Grades
Middle School–Upper School

Unit Goal
This unit uses artwork to help students develop the critical thinking skill of making connections and to explore the value this pattern of thinking brings to developing a deeper understanding of people, events, and issues.

Curricular Connections
An example of how making connections can be used to deepen understanding in the classroom is provided. The students use making connections to understand why the nineteenth-century founders of American industry came to be called “robber barons” or “captains of industry,” and what role they played in laying the foundation on which the United States could grow into a leading industrial nation. They will also make connections between the founders of industry in the nineteenth century and contemporary tech moguls to better understand the industrial and economic landscape of America today.

Essential Questions
• What does it mean to make connections?
• What kinds of connections can be made?
• What is the process of connection-making?
• How can making connections deepen our understanding of issues, events, and people?

Duration
This unit requires an estimated 75 minutes, plus optional metacognitive breaks. These breaks provide students an opportunity to reflect upon their thinking (metacognition) in order to better understand that thinking pattern and transfer it to other content areas and to the world outside of school.

Artworks
Several pairs of artworks from the Renwick Gallery can be used to support this unit. This guide focuses on:

• Joan Parcher’s *Graphite Pendulum-Pendant*
• Jennifer Crupi’s *Ornamental Hands: Figure One*
Arc of Learning

**Step 1: Introduction** (10 minutes)
Students speculate about the nature of connection-making based on their own experience of making connections.

**Step 2: Identifying Personal Connections to Jewelry** (5 minutes)
Students gather their previous knowledge about jewelry. This step serves as the baseline to which they will compare their new and deeper understanding about jewelry.

**Step 3: Looking at Artwork 1** (10 minutes)
Students examine Jennifer Crupi’s *Ornamental Hands: Figure One* closely and carefully and explore how the artwork is constructed using a thinking pattern called Parts-Purposes-Connections.

Optional: Metacognitive Break (5 minutes)

**Step 4: Another Look at Artwork 1** (10 minutes)
Craft works are traditionally designed with the human body in mind. In this step, students imagine the artwork in action.

**Step 5: Looking at Artwork 2** (10 minutes)
Students closely observe Joan Parcher’s *Graphite Pendulum-Pendant* using the thinking pattern Nouns-Adjectives-Verbs.

Optional: Metacognitive Break (5 minutes)

**Step 6: Another Look at Artwork 2** (10 minutes)
Students imagine this second artwork in action. Consider playing some music and invite your students to move to the music so that they are reminded of the many movements their bodies can make.

**Step 7: Connecting Artworks 1 and 2** (10 minutes)
Students connect the two artworks and see whether making their own connections extends their understanding of the artworks and, in this case, jewelry. In many ways, this is the most critical learning experience of the unit. Connecting two items often cuts past the differences and focuses on the commonalities, which are the defining features and help us arrive at the conceptual understanding.

Optional: Metacognitive Break (5 minutes)

**Step 8: A Little About the Artworks** (5 minutes)
Students read information from experts about the artworks. Will this help them add new connections? How will this information add to their understanding of both the artworks and jewelry, more generally?

**Step 9: Reflection** (5 minutes)
Students consolidate their thinking by reflecting on the process of connection-making and speculate about how they might transfer this process to other topics.

Jennifer Crupi, *Ornamental Hands: Figure One*, 2010, sterling silver, acrylic, and inkjet print on polycarbonate film, Smithsonian American Art Museum, Museum purchase through the Renwick Acquisitions Fund. © 2010, Jennifer Crupi
Step 1: Introduction

Materials Needed:

- Student Booklet page 7
- Chart paper or white board

Duration: 10 minutes

Teaching Notes:

This experience is intended to prime students’ thinking about the nature of connection-making.

Discussion & Activity:

1. Invite students to look around the classroom and pick two items in the classroom that they feel are connected. Assure them the connections may be of any kind. Ask them to think of the many ways in which the items are connected. Then invite them to pick two more items and figure out the connections between these two new items.

2. Based on this warm-up exercise, ask the students:
   - What does it mean to make connections?
   - What things did you consider when connecting items?
   - If you were to describe step-by-step what you did to make a connection, what would these steps be?

On a large piece of paper or white board that is visible to the class, write down types of connections including all the features that can be used to connect items. You will need this document in future steps, where it is referred to as the “Types of Connections” list.

Possible Student Responses:

→ Making connections means... to attach, join, fasten, affix, couple, link
→ I considered... similarities and differences, how an object is used, similarity of materials, colors, shapes
→ Steps would include... looking closely at each item, seeking the characteristic or defining features of each item, and examine them closely in order to draw connections
→ Types of connections... similarities/differences in materials, colors, shapes, sizes
Step 2: Identifying Personal Connections to Jewelry

Materials Needed:

- Student Booklet page 8

Duration: 5 minutes

Teaching Notes:

Students learn about making connections and how this can help us deepen our understanding of objects, issues, or even people by examining the connections within a piece of jewelry and then between two pieces of jewelry to learn about connection-making.

This learning experience is designed to gather students’ previous knowledge about jewelry. This is the baseline to which their new and deeper understanding about jewelry will be compared. Student responses will vary widely.

Discussion & Activity:

1. To activate students’ thinking about jewelry, invite students to think about the jewelry they might be wearing, enjoy wearing, or see others wear. You might even ask those who don’t wear jewelry whether or not there is a reason for this. Ask students to consider when jewelry is worn and why it is worn. Ask them to think about jewelry around the world.

2. Next, invite the students to take two minutes to write all they know about jewelry in their booklet.

   *A Tip:* Challenge the students to use the two full minutes. Even if they feel they have written all that they know about jewelry, ask them to keep writing to fill the remaining time. The demand to keep writing often gets the students to think more deeply about a topic.
Step 3: Looking at Artwork 1

Materials Needed:

- Student Booklet page 9
- Images of Ornamental Hands by Jennifer Crupi
- “Types of Connections” List

Duration: 10 minutes

Teaching Notes:

The first of the two pieces of jewelry between which connections will be sought is called Ornamental Hands by Jennifer Crupi. This learning experience is an opportunity to examine the artwork closely and carefully and explore how the artwork is constructed using a thinking pattern called Parts-Purposes-Connections.

Discussion & Activity:

1. This routine calls on students to first analyze the artwork into its component parts. If students have trouble naming the parts, consider supplying the technical names of these parts (if you know them) or asking the students to make up a name that best describes the part.

2. Discuss as a whole group:
   - What parts did you notice?
   - What purpose(s) might each of those parts serve?
   - What kinds of connections have you noted?

Add these new connections onto the growing “Types of Connections” list.

Possible Student Responses:

→ The bracelet is meant to be put on the wrist. It connects the wrist and the prongs.
→ The rings are meant to be put on the fingers and they hold the fingers in a certain position. They connect the fingers to the chains, then to the prongs.
→ The flat pads are meant to slip on the fingers and to hold the fingers flat in one position. They connect to the fingers and to the chains hanging from the prongs.
→ The prongs are long curved extensions from the bracelet. They are meant to provide a fixed position for the chains to hang from. They connect to the chains, then the bracelet.
→ The chains hang from the prongs. They are meant to provide a flexible link from the stiff prongs to the rings while also keeping the fingers in a certain position. They connect the prongs to the rings.
Optional: Metacognitive Break

Materials Needed:
- Student Booklet page 10

Duration: 5 minutes

Teaching Notes:
By reflecting on their use of the thinking routines, students become more aware of their own thinking processes, become more familiar with thinking patterns, and begin to identify opportunities outside the classroom when this thinking pattern might be effective (transfer).

Thinking About Our Thinking Discussion:
Use the following questions to reflect on the thinking pattern:

1. How did Parts-Purposes-Connections help you explore the artwork?
   Possible Student Response:
   → I had to look closely at the artwork. I had to disassemble it into its various parts (analyze the parts). I had to decide where the parts separated or became distinct parts. I had to think of what role each of the parts played and how they were connected. This required me to reassemble the parts (synthesize) and see how they formed bigger parts and eventually a whole.

2. How did your thinking differ in each step of Parts-Purposes-Connections?
   Possible Student Response:
   → This thinking pattern allowed me to see all the various parts of the artwork that I might have otherwise missed. It also helped me see how the artwork worked and what role each part played in allowing it to work. Looking at the artwork so closely made me begin to conjecture what the artist might be trying to convey through the artwork and why she would make it. It helped me begin to form an interpretation.

3. When else might you use this pattern of thinking to learn?
   Possible Student Response:
   → I could use this thinking pattern for any kind of learning because it is asking me to break up everything into its component parts, to look for the role each part plays, and then see how they all fit together. It is asking me to analyze and synthesize. This would allow me to examine anything in much greater detail and seek connections that I might not have sought otherwise. It also helps me see the details in the context of the whole.
Step 4: Another Look at Artwork 1

Materials Needed:

- Student Booklet pages 11 and 12
- Images of Ornamental Hands by Jennifer Crupi
- “Types of Connections” List

Duration: 10 minutes

Teaching Notes:
Craft works are traditionally designed to accommodate the shape, movements, or needs of the human body. This learning experience gives the students an opportunity to imagine the artwork in action.

Discussion & Activity:
1. Invite the students to pretend they are wearing the artwork. Ask them to pay particular attention to how they might stand and hold their hands if they were wearing this unusual piece of jewelry.
2. Having considered the connections inherent in the piece of jewelry, now invite the students to discuss another kind of connection, that between the piece of jewelry and their bodies:
   - What effect might wearing the artwork have on your body? How might you stand and/or behave?
   - How might your body affect the artwork, if you did have a chance to wear it?
   
   Possible Student Responses:
   → I would be very conscious of myself and how I look. I might stand more upright.
   → I might be on my best behavior.
   → I might be very uncomfortable. I might fidget a lot.

3. Invite students to work in pairs to answer the following questions in their booklet:
   - What kind of a connections does this line of thinking reveal?
   - What message(s) might the artist be trying to convey through this piece of jewelry?
   - What questions might you want to ask the artist about the piece of jewelry she has created?
   
   Possible Student Responses:
   → Connections: Cause and effect
   → Messages: Perhaps, she is trying to convey that jewelry we wear affects our bodies, how we carry ourselves, and our feelings. Perhaps she wants us to consider why people wear jewelry and the different kinds of jewelry people wear, and how that depends on their social status or wealth.
   → Questions: What made you make this piece of jewelry? Why would someone wear such a piece?

Step 5: Looking at Artwork 2

Materials Needed:

- Student Booklet page 13
- Images of Graphite Pendulum-Pendant by Joan Parcher

Duration: 10 minutes

Teaching Notes:
To begin, it is important that the students understand the meaning of each of the words in the title of the artwork:

- Graphite: a soft black lustrous form of carbon that occurs as a mineral in some rocks. It is soft and easily wears away. It is used to make lead pencils.
- Pendulum: a weight hung from a fixed point so that it can swing freely backward and forward under the action of gravity and commonly used to regulate movements (as of clockwork)
- Pendant: a piece of jewelry that hangs from a chain worn around the neck

This learning experience presents the second of the two pieces of jewelry and gives the students an opportunity to observe the artwork closely. The thinking pattern used here is Nouns-Adjectives-Verbs.

Discussion & Activity:

1. Invite students to work with a partner. Ask them to look closely at the artwork and to imagine separating the piece of jewelry into its component parts.

Next, ask them to name each of the parts with words that will most likely be nouns, things you can point to and name. Students may not always know the precise noun. Consider encouraging them to invent a suitable word that will help them identify and name the part.

Then, ask the students to describe the parts (nouns) with adjectives.

Finally, ask the students to imagine the actions each of the parts may make, using verbs to describe these actions.

Invite them to record each of the parts with the accompanying adjective and verb in the table provided. It is likely that the words will create phrases that describe the artwork.

Possible Student Responses:

→ Oval, black, tear-shaped, shiny glistening pendant drops, hangs and is suspended
→ Thin, fine, silvery, short chain holds, connects, and joins
→ Small, round, circular, strong ball stays, merges, bridges
→ Metal, silver, rope-like necklace encircles

2. Have the students share their resulting phrases. The cumulative effect will be that the students will have a chance to share their perspectives with their peers and the piece of jewelry will be thoroughly described.

Possible Student Responses:
→ Silver, ropelike necklace encircles
→ Tear-shaped pendant hangs

3. Having had a chance to look closely at the artwork, ask the students: If you could ask the artist two questions about her artwork, what might they be?

Possible Student Responses:
→ Why did you make this piece of jewelry?
→ Why would someone wear something like this?
Optional: Metacognitive Break

Materials Needed:
- Student Booklet page 14

Duration: 5 minutes

Teaching Notes:
By reflecting on their use of the thinking routines, students become more aware of their own thinking processes, become more familiar with thinking patterns, and begin to identify opportunities outside the classroom when this thinking pattern might be effective (transfer).

Thinking About Thinking Discussion:
Use the following questions to reflect on the thinking pattern:

1. How did using Nouns-Adjectives-Verbs help you observe the artwork?
   
   Possible Student Response:
   → It made me look very closely at it. I was looking for all its parts so that I could name them.

2. What kinds of thinking did you find yourself using?
   
   Possible Student Response:
   → I found myself taking the artwork apart into its component parts to name the parts. I had to think of each part separately. Trying to name it made me think more closely about what it was and its purpose was. Trying to describe and think about the actions it might make also made me think about its various features. I found myself analyzing the artwork closely in terms of what each part was and the purpose it performed.

3. When else might you find Nouns-Adjectives-Verbs to be a useful learning tool?
   
   Possible Student Response:
   → Perhaps I should be doing this for all my learning, whether it is math or my stories or even an issue. Trying to name the parts will make me think of everything in its parts, its various features and what it does or the role it plays. It is like analyzing everything. Thinking about it in these terms will also help me understand the whole better.
Step 6: Another Look at Artwork 2

Materials Needed:

- Student Booklet page 15
- Images of *Graphite Pendulum-Pendant* by Joan Parcher
- “Types of Connections” List

Duration: 10 minutes

Teaching Notes:
This learning experience gives the students an opportunity to imagine the artwork in action. Consider playing some music. Invite your students to move to the music so that they are reminded of the many movements their bodies can make.

Discussion & Activity:

1. Ask students to make a list of the movements they might make in a typical day. Discuss:
   - How might your moving body affect the artwork?

2. Remind students that the pendant is made of graphite, the same material that makes up the lead for their pencil. Ask the students to consider what might happen to the jewelry, the chain, the pendant as a result of these movements.
   - If you were wearing this artwork around your neck, what effect might it have on your body? Your clothing?
   - Would every body’s marks be the same? How would the body affect the marks the pendant makes?

Opening their booklet to the image of the t-shirt (page 15), invite students to track the marks that might be left by the pendant as they make the movements they listed.

Possible Student Responses:

→ Peoples’ bodies are unique so the marks left behind by the pendant would probably be different depending on who is wearing it. The way people move is different, too.
→ If someone moves slowly, they probably wouldn’t wear away as much graphite as someone who moves quickly.

3. Finally, ask the students to draw upon this experience to share aloud new connections they have discovered. Document these on the growing “Types of Connections” list. Prompting questions might include:
   - What connection is there between the pendant and the body?
   - What might happen to the pendant as it leaves the marks? What might happen to the chains?

Possible Student Responses:

→ The body and the pendant affect each other.
→ Chains might get worn out, twisted, lose their tautness. Graphite pendant would wear away and make marks on the t-shirt.

4. Challenge students to discuss what message the artist might be trying to convey through the jewelry. Document their ideas.

Possible Student Response:
→ Perhaps the artist is trying to convey that the jewelry or other adornments we use mutually affect us. Our bodies and personalities affect the jewelry, how it looks on us, what happens to it. In turn, the jewelry also affects us, how we behave, how we move, our feelings, our mood, and more.
Step 7: Connecting Artworks 1 and 2

Materials Needed:
- Student Booklet page 16
- Images of Graphite Pendulum-Pendant and Ornamental Hands

Duration: 10 minutes

Teaching Notes:
At this point, students have experienced that there are many kinds of connections. They have had a chance to look closely at each of the two, separate artworks. This learning experience challenges students to connect the two artworks and, in so doing, discover how connection-making extends their understanding of the artworks and in this case, jewelry.

Information about the two artworks will be provided in Step 8. This will allow students to make a more informed comparison. However, this learning experience gives students an opportunity to first forge their own connections.

In many ways, this is the most critical learning experience of the unit. Connecting two items often cuts past the differences and focuses on the commonalities. The commonalities are the defining features and help us arrive at the conceptual understanding.

Discussion & Activity:
1. First invite the students to look at the two artworks, side-by-side. Working with a partner, challenge them to consider the many ways in which the two artworks are connected.

   Possible Student Responses:
   → Pieces of jewelry
   → Made up of many parts
   → Made of metal
   → Makes an impact by either marking in the wearer of or changing the way they behave

2. Next, ask the students to consider how the connections they have made extend their understanding of both the artworks and of jewelry, more generally.

   Possible Student Response:
   → The artworks seem to be about jewelry as being more than just decoration. The artists seem to think of jewelry as having a relationship with the person wearing it. The jewelry affects body postures, how the wearers feel about themselves, and how they behave. The wearer affects the jewelry by slowly wearing it away, bending it or scratching it over time.

3. Finally, invite the students to note any wonderings or questions they may have about the artworks.

   Note: Students may initially state they have no questions. Model some questions for them to inspire their own. Questions are a critical part of extending understanding because they state what is left unsaid.
Possible Student Responses:
→ Why do people wear jewelry? What can we learn about people from the jewelry they wear?
→ In what way can class determine the jewelry people wear? Why did kings and queens wear so much jewelry? What statement were they trying to make?
→ What can be considered jewelry?
Optional: Metacognitive Break

Materials Needed:
- Student Booklet page 17

Duration: 5 minutes

Teaching Notes:
By reflecting on their use of the thinking routines, students become more aware of their own thinking processes, become more familiar with thinking patterns, and begin to identify opportunities outside the classroom when this thinking pattern might be effective (transfer).

This thinking pattern is about using what is known or is visible between two or more things (Connect) as a base or a foundation on which to build new knowledge and understanding (Extend) and leads students to consider aspects of the topic that are left unanswered (Wonder). It forms a systematic approach to connecting what is known to what is new and encourages exploration of what is unknown.

Thinking About Our Thinking Discussion:

Use the following questions to reflect on the thinking pattern Connect-Extend-Wonder:

1. What did you discover by connecting the artworks?
   
   **Possible Student Responses:**
   → In order to connect ideas, I focused on similarities rather than differences. Some commonalities were easy to spot and obvious, some I had to think about deeper to find them.
   → In order to connect ideas, I focused on similarities rather than differences. Some commonalities were easy to spot and obvious, some I had to think about deeper to find them.

2. How did looking at the two artworks together extend your thinking about the artworks and jewelry, more generally?
   
   **Possible Student Response:**
   → When looking for commonalities, I discovered defining features of the pieces of jewelry. They helped me extend my definition of “jewelry”.

3. What might be valuable about wondering?
   
   **Possible Student Response:**
   → The questions I was asking were all about what was not obvious or even stated. I realized that asking questions uncovers things that need to be explored in order to truly understand something.

4. On what other occasions would you find it useful to use Connect-Extend-Wonder?
   
   **Possible Student Response:**
   → I could use this to understand how my school subjects connect to each other or to the real world.
Step 8: A Little About the Artworks

Materials Needed:

- Student Booklet page 18
- Images of Graphite Pendulum-Pendant and Ornamental Hands

Duration: 5 minutes

Teaching Notes:
Until this point, the students have had opportunities to look closely at the artworks, connect the artworks, and use their connections to both advance their understanding of jewelry and interpret the artworks. This learning experience gives the students an opportunity to read some information from experts about the artworks, offering new connections and understandings.

Discussion & Activity:
Ask students to read the short excerpts about each artwork provided on page 18 of the Student Booklet. Then, challenge them to go back to their Connect-Extend-Wonder sheet and add any new connections, extensions, or wonders.

Possible Student Responses:

→ Connections: Both artists see jewelry as something more than decoration. They seem to think of jewelry having a relationship with the person wearing it. It can change their body postures, how they feel about themselves, and how they behave. The way the body moves can also affect the jewelry and change it, too, over time.

→ Extensions: We may see jewelry as adornment of our bodies, but jewelry can impact us. It can affect how we feel about ourselves, how we behave, how we act and hold ourselves. Our bodies also affect the jewelry we wear.

→ Wonders: How does the jewelry I wear impact me AND people around me? How does it impact how others perceive me and shape their interactions with me?
Step 9: Reflection

Materials Needed:

- Student Booklet page 19

Duration: 5 minutes

Teaching Notes:

This learning experience provides students an opportunity to reflect on how connection-making has helped them enhance their understanding of the artworks and jewelry.

Discussion & Activity:

1. Remind students that, at the beginning of the unit, they were asked to write what they knew about jewelry. Invite them to write about jewelry once again.

2. Challenge them to compare their new ruminations with their initial ones. Discuss as a whole group:
   - How does what you wrote at the beginning compare with what you have written now?
   - If you noticed a shift in your written ideas, what insights or ideas caused that shift?

Possible Student Responses:

  → Comparison: I first wrote about jewelry as looking good with my clothes. Now, I have a whole new perception of jewelry and what it tells others.
  → New Insight: I started to think about how wearing jewelry can make me feel or act differently, maybe hold myself differently. I’m thinking about how my jewelry might give people an idea about my personality or my social status.

3. Next, ask them to reflect on the practice of connection-making:

   - What is the process by which you make connections?
   - How can connection-making help you develop a deeper understanding of people, events, and issues?
   - What topic might you use the practice of connection-making to understand better?

Possible Student Responses:

  → Process: To make connections, I had to closely analyze each of the items being connected. I had to search for the features of each.
  → Deepening Understanding: Connection making challenges me to examine each item more closely and analyze it in terms of its features, characteristics, markings. Then I start to think about the big conceptual ideas that connect the two items. It goes from small details to big ideas.
  → Topics: One can connect two civilizations to try and understand the concept of civilization and perhaps their significance.