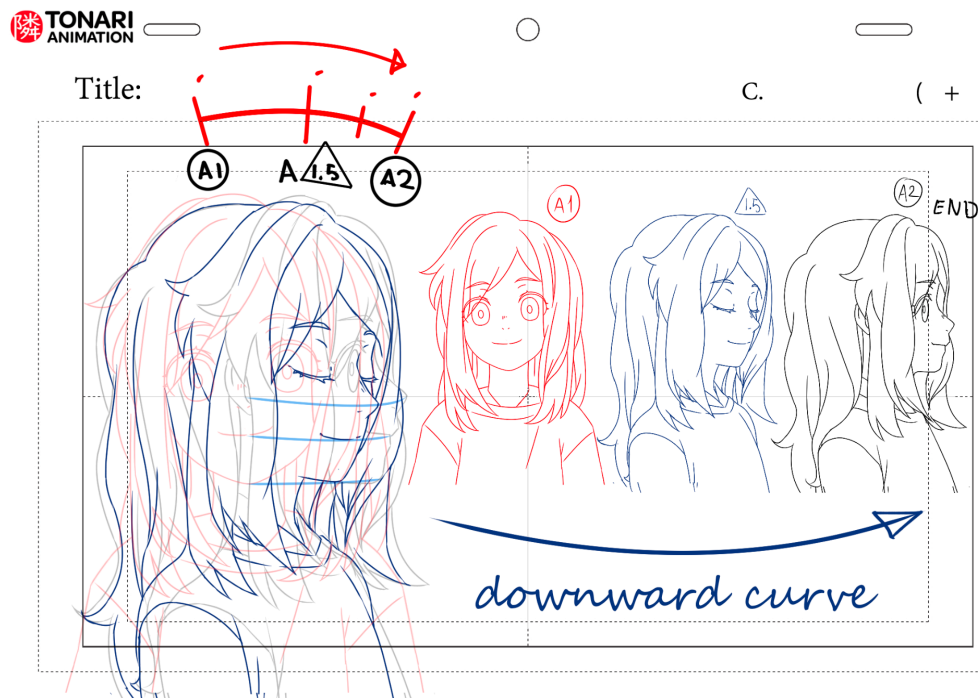
The eyes also tend to "lead" a head turn, which means they look in the direction the head will turn before the motion starts.

I'll do a more detailed breakdown of what actually goes into a finished head turn in the douga section. I recommend you look at that section to understand how your layout work is translated into a finished set of drawings.

Walk Cycle

This description is adapted from a great tutorial done by Beast, a senior animator at Tonari. The drawings and handwritten notes are all his. Keep in mind that this explanation is about the *mechanics* of a walk. In a standard layout you would only draw A1 and A3—don't give yourself extra work on a layout assignment!

What follows is a pretty high-level overview of walk cycles. If you want to get in-depth on the particulars of drawing out these poses and keeping everything on model or adding secondary motion, look at the douga



section, since layout artists don't actually animate much of this cycle.

How someone walks says an enormous amount about them. I highly recommend you study how a character you're animating walks, and that you always stay on the lookout for interesting walk cycles in animation and the world around you. For a primer, you should be able to find the *Inoue* walk cycles and notes as well as examples from many shows you can break down frame-by-frame.

A2 and A4 from this are inbetweens—they're not drawn in layout.

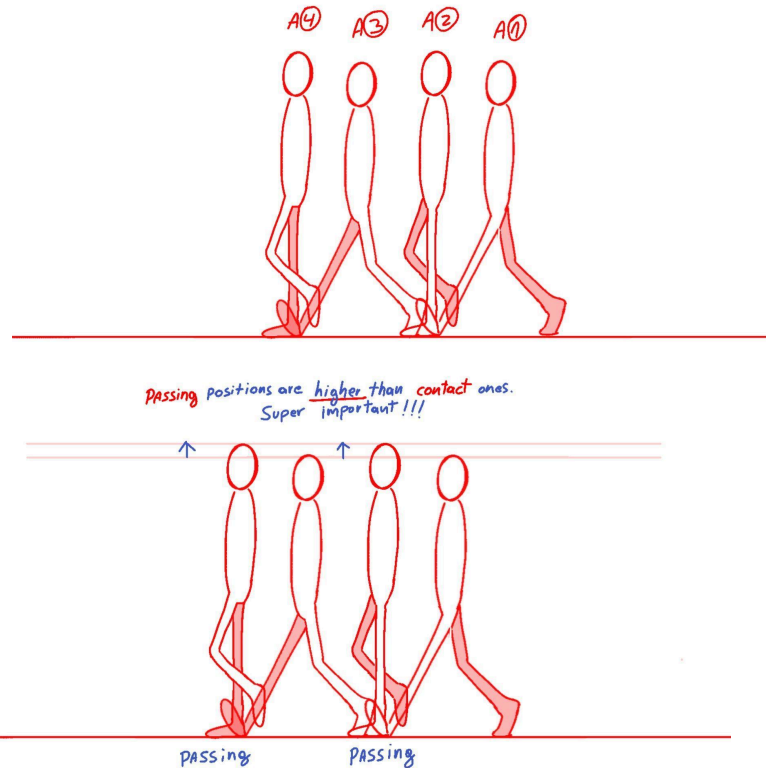
A walk cycle usually has four important poses, two contact positions, and two passing positions. Contact positions have the legs extended out, the body slightly lowered. The passing positions have the legs passing each other, with one straight and the other bent. They're the point where the character is highest.

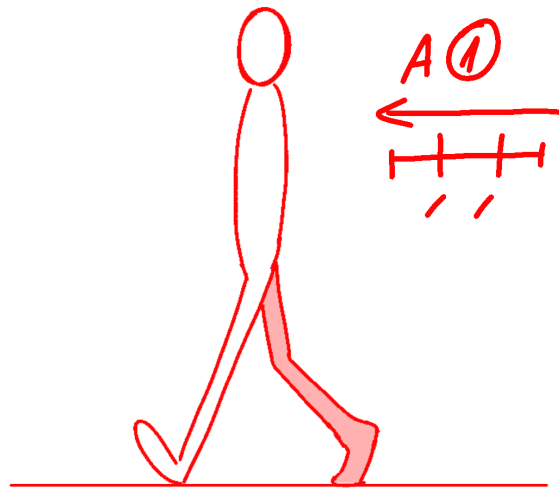
The drawings translate to something like this when properly overlapped:

You might notice how the head bobs up and down between the four frames. That's super important! If you have a character slide along without changing height, their legs will have to stretch out in the contact poses, and the entire animation will look like a robot walking on tentacles. You *really* don't want that.

There are two basic ways to complete a walk cycle in layout. One way is to simply space out the drawings like above. In that case, you have to fill out the timesheet with every frame of the walk (even though you're only drawing two), since each one is moving further across the screen. You can copy-paste the drawings from a previous section of the cycle to the next, but their number still goes up. So you would have A1, A2, A3, A4, but then to repeat them you would have to copy-paste A1 as A5, A2 as A6, A3 as A7, and A4 as A8.

Alternatively, you can use a slide and repeat notation. The idea here is you mark out how far each step is on a line at the character's feet and add slide notation in the camera section for the cell the walk is on, then you do just the key drawings A1-A4 one-by-one. They can all be overlapping. write "repeat" after the first frame of the second cycle and leave it to the composition team to create the actual movement across the screen. That looks something like this:

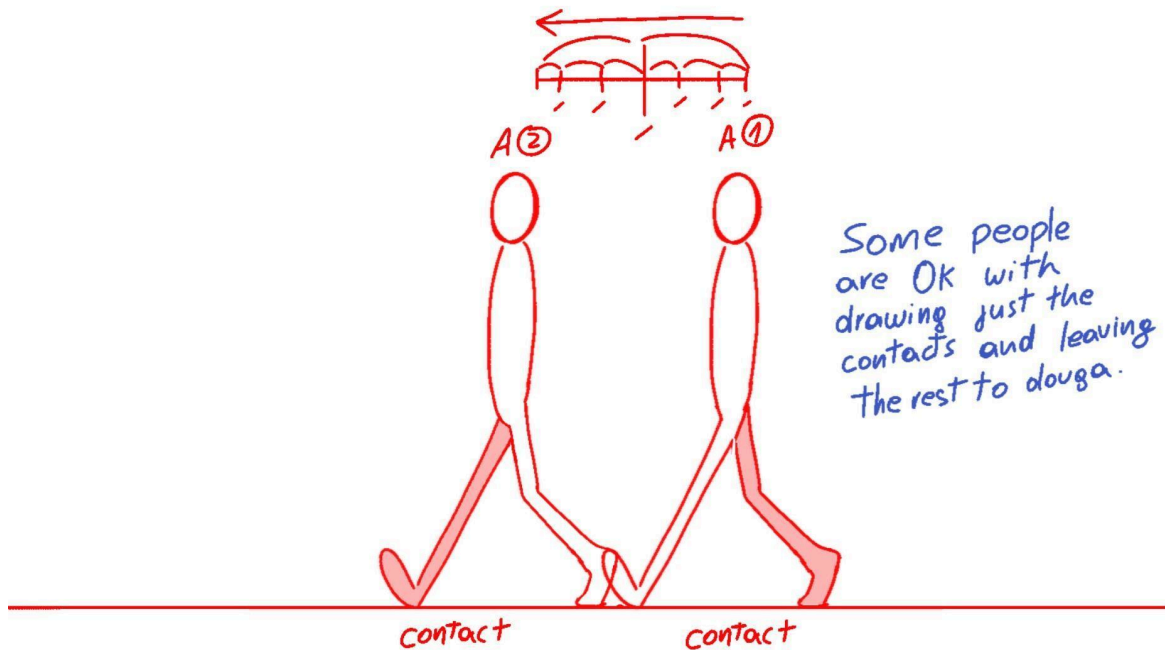




A	B	A	B
①	/	/	
/		①	/
/		リ	/
②	/	ビ	/
/		ー	/
/		ト	/
③	/		
/			
/			
④	/		
/			

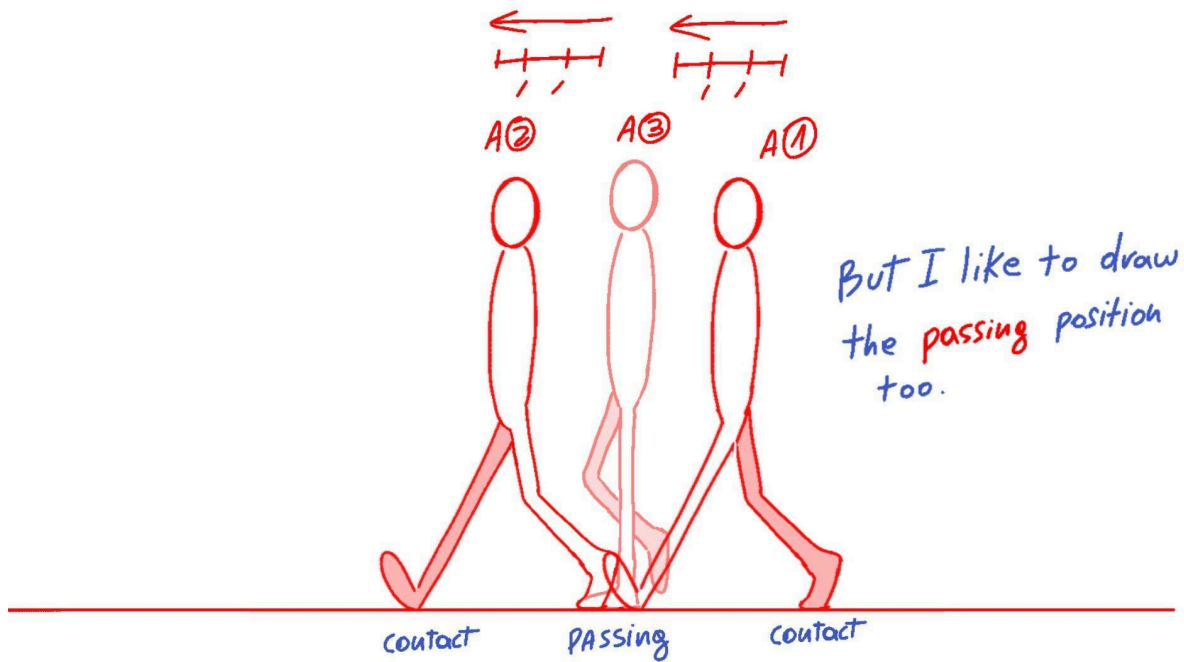
Standard walks are kept to 3s. Fast walks can go to 2s. Depending on the character you're animating, you might go even faster or slower than this, but as a standard animation for someone calmly walking, 3s works fine.

Believe it or not, you don't even have to draw all four of the frames from the above example in most layouts. A layout artist is only expected to include the two "contact" positions in a walk cycle—when the left and right leg extend forward on two different frames. This keeps your work very light and usually communicates what you want just fine. All you need to do is indicate where the inbetweens are spaced and what the timing is for the walk.



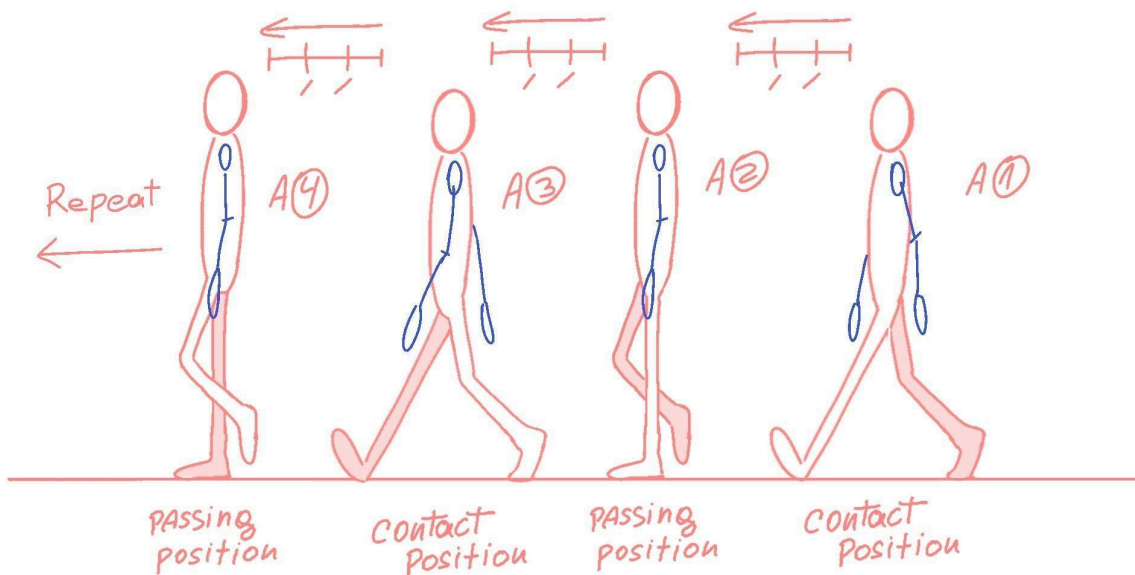
Since you're only doing two drawings in this method, it's really important to keep volumes consistent, particularly in the legs. Feel free to use tap wari for the drawings, or just lasso/copy and paste the parts you need between the two. Cleanup and douga will love you for the extra care.

If you're more experienced, you can add the passing position as a key to your layout. This gives you extra control over how the walk is filled in by douga, which can communicate more character than letting them inbetween everything without your input. If you're going to do this you need to keep things even more consistent.



Finally,

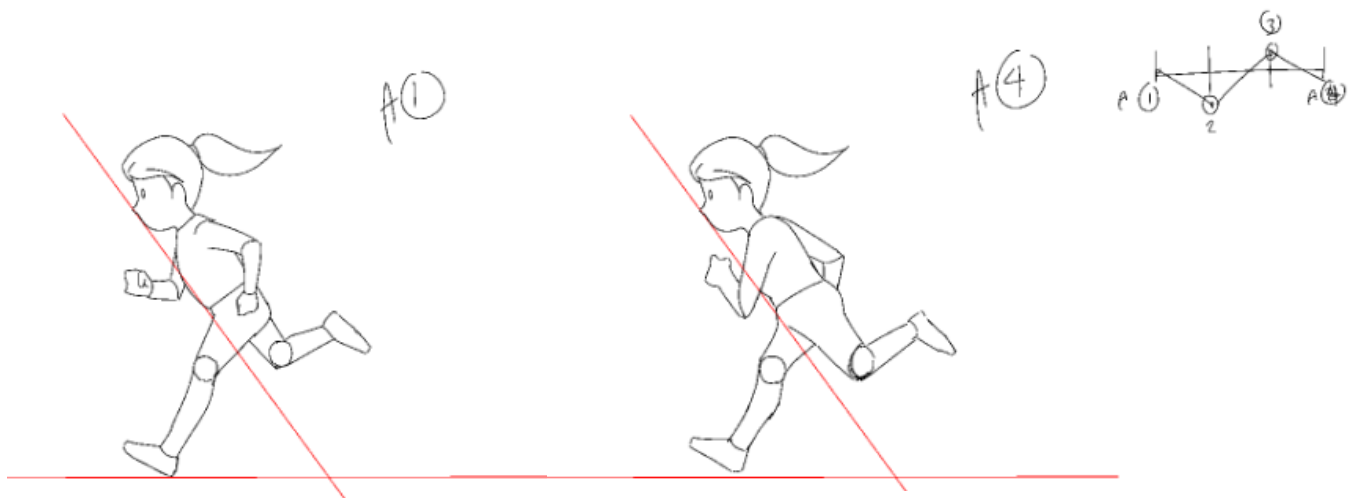
we've got the arms. They work very similarly to the legs, but in reverse.



Just be sure they're of consistent length and make sure the arm and leg on one side of the body are always working in opposite directions.

Running

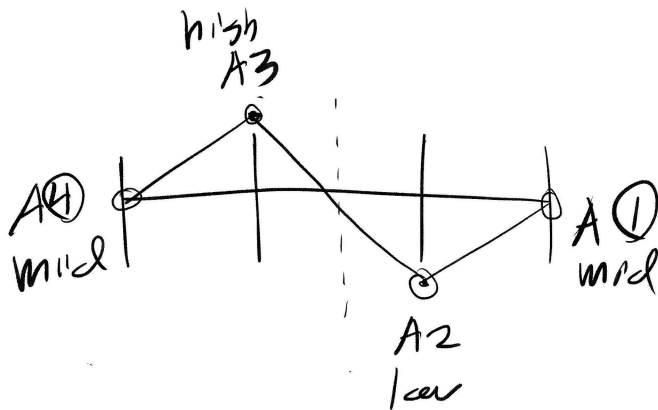
Running is very similar to walking if we're looking at it from the point of view of a layout artist. You'll create two contact poses with an optional third passing drawing. Mechanically, it's actually pretty different. I'm going to explain the "why" for running here, but if you want to see how to actually animate a standard 4 frame cycle (and keep everything on-model), check out the douga section. For now, I want to talk about getting these passing poses right and creating the spacing chart for a run. You'll have two keys, A1 and A4. They look like this:



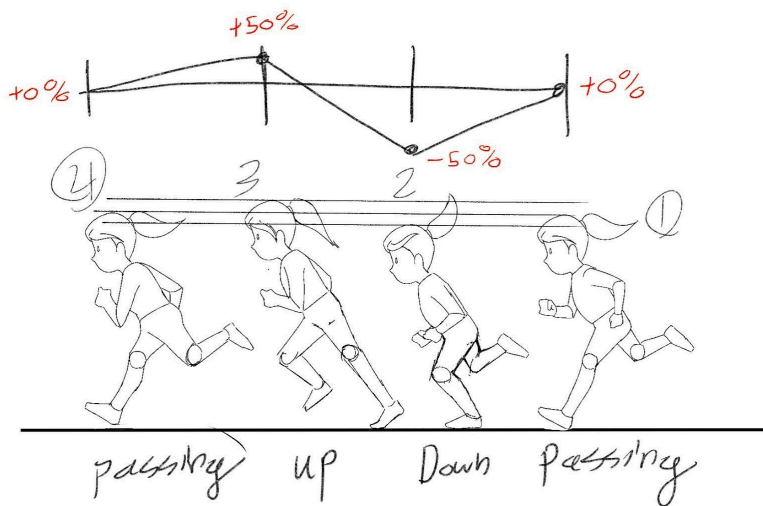
Each is one leg extended, the other retracted, with the arms pistoning in the opposite directions. That's all you need for a layout! Of course, it helps to know *why* this is—and what that weird spacing chart means.

The red line shows the tilt of the body. It can also act as a guide for the up-and-down motion of the body as a character runs, which you can see more of in the douga section. Notice it's pretty severely tipped forward. Running is an unstable, dynamic action. Levering the torso forward means the runner is catching themselves in a series of quick falls. Sometimes you want to really push out the torso and bring the legs low like an extreme sprinter. Other times a character might be doing a light jog and a less severe tilt is appropriate. As always, the key is matching the tone of the e-conte and keeping things clear.

Now, Let's take a closer look at that weird timing chart:



In a run the character is going to start at a middle point in the contact frames. In the first inbetween, they'll be "down" and in the second they'll be "up". It looks something like this if you have all four frames:



Again, don't worry about how to draw those middle two poses for now, just remember that a douga artist is going to have to work with a chart like this. Keep your two passing frames even and let them handle the up-and-down motion.

If you've got a particularly special run cycle, a lot of this basic information might be thrown out. For example, *Naruto* run cycles operate on 1s and complete a cycle in just three frames (two contacts and a passing "up" frame). The example I'm giving here is just a basic guide, and you should always consider what works for the show you're on as first priority.

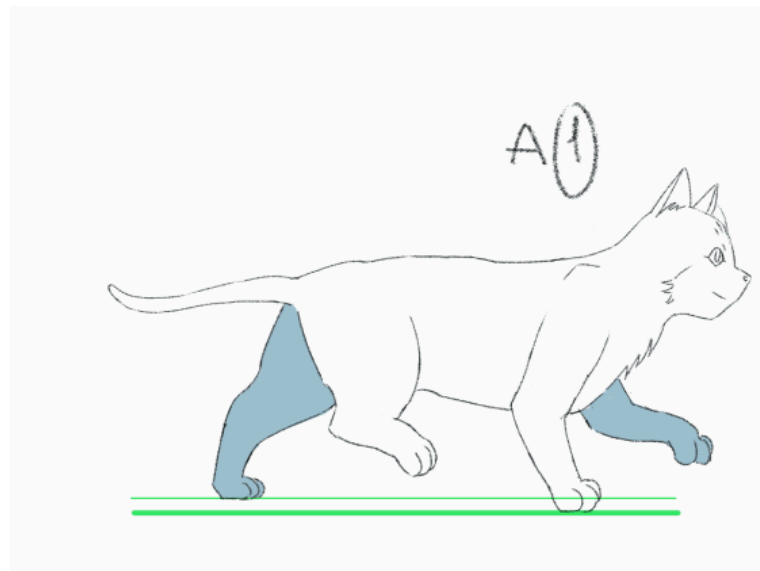
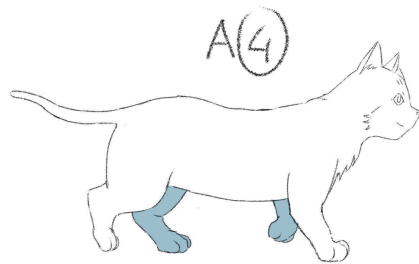
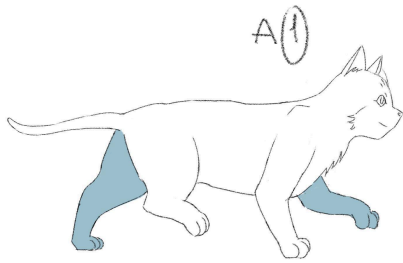
Just like with walking, running can say a lot about a character. In fact, we often start to blend walking and running to create interesting kinds of motion. Someone polite who's late for the train isn't going to break into a run, but they might start speed walking—tilting the body forward and using wider steps—or someone might pace, with no noticeable bobbing of the head when they're thinking. Once you have the basics, you can get creative with things.

Quadruped Walk and Run Cycle References:

As a key animator you may be asked to do walk cycles for more than just humans. Just as we described above,

you will use less frames to complete a walk cycle for animals than is taught in the western animation industry. 4 key frames is all you need. Below are some examples of different types of standard walk and run cycles for different types of creatures.

Keyframes for a Cat Walk Cycle



Tip: A3 is a leg swap of A1. So once you get your first two frames, you can copy them and just re-draw the legs for a quicker walk cycle.

