What is Design?

Everything human-made is designed.

Design meets the needs of humans (the user). Good design considers the long-term impact on the environment both visually and ecologically, and can do good for animals and nature.

Design provides structure, guidance, clarity, comfort, safety, beauty, efficiency, equality of experience (think about design for disability such as signage, ramps, etc.), opportunity, relaxation, and more.

Thanks to Ann Rosenthal for her assistance in developing this presentation!
Questions & Thoughts

Can you name ways that design has influenced your life?

Can you name a design challenge for contemporary society? For example, LAGI is addressing concerns about how renewable energy technologies look in our urban environments.

Why is design important?

Have you ever designed something? What?

Design surrounds us. You are benefiting from design right now. The screen that you are viewing this presentation on was designed. If you are able to see this text, then the screen was designed well. If you are visually impaired and you can hear this text, then it was designed even better.

We often forget about the countless hours of designing that has gone into the most fundamental and seemingly simple objects that we use every day. What if numbers were not visible on the touch pad for your phone? How would you know how to dial? Are the numbers big enough to read? Is your finger too big or too small for the touch pad? Could it be designed better for you (the user)? How?
How are things designed?

Anyone can be a designer.

Designers consider **FORM** and **FUNCTION** when solving a design challenge.

**FORM** is a design’s visual and physical characteristics.

**FUNCTION** is what it going to be used for. A function can be practical, like designing a chair for people to sit in. Or it can be to communicate something: a story, information, a feeling. Many designs do both. A chair can be just a chair, but it can also invoke a feeling, such as comfort.

Example:
Think of a favorite object.

Our example of a favorite object is a windmill.

What is the **FORM** and **FUNCTION** of a windmill?

Its **FORM** includes one or more lightweight, fin-like objects that catch the wind.

Its **FUNCTION** is to spin about an axis and convert wind into kinetic energy that can be useful for work (milling grain, pumping water, or generating electricity).

The design evolution of the windmill.
To **DESIGN** the **FORM** of something, we need to think about the **DESIGN ELEMENTS** and **PRINCIPLES**.

The **ELEMENTS** are like the ingredients in a recipe: the flour, butter, sugar, chocolate chips you mix together to make cookies.

The **PRINCIPLES** are the instructions for how you mix the ingredients together, like mixing the butter and sugar together before adding the flour.

We will start first with the **ELEMENTS** (ingredients) and then discuss the **PRINCIPLES**.
ELEMENTS OF DESIGN
Visual FORM is comprised of these primary ELEMENTS (ingredients)

LINE
Lines can be thick/thin, long/short, curved/straight, continuous/broken.

SHAPE
Shapes can be geometric, organic, or both. They can be figural (referencing some figure in the world like the duck on the left) or abstract (like the weird blob and square shape on the right). Note that shapes can also be positive (the solid object) or negative (the space between or around things).

PATTERN/TEXTURE
Pattern is a repeating design. Texture is similar to pattern but not as regular. Texture is tactile—you can feel it, like sandpaper. Or texture can be a representation of the physical texture, like a photograph of sandpaper.

COLOR
Color is comprised of hue (the actual color, such as red), value (how dark or light the color is, e.g., dark red or pink), saturation (how bright or dull, e.g., a dusty pink or shocking pink).

SCALE
Scale refers to the size of an object (a whole) in relationship to another object (another whole). In art the size relationship between an object and the human body is significant.
BALANCE & PROPORTION
Balance is the distribution of the visual weight of objects, colors, texture, and space as seen over the whole composition or design. In symmetrical balance, the elements used on one side of the design are similar to those on the other side. In asymmetrical balance, the sides are different but still look balanced. In radial balance, the elements are arranged around a central point. Proportion is the relationship of parts (scale or quantity) with other parts. Often our sense of pleasing proportion is influenced by natural forms including the human body.

EMPHASIS & FOCUS
This is the part of the design that catches the viewer’s attention. Usually the artist will make one area stand out by contrasting it with other areas. The area could be different in size, color, texture, shape, etc. Multiple points of emphasis can occur within one composition, establishing a sense of hierarchy and movement.

MOVEMENT & FLOW
The path along which the viewer’s eye moves through the work of art, often to focal areas, can be directed along lines, edges, shape, and color within the work of art. Compositions can be seen as static or dynamic, depending on the amount of visual flow they contain.

REPEITION & RHYTHM
Repetition works with pattern or shape to make the work of art seem active. The repetition of elements of design can create unity within the work of art. Rhythm is created when one or more elements of design are used repeatedly to create a feeling of organized movement.

UNITY VS. VARIETY
All designs must include both: Unity makes the parts look like they belong together; Variety provides interest. A common way to create unity is repetition: of shape, texture, color, size, etc. A way to create variety is to vary one or more elements, such as use of one color but different values (unity) vs. several colors (variety). Remember, there must be enough unity so that the design works together, and enough variety so it is interesting!
Economy/Simplicity

A famous artist, Hans Hoffman said, “The ability to simplify means to eliminate the unnecessary so that the necessary may speak.”

This means that everything in your design is there to communicate your message or realize its function. Things that are not necessary are eliminated, so there is no clutter to distract from your purpose.

Economy is a difficult and complex concept, but it is critical for good design!
Putting it all together!

The end-goal of an effective design is:

• The parts look like they belong together.

• The whole is greater than the parts—the entire design looks unified.

• All of the elements and parts are there for a reason; clutter is eliminated so the message or purpose is clear.

• The needs of the user have been met.
The following pages will introduce the elements and principles of design utilized in the same works of art that you saw in the Introduction to LAGI presentation.

While looking at these LAGI artworks discuss the use of:
1. Form and Function
2. Design Elements
3. Design Principles
4. Unity and Economy
Energy Duck wows us with an EMPHASIS on the larger than life FORM of the duck. The TEXTURE of the solar panels creates a sense of UNITY when juxtaposed against the mirrored bottom of the duck. All ducks, like humans, have bilateral SYMMETRY.
Asymmetrical **BALANCE** in the **SHAPE** of Light Sanctuary is dynamic and draws us into its maze-like **FORM**. The saturated **COLOR** creates a **CONTRAST** against the desert landscape. Curvilinear **LINES** create a softness of **FORM**.
REPETITION of LINE and SHAPE are used to create UNITY. The straight LINES of the Tensegrity structure juxtaposed against the curvilinear SHAPE of the wind-cloud create CONTRAST. The direction of the LINES from the ground to the sky create dynamic MOVEMENT. VARIETY of TEXTURE further creates additional CONTRAST.
The large curvilinear FORM define a vast SPACE within the center of Solar Loop. The REPETITION of LINES is a result of the photovoltaic material used in the sculpture. The reflection of the landscape creates UNITY between the artwork and the park.
REPETITION of SHAPE creates UNITY within the artwork. The use of scale creates BALANCE within the composition. The REPETITION within the arabesque pattern of the golden COLORED Sun and the VARIETY of figural SHAPES, like the crescent moon create moments of EMPHASIS as the eye follows the MOVEMENT of the circular LINES on the ground plane.
EMPHASIS is on the strong and bright center. Straight LINES outlining the exterior of the FORM are CONTRASTED against interior curves. BALANCE is created through symmetry of SHAPE across a horizontal plane.
ARTIST TEAM
Lucas Jarry, Rita Serra e Silva, Lucas Guyon, Marianne Ullmann

REPETITION of straight LINES creates a TEXTURED appearance and mimics the grass below the structure. There is CONTRAST between the curvilinear FORM of the overall composition to the straight LINES of the TEXTURAL details. There is a pleasing PROPORTION of the column height to the overall composition.
The way the curving **FORM** of the artwork follows the convex **SHAPE** of the landform creates **UNITY** between the artwork and the site. The horizontal and translucent **TEXTURE** evokes a feeling of **MOVEMENT** and an **EMPHASIS** at the point of the **SHAPE** where people visit the observation deck.
CRADLE TO CRADLE
Cradle to Cradle is a biomimetic approach to the design of products and systems. The complete life cycle of these objects are considered during the design process to ensure that the materials used are sustainably sourced, and that when the useful life of the product has passed, they materials are 100% recyclable, reusable, or biodegradable.

INTERNATIONAL LIVING FUTURE INSTITUTE
The ILFI is setting the highest standard of sustainable design by certifying buildings and neighborhoods that achieve long-term net-zero energy and net-zero water goals (in addition to other healthy building design requirements). This means that these buildings, just like plants in a forest, generate all of the energy and water locally that they require to operate.

SUSTAINABLE DESIGN
Sustainable design (also called environmental design, environmentally sustainable design, environmentally conscious design, etc.) is the philosophy of designing physical objects, the built environment, and services to comply with the principles of social, economic, and ecological sustainability.

SUSTAINABILITY
Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

SYSTEMS THINKING
Sustainable design considers the entirety of interconnected systems, aware of the long-term consequences of design decisions and identifying opportunities to create new feedstocks from what would otherwise be considered waste streams.

UNITED STATES GREEN BUILDING COUNCIL (USGBC)
The USGBC sets the building industry standard for sustainable design in architecture through the widely used LEED certification system.

DIG DEEPER!
Here are some definitions and organizations that might interest you. Also see the glossary at the end of the Toolkit.