Arriving at a critical moment for educators, *Iris van Herpen: Transforming Fashion* will be the High Museum of Art’s first presentation of fashion design. As educators are striving to cultivate students’ 21st-Century skills and transform STEM to STEAM, this exhibition provides rich opportunities for teaching and learning across the curriculum for all age levels. Science, art, mathematics, technology, and storytelling can all be taught using these remarkable dresses.

Showcasing work from 2008 through 2015, the exhibition features forty-five outfits highlighting fifteen fashion collections designed by cutting-edge designer Iris van Herpen. Her work includes some of the first 3-D-printed fashion ever created. Garments in the exhibition will introduce your students to innovative uses of materials and technology as well as inspiring wearable sculpture.

Van Herpen has collaborated with architects, engineers, shoemakers, and handcrafters to bring her visions to the runway and our galleries. Her fusion of skilled handwork and current-day technology will readily spark inquiry, investigation, and creation in your classroom.

**About the Artist:**
Born in 1984, Iris van Herpen graduated from the ArtEZ Institute of the Arts in the Netherlands and then interned with Claudy Jongstra and Alexander McQueen. She started her own label in 2007 and was nominated for the prestigious Createurope: The Fashion Academy Award the very next year.

Van Herpen works in Amsterdam in a studio that encourages collaborative work. The studio’s building is shared with artists working with a variety of media, including wood, metal, and even piano building.

As this exhibition will reveal, van Herpen’s use of materials—especially the integration of 3-D printing—is groundbreaking innovation. She is inspired by science and nature, and her collaborative process inspires new and unique approaches to fashion. More information about Iris van Herpen’s current collections and her collaborators is available on her website: [irisvanherpen.com](http://irisvanherpen.com).
Collections Represented in Iris van Herpen: Transforming Fashion

Chemical Crows (January 2008) This collection was inspired by a group of crows who lived around van Herpen’s studio. The dresses feature materials such as industrial yarn and umbrella tines.

Refinery Smoke (July 2008) Garments in this collection draw attention to both the fascinating nature and toxicity of industrial smoke through a specially woven metal gauze.

Mummification (January 2009) This collection explores ancient Egyptian traditions. The designs and use of materials are inspired by the process of mummification and its resulting geometric shapes.

Radiation Invasion (September 2009) Dresses in this collection explore the constant flow of digital telecommunications by surrounding the wearer with reflecting pleats, wavy rays, and flickering patterns. If we could see them moving through the air, what would a cell phone call, an email, or a tweet look like?

Synesthesia (February 2010) Synesthesia is a rare neurological condition where the stimulation of one sense also stimulates another. For instance, some people can taste colors and see sounds. In this collection, van Herpen confuses the sense of vision by using transparent materials, repetition, and movement.

Crystallization (July 2010) These dresses give the appearance of water splashing around the wearer. This collection depicts literal, mathematical, and metaphorical aquatic movement and features some of the first 3-D printed fashion.

Escapism (January 2011) This collection explores how we escape everyday life through digital entertainment. Using rapid prototyping, a method to produce 3-D objects quickly from two-dimensional computer renderings, van Herpen and collaborator Daniel Widrig were able to 3-D print lace-like structures, yet the collection also includes various old-world hand plissé (folded, creased, or pleated) finishes.
**Capriole** (July 2011) van Herpen’s Paris debut, *Capriole* compiles highlights of previous collections alongside five new outfits inspired by the designer’s experience with skydiving.

**Micro** (January 2012) Inspired by Steve Gschmeissner’s scanning electron microscope images, this collection brings microorganisms to macro scale, engulfing wearers in representations of ciliates and plasma.

**Hybrid Holism** (July 2012) Influenced by Philip Beesley’s project *Hylozoic Ground*, van Herpen envisions living fashion in this collection, exploring a future with clothing that might grow with or exist independently of its wearer.

**Voltage** (January 2013) Electricity appears to course through these garments via laser-cut acrylic, mirror foil, paper, and 3-D acrylic lace.

**Wilderness Embodied** (July 2013) These garments were inspired by uncontrollable natural forces—magnetism and energy—and extreme human traditions such as piercing and scarification.

**Biopiracy** (March 2014) With soft organic lines, shimmering surfaces, and futuristic shapes, this collection delves into our genetic code, the biology of our origin, and asks the question: Are we still the sole proprietors of our own bodies?

**Magnetic Motion** (September 2014) Magnetism plays a central role in this collection through representations of attraction and repulsion. In a limited color palette, these garments reveal their unique structures and forms.

**Hacking Infinity** (March 2015) This collection explores terraforming: changing the surface of another planet to resemble that of Earth. Materials such as translucent stainless steel are woven alongside optical lighting film, evoking a boundless and ever-evolving future.

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**Curriculum Connections in Fashion Collections:**

The feather-like spines of the dress above, as well as others in *Chemical Crows*, are actually made of golden tines from an umbrella, which flap almost like wings as the wearer moves. Van Herpen transforms a variety of unexpected materials into fashion.

**This garment can inspire exciting design exploration:**

- Set up a STEAM design challenge: present small groups of students with untraditional materials such as paper plates, drinking straws, or tongue depressors. Task them with creating an original garment using the materials.

- Just as van Herpen is inspired by crows, ask your students to draw inspiration from animals’ physical and behavioral characteristics. Does the design mimic a motion such as swimming or crawling? Does it highlight a physical attribute such as scales or fur?

- Have middle school students choose a traditional material to combine with the untraditional materials. Ask high school students to assign a symbolic or natural significance to their designs.
The dress above is part of van Herpen’s 2008 collection, *Refinery Smoke*. Especially for this collection, fine metal threads were woven into a soft, pliable gauze that creates the spiraling billows and tendrils we see here. The metal threads have oxidized, creating a reddish-brown color, further illustrating the toxicity of industrial smoke.

**Study this dress closely to spark student creativity:**

- Let van Herpen’s dress guide research on and discussion of air pollution. How has industry played a role? What solutions might there be? Task your students with creating a work of art that explores and draws attention to an environmental issue that they are passionate about.

- Explore what oxidation is and how it occurs. The reddish-brown color that formed on this dress is a thin layer of oxides called patina. As students research oxidation, ask them to identify other art examples or landmarks that have undergone oxidation, such as the Statue of Liberty.

- Refinery smoke has a binary nature: a beauty of shape and form versus a poisonous chemical makeup. What other concepts or characters can your students envision that have this duality? Ask students to present their ideas in poetry, sculpture, or song.

As part of *Capriole*, her July 2011 collection, van Herpen includes the dress at right, sometimes called the Snake Dress. Made of acrylic sheets, it represents a moment in skydiving. Van Herpen has noted: “Just before I jump out of the plane, all my energy is in my head, and I feel as though my mind is snaking through thousands of bends.”

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*Iris van Herpen, interview by Sarah Schleuning, Amsterdam, the Netherlands, October 23, 2014.*
Though designed four years apart, the two dresses above share an important story of perseverance and innovation in van Herpen’s career. As she explained in a 2014 interview:

“I remember why I first started working with 3-D printing. I had an idea in my mind that I wanted to make a water dress, and I had no idea how to capture a material that is so uncontrollable, like water. I had the sense that I would have to work with a newer technology that could make this happen and that I would 3-D print a fully transparent water dress. At the time it was impossible, because you couldn’t 3-D print transparently yet. So I started trying different things out with hot air guns and metal pliers, and I tried out thirty or forty different materials until I found the right one [PET, a thermoplastic polymer resin]. And since that moment, I had it [3-D printing] in my mind…. Finally, I was able to do it for my last show, Magnetic Motion, and it was a really exciting moment for me because it was in my head all those years, and it finally came out. Actually, the company that I was printing with, they had no hopes for the dress at all. They said, ‘Well, we can’t do it.’ And finally they said, ‘Okay, well, we’re just going to try it.’ Then two weeks later they called me with the notice that the printing worked, and I think that was one of my happiest moments so far.”*

These dresses and their stories can inspire your students as artists, designers, and engineers:

- Ask your younger students to define the character qualities van Herpen demonstrated in this story. How are those qualities important for a learner? An artist? An innovator?

- Compare and contrast the first handmade dress with the later 3-D printed version. What kinds of similarities and differences can you find?

- Present small groups of students with some sort of plastic to work with, such as used water bottles. How can the material be reworked to create something new?

- These dresses represent water but are made of plastics. Challenge groups of students to invent and build a functional machine with water as a working part. Using containers and materials at hand, what useful invention can they devise with water as a main component? A scale that works using water displacement? A timer that sounds when the water level rises? A cushion to absorb shock?

*Iris van Herpen, interview by Sarah Schleuning, Amsterdam, the Netherlands, October 23, 2014.
The exhibition can spark even more learning experiences in your classroom:

• What can your students design and print using a 3-D printer? Van Herpen has applied the technology to fashion; what other applications can students propose for 3-D printing?

• Make the exhibition your “wardrobe department.” When you finish a novel or story, students can decide which garments most suit each character and explain why.

• Place van Herpen’s collections on a timeline of contemporary environmental events. Study her garments closely to see if you can detect other cultural influences (such as oil spills, historical references, technological developments, etc.) on her work.

• Van Herpen has remarked: “Nature is a big influence. I wonder how it cannot be a big influence, because it’s the most beautiful thing that there is. It’s creation. So when you create—for me it’s the most natural thing to look at nature. There’s so incredibly much to explore. It’s never ending. I look a lot to nature and also to the processes within nature. Even when you look at technology today, often technology is inspired by natural processes as well, so it’s one big loop. And it’s really inspiring to be in that loop.”

As nature influences van Herpen’s fashion, how can nature influence your students’ innovations? What architectural structure, governmental structure, or machine can they devise from a natural inspiration?

• Choose a garment from the exhibition and write a story or poem from the point of view of the wearer or the dress.

• Choose garments from the exhibition and devise characters to wear them. Next, put those characters together in a graphic novel or movie script. Which character traits will each garment evoke? How will the characters interact? Who will be the villain? The hero?

*Iris van Herpen, interview by Sarah Schleuning, Amsterdam, the Netherlands, October 23, 2014.*
Use quotes by Iris van Herpen to demonstrate the 4 Cs of 21st-Century Skills in your classroom.

Split students into four groups and assign a quotation to each. After they read the quotes, ask students to consider how artists are similar to scientists, mathematicians, or engineers. What parallels can they find between the artistic design processes and science, math, and engineering processes?

Creativity:
“Every collection has a really different journey, and that’s also what I try to keep. I don’t try to get one rhythm or one system in my work because I always try to have a balance between my intuition and my head. I think intuition is a big part of my work, so experimentation is always there. A lot of designers draw something, and then they make it, but for me it has to go both ways. Sometimes I draw something, which can create a garment; sometimes it really comes from the concept, and then I go find a collaborator that I can realize it with. An idea has so many ways of getting somewhere.”*

Critical Thinking:
“If you look at a collection, and let’s say there are like ten different materials inside, probably we have tried twenty out in the studio. There are so many experiments going on here, and a lot of them don’t work. But actually, those little mistakes sometimes lead to another idea for another material. So even the mistakes that are happening in the studio—I don’t see them as mistakes. Actually, the mistakes of all the experiments can often be the starting point of a new idea. So they are necessary.”*

Collaboration:
“When you collaborate with someone—if you want to do it, you have to do it well, and you have to really be open to sharing your ideas and your way of working. I realized that I needed to collaborate with people in order to be able to create the pieces. In the beginning, it really came out of a need, and after a while I got used to opening up my mind, and I realized that I could actually learn a lot from a different way of thinking. It helps me not to get stuck in my own world.”*

Communication:
“In the studio, there are approximately twenty to twenty-three people, depending on the period. I often explain the steps for how a garment should be made, and then the people who work with me in my atelier—like the head of patterns and the head of materials—join me and are a part of the whole explanation process. It’s a really organic mix; it’s not so much top-down. Of course I know what I want, but I think even the people who make the garments are really a big part of the process.”*

*Iris van Herpen, interview by Sarah Schleuning, Amsterdam, the Netherlands, October 23, 2014.