CONSTRUCTION OF THE HEAD

Think of the head as a rounded mass, either ball shaped, pear shaped or egg shaped as the case may be. In animation this head shape may change perspective and form. A great number of times during a scene—to simplify matters a correct perspective framework should first be drawn, then the details constructed over this form.

Take an egg—draw the guide circles around it—then put in the face. Now turn this egg in every conceivable position and draw it. Animation presents the same problems.

Here is the basis of a great many cartoon heads—draw up an egg like this and study it from all angles—then using this as a basis, add details, design some original heads of your own!—Watch the perspective!

A NOTE ABOUT THE AUTHOR

Preston Blair, Cartoon Director, is one of the fine artists of Animation. Associated with the Disney Organization, he created in "Pinocchio," "Bambi," and "Fantasia," in the latter he designed the hippos. Later for Metro-Goldwyn-Mayer, he designed and animated the highly successful, "Red Hot Riding Hood," and directed cartoon shorts. Blair is active in magazine illustration and animated fine arts, and is a member of the California and American Watercolor Societies. Recently when he won first prize in our annual First Exhibition at the Laguna Beach Art Galleries, I met him and suggested he make the book for you. I am sure it will prove interesting and helpful to all those studying this popular cartoon medium.
MORE HEADS CONSTRUCTED

START WITH AN OVAL AND PERSPECTIVE GUIDE LINES. ADD NOSE CONSTRUCTION — SEE THAT THIS FITS SOLIDLY ON. NOW PUT IN OVALS FOR THE EYES — WATCH PERSPECTIVE AND CONSTRUCT THE REMAINING DETAILS.

ALL ANIMATED CARTOON CHARACTERS CAN BE REDUCED TO A BASIC FORMULAE. THIS MAKES THEM EASY TO MASTER AND INSURES UNIFORMITY THROUGHOUT A FILM, ALTHOUGH SEVERAL ARTISTS WORK ON THE SAME CHARACTER.

ASSEMBLE THESE HEADS AS THO THEY WERE SOLID AND FITTED TOGETHER.

STUDY THE BASIC FORMULAE I HAVE INDICATED HERE, THEN DRAW THIS DOG IN OTHER POSITIONS.

...
BODY BUILT FROM ROUNDED OR CIRCULAR FORMS

The animated cartoon character is based on the circle and rounded form—as several people may work on the same drawing in a cartoon studio, the rounded form is used due to its simplicity. Animation is thus easier. Also, circular forms follow through better on the screen. Study these drawings I have analyzed. Visualize all forms as solid masses with 3 dimensions.
THE SKELETON FOUNDATION

BUILD THE CARTOON UP FROM A ROUGH SKELETON -- DON'T EXPECT TO GET THE RIGHT SKELETON THE FIRST TRY ALWAYS -- NO ONE CAN DO THAT -- EXPERIMENT-DISCARD-MAKE SEVERAL THEN PICK THE BEST ONE -- BE SURE TO WORK LOOSE IN CONSTRUCTING THE CHARACTER.

WORK OUT A SKELETON--CONSTRUCT BODY MASSES AROUND IT--THEN BUILD DETAILS OVER THIS
LINE OF ACTION

An imaginary line extending thru the main action of the figure is the "Line of Action" -- plan your figure and it's details to accentuate this line -- by so doing you strengthen the dramatic effect -- the first thing to draw when constructing a figure is the line of action -- then build over that.

Wrong lines of action unfit -- right lines of action fit and are accentuated.

Wrong	Right	Wrong	Right

Study these drawings in which I've indicated the line of action.
In constructing an animated character, visualize it as a three dimension puppet that you are joining together with solid masses. Each part has a definite place to fit according to a formula.
These are progressive steps taken by an animator in drawing a cartoon character.

1. Draw in "Line of Action" to establish general stance of figure.
2. Rounded masses for head and body are put in.
3. Perspective lines around these masses are put in to establish front, side, tilt etc. of body and head.
4. Now arms, legs and eyes are constructed or "anchored on" in their definite position to perspective lines.
5. Details are now fitted in or hinged into their position.
6. Character is cleaned up around these construction lines.
BIRDS

The natural wing of a bird can change for an expression to a modified arm and hand—and then revert back to a natural handling again. — See below.

THE FLIGHT OF BIRDS
Here are some ideas for drawing a squirrel as in cute characters. Head is large — important are the two front teeth.

This squirrel formula can be changed to a mouse, rabbit or chipmunk, just by simply changing the tail or the ears or the feet.
THE CUTE CHARACTER

CUTENESS IS BASED ON THE BASIC PROPORTIONS OF A BABY + EXPRESSIONS OF SHYNESS OR COYNESS.

EARS ARE SMALL IN RELATION TO ADULT SIZE.

NO NECK - HEAD JOINS ON TO BODY DIRECTLY.

BODY PEAR SHAPED AND ELONGATED.

SWAY BACK - WITH THIS LINE CONTINUING UP BACK OF HEAD AND DOWN INTO FANNY.

FANNY POUTURES - NEVER BULGES BUT FITS INTO LEG LINES AND BASE OF BODY.

NOTICE HOW ABOVE POINTS ARE USED IN THESE ANIMALS.

HEAD LARGE IN RELATION TO THE BODY.

HIGH FOREHEAD IS VERY IMPORTANT.

EYES SPACED LOW ON HEAD & USUALLY LARGE AND WIDE APART.

NOSE & MOUTH ARE ALWAYS SMALL.

ARMS ARE SHORT AND NEVER SKINNY AND TAPER DOWN TO THE HAND AND TINY FINGERS.

TUMMY BULGES - LOOKS WELL-FED.

FAT LEGS - SHORT AND TAPERING DOWN INTO SMALL FEET FOR TYPE.
THE "SCREWBALL" TYPE

IN THIS FORMULAE YOU WILL RECOGNIZE SOME FEATURES THAT ALL THESE COCKY-WISE GUYS HAVE IN COMMON

ELONGATED HEAD
NOT TOO BIG SKINNY NECK

BIG FEET

PEAR-SHAPED BODY

LITTLE OR SKINNY LEGS

EXAGGERATED FEATURES

LOW FOREHEAD

THE ANTICS OF THESE BAD BOYS HAVE BEEN SOME OF THE FUNNIEST ON THE SCREEN
GOOFY CHARACTERS

Here is the basic formulae for goofy types that act like a simple Simon Clod-Hopper:

- Long skinny neck.
- Hump back - stoop shouldered.
- Long droopy arms.
- With big hands.
- Over-hanging fanny.
- Pants low and loose + baggy.
- Enormous + clumsy feet.

- Small head - held forward.
- Hair hangs over eyes.
- Droopy half-awake eyes.
- Big beak or nose.
- Buck teeth.

Absolutely no chin! - This is very important.

Bobbling Adams apple.

Sunken chest.

Big stomach protrudes.

Low crotch in pants.

-- try designing a character of your own using these points.
THE "HEAVY" PUGNACIOUS CHARACTER

Above is a formulae for these bad boys which applies also to four legged types -- as the bear below and the bulldog on the next page.
Make a repeat cycle of this bulldog running using drawing to right for one position. See "run" in "movements of the four legged figure" on page 25 for guide.
HANDS

To draw the hand first start as if it were a mitten and then put the two middle fingers in following this shape—then put in, varying it in any fashion to prevent monotony—it is often a good idea to exaggerate the base of the thumb.

Cartoon hands are tricky—so below I've drawn an average hand in all kinds of positions to give you some ideas. Notice that the fingers should be unevenly placed to prevent a monotonous quality.
FACE EXPRESSIONS

An animator’s job is the same as an actor’s job in live action pictures. Both should be masters of portraying emotions. Studying your own grimaces in a mirror is a must. Pick a character you know and go thru the expressions with him. As I have here with this little pup.
A TAKE registers a characters sudden surprise in a cartoon. The average cartoon is full of these -- some are subdued takes, others are violent like the ones on this page -- the take is nearly always preceded by a good anticipation. Drawing like 3 below -- this method of going into the take gives it a sock. Below a stag jive hound at (A) sees ugly dame (B) stag scringes into anticipation (C) flies up into wild take.

THE CARTOON "TAKE"

Almost anything can happen in a take -- the figure may stagger or fly thru the air, the eyes may pop out, loose hair, coat tails etc. All fly up contribute to the surprise effect.
THE BASIC BOUNCING BALL ACTION

As ball falls - its speed increases - drawings are spaced further apart...

On 5-7-12-14 notice ball stretches in falling + taking off.

Notice ball follows a definite path of action -- study closely the spacing of ball along this path. Notice the basic similarity of this ball action to the hop and jump below. Also to the walk-run-leap-skip etc.

As ball hits it recoils - becomes squashed.

Notice A-C-E are like 5-7-12-14 above when character stretches -- B is like recoil on 6-13 and D is like the normal 2-10-17.
MOVEMENT OF BODY MASSES

Here are some simplified figures in action to show you the twist and turn and variation of perspective in the main body masses as the figure animates—building the figure in solids makes animation easier to feel out.
MOVEMENTS OF THE TWO LEGGED FIGURE

Here is a comparison of the various two legged forward movement cycles. I have drawn one half of each cycle below. Reverse hands and feet for the other half. These cycles can be used as "repeats" - that is, the drawings may be repeated over and over if the figure remains centered on the screen and the background moves.

WALK –

DOUBLE BOUNCE WALK –

STRUT –

SHUFFLE –

SNEAK –

RUN –

JUMP –

FAST RUN –

TIP TOE –

SKIP –
 Movements of the Four Legged Figure

Here is a comparison of the main cycles of four legged movement—some of these cycles are complete—others are one-half of the cycle, on these reverse feet for the other half. Study the differences in these.

Walk -

Trot -

Canter -

Gallop -

Sneak -

Tip-Toe -

Strut -

Sniff -

Walk, Trot, Sneak, Strut, + Tip-Toe are ½ cycles. —— Gallop, Canter, + Sniff are complete cycles.
Above are the contact drawings from (A) The Walk (B) The Run (C) The Fast Run. The contact drawing is the drawing on which the foot, after being lifted, strikes the ground. In laying out a run or walk for animation, usually it is these contact drawings that are determined first. This sets the speed, size of character, etc. of the action. Then the rest of the action is built around them.

The position of the back foot on the contact drawing determines the speed more than any other single factor. Notice on (A) the back foot is down still contacting the ground. On (B) the back foot has left the ground. On (C) the position of the back foot is still higher.

The front foot is stretched out further on the walk contact position, the body is more upright, denoting less speed. On the run drawing the body leans forward, and the front foot is back further. On the fast run drawing the body leans away forward denoting speed, and the front foot is back now under the body.

The arms swing conversely with the legs. The left arm swings with the right leg and vice versa. Also the arms swing more violently in the run. In the fast run the swing on the arms would be too violent. It has been found they are more effective when held straight out in a reach position.

Compare the action of the walk with the run, and you will note that in the walk, the drawing in which the arms and legs are stretched out further is the contact drawing. On the run, however, the stretch comes when the figure is up in mid-air at the high point in the action.

**THE WALK**

1. **LEFT FOOT CONTACTS THE GROUND.**
2. **SINKS INTO RECOIL POSITION.**
3. **RIGHT FOOT LIFTS STARTS COMING THRU FOR STEP.**
4. **HIGH POINT IN STEP RIGHT FOOT RAISED.**
5. **RIGHT LEG STIFFENS INTO CONTACT POSITION.**
6. **RECOIL POSITION LEGS BEND.**
7. **RABBIT UP AS LEFT LEG LIFTS.**
8. **HIGH POSITION NO 1 FOLLOWS THIS.
THE RUN

1. Right foot down in contact position
2. Right foot takes weight of body
3. Right foot pushes body off
4. Body at highest point in run

5. Left foot reaches for ground
6. Recoil - right foot coming through
7. Left foot stretches for take-off
8. Arms + legs stretch

THE FAST RUN

In animating a fast run here is a rule about animation to remember. To have an action drawing in practically the same silhouette position as another within one or two frames (exposures) is not a good practice. The action will be apt to look monotonous and might often give a false illusion and a different effect than the one you are striving to create. As for example, those moving wheels in old-fashioned movies, that appear to be going backwards instead of forwards. In the walk and run there are enough drawings between similar silhouette positions (1 and 5 above) so that there is no problem here. But that is not the case with this four drawing cycle of a fast run. Notice that all foot action drawing is varied and not similar to any other. 3 is varied to be different from 1, and the same with 2 and 4. There is a single circular action on the head and body instead of a double circular action as in the walk and run.

The speed lines around the feet help in a fast action like this. The crosses above and below drawings represent a fixed point on the screen. If you trace these repeats be sure that they coincide.
THE SKIP

Here are the extremes of a 24 drawing skip cycle. The missing drawings are "inbetweens" (drawings spaced evenly between these drawings). This is with the exception of 12-24. Notice the charts explaining the uneven spacing on these drawings. 12 instead of being evenly in between 11+13 is 1/3 of the way and closer to 11. The same happens with 24 which is 1/6 of the way between 23+15. Drawing 24 thus completes the cycle. The skip is the same as the run on the body and hands. The difference is in the action of the foot which pushes the body off the ground and then raises in an arc and contacts the ground itself first. The crosses above and below each drawing are registration marks. Trace each drawing on a separate sheet of paper (making sure these crosses overlap) then flip the drawings and study the action this way.
THE SNEAK

These are the key drawings in a 64 drawing sneak cycle. Missing numbers are in betweens. Drawing 1 follows 64.
In tracino, be sure crosses above and below Indian coincide.

Not all sneaks are as violent as this one, but they all are based on the same principle. This is also a slow sneak—lesser in-betweens will speed it up.

The sneak is a walk in which the recoil (after the foot contacts the ground) has been exaggerated and the speed of the foot comes down into the contact position slowed up. This gives the illusion of stealth—that the feet are carefully put down to evade noise and detection.
LINE OF ACTION IN ANIMATION

In animation the line of action is the basis for rhythm, simplicity, and directness.

Start your animation first with a line of action, then a skeleton, and details.
OVERLAPPING ACTION—Here is a rule that holds in the majority of animation actions. "In animating a character from one point to another, don't go there all at the same time." By this I mean the main action can be preceded and followed by lesser actions that all relate or are the result of the main action. These are known as "Overlapping Actions" and the proper use of them will greatly improve the quality of your work. Notice on an anticipation a cap's stomach. Down on 10 it recoils up like rubber on 13 to 18, bounces back on 18 and then finally settles back up on 24. In other words a main action of overlapping action on all parts of the figure.

SQUASH AND STRETCH—When a sand bag moves thru the air, it will stretch the direction of movement and when its progress is arrested it will squash out. If it were alive (anything can happen in a cartoon) it would also squash in anticipating an action in which it stretches. Notice 8 and 15 here. The designed and animated the Hippo in Disney's "Fantasia!"

FOLLOW THRU—Another pointer on animation is. When a flag is waved or waved around, the flag will follow a definite curving path determined by the position of the mast a split second before. This natural law is called the rule of "follow thru" in animation. Study the ends of the coat here for example. amount of follow thru action.

If you trace this character, remember crosses above and below each drawing are a fixed point on the screen so be sure they coincide.
HERE ARE THE MAIN MOUTH EXPRESSIONS USED IN DIALOGUE. FEEL THAT THE FACE IS AN ELASTIC MASS THAT CAN BE SQUASHED OR STRETCHED TO FIT THE MOUTH EXPRESSIONS. THIS GIVES A GOOD CONTRAST BETWEEN POSITIONS AND THAT HELPS YOUR ANIMATION. STUDY YOURSELF IN A MIRROR AS YOU SPEAK THE WORDS YOU ARE ANIMATING. PRONOUNCE THE WORDS VERY DISTINCTLY AND THE CORRECT POSITIONS WILL BE APPARENT.

### THE VOWELS

- **A AND I**
- **E**
- **O**
- **U**

### THE CONSONANTS

- **CDGNRSYHZ**
- **W AND Q**
- **MB AND P**
- **L (SOMETIMES LIKE DORTH)**
- **F AND V** (SOMETIMES LIKE DORTH)

NOW BELOW TO HELP YOU GET STARTED—I’VE COMBINED A FEW MOUTH POSITIONS TO MAKE WORDS:

- **HELLO**
- **PETE**
- **FINE**
- **DAY**
- **ISN’T**
- **IT**
- **HOW**
- **ARE**
- **YOU?**

ANOTHER THING TO REMEMBER IN DIALOGUE: WHEN ANIMATING A GROUP OF WORDS, STUDY THE WAY THE WORDS MIGHT BE QUICKLY SPOKEN TOGETHER; IT’S BETTER TO FOLLOW THIS OVER-ALL MOUTH PATTERN, AND HOLD DOWN OR MODIFY INDIVIDUAL SYLLABLES NOT IMPORTANT TO THE WHOLE.
HOW CARTOONS ARE MADE
The simplest form of animation is the "flip" book. Near the edge of a note book draw a dot, circle, or skeleton, and on the next page draw the same figure slightly progressed. Do this for 15 or 20 pages then flip the edges and an illusion of movement will be created. Good animators retain the same spirit of fun and simplicity of the "flip" book in their work.
In the film studios this same basic idea is enlarged upon. Pencil drawings are made on paper (10 1/2" x 12 1/2") by animators and their assistants; this work is then traced in ink on celluloid transparent sheets, and opaque colors are painted on these. Series of inked and painted celluloids are then photograpgied in sequence on a painted background. The motion picture cartoon film thus made is then projected on a screen.

HOW TO MAKE A BOARD AND USE IT
You will be greatly aided by the use of an animation board in your study of this medium. Buy some unrulé loose leaf note book paper about 10" x 12" which is punched with two holes. Construct pegs of wood or metal on your board (as illustrated) so that the paper fits snugly over the pegs. The glass should be the same size as the paper you use.

With the light on in your board you will be able to see thru several sheets of paper and note how your series of drawings vary in position. Visualize and plan your action, then start with a key drawing or "extreme." The next "extreme" in your action should be made on another sheet of paper, with the lights on so that you can see and work from your proceeding position. Follow this procedure until all the extremes of your action have been "roughed" in, then make the drawings between the "extremes" to tie the action together.

If your background does not move to right or left, your scene is known as a "still." If the background moves your scene is a "pan" action, and is called a "pan" scene. Remember during a "pan" action, everything that touches the ground moves with and at the same speed as the "pan," for example, feet that touch the ground in a walk or run, etc.

POINTERS ON ANIMATION TO REMEMBER
1. Work "rough" in laying out animation. Feel out the basic main construction of all your drawings in a scene first. Put in details later. The drawings on pages 38 and 39 are "roughs." Clean-up drawings like pages 36 and 37 are made similar to tracings by working over "roughs" with a new sheet of paper on your animation board.
2. It is always a good idea to "anticipate" an action. In animating a character from one place to another, always go the other way first, as a baseball player draws back and cock his arm before a throw.
3. To help accent a pose on a character, go past it a little when animating into the pose. As in a quick print, the finger goes out fast and past for an instant the position is finally stops at.
4. Get "overlapping action" whenever you can. That is when animating a character from one point to another, don't go there with all parts of the character at once—Arrive at different times. See page 33.
5. Always get a good "follow thru" action on loose moving things, like coat-tails, etc. see page 33.
6. Remember "squash and stretch." Feel that your character is an elastic mass and not rigid like a glass statue. This type of distortion will give "sack" to your work. The "recoil" is a type of squash drawing and is essential for a feeling of weight in your characters. Study the bouncing ball action on page 22 also see page 2 and 33.
7. Appreciate the value of a good silhouette in your key drawings. A good drawing should be able to be blacked in solid, and the resulting silhouette still register the meaning and attitude of the pose.
8. Be alert to use exaggerated foreshortening in animation. It is very effective. For example, a character is swinging a bat around horizontally. When the end of the bat comes out and towards the camera, force the perspective on the bat and make that end very big. When it's on the other side of the character make that end very small.
9. Make "pose drawings." Visualize first, plan your action with "poses," then animate. Make a few drawings of how you think the character should look at the most important points in the scene. These should be carefully thought out in regard to dramatic presentation, interpretation of mood, character, action, and humor. Now with these drawings as a guide, start with your first "pose" and animate your "extreme" drawings toward the next "pose." When you reach this second "pose" do not use it as an "extreme" in your action if it does not fit into the logical progression of things, but make another that ties in with your animation. Then proceed toward the next "pose," etc.
10. When possible always make a "path of action" and "spacing chart" of the action you are animating. For example, a character is running away from the foreground to off in the distance and over a hill. Make two lines sketching the top and bottom of the character in right. Then mark off on this track the estimated position of each drawing. They will be separated widely in the foreground and spaced closely in the distance. This procedure of mapping your action will increase its accuracy and save time.
11. Under "timing" are these points: Vary the speeds of actions in a scene. A change of pace is usually highly desirable in animation. Learn the value of a "hold," that is the right amount of time to linger on a "pose" so that it will register with the audience for all it is worth. Study the art of going into and out of "holds," of cushioning into "holds," of when to "freeze", a "hold" dead still, and when to keep up subtle animation during a "hold" to give it that breath of life. These points and others under "timing" are the essence of the art of animation as they are also of the art of acting, and an animator is the actor of the animated cartoon film. It is your job as an actor to portray emotions, and that is highly individual. That is why animation is an art, an art of expressing your own personality. There is enough meat in these "pointers" for another book on advanced animation. Another subject untouched is the technical like pose movements—camera tracks—exposure sheets, etc. I have purposely stayed away from this stuff as it confuses the beginner.

Preston Blair
You Can Draw Why Not Try?