THE EDUCATION FUND
FOR EXCELLENCE IN MIAMI-DADE PUBLIC SCHOOLS

2025
2026

# Ideas with IMPACT

**VISUAL ARTS/STEAM**

## Fiber Arts: Shibori-Memory on Cloth

**IDEA PACKET** SPONSORED BY:

ASSURANT®

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# Fiber Arts: Shibori Memory on Cloth

# Fiber Arts: Shibori
# Memory on Cloth

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## Objectives:

**By the end of lesson 1, students will be able to:**

- Describe the history and cultural significance of Shibori and indigo dyeing in Japan.
- Apply resist-dyeing techniques (e.g., binding, folding, stitching) to create original Shibori designs.
- Collaborate effectively during the shared indigo dye process, practicing communication and peer feedback.
- Reflect on their problem-solving strategies and the role of craftsmanship in a global context.
- Analyze how cultural practices connect people and foster identity and belonging.

**By the end of lesson 2, students will be able to:**

- Identify and describe key characteristics of Shibori, Batik, Adire, and Aztec resist-dye techniques.
- Analyze the cultural significance and historical contexts of each dyeing tradition.
- Compare similarities and differences in techniques, materials, and symbolism across cultures.
- Collaborate in small groups to research, synthesize information, and prepare a concise report.
- Deliver a 5-minute group presentation that communicates findings and insights.

**By the end of lesson 3, students will be able to:**

- Reflect on how traditional crafts express identity, status, and cultural values globally.
- Explore four traditional textile techniques using hands-on rotation stations.
- Observe how physical manipulations (folding, binding, stitching, clamping) affect dye outcomes.
- Collaborate, reflect, and share discoveries about structure, tension, and pattern design.

**By the end of lesson 4, Students will be able to:**

- Compare traditional craftsmanship with industrial mass production.
- Analyze the cultural, social, and environmental impact of shifting textile practices.
- Reflect on their relationship to clothing, identity, and values.
- Engage in collaborative discussion and creative expression.
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**By the end of lesson 5, Students will be able to:**

- Understand the cultural history of Shibori and the global use of indigo dye.
- Investigate the science of oxidation and pH balance in natural dyeing processes.
- Apply mathematical thinking using geometric folding and pattern symmetry.
- Practice engineering principles by constructing effective resist tools and designing controlled outcomes.
- Collaborate in shared dye vats, reflecting on group process and feedback.
- Reflect on sustainability and eco-conscious materials science through traditional dyeing practices.

# Florida Standards

**Lesson 1.** Visual Arts – Cultural & Historical Connections
- VA.C.1.1.1: “knows that specific works of art belong to particular cultures, times, and places”
- VA.C.1.1.2: “understands how artists generate and express ideas according to their individual, cultural, and historical experiences” Cloudinary+10Florida Instructional Technology+10Florida Department of Education+10Colorado Mesa University+3California Digital Library+3shakeragalley.org+3shakeragalley.org+1STLCC+1

Visual Arts – Creation & Communication
- VA.B.1.1.1–2: “communicate meaning using subject matter, symbols, media, technique, and processes” Florida Instructional Technology

Visual Arts – Foundations/Craftsmanship
- VA.A.1.1.4: “uses good craftsmanship when producing works of art” Florida Instructional Technology

Visual Arts – Aesthetic & Critical Analysis
- VA.D.1.1.1: “describe, analyze, interpret, and make judgments about works of art” using art vocabulary Colorado Mesa University+10Florida Instructional Technology+10cpalms.org+10

Social Studies – Humanities (Global Awareness)
- SS.912.H.1.1 / H.2.1: “analyze historical, social, and cultural contexts of artworks” Florida Department of Education+1cpalms.org+1

**Lesson 2**. Visual Arts – Cultural & Historical Connections
- VA.C.1.1.1–2: Same as Lesson 1, with multi-cultural focus California Digital Library+2shakeragalley.org+2STLCC+2Florida Instructional Technology+1Florida Department of Education+1

Visual Arts – Foundations
- VA.A.1.1.3: “distinguish differences among techniques, processes, organizational structures (elements and principles of design)” Colorado Mesa University+5Florida Instructional Technology+5Florida Department of Education+5

Visual Arts – Creation & Communication
- VA.B.1.1.1–2: use symbols, media, and techniques to communicate ideas Florida Instructional Technology+1Florida Instructional Technology+1

Visual Arts – Aesthetic & Critical Analysis
- VA.D.1.1.1: articulate observations & comparisons using art vocabulary

Social Studies – Humanities
- SS.912.H.1.1 / H.2.1: analyze historical, social, and cultural contexts from diverse cultures FIU Digital Commons+5Florida Department of Education+5cpalms.org+5

L**essons 3-5**

Visual Arts – Foundations
- VA.A.1.1.3: knowledge of media/techniques (folding, binding, stitching, clamping) cpalms.org+5Cloudinary+5STLCC+5Florida Instructional Technology+1Florida Department of Education+1
- VA.A.1.1.4: craftsmanship

Visual Arts – Cultural & Historical Connections
- VA.C.1.1.1–2: understanding art’s cultural significance globally

Visual Arts – Cultural & Historical Connections
- VA.C.1.1.1–2: cultural context of traditional and modern practices bbg.org+3cpalms.org+3STLCC+3shakeragalley.org+2STLCC+2California Digital Library+2

Visual Arts – Applications to Life
- VA.E.1.1.1: “understands that people create art for various reasons and everyday objects are designed by artists” Florida Instructional Technology
- VA.E.1.1.3: appropriate behavior in cultural experiences (discussion, reflection) Florida

## Course Outline/ Overview

Students will delve into the ancient Japanese practice of **Shibori,** a hands-on fabric dyeing technique characterized by the use of resist techniques. R**esist techniques like tying, stitching, binding, twisting, pleating, folding, and clamping are used to create patterns on fabric**. Once immersed in color dyes, the cloth reveals striking patterns, organic forms, and sculptural textures. These resist methods prevent the dye from penetrating certain areas, resulting in intricate designs. While often associated with indigo dye and cotton or silk fabrics, shibori can be adapted to various materials and colors, including transforming **2-dimensional** textiles into richly textured, **3-dimensional** works of art.
Learn how Shibori's repetitive, structured, and sensory-rich processes can support students of various abilities, group work, emotional regulation, focus, and creativity in all students.
Rooted in tradition yet open to innovation, Shibori invites creative exploration, offering a meditative, expressive, and deeply sensory experience for people of all ages and abilities.

Narumi katsushika

## Course Outline/ Overview

Through This Immersive Textile Arts Curriculum, Students Will:

- Create **Hands-On Shibori Artworks**
- Design and complete three original Shibori textile artworks using at least 3 traditional techniques including:

1. Nui **Stitch Shibori:** Stitch parallel lines and pull threads to create a woodgrain-like pattern through gathering.
2. Itajime, **Miura, Kumo, Arashi, or Kanoko Shibori.**
3. **Makiage Shibori:** Combine stitching and binding to form defined motifs with soft edges.

**Explore Technique Stations (Rotational Activities)**

1. **Folding Station:** Use accordion, triangle, or fan folds secured with clips or Rubber bands to explore symmetry and structure.
2. **Binding Station:** Wrap fabric with string or sinew in spirals and stripes to investigate tension and texture.
3. **Stitching Station:** Learn running stitch and gather fabric to practice Mokume and other stitched-resist methods.
4. **Clamping Station** (Itajime): Fold and compress fabric between wooden shapes, using rubber bands to resist dye and form geometric patterns.

**Practice Meditative and Reflective Processes**

Engage in the calming, repetitive stitching, folding, and dyeing rhythms. Reflect on the sensory and emotional impact of working slowly and intentionally with fabric.

- Discuss the concept of imperfection as beauty and how unpredictability enhances creativity.

## Course Outline/ Overview

Through This Immersive Textile Arts Curriculum, Students Will:

**Research Culture and Global Traditions**
Investigate the historical and cultural roots of Japanese Shibori.

**Compare Shibori** with other global resist-dye traditions such as:
Batik (Indonesia)
Adire (Nigeria)
Pre-Columbian resist methods
Work in small groups to create and present a 5-minute report highlighting similarities, differences, and the cultural significance of shibori.

**Discuss Craftsmanship vs. Mass Production**
Explore the value of handmade textiles and how traditional crafts preserve identity and meaning.

**Analyze how global textile traditions** are being replaced by mass-produced objects and their impact on cultural memory and sustainability.

**Apply Scientific Principles of Dyeing**

- Understand the chemistry of dyeing, including:
- The molecular difference between natural fibers (cotton, silk) and synthetics.
- How plant-based and fiber-reactive dyes bond to fabrics.
- Learn how vinegar, salt color setting, heat-setting (steaming or ironing) affects colorfastness and 3D effects.
- Compare the results of different resist methods to observe how they influence dye absorption and pattern outcome.

## Course Outline/ Overview

Shibori is a richly sensory art form that naturally engages tactile, visual, and kinesthetic learning styles, making it especially effective for diverse learners, including students with **Autism Spectrum Disorder (ASD**). Its hands-on processes—folding, tying, clamping, and dyeing—encourage sensory regulation, focus, and active participation.

This project seamlessly weaves together disciplines through a **STEAM**-based approach:

- Science through dye chemistry and plant-based pigments,
- Technology with heat-setting techniques,
- Engineering in fabric manipulation and design planning,
- Art through pattern creation and creative expression,
- Math in symmetry, measurement, and spatial reasoning.

Students develop higher-order thinking skills and problem-solving abilities while deepening their understanding of Japanese cultural traditions and global craftsmanship. As they work collaboratively, especially while Dyeing fabric in a shared dye vat—students practice communication, cooperation, and peer feedback, fostering meaningful social connections and a strong sense of classroom community.


Materials for Tye Dye can be as easy as filling plastic bottles or spray bottle with dye. Follow the instructions for the mix.


Materials for Indigo can be purchased pre measured. Fill a 5-gallon bucket with 4 gallons of water and add chemicals as instructed on the packet. Keep the lid closed to keep out the oxygen from entering indigo vat.

**MATERIALS**

- 100% white cotton, natural fabrics like cotton, silk, or linen work best. or muslin
- PH laundry detergent or Dawn Detergent
- Indigo dye: Traditional shibori uses indigo (Buy a kit that includes all the chemicals and follow the instructions on the packet-use safety precautions and mix powders outdoors, use gloves, and a mask).
- Optional Natural dyes: Onions, turmeric, black beans, pomegranates, avocados, chamomile, green tea. Rit dyes (follow instructions on the packet)
- Rubber bands, zip ties (releasable)
- String or twine: Used for tying and binding fabric.
- 5-Gallon Bucket with a top cover. Empty water gallons and measuring cups, and spoons. Tubs for dyeing fabric.
- Rubber gloves: To protect your hands.
- Fabric Scissors: For cutting fabric and string.
- A face mask
- Table covers

**Optional Materials for Pattern Creation:**

Small pieces of wood or cardboard shapes can be used to create patterns when folding and clamping fabric.

**Clamps or large binder clips:** To hold fabric in place for specific patterns.

Beads, rocks, marbles, or other small objects: Can be wrapped with rubber bands, thread, or string to create unique patterns.

PVC pipes, old garden hoses cut into pieces: Can be used for rolling and wrapping fabric to create specific patterns.

**Thread:** For sewing and creating stitch resist shibori patterns. Needles and threaders.

Other Helpful Supplies:

Stirring stick or spoon: To mix the dye solution.

Tarp or drop cloth: To protect your work surface.

Measuring tools: For accurately measuring dye and other chemicals.

Safety glasses or goggles: To protect your eyes from dye splashes.

# Indigo Vat

A 5-gallon bucket with lid works best for mixing from an Indigo Dye Kit. You know the vat is good when it develops a foam on top and the bottom water is the color green. Always follow safety instructions on the packet.

# Lesson Ideas

**Lesson Title: Culture and Global Traditions: Japanese Shibori.**
**(3-5 class periods)**

**Activity**
Students will create Shibori artworks using indigo dye to explore traditional Japanese textile techniques while developing higher-order thinking and problem-solving skills. Through collaborative dyeing processes, students will deepen their understanding of cultural craftsmanship and global traditions, while practicing effective communication, cooperation, and peer feedback to build a supportive classroom community.

**Introduction:**
By the end of the lesson, students will be able to:

1. Describe the history and cultural significance of Shibori and indigo dyeing in Japan.
2. Apply resist-dyeing techniques (e.g., binding, folding, stitching) to create original Shibori designs.
3. Collaborate effectively during the shared indigo dye process, practicing communication and peer feedback.
4. Reflect on their problem-solving strategies and the role of craftsmanship in a global context.
5. Analyze how cultural practices connect people and foster identity and belonging.

**Materials:**

- White cotton fabric/ paper (8" x 8", 12"x 12" or larger for each student)
- Pencils or chopstick
- Indigo dye kit (pre-reduced for safety and ease)
- Buckets or dye vats
- Rubber gloves, aprons
- Rubber bands, wooden blocks, clothespins, string, needles/thread for stitching
- Images/videos of traditional and contemporary Shibori
- Journals or sketchbooks
- Reflection prompts
- Drying rack or clothesline

# Lesson Plan

**Day 1**
Introduction to Shibori & Design Planning
**Focus:** Cultural Context + Creative Thinking
**Engage:** Showcase images/videos of traditional Japanese Shibori, highlighting the technique, symbolism, and craftsmanship.
**Explore**: Brief discussion on indigo's role in Japanese history and in global cultures (Africa, India, South America).
**Explain:** Demonstrate the Shibori method, Arashi
**Elaborate:** Students practice the Arashi method using pencils and a small piece of paper (newsprint or tissue paper).
**Evaluate:** Share your partner's work for peer feedback on design plans.

**Day 2** Demonstration on Folding and Binding Fabric for Shibori
**Focus:** Creative Expression + Problem Solving
**Mini-Demo:** Review folding techniques.
**Student Work:** Students prepare their fabrics using chosen Shibori techniques. Encourage experimentation.
**Collaborate:** Encourage peer troubleshooting (e.g., "How will this pattern resist the dye?").
**Exit Ticket:** Write about one design challenge and how they approached solving it.
I have some suggestions for you to create a label for each artwork by tying a piece of yarn through a square tag. Write identifying information on the tag using a Sharpie.

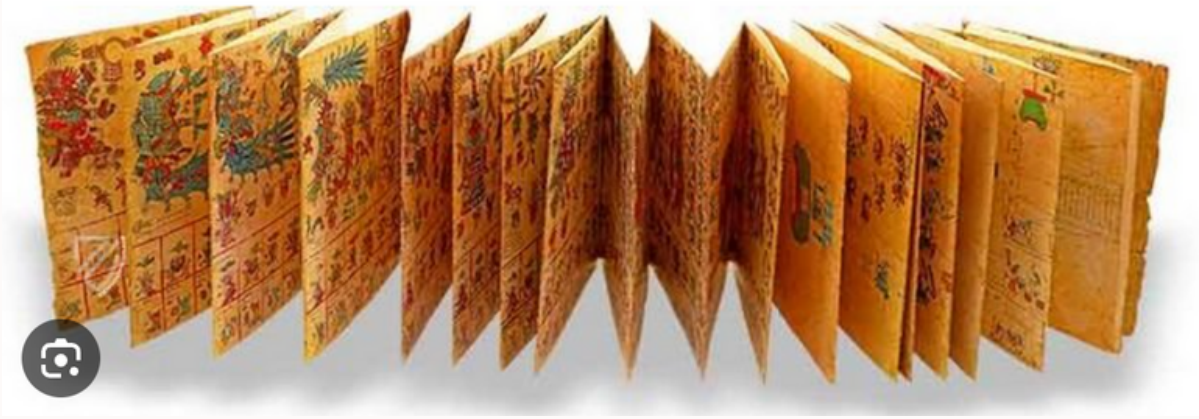
**Days 3 and 4:** Indigo Dyeing (Collaboration Focus)
**Focus**: Shared Experience + Communication
**Safety Review:** Gloves, masks, aprons, dye procedures, and safety.
**Dye Process:** Students dye fabric in small groups, taking turns and supporting each other.
**Collaboration:** Encourage verbal guidance, encouragement, and peer feedback.
**Reveal & Drying:** Students remove bindings and hang fabric; share initial reactions and surprises.

**Day 5**: Reflection, Critique, and Cultural Connections
Focus: Analysis + Community
**Gallery Walk**: Once dry, students display their pieces.
**Discussion:** How do these artworks reflect both individual expression and shared process?
**Reflection Prompt:**
What did you learn about Japanese culture through this process?
How did collaboration shape your experience?
What problem-solving strategies did you use or observe?
What surprised you about indigo dyeing?
**Extension** (optional): Connect Shibori to sustainability and slow fashion or compare with resist-dyeing in other cultures. (see resource on Miura-ori)

**Assessment:**
Formative: Participation, peer feedback, design journaling.
**Summative:** Completed Shibori artwork, written reflection, and participation in critique/gallery walk
**Universal Design for Learning & Inclusion Tips:**
Provide step-by-step visuals and tactile examples. Use video, chart, written, and verbal steps (one step at a time).
Allow choice in fabric size, technique, and reflection format (oral, written, visual).
Encourage collaborative roles (folding partner, dye assistant, timer).

Resources: Video on shibori techniques


# Lesson Ideas



## Lesson Title: The Emperor's Cloak
## Research Culture and Global Traditions

**Grade Level: High School**
**Length: 2–3 class periods**

Compare Shibori with other global resist-dye traditions such as: Batik (Indonesia), Adire (Nigeria), and Aztec fabric dye resist techniques found on an ancient Codex revealing the use of such technique on the use of Aztec rulers..

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**Activity:** Students work in small groups to create and present a 5-minute report highlighting similarities, differences, and the cultural significance of shibori in various cultures including the Aztec.

**Cultural Traditions Essential Questions**

- How do textile resist-dye techniques reflect cultural identity or tradition in different regions?
- What similarities and differences can you find between the techniques practiced today and those from historical or cultural traditions?
- Why do you think communities developed these methods instead of painting fabric directly?

Introduce "The Emperor's cloack" and talk about the indigo and shibori designed cloak on the emperor. Ask: How would a cilivilzation in Meso America use the same Shibori textile technique as those used in Japan, and other parts of the world?

What are some ways that this technique could have been developed on their own or maybe been introduced by another culture.

## Lesson Plan- Image-Aztec Emperor wearing indigo shibori cloack- “The Emperor’s Cloak”

Resource: https://fibresofbeing.wordpress.com/wp-content/uploads/2014/11/page108r.jpg


Blue diaper design, (Codex Borbonicus) photo courtesy Akademische Druck-und

# Lesson Plan- Quiz

To make this lesson accessible, give students choice on how they will answer the questions. They can answer verbally, with a drawing, group discussion, or peer assessment. They can also use a portfolio of work instead of written or verbal test.

| Question | Choice 1 | Choice 2 | Choice 3 | Choice 4 | Correct Answer |
|---|---|---|---|---|---|
| What is the primary material used in batik? | Silk | Cotton | Wool | Linen | Cotton |
| Which country is most famous for the art of shibori? | India | Nigeria | Japan | Indonesia | Japan |
| Adire is a resist dyeing tradition from which region? | Southeast Asia | West Africa | Middle East | North America | West Africa |
| What technique is commonly used in shibori? | Tie-dye | Block printing | Stenciling | Weaving | Tie-dye |
| Which dye is traditionally used in batik? | Indigo | Turmeric | Natural dyes | Synthetic dyes | Natural dyes |
| What is a common feature of adire designs? | Geometric patterns | Animal motifs | Floral designs | Abstract art | Geometric patterns |
| In which tradition is the use of wax a key component? | Shibori | Batik | Adire | All of the above | Batik |
| What type of fabric is often used in Japanese shibori? | Polyester | Silk | Acrylic | Canvas | Silk |
| Which of the following is a method of resist dyeing? | Weaving | Sewing | Tying | Cutting | Tying |
| What is a common color associated with adire? | Red | Green | Blue | Black | Black |

## Lesson Plan

**Background:** The Aztec’s Emperor’s cloack
Threaded Across Time: From Aztec Royalty to Japanese Shibori

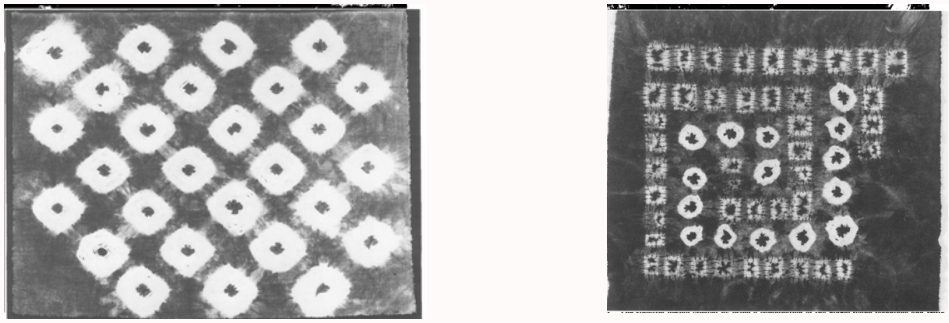
In the early 16th century, the Aztec empire dazzled with its sophisticated artistry, and the garments of its emperors reflected divine status and cosmic order. Among these was a resplendent blue tie-dye cloak, a symbol of sky, water, and authority. This cloak, often crafted from prized cotton and dyed with indigofera suffruticosa, used intricate resist-dyeing techniques to produce celestial patterns—spirals, stars, and ripples evocative of the heavens.

Thousands of miles away in Japan, artisans were refining shibori, a technique dating back over 1,300 years. Shibori, from the Japanese verb shiboru (to wring or squeeze), involved carefully stitching, folding, binding, or twisting cloth before dyeing it in indigo to create complex motifs. One of the most striking forms, nuishime shibori (stitched shibori), used tight stitching to create precise linear and organic patterns after dye immersion.

Though these two cultures never interacted directly, their artistic methods echo across oceans and time. The connection lies in shared human ingenuity and parallel reverence for indigo dyeing, a global art rooted in ritual, status, and beauty. Both the Aztec and Japanese artisans saw indigo not just as color, but as a symbol of spiritual protection and artistic mastery.

In imagining the Aztec emperor's cloak as “stitched,” one can draw a poetic and speculative thread: what if the cloak's radiating patterns were created not just by tying and folding, but by methods akin to nuishime? Could transoceanic dye knowledge—through indirect trade, migratory diffusion, or convergent innovation—have aligned these distant worlds?

This connection celebrates fiber art as a global language, where cultures separated by continents independently developed textile resist-dyeing to narrate power, nature, and identity. Today, contemporary artists who blend shibori with Indigenous American techniques honor this timeless creative dialogue—stitching history into every dyed thread.



Blue diaper design, (Codex Borbonicus) photo courtesy Akademische Druck

# Lesson Ideas

## Lesson Title: Exploring Resist Dye Techniques Through Station Rotations

**Grade Level: 5th grade to High School**
**Length: 2–3 class periods (minimum 45–60 min each)**

**Focus Areas: Art, Math (geometry & symmetry), Cultural Traditions, Fine Motor Skills, Sensory Engagement**

Essential Questions: Math (Geometry & Symmetry)

- How does the way you fold or clamp the fabric affect the symmetry or repetition in your pattern?
- What geometric shapes or patterns can you identify in the dyed fabric?
- How can you predict the outcome of a resist-dye pattern based on its folding or binding method?

Fine Motor Skills

- Which station required the most careful hand movements or detailed control?
- How did adjusting the tightness of your binding, stitching, or clamping affect the final result?
- What strategies helped you improve precision in folding, stitching, or tying fabric?

Sensory Engagement

- What textures, sounds, and smells did you notice while working with fabric and dye?
- How did the feeling of the fabric change before and after dyeing?
- How did using your hands and senses help you understand the process and design better?

**Learning Objectives:**
**Students will:**
Explore Itajime Shibori textile clamping techniques that create geometric shapes using hands-on rotation stations.
Observe how physical manipulations (folding, binding, clamping) affect dye outcomes.
Collaborate, reflect, and share discoveries about structure, tension, and pattern design.

**Lesson Plan**

**Materials (per station):**

- Pre-cut white cotton squares (10x10”)
- Rubber bands, paper binder clips
- Wooden shapes (e.g., blocks, popsicle sticks for clamping)
- String or yarn
- Buckets for dye or simulated dye baths (you can substitute with blue watercolor for in-class demos)
- Towels or trays for moisture control, cover the indigo area tables
- Visual, written, QR code instructions for each station with a video link
- Labels for each station + timer or bell
- Masks, gloves, paper towels, wipes

Prep Before Class:
Label and set up 4 clearly defined technique stations
Provide visual step-by-step guides and sample outcomes. Appoint one student to be in charge of each station (make sure they understand the steps for their station)

**Optional:** play quiet music to support focus during hands-on work
Review safety rules (scissors dye safety, etc.)

**Station Overviews:**

**Folding Station** (Geometry & Symmetry)
Students explore accordion, triangle, and fan folds
Secure folds with rubber bands or large paper clips
Emphasis on symmetry and spatial patterning

**Binding Station (Texture & Tension)**
Wrap fabric with string in tight spirals or diagonal patterns
Focus on compression, line variation, and texture
Option to combine with folding for complex resist

**Clamping Station (Itajime)**
Fold fabric into square or triangle stacks
Insert between two wooden blocks or sticks and bind tightly using rubber bands or yarn
Explore geometric patterning and negative space

# Lesson Plan

**Day 1: Introduction & First Rotations**
Students will need 3 pieces of fabric, 8 x 8 inches each for each technique.

Mini-Demo (10–15 min): Introduce Step by Step Shibori Itajime technique with samples/images
Group Norms (5 min): Explain rotation timing (~15 min per station) and expectations
Station Rotation (15 min x 2): Students complete 2 stations today (folding and clamping)
**Exit Slip: Write or draw what you observed happening to the fabric**

**Day 2:** Stations Station Rotation (15 min x 2):
**Review & Preview (10 min)** Review the Nui Shibori, a stitch resist technique that creates geometric designs, especially when combined with folding and clamping. Students complete 2 stations today (stitching circles and stitching other geometric designs)

**Day 3** Station Rotation (15 min x 2): Demonstrate the Kumo Shibori technique and go over Indigo safety instructions. Students complete the final 2 stations using Indigo dyes to dye the shibori pieces they created.

**Day 4**
**Gallery Walk & Share:** Students view each other's work and name what technique was used
Reflection Prompt (written or oral):
"Which technique surprised you the most and why?"
"Which resist created the most dramatic contrast?"

**Assessment:**
Observation of process and participation at each station
Student responses to reflection prompts
Visual evaluation of completed samples: Are folds/stitches/bindings clearly executed**?**

**Optional: Final dyeing session or display of technique samplers**

**•Whole-Class Reflection**
Class Discussions with Visual or Performance Reflections – Students express their learning through movement, music, or storytelling.

# Lesson Plan-Differentiation & Support

**Differentiation & Support:**

**GOAL**

•Create clear goals.
•Share Goals in multiple ways (written on the board and on each station).
•Frame goals with expert learning in mind.
•Separate the goal from the means.
•Write an assessment with a goal in mind.
For example, you may share the goal verbally, have it posted at the top of a digital handout, or ask learners to restate the goal in their own words.
•The goal is framed in student-friendly language and connected to real-world applications, ensuring relevance and comprehension.
•Opportunities for class discussions or self-reflection help learners personalize their understanding of the goal.

**INTRODUCTION AND DEMONSTRATION**

- Provide visual instructions with each step clearly labeled
- Allow partner work for students needing fine motor support
- Offer larger needles/thread or pre-threaded options for stitching
- Use pre-folded templates at the folding station if needed
- Offer audio or visual options for reflection (e.g., record answer or draw it)

**FLEXIBLE ASSESSMENT**

- Provide all students with various ways to demonstrate their learning (e.g., give an oral presentation, peer observation using a checklist, record a video, write a paper, through performance, a drawing, a recording, or video).
- In any assessment, we can anticipate variability in how our learners engage, are prepared, and can show what they know. Flexible options not only enhance access but can also reduce perceived threats or distractions and ensure all learners can demonstrate their skills.

**STUDENT REFLECTIONS**

- Journals or Sketchbooks– Students document thoughts, artistic choices, and emotional responses to learning.
- Exit Ticket – Quick responses to prompts like: What was the most meaningful part of today's lesson? What challenged you?
- Video or Audio Reflections – Students record verbal reflections on their creative process and learning experience.
- Peer Reflection & Feedback
- •Gallery Walks & Critiques – Students provide constructive feedback on each other's work using guiding questions.
- •Partner or Small Group Discussions 💬 – Encourages collaborative reflection on different perspectives and approaches.

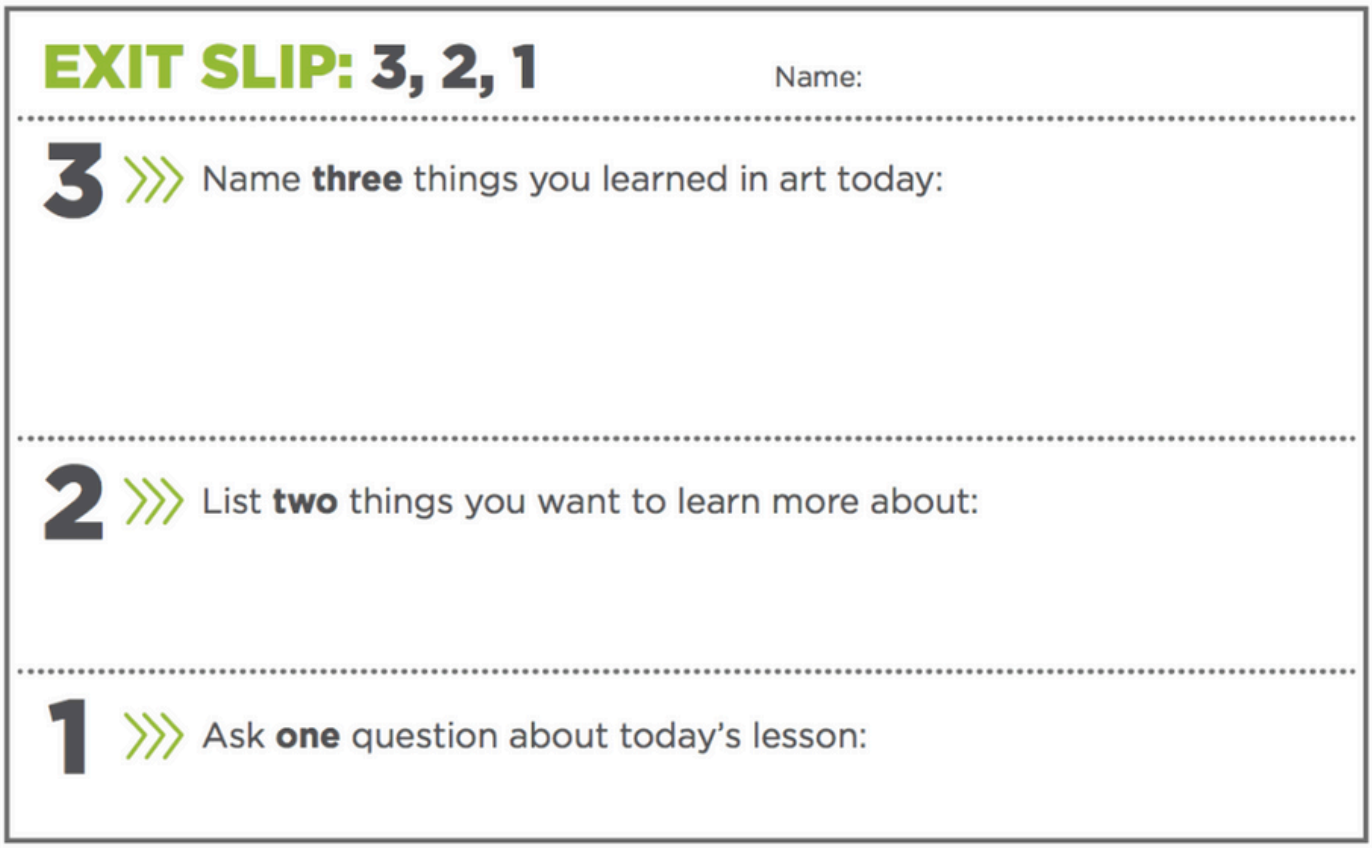
**Lesson Plan- Assessment Criteria**

# Checklist

| Assessment Criteria | Demonstrated Consistently | Demonstrated Sometimes | Needs Improvement |
|---|---|---|---|
| **Process & Participation** | | | |
| Participates actively at all | | | |
| Follows instructions | | | |
| Works collaboratively and | | | |
| Demonstrates care and focus while | | | |
| **Reflection & Understanding** | | | |
| Responds thoughtfully to | | | |
| Uses appropriate vocabulary (e.g., | | | |
| Shares observations and | | | |
| **Visual Evaluation of Completed** | | | |
| Folds, stitches, bindings, and | | | |
| Symmetry or intentional | | | |
| Samples show a variety of | | | |

**Lesson Plan- Assessment Criteria**

# Exit Slip




•An **exit ticket** is a brief activity that takes just two to three minutes at the end of class. Students complete a short form and submit it upon leaving the classroom.
•Exit tickets offer a quick snapshot of student learning and comprehension while reinforcing lesson concepts. By requiring students to apply their knowledge, these tickets help deepen understanding and encourage critical thinking. They also prompt students to synthesize information and express their learning in their own words.
•Exit tickets can take various forms but are typically short, consisting of just a few questions. They provide students with a simple yet meaningful way to reflect on and articulate their learning.

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# Lesson Ideas

## Lesson Title: Threads of Identity: Craftsmanship vs. Mass Production

Grade Level: Middle to High School
Length: 2-3 class periods (45–60 minutes each)
Focus Areas: Art, Culture, Sustainability, Global Studies

**Materials:**
Sample images or swatches of handmade textiles (batik, embroidery, weaving, etc.)
Samples/images of mass-produced textiles (fast fashion tags, factory images, etc.)
Access to short videos/documentaries (e.g., "True Cost", craft revival clips)
Chart paper, sticky notes, writing materials

**Optional**: Guest speaker or artisan visit
**Essential Questions:**
What is the value of handmade textiles in preserving culture and identity?
How do mass-produced objects impact traditional craft practices and sustainability?
What choices can we make as consumers or creators to support cultural memory?

Learning Objectives:

**Students will:**
- Compare traditional craftsmanship with industrial mass production.
- Analyze the cultural, social, and environmental impact of shifting textile practices.
- Reflect on their relationship to clothing, identity, and values.
- Engage in collaborative discussion and creative expression.

**Lesson Activities:**
1. Warm-Up (10–15 min)
Visual Thinking Strategy (VTS)
Present two images side by side:
- One: a traditional handwoven textile (e.g., Shibori, Guatemalan huipil, Indian Kantha, etc.)
- Two: a pile of mass-produced fast fashion garments (jeans, tops, dresses).

Ask:
- What do you notice?
- What makes you say that?
- How do you think each was made, and why?

## Lesson Plan

**Mini Lecture/Presentation (15–20 min)**
**Introduce key concepts:**
Define craftsmanship and mass production
Share examples of textile traditions from various regions (e.g., Shibori, Andean weavings, Nigerian Aso Oke, Japanese Shibori)

Discuss the loss of craft traditions due to global industry:
Introduce the idea of cultural memory, sustainability, and economic exploitation

**Group Analysis & Jigsaw (20 min**)
Divide students into small groups. Assign each a textile tradition (shibori, indigo dyeing, textile dying in Japan or other country). Have them research or read a short article/video to discuss the following:

**Cultural origins of each textile tradition**
Techniques and time investment
Symbolic or spiritual meanings
Current threats (e.g., industrial imitation, fading skills, fast fashion)

Each group presents their findings to the class (visuals encouraged).

Class Discussion or Socratic Seminar (30–40 min)
Prompt: Is something lost when a handmade object becomes mass-produced?
Use guiding questions:

- What do handmade objects carry that machines cannot replicate?
- Can sustainability and heritage coexist with convenience and affordability?
- What responsibilities do we have as consumers or artists?

**Reflection Activity (15–20 min)**
Option A: Visual journal prompt – “Draw or collage a textile that represents your identity.”
Option B: Written reflection – “Describe an item of clothing or textile that holds meaning for you. What story does it tell?”

**Extension Options**:

- Studio Project: Students design and create a small textile inspired by a traditional technique (e.g., block printing, embroidery, weaving).
- Community Connection: Invite a local artisan or textile expert to speak or demonstrate.
- Ethical Fashion Research: Students explore brands or movements working to preserve craftsmanship and sustainability.

**Assessment:**

- Participation in discussion
- Group presentation or jigsaw report
- Personal reflection (written or visual)
- Optional: Completed studio project or presentation

## Lesson Plan-Assessment

**Assessment Tools Templates**

**1. Formative Assessment: Student Self-Reflection Checklist**

___I experimented with different ideas and techniques.
___I connected my artwork to the lesson's big idea.
___ I revised my work based on feedback or personal reflection.
___I shared my thoughts and learned from my peers.
___I feel confident in explaining my creative choices.

**What I am most proud of in my work today:**

**One thing I want to improve or explore further:**

**Peer Assessment: Artistic Feedback Form**

**Name of Artist:** _____

**Title of Work (if applicable):** _____

**What I liked most about this work:**

_____

**One suggestion to improve or enhance this piece:**

_____

**How does this work connect to our lesson?**

_____

A Formative Assessment used in the art classroom is a Student Self-Reflection Checklist that lets students evaluate their progress.

# Lesson Ideas

## Lesson Title: *Indigo Shibori: A STEAM Exploration of Art, Culture, and Chemistry*

*Grade Level: 5th grade- High School*
Time Frame: 2–3 class periods

This lesson weaves together disciplines through a STEAM-based approach:
Science through dye chemistry and plant-based pigments,
Technology with heat-setting techniques,
Engineering in fabric manipulation and design planning,
Art through pattern creation and creative expression,
Math in symmetry, measurement, and spatial reasoning.

**STEAM Focus**: Textile Art + Chemistry + Geometry + Sustainability + Collaboration

**Lesson Objectives:**
Students will:

- Understand the cultural history of Shibori and the global use of indigo dye.
- Investigate the science of oxidation and pH balance in natural dyeing processes.
- Apply mathematical thinking using geometric folding and pattern symmetry.
- Practice engineering principles by constructing effective resist tools and designing controlled outcomes.
- Collaborate in shared dye vats, reflecting on group process and feedback.
- Reflect on sustainability and eco-conscious materials science through traditional dyeing practices.

**STEAM Connections:**

- Science: Explore the oxidation-reduction reaction in indigo dyeing. Discuss plant-based vs. synthetic dyes and environmental impact.
- Technology: Analyze traditional vs. modern dyeing techniques and tools; optional extension: photograph and digitally manipulate patterns.
- Engineering: Design and test resist structures (folds, clamps) for specific dye outcomes.
- Art: Japanese Shibori is practiced as a creative expression, compared to textile art from other cultures.
- Math: Use symmetry, fractions, and geometric reasoning to plan folds and predict visual outcomes.

## Lesson Plan INCLUSIVE STRATEGIES

**Lesson Activities:**

- Day 1: Introduction & STEAM Planning

Hook (10 min):

- Show time-lapse video of Shibori dyeing with oxidizing indigo. Ask students what science they observe.

**Mini-Lesson (20 min):**

- Cultural context: Brief history of Shibori and Japanese indigo.
- Use a video to explain the scientific focus: Explain the dyeing process—what happens chemically as indigo oxidizes (turns blue after exposure to air).
- Math/Art connection: Demonstrate geometric folds (e.g., accordion, triangle, circular). Relate to symmetry and fractions.

**Inclusive Lesson Add-on**: Supporting Students on the Autism Spectrum

**Universal Design for Learning-Aligned Goals:**
Offer multiple means of engagement (choice, relevance, structure)
Provide various means of representation (visuals, models, concrete examples)
Allow various means of action and expression (choice in how to participate and respond)

**Specific Supports for Students on the Autism Spectrum:**
1. Preview and Structure
Provide a visual schedule or agenda at the start of each class session.
Use clear, consistent language and transitions (e.g., “Now we are moving into group work. That means you’ll…”).
Offer a social script for group discussions or a Socratic seminar, with sample phrases like:
“I agree with what you said because…”
“I see it differently. I think that…”

**2. Sensory Supports & Environment**
Offer noise-canceling headphones during video segments or open work time.
Allow students to choose a quiet space or designated sensory-friendly zone for work or breaks.
Avoid overwhelming visuals or strong smells during textile handling—use individual kits or digital images if needed.

3. **Options for Expression & Participation**
Let students choose how to demonstrate understanding:
Write a journal entry, create a labeled drawing, or use a mind map.
Record an audio reflection instead of writing.
Use visuals or assistive communication tools (AAC) if needed.

## Lesson Plan INCLUSIVE STRATEGIES

**Visual and Concrete Aids**
Use physical samples or fabric swatches when possible. Let students feel the texture differences between handmade and mass-produced textiles.
Include step-by-step visual instructions for any art-making tasks.
Show short video clips or timelapses of handcrafts in progress to make abstract ideas more concrete.

**Focus on Strengths & Interests**
Some students may have deep interest in patterns, textures, or machines—connect these to traditional crafts vs. factory production.

Allow students to explore one culture's textile tradition in depth as an alternative to group work.
Reflection Alternatives for Neurodiverse Learners:
Comic strip: Illustrate the journey of a handmade object vs. a mass-produced one
Photo collage with short captions
One-on-one conversation or teacher-guided drawing

**Optional Art-Making Activity (Autism-Friendly Version):**
Sensory Weaving or Textile Collage

- Provide pre-cut yarns, textured papers, and adhesive-backed fabric pieces
- Offer a visual example of a simple loom or collage frame
- Students can build a "textile story" based on their own identity or a researched tradition
- Include emotion icons or colors to guide expressive choices

**Flexible Teaching Methods**-Does the learning environment provide flexible methods? Students ought to have the freedom to choose how they learn and which resources they utilize for information. Education isn't a one-size-fits-all approach; each student comes with unique preferences, strengths, and requirements. By providing a variety of resources—such as books, videos, or opportunities for collaborative work—students gain greater agency in their understanding. They should be encouraged to select learning methods that resonate with their interests and personal styles, whether it's through inquiry-based learning, blended learning, or alternative approaches. This kind of flexibility fosters deeper engagement and empowers students to take charge of their own education.

## Lesson Plan

**Day 2**: Dye Lab & Collaborative Experimentation
Set Up (10 min):
Review dye safety and the oxidation process. Assign small groups to dye vats.

**STEAM in Action (30 min):**
Students implement their designs, fold, bind, and dye their fabrics. Observe oxidation reactions as fabric turns from green to blue. Use group roles (e.g., timer, dipper, observer) to ensure cooperation.
**Data Reflection (10 min):**
Students document variables and results:
How long was the dip?
What resist method worked best?
How did oxidation time affect the tone of blue?

**Day 3 Reveal & Reflect**

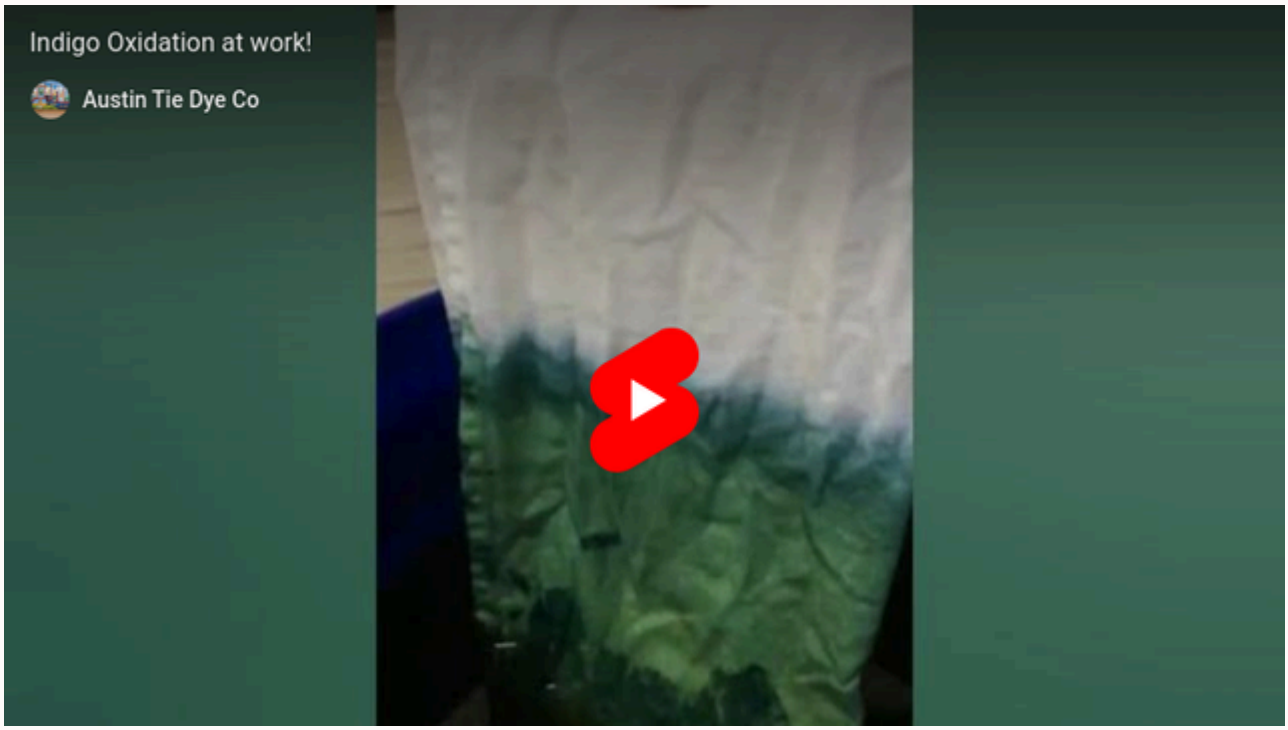
1. Reveal (15 min):
2. Unfold dyed fabric and compare results to the initial plan. Analyze symmetry, clarity of pattern, and unexpected outcomes.
3. STEAM Reflection (15 min):
4. In small groups or journals, reflect on:
    - What did I learn about chemistry or geometry through this art process?
    - How did collaboration support the experiment?
5. Sustainability Discussion (15 min):
6. Talk about the environmental impact of traditional vs. synthetic dyeing. Consider how STEAM can help preserve cultural traditions sustainably.

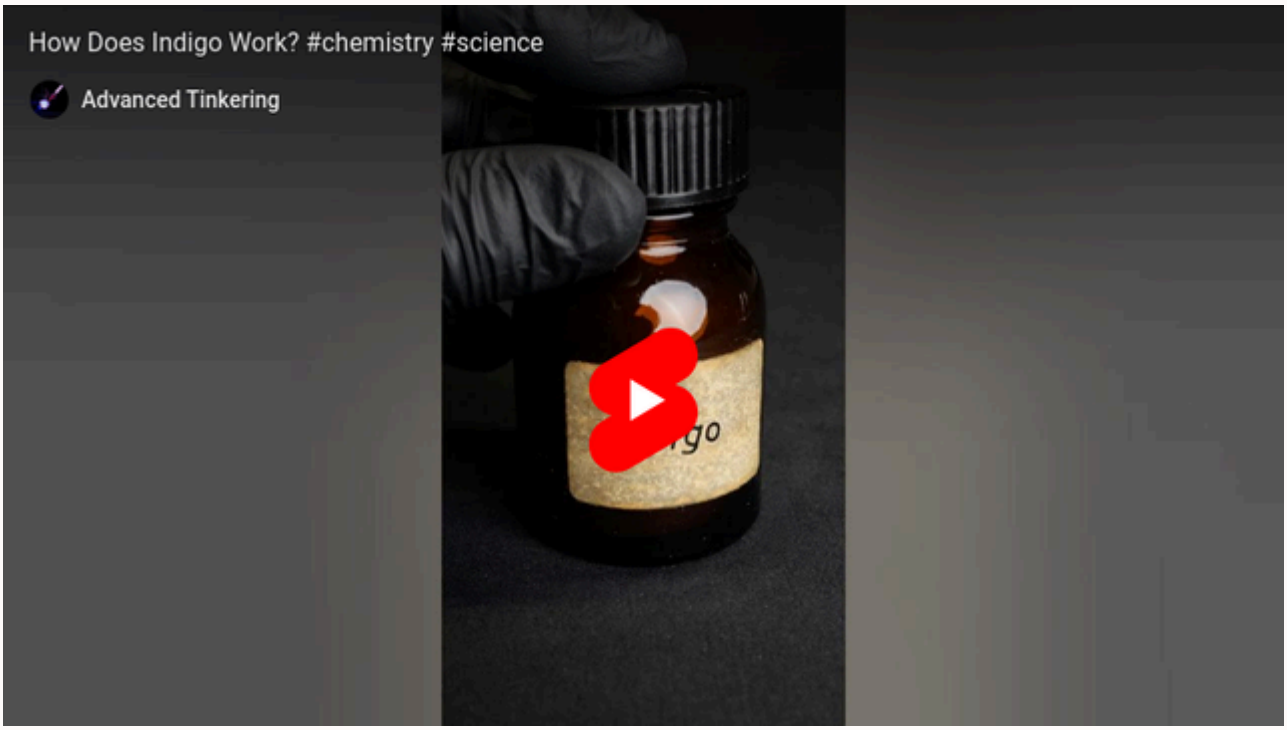
**Assessment:**

- Participation in collaborative dyeing and STEAM discussions
- Fabric outcomes demonstrating intentional design and technique
- Completed reflection connecting science, math, and cultural relevance
- Optional: Present findings as a mini “lab report” or visual journal page

Kumo Shibori

# Lesson Plan-Resources-Videos




When science and art are combined:

- Students are encouraged to experiment creatively (Art + Science)
- They are supported in learning from mistakes and building skills over time (Growth Mindset).
- Lessons are structured so everyone can access and contribute, using multiple entry points and tools (UDL).

What is UDL, Universal Design for Learning?
Universal Design for Learning (UDL) is an educational framework designed to make learning accessible and effective for all students, regardless of ability, background, or learning style. UDL is based on the idea that there isn't one single way to teach or learn that works for everyone. Instead, lessons are intentionally designed with flexibility and options from the start.
It also means equity in the Classroom: UDL promotes an inclusive environment where no single ability or learning style is favored.
Learn more: https://udlguidelines.cast.org/

# RESOURCES

Indigo plant

## What is Shibori?

Shibori is a Japanese manual tie-dyeing technique that involves stitching, folding, twisting, or bunching cloth to create intricate patterns. Traditional Shibori uses indigo dye, although now other colors can be used. Each piece created through Shibori is unique, as the way the fabric is manipulated affects how the dye is absorbed, resulting in a range of patterns and designs. Shibori was brought from China 1300 years ago and interpreted in a Japanese way. The process requires skill and creativity, making each shibori piece a work of art.

## Origins of Shibori

Historical Heritage
With roots over 1,000 years old, Shibori reflects Japan's textile craftsmanship and regional variations.

Artistic Expression
It allows for intricate designs often inspired by nature, linking fabric to the environment.

Cultural Identity
The practice embodies Japanese values like patience and respect for materials, fostering a sense of cultural continuity.

Community Tradition
Shibori is often a communal activity, passed down through generations, strengthening social bonds and preserving heritage.

Contemporary Adaptation
Today, it has gained global recognition, blending traditional techniques with contemporary design while maintaining its cultural roots. In the 1960s the crafts movement in America revived Shibori as tie-dye, a watered down version of very intricate techniques. Shibori has influenced the fashion industry and has had an impact on global textile art.

## Importance and Cultural Significance

Shibori holds deep cultural and artistic importance, both within Japan and globally. Its history traces back over 1,200 years, with some of the earliest examples preserved in ancient temples and historical archives such as the Shōsōin Repository. Shibori is closely tied to regional identities in Japan, particularly in places like Arimatsu-Narumi, where specific techniques have been passed down through generations. During the Edo period, Shibori patterns were sometimes linked to social status or group affiliations, reflecting both functional and symbolic roles in Japanese society.

Artistically, Shibori is valued for its intricate, handcrafted resist-dyeing methods, which include folding, binding, stitching, and twisting fabric. These manual techniques produce unique, unrepeatable patterns that embody Japanese aesthetic principles such as wabi-sabi — finding beauty in imperfection — and takumi, the mastery of craftsmanship. Shibori's visual language has influenced modern textile artists and global fashion designers, including iconic figures like Issey Miyake, who incorporate Shibori-inspired textures and forms into contemporary design.

Today, Shibori resonates with movements toward sustainable and slow fashion. Its focus on handcrafting and deliberate, thoughtful production contrasts with mass manufacturing, making it relevant to those seeking environmentally conscious textile practices. Cultural preservation efforts, such as workshops, exhibitions, and community initiatives, help keep Shibori a living tradition rather than a static relic. Shibori serves as a point of cross-cultural dialogue, sharing common ground with other global resist-dye traditions like Indonesian Batik and West African Adire. This broader connection highlights Shibori's role not just as a Japanese art form, but as part of a universal conversation in textile arts.

# Shibori Preparing Fibers to Dye



## → Preparing Fibers to Dye

- Scouring, or pre-washing fabrics ensures that dyes can penetrate the fibers evenly, resulting in a more vibrant and colorfast result.
- To desize fabric use one of the following scouring Agents: Soda ash, washing soda, dish soap, or Synthrapol to help remove impurities.
- Soda ash or washing soda can be tossed into the bath to desize CMC from a fabric even more efficiently. CMC is a sizing used on fabric that is water soluble.
- Scouring is done by placing fabric in a stainless steel pot with water 180°F, stirring for 30 minutes Rinse in same temperature water or wait until it cools down to rinse. For each (1 pound) of goods add (2 teaspoons) of cleaning agent.
- You can use Dawn detergent,Tide Ph neutral, or a soap such as Orvus Paste, Eucalan, or a neutral laundry soap, Cellulose Scour, or Soda Ash.
- Precautions: Use gloves when using soda ash.

## → Materials Needed for Shibori

Fabric-natural fibers for dyeing or synthetic (polyester) for shaping into 3d shapes (using synthetic dyes).
Indigo (natural or synthetic), Dyes: Procion MX reactive dyes (natural fabrics), Dylon dyes (cotton, linen) can not be used for wool, silk, or polyester, or Rit dyes can be used on natural and synthetic fabric.
Binding and Clamping Materials

- Rubber bands (assorted sizes).
- String, twine.
- Large Binder Clips or clamps.
- Flat wooden blocks or other objects to create resist areas.
- Sewing thread, needle.

Tools

- Gloves (rubber or latex).
- Scissors.
- Measuring spoons and cups.
- Containers for dye baths (buckets, tubs).
- A mixing stick.
- Optional: a dust mask, paint brushes, or sponges, dissapearing ink marking pen.
- A clean workspace and old clothes or apron.

# Shibori Fibers

## → What Fibers To Use

- Natural Fabrics are the traditional materials for Shibori
- Cotton -100% cotton, Muslin-(needs to be scoured)
- PFD fabrics come with no sizing or CMC (test a piece to make sure it needs no washing).
- Silk 100%- if it feels soft and is white, it only needs washing (soda ash can damage silk).
- Wool- (Scouring) submerge in hot, detergent-filled water for about 20 minutes (do not agitate).
- Linen and Hemp (Scour or use soda ash in hot water then rinse)
- Voile (Scouring using 1-2% soda ash and 1-2% detergent-handle delicate fabrics gently)

All fabrics must be washed before doing shibori and dyeing. New fabrics come with sizing that prevent the dye from penetrating

# Shibori (Resist Techniques)

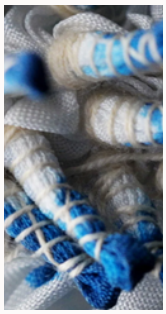
Resist Techniques
A. Major Categories

## → Major Categories of Shibori

1. kōkechi (tied or bound resist). Kokechi involves using string or other materials to tie and bind the fabric.
2. kyokechi (clamped resist). kyokechi employs clamping techniques to create patterns.

## → Shibori (Resist Techniques)

A. Arashi (pole wrapping)
B. Kanoko
C. Itajime
B. Kumo (cloud)
D. Nui (stitching)
E. Miura (knotted)



## → Kanoko Tying (Spotted Baby Deer)

Kanoko is a traditional resist dyeing technique where fabric is tied in small pinches to create patterns, ofter resembling the spawns of a fawn. Used by ladies of the Imperial Court, Heian Period (794-1185).

## → Arashi Shibori (Storm)

1. Accordion fold the length of the fabric in 3-4-inch wide folds. Secure one end of the fabric rectangle to a PVC pipe or pole with a rubber band or string. Wrap the fabric rectangle tightly around the pipe or pole without overlapping it using string
2. Scrunch all the fabric very tightly back up to the top of the pipe or pole

# Shibori (Resist Techniques)

## → Itajime (Clamping)

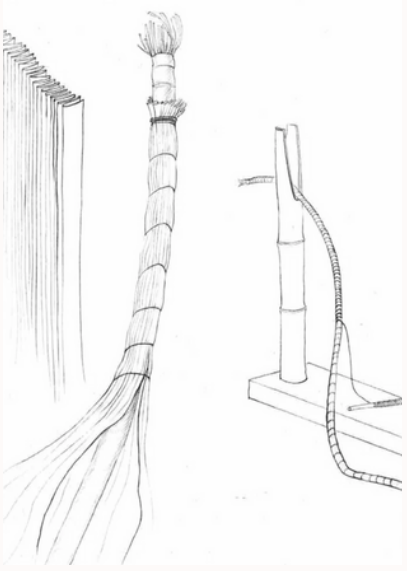
This technique involves folding fabric and clamping it between two objects, wooden blocks, and strings or clamps. Fold fabric into various shapes, place blocks on either side of folded fabric, then clamp all together. Dye the fabric after clamping.

## → Kumo Shibori (Binding)

This involves pleating and binding sections of the fabric to create spiderweb like patterns. Place small objects such as marbles, stones, inside the fabric. Tightly bind the fabric around the objects to make the resist.

## → Nui Stitching

Uses hand-stitching techniques and wooden dowels to create resistance and intricate patterns.



## → Miura (knotted technique)

Miura Shibori uses the processes of looping and binding to create patterns that resemble rippling water (especially when indigo is used). A slightly more involved process, miura designers need to pluck pieces of the cloth with a hook and needle, while the degree to which it is bound will affect the shape of the design.

# Shibori Vat Dyeing & Indigo Materials

*Infinite possibilities in shades of blue..unknown*

Instructor: Alina Rodriguez Rojo

## → TIPS: Indigo VAT

**Vat dyeing refers to dyeing that takes place in a bucket or vat**. An indigo vat is a solution used in dyeing to create a vibrant blue color. It typically consists of indigo powder, a reducing agent, and a base, all dissolved in water. The reducing agent is crucial as it converts the indigo pigment into a soluble form that can be used to dye fabrics. The solution in the vat is translucent yellow-green, and the surface of the vat is usually coppery blue and may be bubbly.

## → Materials List for Indigo Dyes

1. Natural fabrics,100% cotton, linen, silk, wool, hemp, bamboo, ramie, and rayon, a cellulosic fiber that is made with natural materials (No Synthetics).
2. All indigo vats need 3 things: Indigo powder, a reducing agent, and a base.
4. Materials for natural indigo, (reducing agent: calcium hydroxite, and fructose base. (Follow instructions from packet).
5. Materials for pre-reduced indigo: you will need sodium hydrosulfite (Thiox), and Soda Ash.

1. **Other materials:** rubber gloves, mask, measuring cups, 5 gallon bucket with lid, stock pot, heat source, stirring sticks, rubber bands, optional: popsicle sticks, clamps, stones, plexiglass shapes, wood blocks, sewing kit, scissors, and cording thread

References

https://www.dharmatrading.com/dyes/pre-reduced-indigo-crystals.html
Where to buy: https://www.dharmatrading.com/dyes/pre-reduced-indigo-crystals.html

# Shibori Safety Precautions & Pre Reduced Indigo

## → Safety Precautions

1. Use a mask when handling powders during mixing.
2. Use tools for dyeing only.
3. When mixing powders and water always add the powder to the water. Never add water to a measure of powder.
4. Label all containers and substances. Store dyes and chemicals separately and away from foods, children, pets.
5. Work outdoors whenever possible.

## → Pre-Reduced Indigo Crystals

Pre-Reduced Indigo is chemically identical to natural indigo. You can buy it as a kit from Jacquard (Dharma Trading). It is ready to be used in 10 minutes.

- The pre-reduced vat still needs a reducing agent (color remover)=Sodium Hydrosulfite and a vase= Soda Ash

If you want to overdye with other colors, use indigo first, mordant the fabric and over dye with your natural dyes.

## → Where to buy Materials:

- Dharma Trading Company, https://www.dharmatrading.com/
- Blick Art Materials, https://www.dickblick.com/
- Jacquard https, //www.jacquardproducts.com/

# Cold Water Dyes

## → Procion MX Immersion Dyeing

1. Immersion or tub dyeing involves submerging the fiber being dyed in a dye bath containing water, a specific amount of dye, and the appropriate chemical assistants for a specific length of time. The dye bath must be stirred frequently to achieve a smooth, even color. A large enamel or stainless steel container or plastic bucket can be used to hold the dye bath.
2. Scour and Wash Cellulose (cotton, muslin, linen)
3. For **one pound** dry weight of fabric or fiber **(3 to 6 square yards of fabric** or 3 T-shirts) Materials: • **3 gallons of warm water** (105° F) • Procion® MX dye (see above in for amounts) • ¼ to ¹/³ cup of soda ash • 1½ to 3 cups of salt (non-iodized)
4. Add the soda ash. (Dissolve the soda ash in a separate container in a little hot water first.) Stir into the dye bath.
5. Put the fabric back into the dye bath and stir frequently for 30 to 60 minutes (depending on the depth of intensity desired).
6. Leave the dyed fabric for 24 hours, covered in a plastic bag.
7. Rinsing: • While wearing gloves, rinse the dyed fiber first with cool water, then with increasingly warmer water. • After 3 or 4 rinses, when the water is nearly clear, prepare a soap soak. Use 2 to 3 gallons of very warm tap water and 1½ teaspoons of Synthrapol®. The fiber should sit in this soap bath for 5 to 10 minutes. • Rinse 3 or 4 additional times with warm water. • Using either Jacquard's Dyeset Concentrate or Jacquard's iDye Fixative during the initial rinse will further ensure long lasting colors.

# Cold Water Dyes

Resist Techniques
A. Major Categories

## → Procion MX Dyeing with a bottle

1. Pre-Wash Cellulose (cotton, muslin, linen) Fabric.
2. Pre-Soak in Soda Ash (Thoroughly dissolve 1 cup soda ash per gallon of water). Soak fabric in the soda ash solution for at least 20 minutes. Then, wring out by hand using gloves.
3. Shibori- In 1 cup of tap water, mix 2 or more teaspoons of dye. Apply the dye to the fabric using a squirt or spray bottle, paint brush or sponge. Turn the piece over and repeat the pattern on the opposite side. Apply as many colors as you like; however, oversaturation may cause all your colors to run together. Cover fabric with plastic wrap and let stand for 12 to 24 hours in a warm place. For rinsing: While wearing gloves, rinse the dyed fabric first with cool water, then with increasingly warmer water. After 3 or 4 rinses, when the water is nearly clear, prepare a soap soak. Use 2 to 3 gallons of very warm tap water and 1½ teaspoon pf soap. (Always follow instruction on the packet.

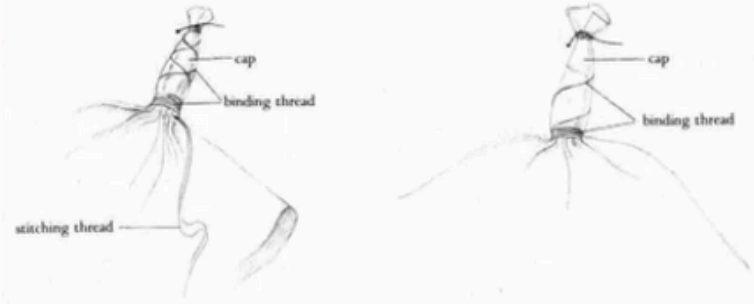
### Procion MX Immersion Dyeing
### Procion Dye Measurement

| WATER | DYE | DYE* | DYE** | UREA |
|---|---|---|---|---|
| 1 cup | 2 tsp | 4 tsp | 8 tsp | 1 Tbsp |
| 1 pint | 4 tsp | 8 tsp | 5 Tbsp | 2 Tbsp |
| 1 quart | 8 tsp | 5 Tbsp | 1/2 cup | 1/4 cup |
| 1 gallon | 1/2 cup | 1 cup | 2 cups | 1 cup |

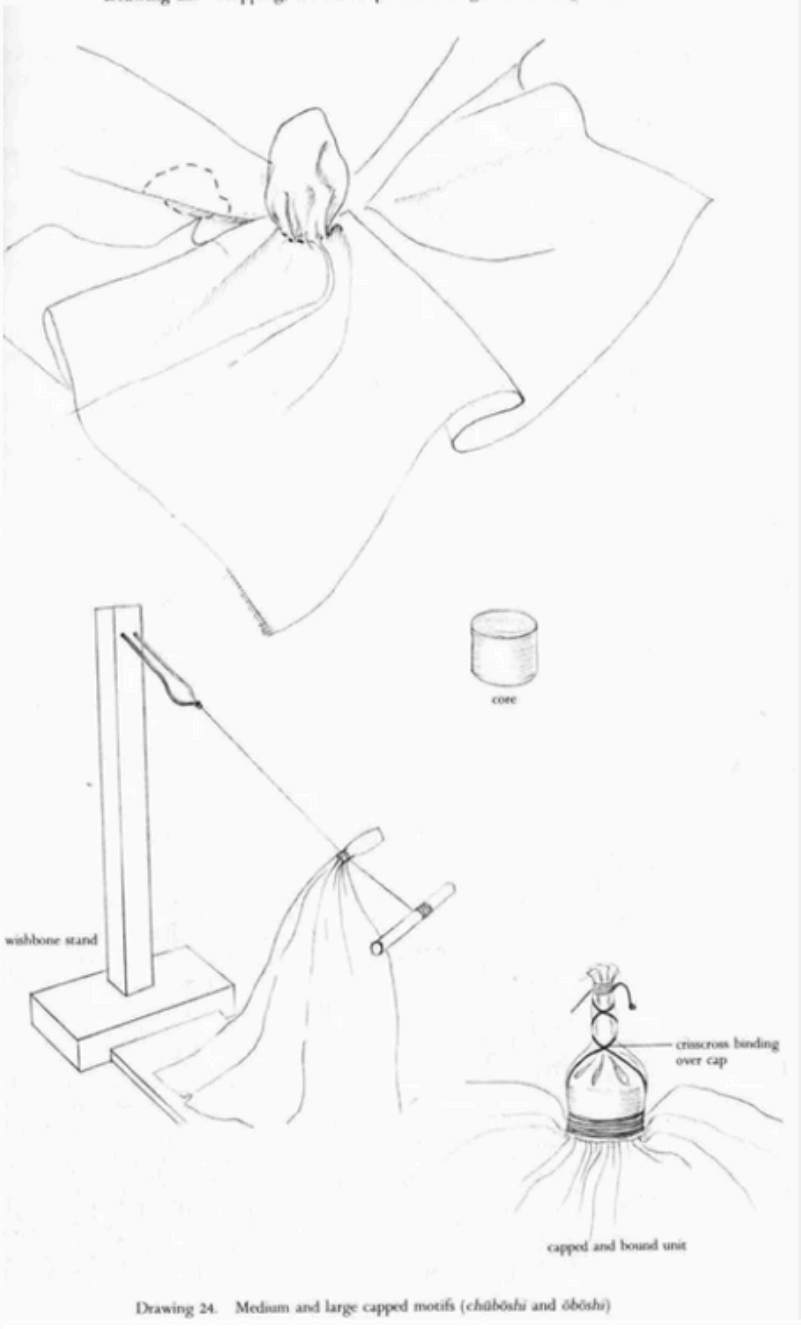
References:
https://static1.squarespace.com/static/5ac4eb022971149bb6d709d3/t/5b3e5a158a922d76136e0e5d/1530812950228/Procion-MX_Instructions.pdf

# Shibori (Miura Shibori Fold Techniques)

Resist Techniques




Drawing 22. Capping, relationship of stitching and binding threads




Drawing 24. Medium and large capped motifs (*chūbōshi* and *ōbōshi*)

Miura Shibori was named after a Doctor's wife who brought the technique to Arimatsu, a prefecture in Japan known for shibori. This technique involves binding fabric with thread in small sections. Miura Shibori consists of looped binding, keeping out less dye, and making small circular patterns. Commonly used for common clothes like yukatas. A yukata is a summer simpler kimono.

## 1. Techniques

### Gathering:

- Fabric is gathered in small sections, often using a hooked needle to pluck and lift the fabric.

### Looping:

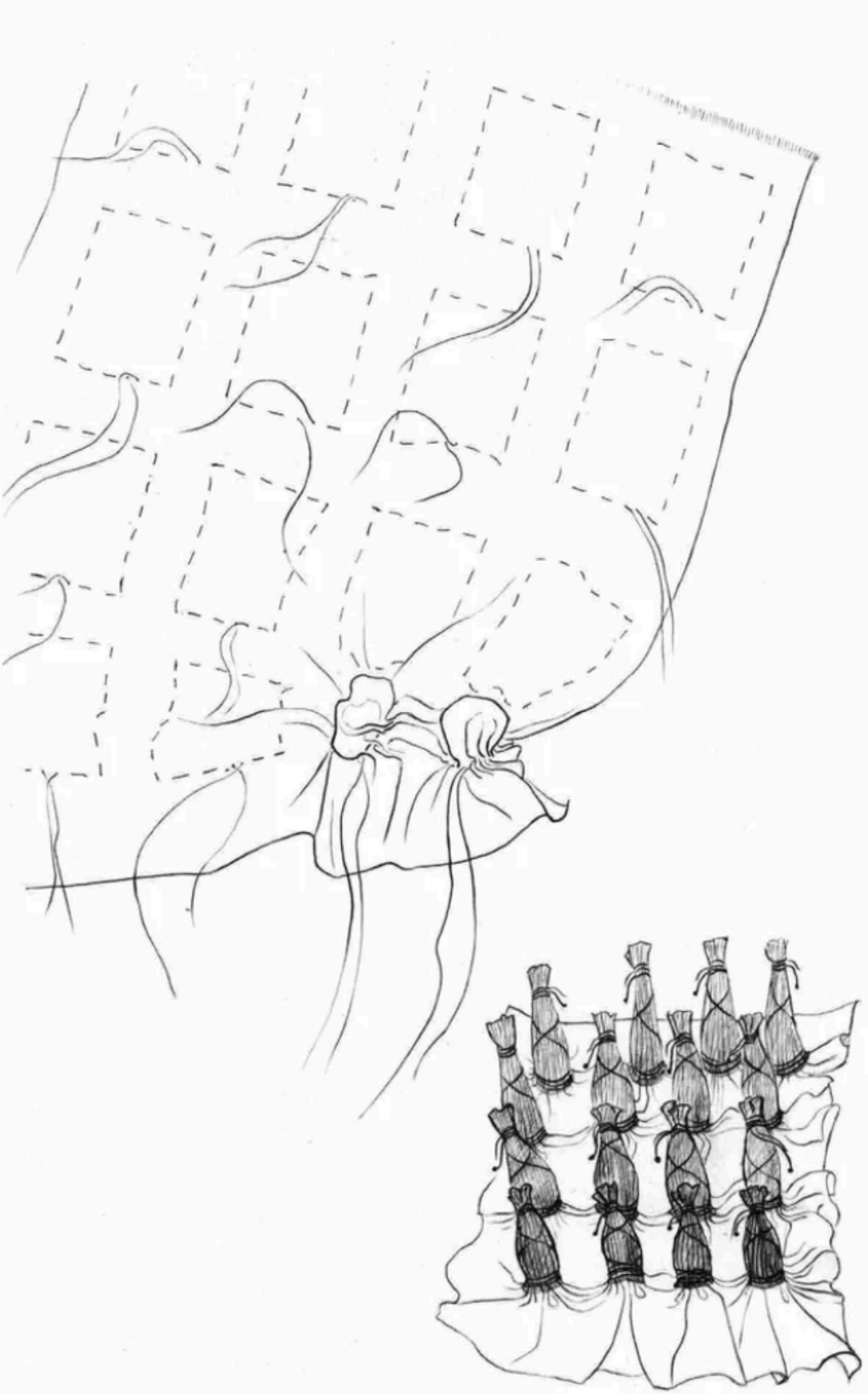
- A thread is looped around each gathered section, typically twice, without tying a knot.

### Tension:

- The thread is tightened to hold the gathered fabric in place, creating the resist for the dye.

# Shibori (Miura Shibori Fold Techniques)

Resist Techniques



# Shibori (Miura Shibori Fold Techniques)

Resist Techniques
Video


# Shibori ( Nui Stitching Techniques)

Resist Techniques

**STEPS:**

**Have students draw their design on the fabric with a washable fabric marker, tailor chalk, or light pencil. Make sure they start with simple designs.**

- **Light Lines: You can lightly mark lines on the fabric with a pencil as a guide if you prefer.**
- **Simple Designs: Even simple patterns like parallel lines can create interesting results with Nui shibori.**
- **Experiment with different line widths, stitch lengths, and how tightly you pull the thread to create a variety of effects.**

→ Nui is a stitch resist technique. The design is marked on the fabric, stitched with strong thread and gathered before dyeing.
Learn more
https://theprintedfabricbee.blogspot.com/2016/08/exploring-hand-stitched-shibori-ori-nui.html

# Shibori ( Nui STITCH Technique)

Resist Techniques

- Use a simple running stitch along your drawn lines or create freehand patterns.
- Leave thread tails at the beginning and end of each stitched line to facilitate gathering.

Gather the stitches

- Once all the stitching is complete, pull the thread tails tightly to gather the fabric along the stitched lines.
- The tighter the gathering, the better the resist will be, leading to sharper lines in the final design.

Prepare for dyeing

- Lightly spray the gathered fabric with water to help the fibers swell and allow for tighter gathers before tying.
- Soak the fabric in warm water for at least 30 minutes before dyeing, which helps create a better resist.

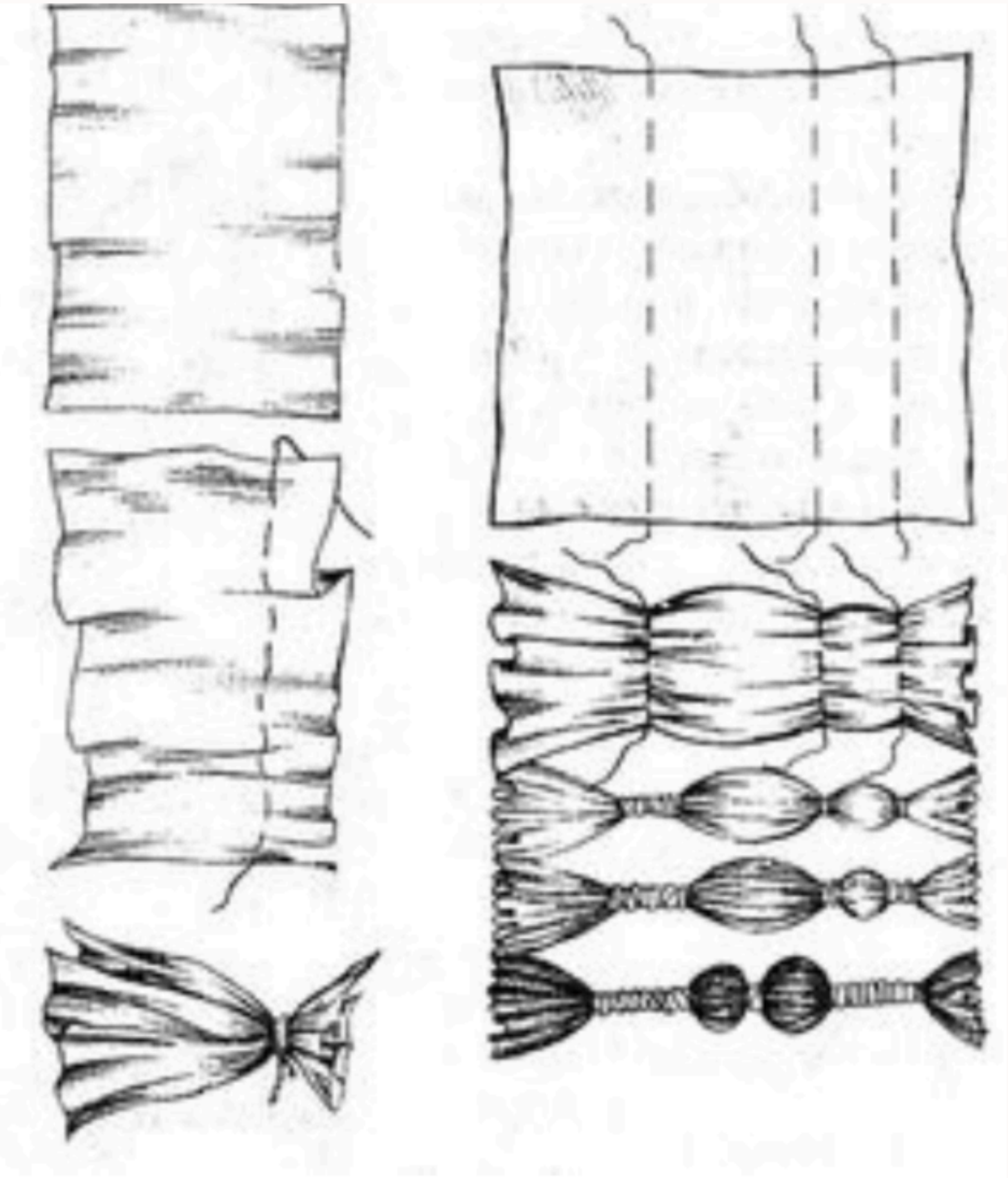
Tie off the gathers

- Secure the gathers by tying the thread tails together, either individually or in groups of two or three.

Dye the fabric

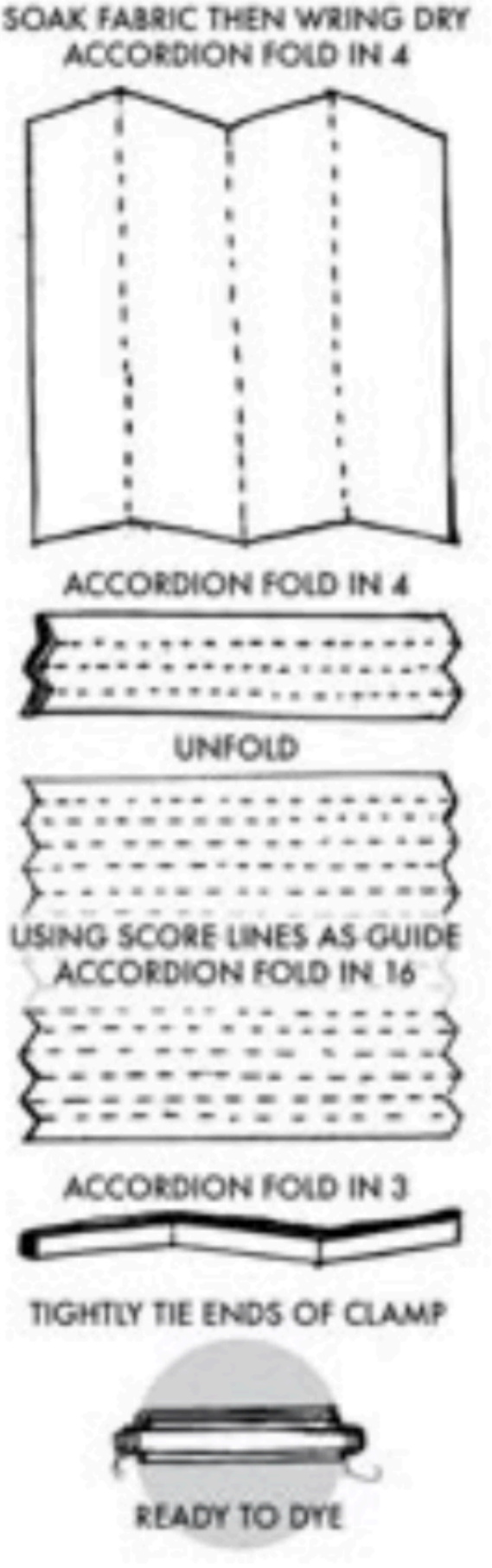
# Shibori ( Nui Stitching Techniques)

Resist Techniques



# Shibori ( Itajime Board Clamping) Techniques)

Resist Techniques
A. Major Categories



# Shibori ( Itajime Board Clamping) Techniques)

Resist Techniques
A. Major Categories

Itajime involves folding the fabric and clamping between two objects. The resulting patterns are geometric patterns.

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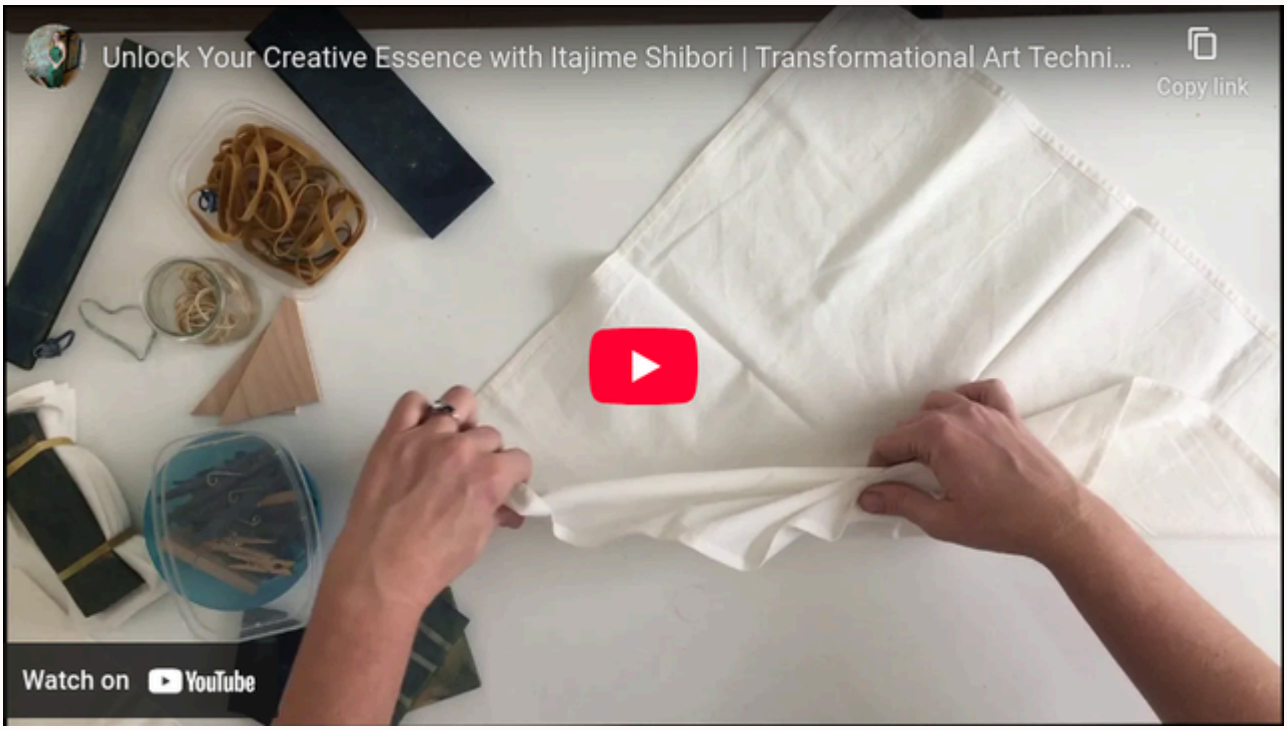


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Resist Techniques
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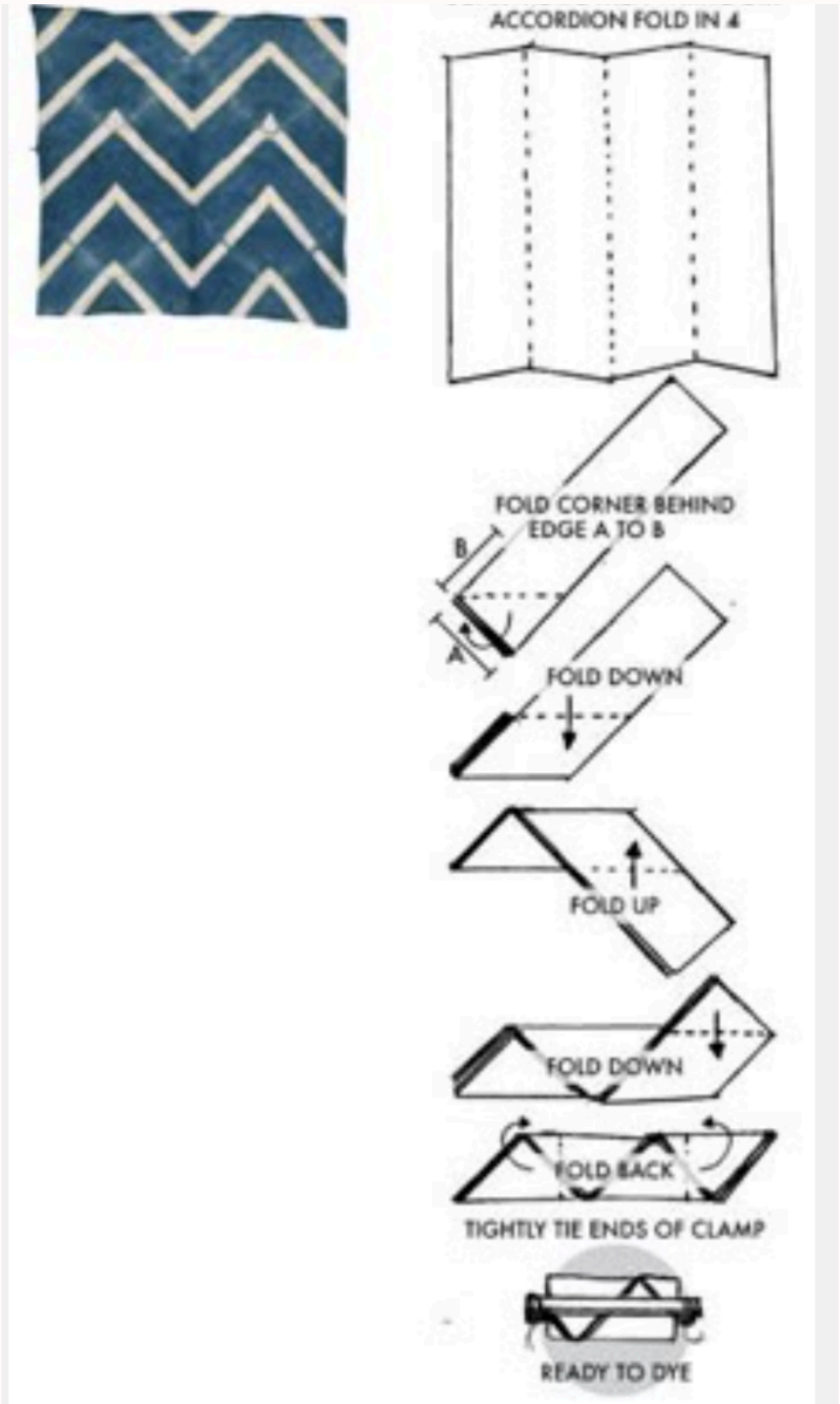
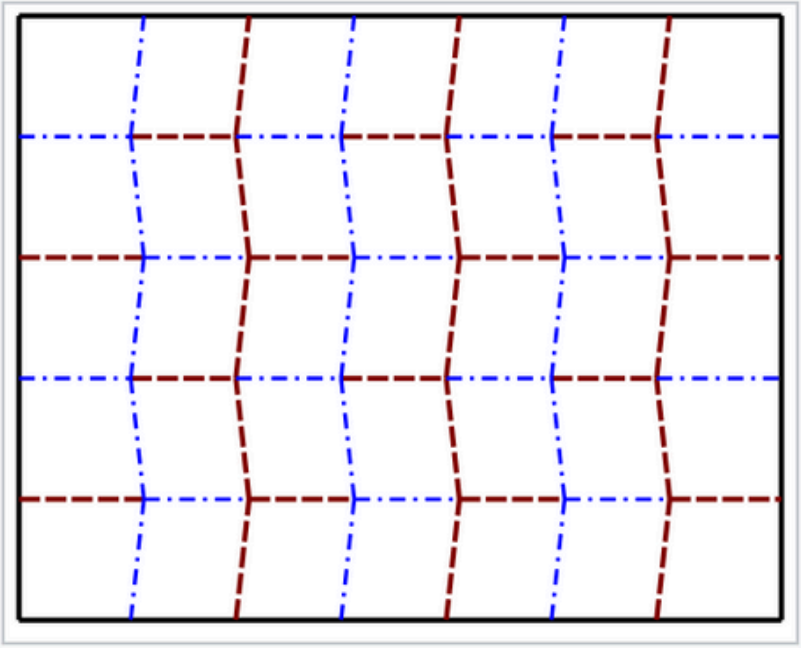


**EXTENSION: Science and Art- Miura-ori = Named after Koryo Miura, used in origami/engineering is not related to shibori but can be used as an extension to learning about folding techniques and math.**



Crease pattern for a Miura fold. The parallelograms of this example have 84° and 96° angles.

Audrey Zhang, an art and archaeology major, incorporates engineering into her artwork.
Courtesy of Audrey Zh

Miura technique is used in fashion to create intricate patterns in fabric.

Animation of the folding and unfolding of a Miura-creased material

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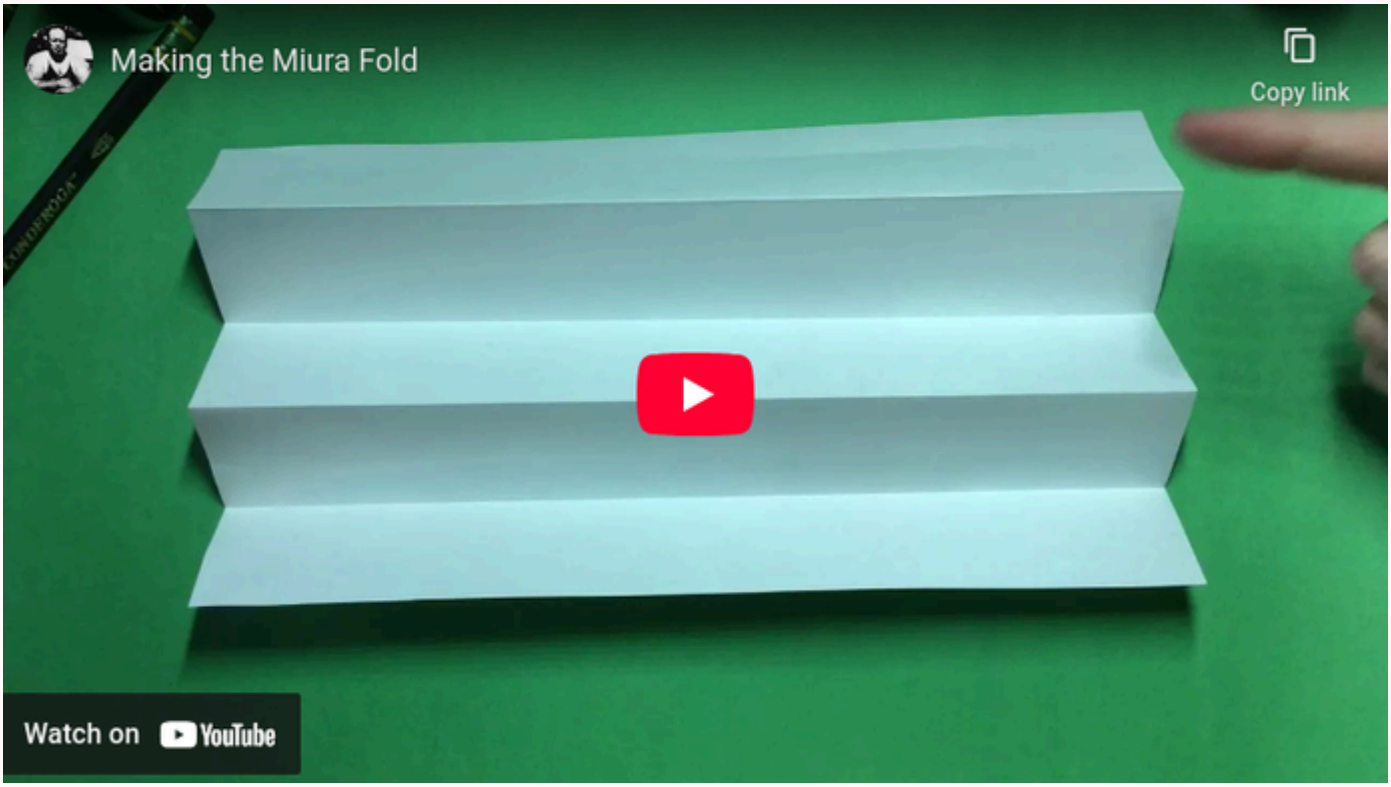


Miura folding, also known as Miura-ori, is a rigid origami technique developed by Japanese astrophysicist Koryo Miura in the 1970s. The technique utilizes a tessellation of parallelograms to create a pattern that allows a flat surface to be folded into a compact form and unfolded with a single motion. This unique property makes it ideal for applications like folding solar panels for spacecraft, where a large surface area needs to be compactly stored for launch and deployed in space.

The "Miura" in "Miura and science" likely refers to the Miura-ori fold, a type of origami fold named after Japanese astrophysicist Kōryō Miura. This fold is known for its ability to compactly fold and unfold flat surfaces using parallelogram tessellations. Its scientific and engineering applications are diverse, ranging from space programs to robotics.

Learn more https://www.sciencefriday.com/educational-resources/tessellation-and-miura-folds/

# Shibori: Vocabulary

## Vocabulary

- Alkeline- an aqueous solution with a PH higher than 7
  Grams per Liter (gpL): the amount of indigo in a vat
- Añil-indigo in spanish
- Arashi- the pole wrapping shibori technique that uses poles to wrap fabric. Also known as storm for the patterning.
- Indigo: Indigo is a pigment from the leaves of the indigo plant called Indigofera tinctoria, one of the oldest dyes known to humankind.
- Kumo- this Japanese technique involves gathering, pleating, binding the cloth. It creates a spider web pattern.
- Vat: The vat is the actual container of indigo and ingredients where you will dip your goods.
- Reduction: process of removing oxigen from indigo dye to make it water soluble and able to bond to fabric.
- Resist Dyeing-is a method of dyeing fabrics by using wax, tying, clamping, and stitching to prevent dyes from getting in.
- Oxidation: a chemical reaction that occurs when indigo dye is removed from a vat and exposed to air, which causes the dye to change color and permanently bond to the fabric.
- Reducing Agent: This is the chemical that will remove excess oxygen in your vat, allowing your vat to balance and become available for dipping and dyeing.
- pH: The indigo vat is dependent upon a moderately high pH level between 10 and 11.5 for cellulose fibers.
- Pectic: Found on fabrics before scouring

References:
Science: https://www.sciencedirect.com/topics/engineering/indigo-dye

# Shibori: Vocabulary

## Vocabulary

- Pectic: Found on fabrics before scouring
- Over-reduced Vat: An over-reduced vat is when you have added too much reducing agent.
- Shibori (**しぼり/絞り**, from the verb root shiboru - "to wring, squeeze or press" )
- "Scouring" is the textile term for cleaning fibers.
- Tie-Dye- a hand-dyeing technique that involves binding fabric with string or rubber bands to create patterns before applying dye.
- Under-reduced Vat: An under-reduced vat is blue and has lost the yellow-green color that allows you to dye fabric.
- Layering: Indigo is considered a "layered" dye, meaning that it's best the build the color with several dips rather than to dip once.
- Weight of Fiber or WOF.

References:
Science: https://www.sciencedirect.com/topics/engineering/indigo-dye

# Shibori: References

## References


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**Videos**

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- “Learn Shibori Techniques” – Craft School Oz (YouTube)
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