# MOTION GRAPHICS BITE 3623

LECTURE 5
INTRODUCTION TO MOTION GRAPHICS

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# Mo • tion (mo 'shen) Graph • ics (graf'iks) Graphics that use Video and/or animation technology to create the illusion of motion or a transforming appearance. These motion graphics are usually combined with audio for use in multimedia projects. Motion graphics are usually displayed via electronic media technology, but may be displayed via manual powered technology as well. The term is useful for distinguishing still graphics from graphics with a transforming appearance over time without over-specifying the form.

#### Introduction

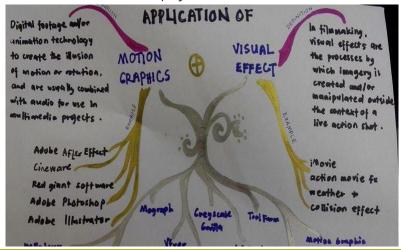
- Motion graphics are graphics that use video and/or animation technology to create the illusion of motion or a transforming appearance. Motion graphics are generally short pieces of time-based visual media which combine the languages of film and graphic design. This can be accomplished by incorporating a number of different elements such as 2d and 3d animation, video, film, typography, illustration, photography, and music. Common applications of motion graphics are film title sequences, animated logos at the end of commercials, lower-third elements, etc.
- Broadcast graphics are motion graphics has a strong presence in television.
   Commercial graphics, entertainment, and show packaging graphics are just a few of the venues in which motion design is found.

#### **Some History**

 There have been presentations that could be classified as motion graphics as early as the 1800's. Other sources, such as the 2003 Macworld Conference and Expo Web site, claim that it started in the 1990's.

#### Introduction

• **Motion graphics** are digital footage and/or animation technology to create the illusion of **motion** or rotation, and are usually combined with audio for use in multimedia projects.



#### **Computer Generated Motion Graphics**

- The term motion graphics originated with video editing in computing, perhaps to keep pace with newer technology.
- Before computers were widely available, motion graphics were costly
  and time consuming, limiting their use to only high budget film and tv
  projects. With the reduced cost of producing motion graphics on a
  computer, the discipline has seen more widespread use.
- With the availability of desktop programs such as Adobe After Effects,
  Discreet Combustion, and Apple Motion, motion graphics has become
  increasingly accessible. Motion graphics continues to evolve as an art
  form with the incorporation of sweeping camera paths and 3D elements.
  Maxon's CINEMA 4D is the industry standard for adding such effects,
  and is highly favored for its ease of use, integration with Adobe After
  Effects, and the addition of the MoGraph toolset.

# Example of motion graphics

- https://www.youtube.com/watch?v=TUC7iLvDMmo
- https://www.youtube.com/watch?v=p5\_WkM7S5Uo&ebc=ANyPxK pWMjlzNlZt4rfosQfsXNE2Cc3UlnxcEVU2eukSW9y1Y3vzbugb7pqZC3vzsfD\_DeQdCK7y-AykKFyFYdegyHBHSyp-q
- https://www.youtube.com/watch?v=4mglQSpCNro
- https://www.youtube.com/watch?v=rx7l5nDbkzc

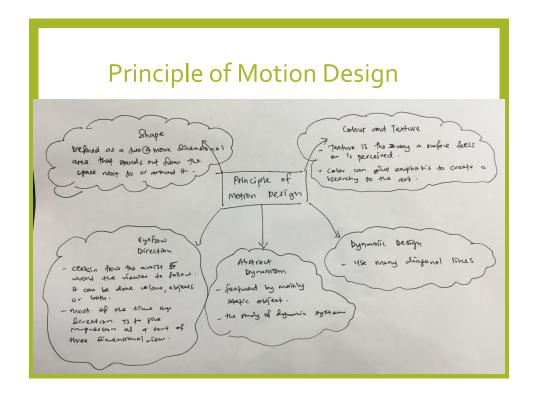
#### **Motion Design**

- Motion Design is the art of graphic design within the context of motion graphics such as film, video or computer animation. Examples include the typography and graphics you see as the titles for a film, or the spinning, three-dimensional logo at the end of a TV commercial.
- Although this art form has been around for decades, the graphics, the typography, and the visual effects within these mediums have become much more elaborate and sophisticated. The dramatic elevation of this art form is largely due to technology improvements.
- A typical motion designer is a person trained in traditional graphic design who has learned to integrate the elements of time and space into his/her existing skillset of design knowledge. Motion designers can also come from filmmaking or animation backgrounds.

# PRINCIPLES OF GRAPHIC DESIGN BASICS

#### **Practical Principles Of Motion Design**

- Motion design application is an object oriented application. Most software package works by importing media files from your computer, camera or any other data storage medium. These can be still images in pixel or vector format, movie sequences and audio files.
- When creating a composition, you insert one or more of your media files. The files appear on the composition window, as well as in the timeline.
- Layers have properties which you can manipulate such as position (x, y and sometimes Z), scale, rotation, opacity, etc. Layers merge with each other by using transparency information provided by the alpha channel and blending modes, which change the way a layer affects the layers below. Almost all the modifiable properties can be keyframed, which means that its value can be stored at certain positions through time. And this is one of the basic principles in computer animation, the use of the computer to interpolate values between keyframes through time.



#### 1. Animation Aspects: Shape

https://vimeo.com/63508847 https://vimeo.com/69104999

https://www.youtube.com/watch?v=saHbgr874.

Change in position never comes alone. Most often, a spatial displacement is accompanied by changes in shape, color, and texture of the object (more precisely, of the object's perceived image). So, in the foundation of an animator's skills lies the ability to persuasively combine different aspects of motion.

Shape is perhaps most affected by an object's actual motion, and it's easy to understand why: both shape and position are spatial features, and when we put the object in motion as a whole, it is only natural to expect that parts of its contour will, to same extent, displace relative to each other. When this is neglected in computer animation, the resulting "solid body" motion may seem flat, rigid, mechanistic. "Shaping motion" is not always necessary or feasible, to prevent motion from looking monotone, some methods can be used to modify the motion pattern itself.

## Shapes

- Circle, square, and triangle are the three basic shapes used in graphic design.
- Perhaps the most familiar shape to desktop publishing is the square (and rectangle).
- Paper is rectangular. Most text blocks are square or rectangular.
- While you may encounter printed projects cut into other shapes, most circles, triangles, and freeform shapes in desktop published materials are found on the page within the graphics or in the way the elements are

placed on the page.

## Shape



The logo uses implied shape and lines to create the E and the beebody. This practice of implied shape is often referred to as Gestalt theory, which basically states that you can infer a whole by only seeing its parts. There really is nothing to that bee body other than three lines, but you see the striped body of a bee because your mind says you should.

# Shape



> Typography can take shape, too. With weight (bold, light), leading, size, style (regular, italic), tracking or kerning, and word wrap, you can control the shape your type takes. Also pay attention to the shape of your body copy and remember that you can wrap it around images or make it take on shapes of its own to incorporate it into the rest of the design.

#### **Animation Aspects: Colour & Texture**

- Disney movies, creative as they are in animating the shape of objects, are mostly static (although admittedly very colorful) in the aspects of color and texture.
- Modern computer technologies have transformed the flat color animation cels with uniform black outline into a way of stylisation rather then true technical necessity. Using computers, it is easy to algorithmically change not only the outline of the animated objects but the color and texture of their interior as well. With the overwhelming abundance of options, tools, and effects in graphic programs, once again the principle of referring to the physical world for guidance should be used.
- During motion, they can vary the brightness and, to a lesser extent, saturation because of varying lighting conditions along the motion path can turn a monotonous linear motion into an eye catcher.

#### Color

- Color can be used to elicit specific emotions and reactions.
- Red is typically thought of as an attention-grabbing, hot color.
- Blues are more calming or convey stability. Some color combinations are used to create a specific identity (corporate colors, school colors) or may be used in conjunction with texture to simulate the look of other objects (the look of plain paper wrapping or neon lights, for example).
- Color may provide cues for the reader.

# Color

• Color holds the most critical appeal to emotions out of all the elements of design!



# **Complementary Colors**



- Pick a color on the color wheel then draw a straight line across the color wheel, this is the color's complement. These colors are basically opposites.
- On the wheel we started with yellow and its complement or opposite is violet. The complementary colors are used to offset the main color and are thought to complete each other.
- There are also split complementary colors which means that once you pick the complimentary you choose one of the colors next to it giving it a more subtle look.

# Analogous Colors > This is when you choose a color on the



- This is when you choose a color on the color wheel that is next to the color you are choosing. If we choose yellow the analogous colors would be yellow green and yellow orange.
- This type of color choice is great when you don't want to match the exact color or if you want to use your art work and/or accessories to create the dramatic colors in the room highlighting the art.
- Quite often neutrals are used when highlighting the art work such as white, off whites, grays and browns, even black.

#### **Triad Colors**



- ► Choose a color on the color wheel then draw an equilateral triangle to find the two other colors.
- You will notice that each color has 3 colors between them to form the triangle.
- ▶ Let's choose violet, the other two colors will be orange and green. These colors would be the secondary colors. The approach organizes the colors in terms of purity but can be a little more difficult to work with.

#### Color

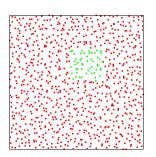


•This packaging uses the colors orange and green, two pieces of a triad (purple would be the other one). This produces an interesting and often unexplored combination; it's not quite a complimentary, but the colors still go well together.

# **Dynamic Color Spreading**

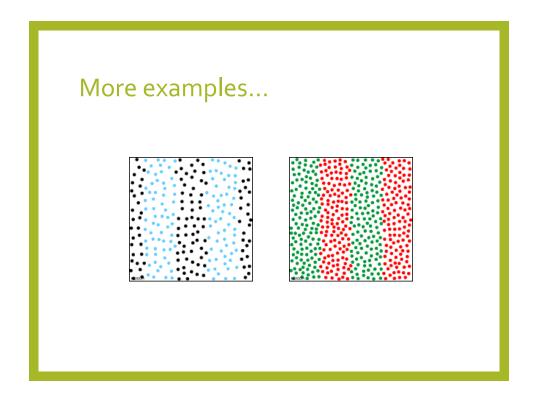
Dr. Hoffman and Dr. Carol Cicerone

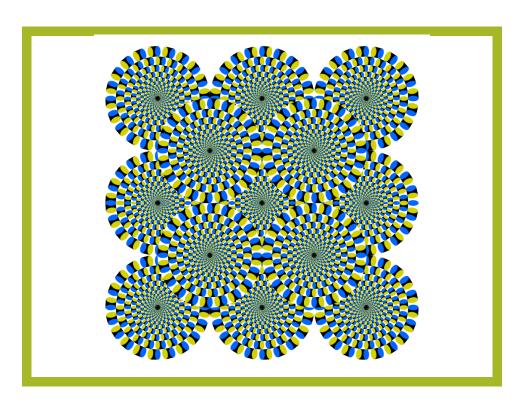
• Creating motion through color with stationary dots.











#### **Texture**

- For desktop publishing, actual texture is the feel of the paper.
- Is it smooth to the touch or rough?
- Textures can also be visual. On the Web, especially, backgrounds that simulate familiar fabrics, stone, and other textures are common

#### **Texture**



•Free People integrates the unique textures and patterns of its textiles, so the design not only is a great example of texture, it's also an excellent use of incorporating the product into the design. The textures used in this site give it a very earthy, down-home, yet semiexotic feeling.

#### **Non-linear Animation**

- There are a number of useful tips to avoid monotony in motion. Perhaps
  the most generic piece of advice that can be given in this regard is:
  eliminate linearity. Although a static straight line has a certain aesthetic
  appeal due to its geometric perfection, a monotone linear motion is much
  less likely to work satisfactorily in most cases, it's simply boring. Try
  these few tips:
  - Accelerate or decelerate all instances of motion. Constant speed adds a mechanic feeling to any movement. When you need some object to move and then stop, or to stay for some time and then start moving, gradual decelerating or accelerating is a must; but even for the cases where an object just keeps moving without stopping (for example, until it gets out of sight), adding some second derivative (which is the mathematical equivalent for the physical concept of acceleration) will make its movement more natural and engaging.

#### **Non-linear Animation cont...**

- Use curvilinear motion paths instead of linear ones where possible, even if the curve is a simple circle. When moving an object along a linear path, rotating it at some degree during the shift will help to enliven it. Using rotation in combination with acceleration or deceleration will make a motion much more organic.
- Adding a third dimension to your motion may compensate for its
  too linear character. For e.g., a simple trick of enlarging or reducing an
  object dynamically thus giving it an impression of "emerging" or
  "sinking" relative to the plane of the screen. Again, this technique can
  be used in combination with linear motion, accelerating/decelerating
  and rotation.
- Color and texture effects can, to some extent, mask the linearity of a motion. Combined with a gradual darkening/lightening, transparency variation, or a moving highlight such as that of Fig. 2, even an absolutely monotonous progression may turn into an interesting experience.

#### **Non-linear Animation cont...**

- About any <u>transformation</u> of an object, such as shape morphing or tweening, forces us to watch it with much closer attention, even if the object is immobile or involved in a simple linear motion.

  Transformations are something computers can do amazingly well, and creative opportunities are enormous.
- With *linear motions*, try, at the very least, to make them as *short* as possible; avoid frustrating the viewer by pushing an object too far in a too monotonous manner. In addition, use a number of short linear movements of different objects instead of a single object's complex motion path. With a vector format such as Flash, you can use multiple instances of the same object moving simultaneously in different points and directions to create an impressive "swarming" effect with minimum bandwidth. Generally, always attempt to compress your movie's timespan by partially overlapping consecutive animation stages so that the entire clip looks more dynamic and the possible deficiencies of each single object's behavior are less noticeable.

#### **Dynamic Design**

https://www.youtube.com/watch?v=2etlenJpLbM https://www.youtube.com/watch?v=num1QZ0nOrM

- Motion can be thought of as a direct opposite of balance. A moving object, be it an explicitly moving cartoon character in an animated banner or an implicitly moving (but actually static) photo of a jumping athlete, makes us feel that not only this element is about to move but the whole scene will probably change.
- This instability, when obvious, adds a unique dynamic flavour to a design.
  However, "dynamic" not always means "unstable"; hardly any composition
  can be successful without subtle yet important bits of motion spread over
  the page.

#### **Abstract Dynamism**

Visual simplicity (Fig. 1) is an essential prerequisite for any object's
dynamic function: we tend to feel that a too complex of intricate object
would have troubles moving swiftly. Quite often by just simplifying the
structure of an element, by streamlining it and by arranging its parts in a
more obviously hierarchical pattern, we reduce the "drag" (in aerodynamic
terms) and reveal the intrinsic dynamism in that element.



Fig. 1: Dynamic simplicity (the figure on the left is more dynamic than that on the right)

#### **Abstract Dynamism cont...**

 Diagonality, rotation, non-horizontality and non-verticality all have, as we've just seen, a strong motion implication (Fig. 2). Physical world around us offers plenty of examples showing that any non-architectonic object is either falling, or jumping, or simply unstable - in a word, dynamic.



Fig. 2: Dynamic rotation

Slant, or skew, is a special case of rotation with some parts of the objects's outline still horizontal or vertical, and others, rotated at some angle (Fig. 3). Here, the architectonic parts of the contour define the direction of the motion, while the slanted parts add force to it and make it more expressive. Physical analogs for this feature would include deformations in moving objects caused by inertia or aerodynamic drag. It is this effect that makes sans-serif italic typefaces so expressively dynamic - especially when compared to serif italic which are not slanted variants of the roman faces, but independent imitations of handwriting without much dynamism.



Fig. 3: Dynamic skewing

#### **Abstract Dynamism cont...**

- Curvature range leads to adding more explicit dynamism to the shape, as
  we go from a perfectly still and symmetric circle with its zero curvature
  range to expressive Beziers, and further on to the forms made of straight
  lines and sharp corners (e.g. triangles and arrowheads) which, indeed,
  represent nothing but the ultimate case of infinite curvature range.
- In the world of textures, dynamism is most often expressed by various blur themes, notably by the "wind" and "motion blur" texturizing effects. Indeed, anything moving swiftly enough appears blurred to the human eye, and imitating that blur by design means is a sure way to add dynamic flavour to the composition. (Fig. 4)

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Fig. 4: Dynamic texturizing

 Asymmetry of any kind, be it in the aspect of form, size, or color, is another source of dynamic implication (Fig. 5). In fact, what is called asymmetry is a single object version of what we call contrast for a couple of objects; much as contrast is perceived as such only when the objects are visually linked and not just dissimilar, asymmetry may only produce any effect when we get the feeling that the shape could be symmetric but isn't. Dynamic eye flows induced by pairs of contrasting objects are the subject of a next section.



Fig. 5: Dynamic asymmetry

#### **Abstract Dynamism cont...**

• Now, imagine that all of the features listed above do not apply, and what we have is a simple, perfectly symmetric shape without any slant, rotation, or blur. Even in this case some traces of dynamism are present in the object, and it's easy to see that its inclination to move mostly depends on the object's proportions (Fig. 6) - in other words, on whether its height is close to its width, or the dimensions differ considerably. Simply put, a stretched rectangle is more likely to imply some dynamism than a square.



Fig. 6: Dynamic proportions

- Dynamizing a line A straight line (i.e. an ultimately stretched rectangle), even being perfectly horizontal or vertical, would have a relatively strong dynamic power. Much as a naturally dynamic image introduces a line of motion, any visible line creates some dynamism. Such a line drives our eyes away, working as a railway to quickly travel from one part of the composition to another.
- The dynamic component of a straight line mostly depends on its ends are formed. An unconnected line (Fig. 7, a) not only has no direction of its own. Only a small fragment of the line near the middle can serve as a guideline for the eye, while at the ends, any movement tends to slow down we just don't see any reason to keep running along the line as soon as we note that the end of the path has nothing to offer to our perception.

#### **Abstract Dynamism cont...**

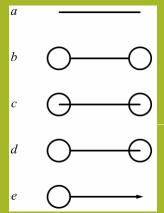


Fig. 7: Dynamising a line by playing with its ends

- The first attempt to accelerate the dynamism of the line by attaching some objects to its ends (Fig. 7, b) is not too successful. The line ends failing to attract the viewer's eyes.
- By changing the method of attaching the line to an object: from "grows out of" to "jumps into" (Fig. 7, c), although it's still symmetric and therefore directionless, but more dynamic than before, it looks like the circles do not belong to the same object as the line; they work as separate magnets driving our perception towards the ends of the line.
- (Fig. 7, d) has the strongest dynamism of all samples studied in this section. Its left end pushes and the right end pulls, resulting in an powerful dynamic flow along the line, from left to right. It is also clear that if the right end simply "hangs in the air" as in Fig 7, e (or if the right circle becomes too large in d) then the dynamic force is pretty much diminished even if we attempt to keep it up by adding an arrowhead on the loose end.

#### **Eyeflow- Direction**

- Even in a seemingly static picture a trained eye can discern a complex pattern of interacting movements.
- Whenever we establish a contrast link between two objects in a composition, we thus encourage the viewer to pay a special attention to this pair of elements - to compare them and analyze the way their relation works.
- Our eye will more naturally slip from one object to the other, whereas
  "ascending" back will require some force of concentration. We tend to
  easily glide from less distinctive, less expressive, less complex objects to
  those more eye-catching and information-packed.

#### **Eyeflow- Direction cont...**

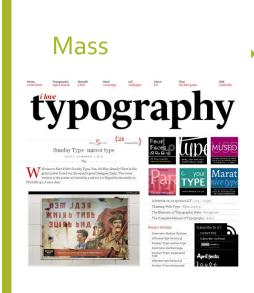
- The habits of reading text (from left to right) and watching objects fall (from top to bottom) make these two directions more natural for the visual perception in general and eye movements in particular. This results in the "gravity field" with vaguely diagonal direction (from top left to bottom right) that overlays the page and makes some of the contrast links much easier to follow than others.
- This inherent directionality of perception should always be taken into
  account in design. Fig. 8: the company name is either below or on the
  right from the graphic part this is easy to explain if we consider that an
  eye flow always starts from the graphic and lands on the text.



Fig. 8: The two most common logo templates suggest the most natural directions for eye flows from images to text

# **Graphic Design**

• The process and art of combining text and graphics and communicating an effective message in the design of logos, graphics, brochures, newsletters, posters, signs, and any other type of visual communication



It is easy to distinguish the header from the headline, byline, subheaders and body copy. This is because they vary in size and your eye is naturally drawn to the largest element first. Note the drop cap, too; it's a great way to indicate where the reader should start and an example of using size to direct the viewer's eye.

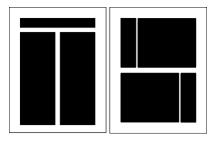
# The Big Picture

- •Different instructors or designers have their own idea about the basic principles of design but most are encompassed in the 6 principles of:
  - balance
  - proximity
  - alignment
  - repetition or consistency
  - contrast
  - white space

#### **Balance**

- Primarily there are three types of balance in page design:
  - symmetrical
  - asymmetrical
  - radial
- Additionally, we'll discuss:
  - the rule of thirds
  - the visual center of a page
  - the use of grids

# Symmetrical Balance



In a design with only two elements they would be almost identical or have nearly the same visual mass. If one element was replaced by a smaller one, it could throw the page out of symmetry. To reclaim perfect symmetrical balance you might need to add or subtract or rearrange the elements so that they evenly divide the page such as a centered alignment or one that divides the page in even segments (halves, quarters, etc.).

# Symmetrical Balance



 Vertical Symmetry — Each vertical half (excluding text) of the brochure is a near mirror image of the other, emphasized with the reverse in colors. Even the perfectly centered text picks up the color reversal here. This symmetrically balanced layout is very formal in appearance.

# Symmetrical Balance



Vertical & Horizontal Symmetry — This poster design divides the page into four equal sections. Although not mirror images the overall look is very symmetrical and balanced. Each of the line drawings are more or less centered within their section. The graphic (text and image) in the upper center of the page is the focal point tying all the parts together.

# Asymmetrical Balance



This page uses a 3 column format to create a neatly organized asymmetrical layout. The two columns of text are balanced by the blocks of color in the lower left topped by a large block of white space. In this case, because the white space is in a block shaped much like the text columns, it becomes an element of the design in its own right.

#### Radial Balance

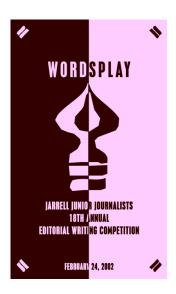


 Here we have an example of radial balance in a rectangular space. The year represents the center of the design with the subtle color sections radiating from that center. The calendar month grids and their corresponding astrological symbols are arrayed around the year in a circular fashion.

#### Rules of Thirds

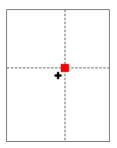
- The rule of thirds says that most designs can be made more interesting by visually dividing the page into thirds vertically and/or horizontally and placing our most important elements within those thirds.
- Take this concept a step further, especially in photographic composition, by dividing the page into thirds both vertically and horizontally and placing your most important elements at one or more of the four intersections of those lines.

#### Rules of Thirds



• In this vertically symmetrical layout the headline appears in the upper third of the page, the logo in the middle third, and the supporting descriptive text in the lower third. The most important information is in that lower third and anchors the page.

#### Visual Center and Balance



- Placing important elements or the focal point of the design within the visual center of a piece is another design trick.
- The visual center is slightly to the right of and above the actual center of a page.

#### Grids and Balance



- ▶ Sometimes the use of a grid is obvious.
- This asymmetrically balanced design uses a simple three column grid to ensure that each text column is the same width and that it is balanced by the nearly empty column on the left.
- ➤ The grid also dictates the margins and ensures that the page number and header appear in the same place on each page..

# **Proximity**

• Keeping like items together and creating unity by how close or far apart elements are from each other.

# Alignment

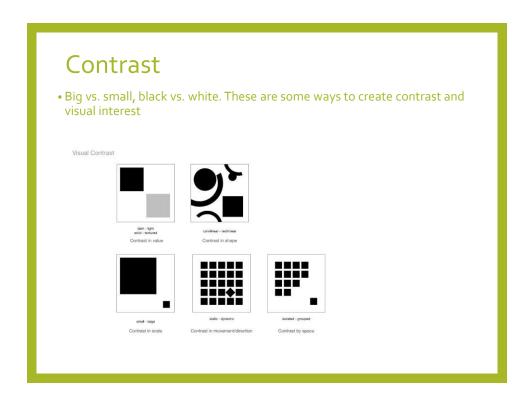
- While centered text has its place it is often the mark of a novice designer.
- Align text and graphics to create more interesting, dynamic, or appropriate layouts.

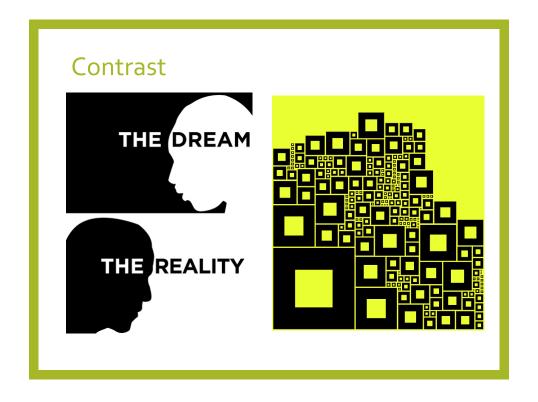


# Repetition/Consistency

• Consistent and balanced look through different types of repetition



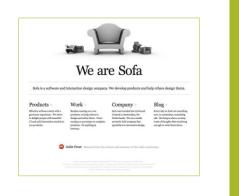


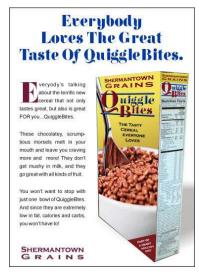


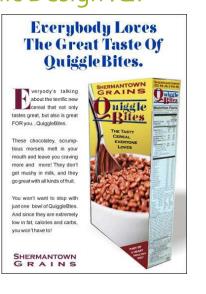
# White Space

• The art of nothing is another description for this principle.









#### Everybody Loves The Great Taste Of Quiggle Bites.

veryody's talking about the terrific new cereal that not only tastes great, but also is great FOR you...QuiggleBites.

These chocolatey, scrumptious morsels melt in your mouth and leave you craving more and more! They don't get mushy in milk, and they go great with all kinds of fruit.

You won't want to stop with just one bowl of QuiggleBtes. And since they are extremely low in fat, calories and carbs, you

SHERMANTOWN GRAINS



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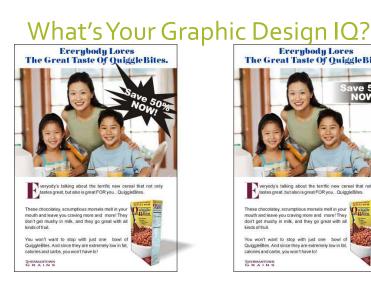












SHERMANTOWN GRAINS



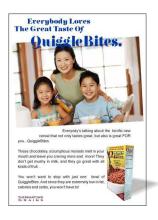








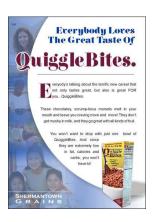




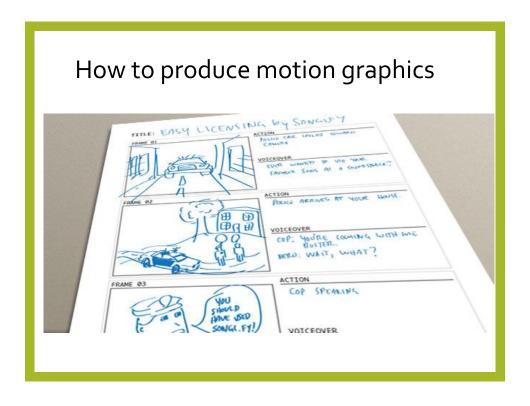












# **Getting Started with Motion Design**

- 1. Start with an idea (of WHAT you want to communicate)
- 2. Make sketches (with the mouse, by hand, by tearing out sheets from fashion magazines, by photographing... whatever feels right)
- 3. Make storyboard before animating to visualise your idea
- 4. Plan the project / workflow (assets, separation in sub-files and scenes)