Lesson Plan: The Architecture of Music

A Creative Exploration of Proportion, Pattern, and Gesture from Piano to Pavilion

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Materials Needed

- Access to a piano or keyboard
- Your copy of *Hanon-Faber: The New Virtuoso Pianist*
- Internet access to watch Steve Bass's "A Theory of Proportion in Architecture & Design" (Parts I, II, & III)
- Drawing supplies: Sketchbook or plain paper, graph paper, pencils, ruler, eraser
- A camera (phone is fine) to document your work
- Optional: Access to free 3D modeling software like SketchUp Free or Tinkercad

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Learning Objectives

By the end of this lesson, you will be able to:

1. **Analyze** the shared mathematical principles (like ratios and repeating patterns) found in both musical compositions and architectural designs.
2. **Translate** a musical pattern from a Hanon etude into a two-dimensional architectural elevation (a flat drawing of a building's facade).
3. **Articulate** the connection between the physical "gesture" of playing the piano and the expressive "form" of a building.
4. **Create** an original design for a small structure or object inspired by the mood, rhythm, and gesture of a piece of music you are practicing.

Lesson Activities

Part 1: The Invisible Blueprint - Discovering Common Ratios (Approx. 45 minutes)

Goal: To understand that both beautiful music and beautiful buildings are often built on the same mathematical ratios.

1. **Warm-up Question:** What does a perfect chord *look* like? What does a beautiful building *sound* like? Jot down a few initial ideas in your sketchbook. There are no wrong answers!
2. **Auditory Exploration:**
    - At your piano, play a C major chord (C-E-G). The sound is stable and pleasing. This is because the sound wave frequencies form simple, whole-number ratios.
    - Now play a C and the G above it (a perfect fifth). This interval, fundamental to music for centuries, has a frequency ratio of 3:2.
3. **Visual Exploration:**
    - Watch Steve Bass's "A Theory of Proportion," Part I, focusing on his discussion of the Golden Ratio (approximately 1.618:1).
    - Notice how this "pleasing" visual ratio appears in famous structures like the Parthenon.
4. **Connect the Dots:** The ancient Greeks believed that the simple mathematical ratios that

were pleasing to the ear (like 3:2) were the very same ratios that were pleasing to the eye. They saw music and architecture as two expressions of a single, universal harmony. In your sketchbook, write a short reflection on this idea: Why do you think humans find simple mathematical patterns so beautiful?

Part 2: From Etude to Elevation - Translating Pattern into Form (Approx. 60 minutes)

Goal: To use the structure of a piano exercise as the blueprint for an architectural facade.

1. **Deconstruct the Music:**
    - Open your Hanon-Faber book to Exercise No. 1. Play it slowly.
    - Look at the notes on the page and listen to the pattern. What do you notice? It's a pattern of ascending 5 notes, then descending 5 notes, repeated over and over as it climbs the keyboard. It is logical, structured, and symmetrical.
2. **Begin the Translation:**
    - On a piece of graph paper, let's turn this pattern into a building facade. Let each square on the paper represent a unit of space. The horizontal (x-axis) can be the length of the building, and the vertical (y-axis) can be the height.
    - **Your Challenge:** Invent a visual rule to represent the Hanon exercise. For example:
        - Could each ascending note be a window one unit higher than the last?
        - Could the repeating 8-note pattern become a decorative panel or a column?
        - Could the upward movement of the entire exercise across the keyboard be represented by a gently sloping roofline or a series of stepped terraces?
3. **Sketch Your "Hanon Building":** Spend time drawing a facade based on the rules you invented. Don't worry about it being a "realistic" building. Focus on creating a visually interesting pattern that is a direct translation of the musical exercise. Label parts of your drawing to show how they connect back to the music.

Part 3: The Soul of the Structure - Designing with Gesture (Approx. 90 minutes)

Goal: To move beyond pure pattern and design a structure that captures the *feeling* and *physicality* of a piece of music.

1. **Explore Pianistic Gesture:**
    - Think about what "pianistic gesture" means. It’s not just pressing keys. It’s the graceful arc of your arm in a sweeping arpeggio, the sharp attack for a staccato chord, the gentle roll of your wrist in a soft melody. It's the physical language of music.
    - Choose a piece you are currently practicing (it could be another etude or any piece you love). Play a short section and notice the physical movements and feelings it requires. Is it sharp and rhythmic? Is it smooth and flowing? Is it grand and powerful?
2. **Explore Architectural Gesture:**
    - Now, think of architecture in the same way. A soaring cathedral has a gesture of reaching towards the heavens. A winding, curved museum by Zaha Hadid has a gesture of fluid motion. A solid, blocky Brutalist building has a gesture of power and permanence.
    - Watch a segment of Steve Bass's lectures (Part II or III) where he discusses the curves, lines, and forms that give buildings their character.
3. **Final Creative Project: The "Musical Pavilion"**
    - Your task is to design a small, simple structure—a garden pavilion, a bus stop, a reading nook, a piece of furniture—inspired by the musical piece you chose.
    - In your sketchbook, start by brainstorming words that describe the music's gesture and mood (e.g., "flowing," "jagged," "calm," "explosive").
    - Now, translate those words into shapes and lines. A "flowing" piece might inspire long, gentle curves. A "jagged" piece might inspire sharp angles and intersecting planes.

    - Create a final drawing of your design. Think about what materials it might be made of (wood, glass, concrete) to enhance the feeling you are trying to capture.

Demonstration of Learning

To complete this lesson, you will assemble a small digital portfolio (or lay out your physical work) that includes:

1. A photo of your "Hanon Building" facade from Part 2.
2. A photo of your final "Musical Pavilion" design from Part 3.
3. **A short "Designer's Statement" (2-3 paragraphs):** For your final design, explain your creative process.
    - What piece of music did you choose?
    - How did you translate the *gesture*, *rhythm*, and *mood* of the music into the shapes, lines, and materials of your design? Be specific! (e.g., "The fast, repeating arpeggios in the left hand inspired the series of thin, angled slats that form the roof...")

Extension Activities (Optional)

- **Go 3D:** Recreate your "Musical Pavilion" design using free software like SketchUp or Tinkercad to see what it would look like in three dimensions.
- **Reverse the Process:** Find a picture of a building you find interesting. Try to compose a short, 4-8 measure musical motif on the piano that captures its architectural gesture and rhythm.
- **Research an Artist:** Look up the work of **Iannis Xenakis**, a 20th-century composer and architect who used complex mathematics and stochastic processes to design both his music and his buildings, like the Philips Pavilion.