

2D Design Basics

Points, Lines, and Planes | Gestalt–Shape, Balance, Rhythm, Unity | Color

National Visual Art Standards

VA:Cr1.1.IIa: Individually or collaboratively formulate new creative problems based on student's existing artwork.

VA:Cr1.2.IIa: Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.

VA:Cr2.1.IIa: Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.

VA:Cr3.1.IIa: Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine works of art and design in response to personal artistic vision.

VA:Re9.1.Ia: Engage in constructive critique with peers, then reflect on, re-engage, revise, and refine works of art and design in response to personal artistic vision.

Guiding Questions

- Where do we see points, lines, and planes used in art and designs (logos, symbols, etc.) around us every day?
- How do designers and artists use points, lines, and planes to communicate visually?
- How can points, lines, and planes be used to convey emotions or feelings, shapes or textures?

Objectives

Students will...

- Demonstrate an awareness of the formal role points, lines, and planes play in art and design by making photographs and/or drawings that focus on these formal elements;
- Make images—photographs and/or drawings—identifying points, lines, and planes in their everyday environment;
- Make drawings, photographs, or sculptures/installations using points, lines, and planes to express an emotion, sensation, or action word;
- Constructively critique their peers on their use of points, lines, and planes to communicate visually, respond to critique from their peers and the teacher by editing their work, and write reflections on their work, the work of their peers, and how that work has changed based on critique.

Time Period: at least three classes, 45–60 minutes in length.

Lesson Introduction: What are Points, Lines, and Planes?

Points, lines, and planes are the basic building blocks of design. From these elements, designers create images, icons, textures, patterns, diagrams, animations, and typographic systems. In this lesson, students will learn to identify these basic design elements in art and design, apply them to expressive compositions, and critically evaluate one another's use of points, lines, and planes to communicate visually.

- Points, lines, and planes are fundamental elements for creating complex design systems, and are frequently combined to create texture, volume, shape, and a sense of space.
- By first identifying points, lines, and planes in the environment around them, and then using them to create expressive compositions, students will develop the skills in observation and image-making to make more complex visual communication design, as well as being prepared to identify and discuss their use in design and art making.

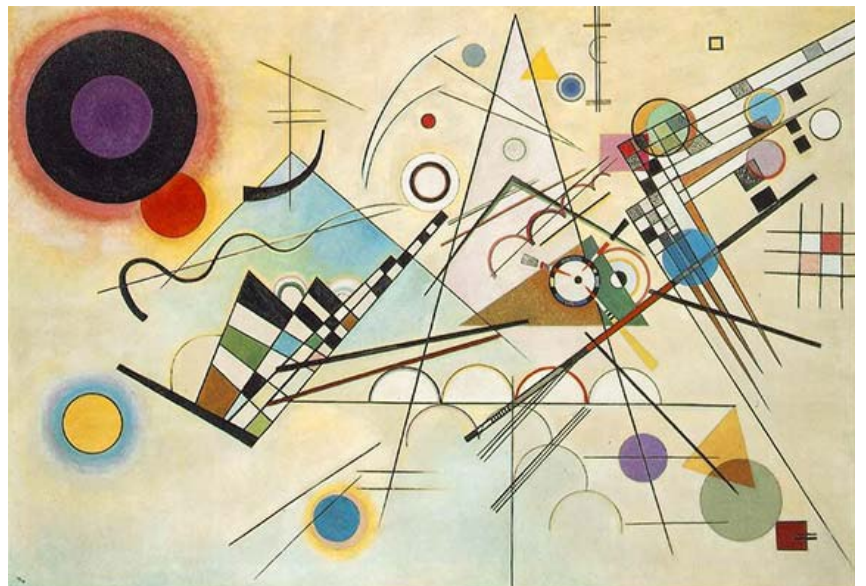


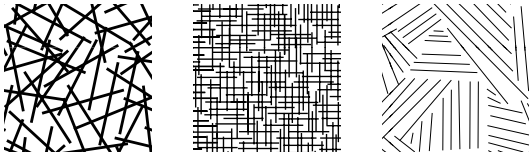
FIGURE 1: *Composition VIII*, 1923, Wassily Kandinsky. Wassily Kandinsky used points, lines, and planes to create a pictorial space.

Vocabulary

Line: a line is an infinite series of points. Graphically, a line is the connection between two points, or it is the path of a moving point. A line can be a positive mark or the space between two or more positive shapes. Lines appear at the edges of objects and where two planes meet. Lines can exist in many weights; the thickness and texture as well as the path of the mark determine its visual presence. Lines can be straight or curved, continuous or broken. When a line reaches a certain thickness, it becomes a plane. Many lines used together can create volumes, planes, and textures.



Visually, a line (in red, above) can be thought of as marking the path of a point as it moves through space, or linking the space between two points (in gray, above). Lines are used in perspective drawing, for example, to imply a sense of depth or distance.

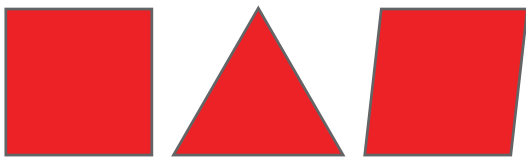


Individual lines placed together in orderly or random patterns can be used to create a sense of texture (e.g., a basket weave) or a sense of volume or depth (e.g. crosshatch shading) in an image.

Locus: a particular position, point, or place; the effective or perceived location of something abstract.

Negative Space: negative space is the space between objects or the parts of an object, for example the area between a cup and its handle. Also the space between an object and the edges of the composition, i.e. the space around an object or between lines. The opposite of negative space is positive space.

Plane: a plane is a flat surface extending in height and width. A line closes on itself to become a circle, or intersects with other lines to create a shape, a plane with edges. A plane can be parallel to the picture surface, or it can skew and recede into space. Ceilings, walls, floors, and windows are physical planes. A plane can be solid or perforated, opaque or transparent, textured or smooth.



As lines (in gray, above) intersect with one another, the interior space they create is known as a plane (in red, above). All planes and shapes are ultimately defined by the lines at their perimeter.

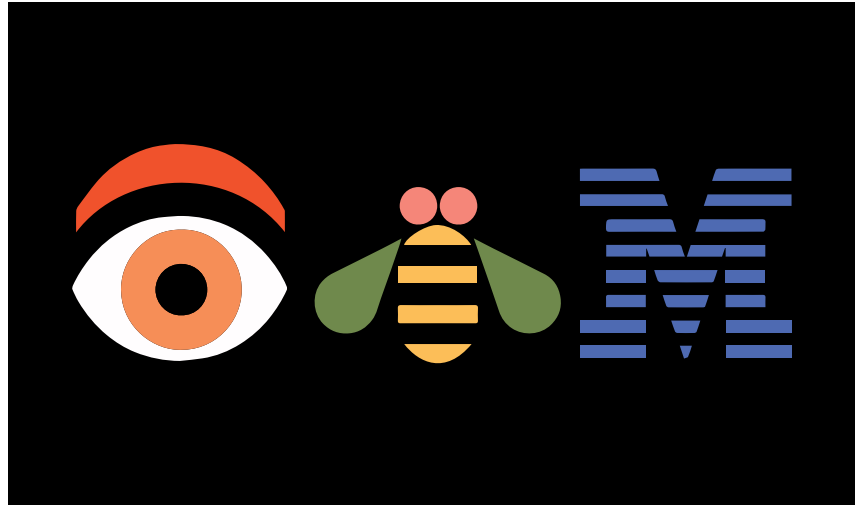


FIGURE 2: *Eye Bee M*, 1981, Paul Rand. Paul Rand used points, lines, and planes to express IBM's brand with humor.

ACTIVITY PROCESS

Engagement (the hook—motivation and relevancy)

After introducing the students to the unit and examples of relevant art and design, as they are finding and sketching their own examples of the principles, ask the students to discuss how the successful use of points, lines, and planes play into the design of their favorite logos? What is it about these design details that influences why they like some logos and marks more than others? Where do students think these artists and designers are finding inspiration in the environment? (e.g. the Beats by Dre logo—seen in Figure 3—not only resembles a lowercase “b,” but also a pair of headphones on a head.)

DAY 1

Introduction



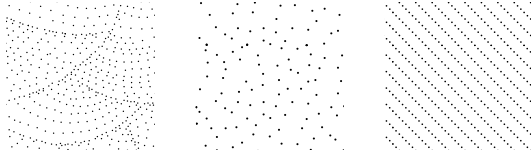
FIGURE 3: (left to right) Beats by Dre, Adidas, and Volcom marks. Students are brand-savvy and can often identify a brand based solely on a few fundamental design characteristics. Ask them to draw parallels between what they're making in class and what they like about the design of their favorite logos.

After defining points, lines, and planes and introducing the role they play in graphic design and showing art with relevant visual aids from the Artists/Designers to Reference section (and others if possible), the teacher should break down the referenced work/visual aids into their simplest components. For example, in Kandinsky's *Composition VIII*, the artist uses circles as points to create a **locus** of visual interest, while individual lines create a sense of perspective or space. When the artist combines lines, they begin to create shapes (triangles, rectangles, etc.) or even cross-hatched textures. A similar analysis can be made of any examples shared with the students.

Point: a point marks a position in space. Graphically, a point takes form as a dot or visible mark.



Points can most commonly be thought of as a dot or the most fundamental of marks that combine to form a larger image.



Together, individual points can be used much like lines to create a sense of motion, density, or texture. Georges Seurat and other Pointilist artists used this technique to create images from points.

Positive Space: positive space is the area or part of a composition that the subject occupies. For instance, the positive space could be a vase of flowers in a still life painting, a person's face in a portrait, the trees and hills of a landscape painting. The area around the positive space is called the negative space.

Review and Retain: Describe the points, lines, and planes individually and in combination when showing students work by the referenced artists and designers, and other visual aids. Ask the students to recreate what they see in their notebooks during discussion using only points, lines, and planes. Ask them to explore positive and negative space in their sketches.

Language Demands: Focus on language function—

1. Can students appropriately differentiate between points, lines, and planes as fundamental visual concepts when discussing their active art making? Informal assessments of language use by the teacher while students sketch or revise their work are ideal. Teachers should talk to students about the images they are making, using and reinforcing the vocabulary while offering constructive critique and guidance. In these conversations, teachers should be actively listening to ensure students are using the vocabulary correctly, and offering constructive correction when students confuse or misuse terms.
2. Can students describe the role of positive and negative space when using points, lines, and planes?
3. Can students use unit vocabulary correctly when discussing their work and the work of their peers?

Language Assessment: Students should use terms appropriately in critique, and be able to correctly describe how points, lines, and planes relate to one another and to positive and negative space (see definitions, above) and are used/combined by artists and designers to create work (either samples provided in class or that they locate on their own). Teachers should use and reinforce the vocabulary during class critiques and discussion as an informal assessment, and formally assess the students use of vocabulary in the written components of the course work that students submit at the end of the unit.

- Review the images shared with students. Looking at examples, discuss with students the role each element is playing in the composition or design, and how those elements interact with each other to create shapes, textures, volume, or a sense of motion.
- Ask students to find their own examples (either online, in magazines, or in the classroom) and discuss parallels between the artists discussed in class and what they find around them.

As they look, task the students with sketching what they see in their sketchbooks. Teachers should gauge where their class is with their observations and discuss the task with them. Discussion topics and questions could include:

- Comparing and contrasting the work of the artists and designers. (e.g. does one artist appear to favor lines more than another? If so, to what effect?)
- How are the artists and designers using points, lines, and planes to express themselves? To define shape, texture, or space?
- What brands, logos, or other marks do they have on their clothing or belongings in the classroom that make use of these principles? What do they like about those designs? Why?

Close the discussion and sketching session by creating student work groups and giving Assignment 1 as homework (see Assignment 1).

Assignment 1—Observing Points, Lines, and Planes in the Environment (Homework)

SCENARIO: Points, lines, and planes exist all around us, not only in art and design, but in architecture and nature. By becoming sensitive to these fundamental visual elements in their surroundings, students will be better able to apply them to their work.

OBJECTIVE: To identify points, lines, and planes in the environment, and create visual records (photographs or drawings) of those elements as students see them.

PROCESS:

1. Divide the class into three groups: point, line, and plane. Students within each group may work independently or as teams.
2. Students will explore the environment (the school, their home, town, workplace, etc.) for surprising or unique examples of their assigned principle (points, lines, or planes), documenting what they discover with their camera (see Figure 4). (Mobile phone cameras are ideal for this activity. Students without access to a mobile phone, digital camera, or printer can use their sketch or notebook

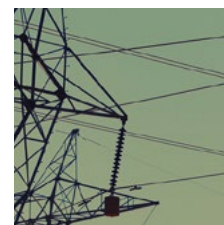


FIGURE 4: (left to right) Points, lines, and planes in the urban environment. Points, lines, and planes exist all around us. Where can students find them? How can one principle (e.g. a point) expand to define another (e.g. a line)? Do the "points" in the manhole cover above help define its shape? Can the "lines" of the power lines also define the edges of triangle (a plane)? How do the "planes" of the each individual brick describe the larger plane of the wall?

Materials

- Cameras
- Pens/pencils/markers
- Printer (either at home or in the classroom)
- Sketchbooks/paper/journals
- Scissors or art knife

Figures

1. *Composition VIII*, 1923, Wassily Kandinsky
2. *Eye Bee M*, Paul Rand
3. Beats by Dre, Adidas, and Volcom marks
4. Points, lines, and planes in the urban environment
5. Expressive words made with lines
6. *Tension*, Jason Okutake
7. Nuclear Disarmament and anarchy symbols
8. Barack Obama 2008 campaign logo, Sender LLC

Art Context, Cultural Connections and Relevancy

As fundamental elements of art and design, Points, lines, and planes can be used as simple—but powerful—expressions of ideas far more complex than brands for products. As people gather together to express support or unhappiness for social or political causes, beyond their voices, they often use signs and symbols to express their positions. Displayed at the head of an energized group of citizens, a simple design made only of lines, for example, can take on extraordinary power (see Figure 7).

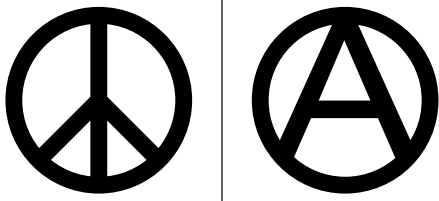


FIGURE 7: Nuclear Disarmament and anarchy symbols. Gerald Holtom's 1958 symbol for The Campaign for Nuclear Disarmament symbol (left), now widely thought of as the "Peace Sign" makes use of the same number and type of visual elements (three lines and a circle) as one of the symbols of the Anarchist political movement, the "Circle A" (right). Both are very simple graphic devices, but both are heavy with cultural symbolism and can be used to represent very different aspects of political and cultural thought.

Questions for students to consider:

- How have artists such as Wassily Kandinsky or George Seurat used the principles of points, lines, and planes to create expressive works of art?
- How have artists such as El Lissitzky used those same principles to create political art?
- How do designers combine the formal and expressive capabilities of points, lines, and planes to create designs that speak to us politically, personally, and as consumers?

to make quick, gestural drawings of their assigned principle in the environment.)

3. Once they have a number of images, students should review them and select their three strongest examples of their assigned principle. Task students with reflecting on the class discussion when making their decisions.
4. With their strongest images selected, students should print them and crop them (using scissors or a knife) to a square 6" or larger.
5. Looking at the three finished images, the students should write a single, brief summary of their decision making process, describing why they think each of their chosen images are successful.

SPECIFICATIONS: Each student (or group) will be responsible for presenting three finished, cropped images and their brief written summary at the beginning of the next class session.

HINTS: Encourage students to be open-minded as they look for examples in the environment. For example, two manhole covers might act as "points" defining the beginning and end of a "line" made by the street; seen from the correct angle, the "lines" of overhead power lines could be seen to define the perimeter the "plane" of a long rectangle.

Extensions

Students in need of additional challenges can find examples in the environment where points, lines, and planes interact with one another, or can make images where the distinction between one principle and another begins to become less distinct. Students with access to photo-editing software could combine their images into unique photo-montages that explore concepts and examples discussed in class.

DAY 2

Engagement (the hook—motivation and relevancy)

Refer the students to the work they've seen in class, and discuss with them how artists and designers use these design principles to convey not only formal, visual qualities, but also more intangible things, such as mood or atmosphere. How are those same principles used in the design of their favorite logos to convey a sense of being contemporary or "cool"? How could the students use these principles to express themselves graphically? How could they use these skills to convey feeling with their thoughts?

Assignment 1—Observing Points, Lines, and Planes in the Environment (continued)

- Have each student (or group) present their cropped images to the class. Taping or pinning work to the wall/corkboards will facilitate an interactive group discussion. (Teachers who use Visual Thinking Strategies (VTS) in their classroom may find this an excellent opportunity to apply it to the unit. More information on VTS can be found at www.vtshome.org)
- Lead the students in a discussion of what they made and what they see in the work of their peers. Discussion questions could include: How does the size of the element in the image change how powerful it is? Which images feel like they're in motion? Which



FIGURE 8: Barack Obama 2008 campaign logo, Sender LLC. This presidential campaign logo is a widely-recognized design making use of points, lines, and planes. Beyond simply describing a place (in this case, a field receding into the distance at sunrise), design can be a part of where we go collectively as a society, and not just a part of what we consume.

- What do students think of the way in which designers use seemingly simple visual elements to shape the visual discourse—the way in which our culture makes images that describe how we think, feel, act, and express ourselves—of our society (see Figure 8)?

Artists/Designers to Reference

These artists and designers provide excellent examples of points, lines, and planes used in both subtle and complex ways in the creation of their art and design. Examples of their work found in a library or Internet search will serve as excellent visual aids and prompts for discussion of points, lines, and planes with students.

- **Wassily Kandinsky (1866–1944):** an Abstract Expressionist, notable for his use of points, lines, and planes in the creation his compositions (see *On White II* for a key example).
- **El Lissitzky (1890–1941):** a painter, designer and co-founder of Suprematism, an abstract art based in geometry and highly influential in graphic design (see *A Proun*, c.1925 and *Beat the Whites with the Red Wedge*).
- **John Maeda (1966–):** a designer and technologist who uses digital technology to create abstract images. (See *City of Letters* and *Sunfloral* for examples).
- **Paul Rand (1914–1996):** a designer notable for his corporate identity design and his use of fundamental shapes to convey complex visual ideas (see Rand’s logos for Westinghouse, UPS, ABC, and Shell as instructive examples).

Other artists and designers who make relatable use of points, lines, and planes in their work that teachers could consider including are: **George Seurat**, **Vincent van Gogh**, **Milton Glaser**, and **Siggi Eggertsson**.



FIGURE 5: Expressive words made with lines. How can simple design principles like lines be used to convey complex feelings and emotions about different ideas?

images feel static? Why? Which images make use of **positive space**? **Negative space**? How does that change how students respond to them and what they see?

Closure

As you conclude the discussion of Assignment 1 with the students, ask them what they have learned by observing their environment with the critical eye of an artist or designer. Ask them to reflect on the discussion from the previous class and what, if anything, they’re seeing differently now.

- Prompt students to use those reflections as they write brief, individual reflections on Assignment 1 to inform their work in the following in-class activity.
- The teacher should share insights from the discussion thus far (observations, recalling valid points individual students have made, etc.) to assist the students with starting their reflections.

Assignment 2—Self-Expression with Points, Lines, and Planes

SCENARIO: Points, lines, and planes—while simple—can still be powerful and expressive tools for the artist and designer. What emotions does a straight line convey that a curvy line does not? Does a cluster of dots (points) seem more “powerful” than a single mark? Which seems like it might feel more “dangerous,” a circle or a triangle. Simple variations in pattern, shape, and direction can create a strong emotional impact in the audience.

OBJECTIVE: To create compositions using points, lines, and planes that creates an expressive visual response to the definition of a word.

PROCESS:

1. Ask the students to create a short list of words that do not have an obvious visual reference (unlike words such as “ball” or “stairs”). Have them think of action words or emotions (work, play, fear, hope, etc.).
2. From their lists, ask the students to select three words, and then visually express those words through the use of points, lines, and planes (one principle per word).



FIGURE 6: *Tension*, Jason Okutake. Here thread (as lines) strung between nails (as points) creates a highly expressive rendition of the word “tension.” From *Graphic Design: The New Basics* by Ellen Lupton and Jennifer Cole Phillips.

3. It may help the students to begin their work if the teacher models the assignment. On the white board, chalkboard, etc. quickly sketch works like those in Figure 5. How do the lines make “Play” feel playful when compared to “Work”? How could making the word “Build” out of neatly organized squares (planes) contrast with the word “Destroy” made out of scattered triangles?
4. The creation of these images can use any appropriate materials on hand—pen and paper, ink and brushes, etc. The focus should be on the design principles themselves (points, lines, and planes), and how students can use them to evoke feeling or action. As such, work should be in black and white.
5. Encourage students to look at the work of their peers and discuss what they see as they work on their own compositions. This is an excellent opportunity for the teacher to conduct informal, in-progress critiques. Ask the students to think about the images they’ve seen in class and made in Assignment 1 and to consider ways they can use them for inspiration. Prompt students to work quickly and “from the gut,” the assignment is about thinking through making.
6. When students have had an opportunity to explore all of the principles, have them gather to discuss their work as a group. This is an excellent time to reinforce and encourage the students to use the correct vocabulary and language function as they discuss and critique their work.
7. Ask the students to provide actionable feedback to one another based on what they have learned, such as: how might changes in the use of line make a composition more active? How could densely layering points in one place increase the sense of volume? How could removing points from another area increase the sense of lightness or space? Does the use of planes define an object or space? If so, how could it open or close? How would that change the composition or how expressive it feels?

8. Based on the feedback of their peers, ask the students to select one of their compositions for revision. Have them focus on revising the chosen composition in response to the input provided during the critique. Remind the students to continue to “think by making” as opposed to feeling it necessary to form a detailed plan before they revise; letting their own interpretation of the feedback fuel a “gut response.” Stress the expressive component of the task, and that there is no “wrong” answer to the challenge.

SPECIFICATIONS: Each student will produce three initial compositions, each representing a word through the use of a single principle (points, lines, or planes), as well as one composition revised based on the feedback received during critique/discussion.

HINTS: Encourage the students to work quickly and make multiple images before settling on a more finished direction. Suggesting that students think about how their favorite music makes them feel, or how they feel about their jobs, sports, hobbies, etc., and how they might make those feelings visible for others can give them a way into the task. (For example, a “boring” job might be represented by a series of regular, evenly spaced lines, while the excitement of “dance” might be expressed by a dense jumble of repeated points.)

Extensions

For classes with additional time, or students in need of additional challenges, ask them to use materials in the room to express themselves and their concepts sculpturally. Students could be encouraged to work with push pins to convey a concept in points, while those same push pins can be combined with string to physically express ideas using line. Paper cut and taped to the wall, desks, etc. can be used to express action or emotion words as planes moving in or responding to space (see Figure 6).

Closure

Toward the end of the second session, ask students to gather their work (if the work is sculptural, document with photographs or drawings). Ask the students to reflect on all of the images they have made, as well as those made by their peers outside of class. Have students write a brief statement (two to three paragraphs) reflecting on what they made, and especially how their work changed in response to the critique of their peers. Encourage students to make appropriate use of vocabulary and to reference the work of the artists and designers they saw/discovered at the beginning of the lesson. Other questions the students could be asked to consider in their reflection: where do they see points, lines, and planes used in day-to-day life to communicate (signs, advertising, branding)? How can they see themselves combining points, lines, and planes with complex ideas to convey both information *and* emotion? To help the students organize their thoughts, the teacher may provide a model reflection in the form of a commentary, answering the above or similar questions in response to a piece of work. Collect the images and reflection paper of each student at the beginning of the next class.

Checks For Understanding

Throughout the lesson encourage students to answer questions/participate in discussions/contribute to critique using the vocabulary introduced and making reference to the work of artists and designers

seen at the beginning of the lesson and that they have discovered on their own. Encourage students to verbally explore how one principle (e.g. a line) could make use of/respond to another (e.g. a point). As students work, reinforce the vocabulary and principles in your feedback and critique, asking questions to ensure comprehension.

Lesson Assessment Based On Objectives

Students should be assessed on their ability to demonstrate an awareness and proper use of points, lines, and planes in art and design in their own work and the work of other artists and designers. The correct use of unit vocabulary in class dialog and in written reflection should be accurate and appropriate to the work they make and see. All work produced in and out of class—as well as student writing—should be collected and analyzed. (See *Unit 2B Rubric.docx* for assessment and rubric ideas. Customize to meet class specific assessment needs.)



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