5th Grade
CAL: Conversations about Leading
Time Frame: 13-15 hours of instruction
Topic: Leadership, Communication, Empathy, Project Planning, Interpersonal Skills

Nutley Public Schools
"Nutley Achieving
Lasting Engagement
to Build National and Local Talent."

Stage 1 – Desired Results	
The National Association for Gifted Children Standard 1 Description: Educators, recognizing the learning and developmental differences of students with gifts and talents, promote ongoing self-understanding, awareness of their needs, and cognitive and affective growth of these students in school, home, and community settings to ensure specific student outcomes. (https://goo.gl/PgbrY3) **1.1. Self-Understanding**. Students with gifts and talents demonstrate self-knowledge with respect to their interests, strengths, identities, and needs in socio-emotional development and in intellectual, academic, creative, leadership, and artistic domains.	1.1.1. Educators engage students with gifts and talents in identifying interests, strengths, and gifts. 1.1.2. Educators assist students with gifts and talents in developing identities supportive of achievement.
1.2. Self-Understanding. Students with gifts and talents possess a developmentally appropriate understanding of how they learn and grow; they recognize the influences of their beliefs, traditions, and values on their learning and behavior.	1.2.1. Educators develop activities that match each student's developmental level and culture-based learning needs
1.3. Self-Understanding. Students with gifts and talents demonstrate understanding of and respect for similarities and differences between themselves and their peer group and others in the general population.	1.3.1. Educators provide a variety of research-based grouping practices for students with gifts and talents that allow them to interact with individuals of various gifts, talents, abilities, and strengths. 1.3.2. Educators model respect for individuals with diverse abilities, strengths, and goals.
Stage 2 – Assessment Evidence	

Understandings	Essential Questions
● Students will understand what the chief components of leadership are and how this applies to their lives. ● Students will identify through concept mapping, Socratic Dialog, journaling and reviews of famous people who are leaders what characteristics determine who a leader may be. ● Students will determine what the top characteristics of leadership may be and they will find consensus with members of their group. ● Students will be able to create a “Leadership Statement” or “Leadership Declaration” in which they write down their vision of a leader. Using Google Docs and other collaborative tools, students are able to determine these characteristics and achieve consensus. ● Students decide what individual in their school world is a leader (match characteristics with people, no negative comments allowed!) and will notice how the individual demonstrates their leadership in a school community. ● Students will understand how to craft an invitation to the leader and invite him/her in to share their “Leadership Journey” in an informal visit where students are able to ask questions that will connect them to the leadership experience of the individual they have selected. ● Students will generate authentic and meaningful questions for their visitor. ● Students will understand the process of inviting an expert to share their information when “Leader” is invited into a Nutley Talent class. ● Students will understand the value of debriefing their experiences and wonder	● What distinguishes leaders from those who are not leaders? ● What about being a leader is easy? ● What about being a leader is hard? ● In what way do I possess leadership qualities? ● How do people develop leadership qualities? ● Why are leaders important? ● What would the world be like if everyone led? ● What would the world be like if nobody led? ● Are there times when being a follower is more important than being a leader? ● Are people who are leaders leaders in every way? ● Are leaders always brave? ● Do people become leaders when the situation is right? ● How can people inspire other people? ● Can people make a leadership plan? ● Are true leaders born not made? ● Are true leaders made not born?

who else in their lives may demonstrates leadership characteristics.

- Students will experience the impact of creating their own leadership plan as they think through the leadership qualities they would like to develop.
- Students will understand how to create concept maps, padlets, interviews to determine leadership qualities.
- Anchor charts will become a useful tool to capture student ideas and perceptions.
- Interpersonal skills and negotiation skills are needed when students try to put forth their own ideas of leadership, when peers are not amenable to them. Rubrics that capture the skills and help students self assess these skills (P21 skills and GT self understanding skills are paramount).

Stage 3 – Learning Plan

Background

The CAL project or "Conversations about Leading" comes directly from a established program offered to employees by colleagues at the U.S. Department of Education. CAL gives employees an opportunity to explore what leadership looks like in a work context among people who are not officially designated as leaders. These conversations create a space for people to think about leadership qualities that they might possess and to find ways to enhance or grow these skills and dispositions, creating opportunities for leadership going forward.

In 2017, Nutley TALENT students had the opportunity to connect with the creator of this program, Ms. Jacquelyn Zimmermann, the Director of Editorial Policy at the U.S. Department of Education. Jackye would be delighted to speak with Nutley students going forward and to learn about the progress of this activity in the district. Her email is Jacquelyn.zimmermann@ed.gov and her phone is 202-401-0762. The CAL program in Nutley is a unique extension of the national program and is the first CAL program offered as such at the elementary school level.

Students with gifts and talents are invited to explore leadership and the qualities that make a leader in order to understand the exemplary contributions of people in their world as well as to understand their own potential and talent development (1.1, 1.2, 1.3).

The plan:

1. Think about the notion of leadership in general. Share stories of leaders, readings, videos and examples that are powerful to students and are drawn from their studies.

2. Create conversations and lessons that help students to draw out their ideas about leadership. Students may journal examples they see during the week. Some schools, for example, highlight kindness initiatives and celebrate students who demonstrate leadership through kindness.

3. Students think about the many kinds of leaders - political leaders, family leaders, friends, project leaders.

4. Students grapple with the question - "What makes a leader different from a person who is not a leader?" Using graphic organizers and drawings, students depict the differences they see as they present to peers their thinking.

5. Concept mapping is useful to begin to galvanize the ideas that students share about leadership. There are many ways to create such maps, but some good examples may be found at "Reading Rockets." http://www.readingrockets.org/strategies/concept_maps

6. After exploring what leadership characteristics are most important, students create a "Leadership Declaration" or document that clearly and beautifully depicts their results.

7. Students begin to list people in their school who they believe exemplify the characteristics of leadership they have determined to be most important and finally arrive at the selection of one individual to be invited to their class.

8. Students create an invitation with two parts - one, the invitation to the individual selected and two, the "Leadership Declaration" that students have devised. Students visit the staff or community member to invite them to a class session.

9. Students brainstorm a series of questions that they will ask their Leadership Guest and determine which student will ask which question.

10. On the day of the leadership visit, a student escort visits the staff member's room to accompany them to their classroom or setting.

11. The visitor discusses their leadership journey and answers students' questions.

12. Students debrief the experience and begin to think about what leadership skills and dispositions they possess and write down their personal plan for leadership. Putting these characteristics in an envelope to be opened at a later date is a good way to serve as a student "time capsule" to support the development of student self understanding and talent development.

Resources

Ferlazzo, Larry. Cultivating Student Leadership. Ed Week, 2012.
https://www.edweek.org/tm/articles/2012/02/14/tln_ferlazzo_leadership.html

Kid President. "What makes an awesome leader?" https://www.youtube.com/watch?v=KdL4o7wU0CQ

Association of Washington School Leaders. Elementary Programs: Inspiring Students to Lead. https://awsleaders.org/elementary/

Socratic Seminars for Elementary Learners. https://usergeneratededucation.wordpress.com/2017/02/06/a-socratic-seminar-for-elementary-learners/

Concept Maps. http://www.readingrockets.org/strategies/concept_maps

Student work samples:

The qualities of a leader - student "Leadership Document."

A leader is responsible, selfless and does not care about what others think when it comes do doing what's right. Leaders make more leaders and not more followers. Leaders are inspirational people who are brave, caring, responsible and selfless.

Sample: Invitation to visitor

Dear (name of leader chosen by students)

Our group of Nutley TALENT students were asked to think about leaders in our school. These leaders could be any adult who demonstrates leadership characteristics, not only those who are in an official leadership position. After listing all of the many inspirational people we believe are important leaders at _____ School, you were chosen as the person we believe has the strongest leadership qualities. Congratulations!

We would like to invite you to come to speak to the students in our "Conversation about Leading" or "C.A.L." The original idea for this came from similar conversations that take place at the U.S Department of Education. The speaker is asked to share a few important things about his or her leadership experiences and to be open to questions that the participants might have about becoming leaders. This conversation helps participants understand the leadership journey and begin to see themselves as leaders! We would like our conversation to take place _____. We hope you can join us!

Here are some questions that we would like to talk about, but we are excited to listen to anything YOU think is important!

1. Who inspired YOU to become a leader?
2. What do you do when someone or some people don't agree with your decisions?
3. How hard is it to ignore people who think your ideas are bad?
4. What do you do when someone or some people doesn't agree with your decision?
5. What do you do if people in your community make you feel excluded?
6. Are there times when you are sure of your ideas, but you get persuaded by opposing viewpoints?
7. What kind of leader do you see yourself as?

8. Did you feel like giving up at some point in your leadership experience?
9. What is the hardest part of being a leader?
10. What were some obstacles you had to overcome?
11. Do you enjoy leading?
12. Does leadership affect your personality?
13. How did you feel when we asked you to speak with us?
14. How do we make your followers leaders themselves?
15. Can you give us some tips about how we can follow in your footsteps and become leaders?

5th grade
Art as a Way of Seeing: Impressionism
Time frame: 13 – 15 hours of instruction
Topic: Perception, Design, Art History.

Nutley Public Schools

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Stage 1 – Desired Results

Nutley TALENT programming design keeps the *Partnership for 21st Century Skills* Learning and Innovation Skills Framework and Michael Fullan's *New Pedagogy for Deeper Learning* at its core. The program, therefore, incorporates 6 C's:

Collaboration
Creativity
Critical Thinking
Communication
Citizenship
Character

The National Association for Gifted Children provides standards:

3.2. Talent Development. Students with gifts and talents become more competent in multiple talent areas and across dimensions of learning.
3.4. Instructional Strategies. Students with gifts and talents become independent investigators.
4.1. Personal Competence. Students with gifts and talents demonstrate growth in personal competence and dispositions for exceptional academic and creative productivity. These include self-awareness, self-advocacy, self-efficacy, confidence, motivation, resilience, independence, curiosity, and risk taking.

Understandings:	**Essential Questions:**
• Students will understand how artists interpret the world through their art • Students will understand how perception and a focus on various senses affect one's interpretation of reality. • Students will gain familiarity with key artists and characteristics of Impressionist artists. • Students will understand how to modify their	• Why do artists create art? • What makes an artist choose a particular medium to create a particular piece of art? • What are essential components of a piece of art? • How do artists interpret "reality?" • Is art a visual language? • How can people understand art as a visual

idea to achieve consensus • Students will create several Impressionist style water colors • Students will understand how artists frame what they see by selecting those objects, movements and aspects of things to lift up in an artistic creation. • Students will understand the role of an artist as a thinker who helps people see what is not immediately apparent.	language? • Important: Student-generated questions through a Question Formulation Technique protocol (rightquestion.org) ignite thinking and a focus on areas of student interest.

- *Students will know how to use their gifts and talents to share ideas, collaborate, analyze and implement their vision.*
- *Students will be able to overcome challenges to collaboration, learn to use available resources, understand how to design for outcomes.*

Stage 2 – Assessment Evidence

Performance Tasks:	**Other Evidence:**
- Students will be introduced to a wide range of Impressionist artists and interpret an array of paintings and will be able to successfully share key information about these artists and their styles - Students will learn the characteristics of impressionist paintings and what artists were hoping to achieve when they painted in this way and will be able to engage in paired and full class discussions on these topics. - Students will look at their surroundings in the classroom as well as the natural landscape around the school to decide what they would think would be interesting or appealing to represent in art and will then render items or scenes from nature using artist's materials. - Students will demonstrate how artists who use different styles (examples: realism, cubism) use their perceptions to understand and interpret the world by showing examples of how artists interpret the world. - Students will demonstrate how Impressionists use color to interpret natural settings and to understand the way light transforms objects in the world by creating Impressionist paintings that include characteristics of impressionist art. - Students will understand how things look at different times of day with different levels of light and will sketch or paint familiar scenes at home in a sketchbook.	- Teacher assesses students ongoing participation, collaboration and clarity of expression - Students with talent are encouraged to use their areas of strength in the art-making process - Students investigate the academic components of Impressionism and Art and will create challenge questions that cross academic disciplines. - Teachers notice student self-awareness when collaborating, self-advocating and designing artistic products individually or with a group. - Collaboration during the class discussions and presentations. - Debriefing the experience of learning about art and making it – What did we learn? What else might there be to know? What was successful? How can we incorporate what we have learned into other forms of art making? - How are art and science related? - What are some ways that human beings perceive and how is that demonstrated in what they make as artists and in other design areas.

- Students will understand the science behind human perception – the eye and the brain and will be able to present these differences to the class.	

Stage 3 – Learning Plan

Learning Activities:

- Brainstorming: "What do art and seeing have to do with one another?"
- Question Formulation Technique Activity: Monet's Sunrise as the Q-Focus (QFT protocol in rightquestion.org)
- Familiarize students with characteristics of impressionism and the shift in painting from painting to copy reality and creating something new with art after the invention of photography (Slide deck review, discussion)
- Finding the characteristics of Impressionism in a series of impressionist works.
- Sketching water and floating leaves – Students observe a tray of water near a window and try to capture the movement, the light and the leaves while listening to Impressionist music and being reminded of the characteristics of Impressionism. Focus on the way art is involved with seeing and decisions artists make about what to depict.
- Outside drawings of nature (or through a large window if weather does not permit). Students observe a series of trees or greenery around school and use water colors to try to incorporate the characteristics of Impressionism to use as a lens – focus on color, on nature, on light, on unusual visual angles.
- Students are encouraged to snap a picture at home of something that they think an impressionist would be interested in painting or trying hard to remember the scene to come into class and create an impressionist work during two class sessions.
- Critiquing and talking about each other's' art: Students move from comments like, "I like what you painted" or "Why did you do it like this" to thinking about how students-as-artists create an image that focuses on a variety of different characteristics and solves certain visual problems. Using question starters like "Tell me more about how you chose to create the horizon line" or "What part of your image captures light in the way you had hoped?"
- Using "Impressionism" as a base to examine a variety of other movements in art such as cubism and surrealism to understand how images and concepts can come together to tell a story, reveal something that the artist wants to highlight or create an image that is unique or provocative.
- Virtual gallery visits to a teacher curated selection of art works. Students choose two works that they believe "see" the world in a way that calls their attention. How does the artist see line, color, space? Is there a story to be told?

- Perspective Taking. Using the strategies in from "Visual Thinking Strategies" that help students use art as a way to take on a variety of perspectives, students will view an image rich in subjects that allow students to imagine the setting from multiple perspectives. Students are asked: "What's going on in this picture?" "What do you see that makes you say that" and "What more can we find?" This approach supports the language arts and social studies particularly because we are asking students to describe what they are seeing in detail and to provide evidence for their observations.

- Shortened QFT protocol is used to dovetail into a Socratic Dialog (everyone speaks and everyone speaks 1x before anyone speaks 2x) to conclude the unit.

Annotated Resource List for "Art as a way of Seeing"

- Frey, Susan. (2015). "Art appreciation helps young children learn to think and express ideas." https://edsource.org/2015/art-appreciation-helps-young-children-learn-to-think-and-express-ideas/77734
- Bell, Steven. (2012). "Talking about art with young people. Conversational strategies for aesthetic learning in early childhood settings." Retrieved from http://artinearlychildhood.org/journals/2012/ARTEC_2012_Research_Journal_1_Article_1_Bell.pdf

- Framework for 21st Century Learning. Retrieved from http://www.p21.org/about-us/p21-framework

These resources are crucial to keep in mind the 4cs, ways to assess competencies and cross-curricular connections.

- K-12 Lab Network at the Stanford D-School. https://dschool.stanford.edu/resources/

A plethora of resources are available at the Stanford University D-School. Materials about how to create a space for design thinking, ways to help students innovate, protocols that make this possible, and the opportunity to connect with K-12 educators that want to incorporate more design thinking into their classrooms.

Juliani, A.J. "Let's be intentional about innovation." http://ajjuliani.com/

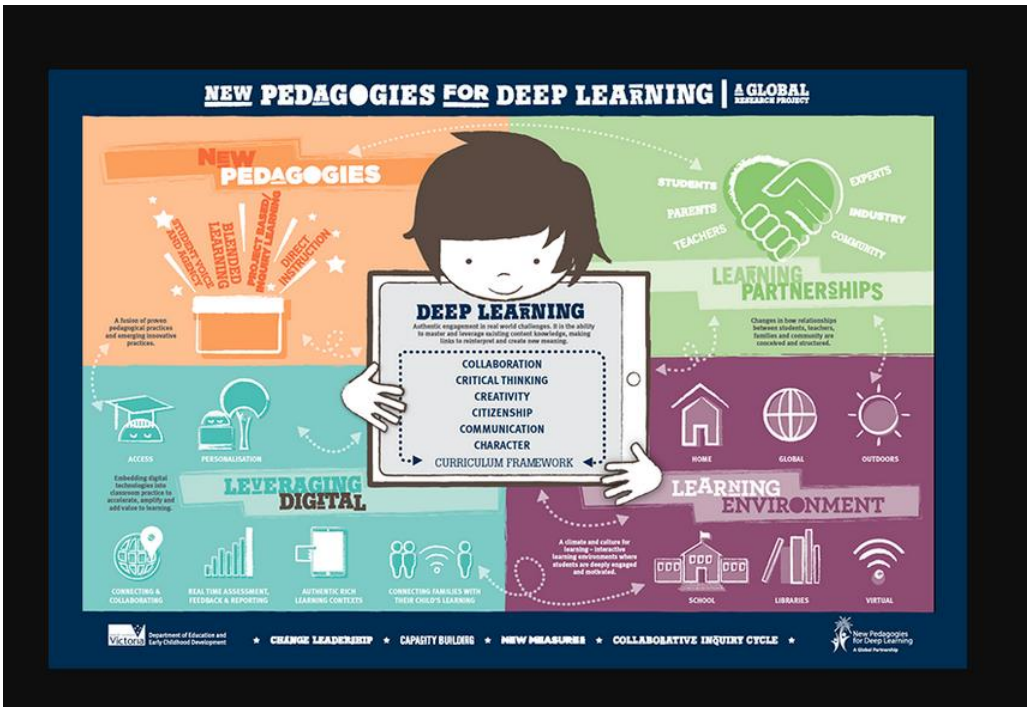
A.J. Juliani provides a constant stream of resources related to design thinking, innovation, inquiry and engagement. Newsletters, three recent books on project-based learning and design offer continual resources, chances to collaborate with peers across the world (faculty and students) as well as practical tips on how to create lessons that incorporate the 4cs and design thinking.

Wise, Susie. Design Thinking in Education: Empathy, Challenge, Discovery, and Sharing

Edutopia is a wonderful source for educators' experiences with design thinking. Susie Wise's article is but one example of many on the site.

Deeper Learning as a Frame

The 6 Cs of Deep Learning are incorporated by asking questions, focusing on competencies, using Question Formulation Technique (QFT, rightquestion.org), respectful group norms, mind mapping, intellectual risk taking, infusion of purpose/service



5th grade
Biomimicry Unit
Time frame: 13 – 15 hours of instruction
Topic: Built environment
Invention, observation
Maryann Woods-Murphy

Nutley Public Schools

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Understandings:	**Essential Questions:**
Students will understand that... • Nature is a great teacher because nature can solve problems in ways that human beings can learn from. • We can observe nature to look for specific ways it solves problems by zooming in. • Copying nature is not just looking at how it works. • We can use human creativity to imagine nature in different contexts, different sizes or a combination of functions to	• How does nature solve problems? • In what way can human beings adapt natural solutions to fit human needs? • Are solutions always obvious? • Is it possible to combine ideas copied from different animals or plans into something totally new? • Is the more complicated solution always the best one? • How can the ideas of my classmates assist me to be more creative? • Why don't human beings always look to nature to

meet human needs. • When we incorporate nature into our design thinking, we can make products and services that are more harmonious with the environment.	solve problems? • Are there any problems that could happen if we look to nature to learn? • How can we use design thinking to take our observations and convert them to innovations?

Students will know how to use their gifts and talents to share ideas, collaborate, analyze and implement their vision.
Students will be able to overcome challenges to collaboration, learn to use available resources, understand how to design for outcomes.
Students will be able to observe small changes in nature that have a big impact on human life.
Students will be able to look at nature in a new way that helps them to fill our minds with ideas that can be transformed into creative solutions.
Students will be able to learn that time is needed to think creatively and sometimes on will fail, but that failing is only a step on the road to creativity.
Students will be able to collaborate, think critically, choose relevant information to create their own invention that uses biomimicry.
Students will be able to use good research skills.
Students will be able communicate their ideas to peers
Students will be able present their final projects with confidence with an eye on how they can be converted to additional research opportunities in their lives.

Stage 2 – Assessment Evidence

Performance Tasks:	**Other Evidence:**
• Students will learn information about biomimicry that they will discuss and share with peers. • Students will sing songs from the "Save the Planet" series that engages their musical interest and introduces new vocabulary. • Students will have a mini field trip to the school grounds where they will collect samples, examine them and sketch the natural items they see. • They will experience a gallery walk to share their ideas with each other, getting a sense of how differently peers see nature. • Students will learn to take some of their ideas and those of their classmates to create something new. • Students will begin to build their ideas of an invention by sketching it out either on paper or in Google Sketch. • Students will create models of their inventions.	• Students will interact on Google Classroom by sharing their ongoing work, documents, question and answers as well as online discussions. • Students may create additional inventions outside of school with classmates or family members to use biomimicry as a way of seeing invention that helps humankind. • Students reflect in writing to deepen their understanding of biomimicry and its impact on their lives and world.

• Using Google Slides, students will craft a presentation to share with their peers about their progress and inventions. • Presentations will be evaluated with a rubric that will be shared with students and discussed.	

Stage 3 – Learning Plan

Learning Activities:

Students will engage in learning experiences that will help them achieve desired results. First, students will grow awareness of nature by first being exposed to the big idea of Biomimicry (The Biomimicry Institute) and next, they will be guided to see the world around them right on the school grounds. Students will observe nature, sketch it, share their work and begin to build using materials available to them such as Legos, clay, paper and markers, sketchpad and Pow Toons. After several iterations of student designed innovations (using the Engineering Design Process), students will begin to formulate their own invention based on Biomimicry. First, they need to answer a question:

What does nature do well that could serve a human need?

Through trials and tribulations, students eventually settle on the beginning of an idea, building it out of popsicle sticks, pipe cleaners, straw, cardboard or clay. It takes time for students to understand where they are going with their work and they need continual reminders to connect what they do to the notion of Biomimicry. Finally, a prototype is created, a company to market it is formed and a communications plan "sells" it to the world to solve a pressing human problem.

Examples of student projects (2018) are:

- **Thermasoles** – shoes that emulate thermoregulation to provide heat or cool in the innersole of a stylish shoe.
- **The Bee Hive** – a hexagon shaped recycling box that helps families sort their recycling.
- A sustainable school – a rooftop garden, furniture whose designs are taken from nature, solar paneling.
- **Interconnected Forrestal Healing** – Human beings are connected into a health web like trees are connected in an old growth forest, sending nutrients to ailing trees when needed.
- Echolocation glasses – Glasses that can "see" in the night like bats do in caves.
- **Parapower** – a beach umbrella with solar panels that captures light to charge all electronics while a person sun bathes.
- **Dinocrib** – a crib designed from the image of the bones of a dinosaur head, protecting the baby and closing when danger is near. Inside the safe zone, the baby is changed, entertained and comfortable.
- **Naturefurn** – Furniture designed by copying the lines of shells

W= Students know **W here** the unit is going and **What** is expected through ongoing formative assessments of students' prior knowledge and response to the various prompts

H= Hook – Students like seeing images from nature and making connections, singing songs and going outside to look at their own natural environment.

E= **Equip** students, help them Experience the key ideas and Explore the issues by helping students to remember the basic ideas of Biomimicry and repeatedly offering examples of biomimicry in action.

R = Provide opportunities to **Rethink and Revise** their understandings and work – Students need to continually rethink their work and they frequently become lost as they learn new ways to work and think. There are times when they wish we could stop because the many ideas they have come to nothing they are proud of. Eventually, however, in every case, students begin to put their ideas together and they see their project prototype of an invention emerge. In this way, they learn resilience and grit because they experience the transformation of something that was hard to something that gets accomplished.

E= Allow students to Evaluate their work and its implications – Students need to be brought back to center as they step back from their work, confer with peers and their teacher and make improvements. The Engineering Design process is a helpful model for students in the design of their prototypes.

T= Be **Tailored** (personalized) to the different needs, interest s, and abilities of learners – Students various personalities and abilities sometimes make collaboration hard. By continually assessing what supports students need, the teacher can provide assistance to maximize student success.

O= Be **Organized** to maximize initial and sustained engagement as well as effective learning – Students need to care for their materials and projects, being willing to take them home to complete work that may not get done in school. They need to track their work, speak to their teachers about presenting their work and understanding what their part is in getting a group project done.

Biomimicry Resources

- The Biomimicry Institute is an incredible resource to learn about and teach Biomimicry. Videos, learning materials and access to songs that relate to lessons make the Biomimcry Institute a kind of "one stop shop" for learning about and teaching biomimicry. https://biomimicry.org/
- Biomimicry in Engineering. A PDF that includes lesson extensions, resources and great connections to ways that engineers solve problems using Biomimicry. Visuals are bright and compelling. Retrieved from http://tryengineering.org/lessons/biomimicry.pdf
- The Smithsonian – resources on projects including a Blue Crab project that can serve as a lesson extension or classroom anchor project. https://ssec.si.edu/stemvisions-blog/blue-crab-engineering-biomimicry-project-all-

ages

- The Center for Green Schools. Downloadable lesson plans, student handouts that connect, for example, flying machines to birds. Retrieved from http://www.greeneducationfoundation.org/institute/lesson-clearinghouse/457-biomimicry_the_nature_of_genius.html

Annotated Resource List for processes used in the Biomimicry Unite

- Framework for 21st Century Learning. Retrieved from http://www.p21.org/about-us/p21-framework
  These resources are crucial to keep in mind the 4cs, ways to assess competencies and cross-curricular connections.
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