Deal School Curriculum
Navigators - Gifted and Talented Curriculum K-1

Desired Outcomes

National Association for Gifted Children Standards: Standard 1.1-1.8
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.
1.2. 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.
1.3. 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.
1.4. Awareness of Needs. Students with gifts and talents access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts.
1.5. Awareness of Needs. Students' families and communities understand similarities and differences with respect to the development and characteristics of advanced and typical learners and support students with gifts and talents' needs.
1.6. Cognitive and Affective Growth. Students with gifts and talents benefit from meaningful and challenging learning activities addressing their unique characteristics and needs.
1.7. Cognitive and Affective Growth. Students with gifts and talents recognize their preferred approaches to learning and expand their repertoire.
1.8. Cognitive and Affective Growth. Students with gifts and talents identify future career goals that match their talents and abilities and resources needed to meet those goals (e.g., higher education opportunities, mentors, financial support).

Enduring Understandings	**Essential Questions**
What does it mean to be creative? What can our imagination be used for? How can our imagination be used to solve a problem? What does it mean to be innovative? How can we come up with new ideas to solve a problem?	What does it mean to be a problem-solver? What can we learn from our mistakes? What must you know about a problem before you can develop a solution? How can making mistakes be an important part of learning? Why is it important to know the resources you have to solve a problem? What are some advantages to planning before starting a project?

Learners will know…	Learners will be able to….
Learners will challenge themselves and push the boundaries when it comes to interests, strengths, identities, and needs. Learners will access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts. Learners recognize their preferred approaches to learning and expand their repertoire. Learners will identify future career goals that match their talents and abilities and resources needed to meet those goals.	**based on self understanding, awareness and needs, and cognitive and affective growth, students will be able to choose a project in domains they are passionate about.** Progress through the three phases of the cycle of inquiry. K-1 Units of Inquiry (6-10 weeks) Phase 1: Exploration- What…? **What do you wonder about?** Identify passions. Support curiosity and awe through discussion and observation of the world around us. Create quality questions. Gather data through all senses. **Work with me.** Develop collaboration and communication between students through sharing of ideas, thoughts, and questions. Develop flexible thinking. Build the skill for listening to others with understanding and empathy. Phase 2: Expression - What if…? **What's your Problem?** Gain a global perspective on problem-solving. Think and communicate clearly. Think independently. Develop ability to reason. **What's next?** Use creative and critical thinking. Create, imagine and innovate an original idea.

	Full STEAM Ahead! Integrate the arts into the inquiry process. Take responsible risks. Persist. Think about thinking and reflect. Implement the EDP to develop an idea into a prototype that can be tested and improved. Phase 3: Exposition & Oration- How…? **Share.** 1. Skills Produce and Publish Writing, utilizing multimedia applications Present Information, findings, and supporting evidence Develop and organize documentation of learning 2. Presentations: Share and express process of learning highlighting the inquiry arc and the engineering design process Develop and showcase their learning via Seesaw. Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

Assessment/Evaluation Evidence

ePortfolio including:

- Completed journal
- Project ePortfolio highlighting process and product
- Self-Assessment using rubric
- Student Created- Individualized

Formative:

- Quick Checks
- Project Specific Rubrics
- Exit Slips
- Student Self-Assessment
- Peer review
- Peer to peer- Peer critiques
- Outside Feedback
- Class Discussion
- Teacher Observation
- Class Participation
- Pre-Assessments

Suggested Learning Plan

Students will be working on a project of their choice within the project topic.

The structure of the daily lesson will be in the format of a 44 minute period.

- 5-10 minutes – Do/Now summary debrief and/or whole group instruction
- 30-35 minutes – Independent work with teacher monitoring and guidance
- 4 minutes – Wrap up/review in group reflection

These phases are designed to be carried out over the course of one marking period. Each day targets will be reviewed. Students will then implement those within their chosen engagement. They will work at their own pace and teacher will set goals on individual or group basis. Students will self monitor by keeping a journal of their findings, new skills and understandings, and the development of theories.

Instructional/Learning Resources

https://makezine.com/
Make: The Magazine for Makers
Tinkering by Curt Gabrielson
Invent to Learn by Martinez and Stager
http://makered.org/wp-content/uploads/2014/09/Makerspace-Playbook-Feb-2013.pdf

Pacing Guide

K-1 Guide

Units of Inquiry (5-6 week cycles)

Phase 1: Exploration- What…?
What do you wonder about?
Work with me.

Phase 2: Expression - What if…?
What's your Problem?
What's next?
Full STEAM Ahead!

Phase 3: Exposition & Oration- How…?
Share.

Interdisciplinary Connections/Cross Curricular Opportunities

NJSLS Connections

ELA/Literacy
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)
W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1), (K-2-ETS1-3)
W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1), (K-2-ETS1-3)
SL.2.5 Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts and feelings.
RI.3.1 Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
NJSLSA.SL4 Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
NJSLSA.SL5 Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
NJSLSA.SL6 Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Mathematics

MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1), (K-2-ETS1-3)

MP.4 Model with mathematics.(K-2-ETS1-1), (K-2-ETS1-3)

MP.5 Use appropriate tools strategically.(K-2-ETS1-1), (K-2-ETS1-3)

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1), (K-2-ETS1-3)

Science Connections

K-2 Engineering Design

Students who demonstrate understanding can:

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2 Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2 Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.

to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Integration of Technology

8.2.2.A.2 Describe how designed products and systems are useful at school, home and work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and materials needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product.

8.2.2.C.2 Create a drawing of a product or device that communicates its function to peers and discuss.

8.2.2.C.3 Explain why we need to make new products.

8.2.2.C.4 Identify designed products and brainstorm how to improve one used in the classroom.

8.2.2.C.5 Describe how the parts of a common toy or tool interact and work as part of a system.

8.2.2.C.6 Investigate a product that has stopped working and brainstorm ideas to correct the problem.

8.2.2.D.1 Collaborate and apply a design process to solve a simple problem from everyday experiences.

8.2.2.D.2 Discover how a product works by taking it apart, sketching how parts fit, and putting it back together.

8.2.2.D.3 Identify the strengths and weaknesses in a product or system.

21st CENTURY LIFE AND CAREERS

Career Awareness, Exploration and Preparation

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices

CRP1, CRP2, CRP3, CRP4, CRP5, CRP6, CRP7, CRP8, CRP9, CRP10, CRP11, CRP12

Career Ready Practices

Accommodations and Modifications

Gifted and Talented

- Provide appropriate challenge for wide ranging skills and development areas.
- Participate in inquiry and project-based learning units of study.

English Language Learners

- Pair visual prompts with verbal presentations
- Provide students with visual models, sentence stems, concrete objects, and hands on materials.

Students with IEPs/504

- Review student individual educational plan and/or 504 plan
- Establish procedures for accommodations and modifications for assessments as per IEP/504
- Modify classroom environment to support academic and physical needs of the students as per IEP/504

At Risk Learners

- Differentiated instruction
- Basic Skills

Annual Pacing Guide

Grade Level: K-1

Subject: Gifted and Talented

Grades K-1

Progress through the three phases of the cycle of inquiry.

K-1 Units of Inquiry (5-6 week cycles)

Phase 1: Exploration- What…?

What do you wonder about?

Identify passions.

Support curiosity and awe through discussion and observation of the world around us.

Create quality questions.

Gather data through all senses.

Work with me.

Develop collaboration and communication between students through sharing of ideas, thoughts, and questions.

Develop flexible thinking.

Build the skill for listening to others with understanding and empathy.

Phase 2: Expression - What if…?

What's your Problem?

Gain a global perspective on problem-solving.

Think and communicate clearly.

Think independently.

Develop ability to reason.

What's next?

Use creative and critical thinking.

Create, imagine and innovate an original idea.

Full STEAM Ahead!

Integrate the arts into the inquiry process.

Take responsible risks.

Persist.

Think about thinking and reflect.

Implement the EDP to develop an idea into a prototype that can be tested and improved.

Phase 3: Exposition & Oration- How…?

Share.

Annual Pacing Guide

Grade Level: K-1

Subject: Gifted and Talented

1. Skills

Produce and Publish Writing, utilizing multimedia applications

Present Information, findings, and supporting evidence

Develop and organize documentation of learning

2. Presentations:

Share and express process of learning highlighting the inquiry arc and the engineering design process

Develop and showcase their learning via Seesaw.

Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

These can both occur after school and take place in the STEaM Lab, Learning Commons, and in the Outdoor Classroom.

Resources:

Creative Learning Systems Curriculum

http://sustainableschoolsproject.org/education

http://www.antiochne.edu/coseed/

Childhood and Nature: Design Principles for Educators, David Sobel, ©2008

Nature Literacy Series: 1-3;

Beyond Ecophobia: Reclaiming the Heart in Nature Education , David Sobel, ©1996.

*Into the Field: A Guide to Locally Focussed Teaching, Claire Walker Leslie, ©2005.

*Place Based Education, David Sobel, ©2004.

(*needs to be purchased)

Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, Richard Louv ©2005, 2008.

http://kidscanmakeadifference.org/

http://www.thegoodproject.org/toolkits-curricula/

http://humaneeducation.org/9781590565193-2/

https://orionmagazine.org/connect/educators/nature-literacy-series/

Deal School Curriculum
Navigators - Gifted and Talented Curriculum 2-3

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	Share ● Creative and Critical Thinking ● Problem Solving and Finding Solutions ● Questioning ● Divergent and Convergent Thinking ● Making Thinking Visible ● Research Phase 3: Exposition ● As the inquiry advances, learners will use a multitude of resources to gather and record data, visually represent and interpret results, and document the process, explain their learning, and make meaning of the inquiry. ● Develop and showcase their learning. Use a variety of mediums, resources, and materials students will apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

Assessment/Evaluation Evidence

Portfolio including:

- Completed journal
- Project ePortfolio highlighting process and product
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Formative:

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Instructional/Learning Resources

https://makezine.com/
Make: The Magazine for Makers
Tinkering by Curt Gabrielson
Invent to Learn by Martinez and Stager
http://makered.org/wp-content/uploads/2014/09/Makerspace-Playbook-Feb-2013.pdf

Pacing Guide

2-3 Guide

Phase 1: Units of Inquiry (10 weeks)

1. Makerspace Subtopics
   - Hex Bug Hack
   - Mechanical Arm
   - Electromagnets and Magnet Mazes
   - Marker Spirograph
   - Flashlights and Secret Codes
   - Magnetic Slime and Hanging Up
   - Zip Line Flyers
   - Cork Shooters and Zip Line Targets
   - Build a Catapult and Design a Game
   - Light Exploration- Kinetic Shadows
   - Alternative Energy- Water Turbines
   - Space and Sound- Drums
   - Simple Machines- Make your own fishing pole
   - Literacy prompts
   - Tinkering
   - Practical arts integration

Phase 2: Expression (10 weeks)

1. Units
   - Inventions
   - Rube Goldberg Machines
   - Destination Imagination/ Design Challenges
   - Circuits
   - Leonardo Da Vinci
2. Skills
   - Follow Engineering Design Process: Ask, Imagine, Plan, Create, Improve, Share
   - Creative and Critical Thinking
   - Problem Solving and Finding Solutions
   - Questioning
   - Divergent and Convergent Thinking
   - Making Thinking Visible
   - Research

Critique
Reflection

Phase 3: Oration and Exposition- Solutionary Showcase (10 weeks)

1. Skills

   Produce and Publish Writing, utilizing multimedia applications
   Present Information, findings, and supporting evidence
   Develop and organize documentation of learning

2. Presentations

   Share and express process of learning highlighting the inquiry arc and the engineering design process
   Develop and showcase their learning.
   Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

Interdisciplinary Connections/Cross Curricular Opportunities
NJSLS Connections

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K-2 Engineering Design

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3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

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to a problem based on how well each is likely to meet the criteria and constraints of the problem.

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Integration of Technology

8.2.2.A.2 Describe how designed products and systems are useful at school, home and work.

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8.2.2.A.4 Choose a product to make and plan the tools and materials needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

8.2.2.C.1 Brainstorm ideas on how to solve a problem or build a product.

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8.2.2.D.2 Discover how a product works by taking it apart, sketching how parts fit, and putting it back together.

8.2.2.D.3 Identify the strengths and weaknesses in a product or system.

21st CENTURY LIFE AND CAREERS

Career Awareness, Exploration and Preparation

9.2.4.A.1 Identify reasons why people work, different types of work, and how work

can help a person achieve personal and professional goals.

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices

CRP1, CRP2, CRP3,
CRP4, CRP5, CRP6,
CRP7, CRP8, CRP9,
CRP10, CRP11,
CRP12

Career Ready Practices

Accommodations and Modifications

Gifted and Talented

- Provide appropriate challenge for wide ranging skills and development areas.
- Participate in inquiry and project-based learning units of study.

English Language Learners

- Pair visual prompts with verbal presentations
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Students with IEPs/504

- Review student individual educational plan and/or 504 plan
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- Modify classroom environment to support academic and physical needs of the students as per IEP/504

At Risk Learners:

- Differentiated instruction
- Basic Skills

Annual Pacing Guide

Grade Level: 2-3

Subject: Gifted and Talented

Grades 2-3

September/October:

1. Review and introduce new students for/to the program
2. Passion Investigation-
    a. Individual exploration of areas of interest
    b. Review and introduce cycle of inquiry
    c. Community building
    d. Goal Setting

2-3

Phase 1: Units of Inquiry (Oct-Dec)

1. Makerspace Subtopics
    - Hex Bug Hack
    - Mechanical Arm
    - Electromagnets and Magnet Mazes
    - Marker Spirograph
    - Flashlights and Secret Codes
    - Magnetic Slime and Hanging Up
    - Zip Line Flyers
    - Cork Shooters and Zip Line Targets
    - Build a Catapult and Design a Game
    - Light Exploration- Kinetic Shadows
    - Alternative Energy- Water Turbines
    - Space and Sound- Drums
    - Simple Machines- Make your own fishing pole
    - Literacy prompts
    - Tinkering
    - Practical arts integration

Phase 2: Expression & Oration (Jan-Mar)

1. Units
    - Inventions/ STEAM Tank
    - Rube Goldberg Machines
    - Destination Imagination/ Design Challenges
    - Circuits

Leonardo Da Vinci

2. Skills

Produce and Publish Writing, utilizing multimedia applications
Present Information, findings, and supporting evidence
Develop and organize documentation of learning

Phase 3: Exposition- Solutionary Showcase (Apr- June)

1. Presentations

Share and express process of learning highlighting the inquiry arc and the engineering design process
Develop and showcase their learning.
Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

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Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, Richard Louv ©2005, 2008.

http://kidscanmakeadifference.org/
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http://humaneeducation.org/9781590565193-2/
https://orionmagazine.org/connect/educators/nature-literacy-series/

Deal School Curriculum
Navigators - Gifted and Talented Curriculum 4-5
Communication Computer Graphics

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(e.g., higher education opportunities, mentors, financial support)

Enduring Understandings	**Essential Questions**

What does it mean to be creative? What can our imagination be used for? How can our imagination be used to solve a problem? What does it mean to be innovative? How can we come up with new ideas to solve a problem?	What does it mean to be a problem-solver? What can we learn from our mistakes? What must you know about a problem before you can develop a solution? How can making mistakes be an important part of learning? Why is it important to know the resources you have to solve a problem? What are some advantages to planning before starting a project?
Learners will know…	**Learners will be able to….**
How to use the following programs to reach specific objectives: CrazyTalk Animation Doodle 4 Google Google Art Project Illustrator Photoshop Photoshop Elements Punch Home Design Suite SketchUp - 3D Modeling Tinkercad Learners will challenge themselves and push the boundaries when it comes to interests, strengths, identities, and needs. Learners will access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts. Learners recognize their preferred approaches to learning and expand their repertoire. Learners will identify future career goals that match their talents and abilities and resources needed to meet those goals.	**based on self understanding, awareness and needs, and cognitive and affective growth, students will be able to choose a project in domains they are passionate about.** CrazyTalk Animator is a professional 3D animation application. Learn basic and advanced animation skills and then create an animation of your own. You can even put yourself into your animation! It's all about expanding your artistic and creative abilities! Learn from the Google Pros like Ken Saunders and Dennis Hwang. Dive in and don't be shy. Use your favorite graphics program and get started. You could be the next national winner of the Doodle 4 Google competition. Learn to see and interpret art like an expert! Then choose your favorite artwork and pick a creative project to explore it more depth. It’s your turn to be the artist! Discover art that inspires you. Then use that inspiration to create an art project of your own! 3D graphics are everywhere! Learn

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students apply existing knowledge to generate new ideas, products, or processes. Students create original works as a means of personal or group expression. Students use digital media and environments to communicate and work collaboratively, including at a distance, t support individual learning and contribute to the learning of others. Students interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media. Students communicate information and ideas effectively to multiple audiences using a variety of media and formats. Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students identify and define authentic problems and significant questions for investigation.	different ways to create 3D graphics in Illustrator. Then draw a few objects of your own! Layering allows you to do all kinds of advanced project work in Photoshop. Learn how to use this feature while you create black and white images with color elements. Integrate text into your Photoshop projects. Explore text layers and layer styles. Take a virtual "visit" to a foreign country or be part of an historical event. Learn about layers, masks and other useful Photoshop techniques as you create a digital composite image. Can you use Photoshop to create work in the style of famous 20th century pop artists? Test your Photoshop skills with this fun and challenging project. Layers and layer masks are your key to creating amazing images in Photoshop Elements. Learn how to use these powerful features as you create images that combine black and white with color. Can you use Photoshop Elements to create work in the style of famous painters from the pop art movement? Test your creative editing skills with this fun challenge. Take a virtual trip to a foreign country or be part of an historical event. Learn about layers, masks and other powerful processing techniques as you create a digital composite image. Every project must work within budget.

	Learn money-saving design tips and explore the many trade-offs necessary to design a home without "breaking the bank". Explore the creative side of landscape design. Let your imagination run wild as you develop a landscape theme. Then use both hardscape and softscape features as you design a detailed landscape plan around your theme. Use Punch to design landscapes in 3-dimensions! Add berms and retaining walls to your landscape plan. Learn how to create and design with topographic maps. The ultimate home design challenge. Use what you've learned about house, interior and landscape design with Punch Home Design Suite to create a dream home for you or your "clients". Discover how computer graphics helps us visualize and design ideas. Learn more advanced SketchUp tools and techniques and explore the SketchUp object warehouse. Then create your own complex object or scene. Explore repeating patterns in nature, design, art and architecture. Learn how to use SketchUp to duplicate and repeat objects. Choose or create a SketchUp design challenge using repeating objects and patterns. What makes a great product design? Learn about the design process and how it is used in product development. Then design a product of your own in SketchUp. Can you create a “better mousetrap”?

	Discover how to use photographs to draw accurate and detailed models of existing buildings, structures and objects in SketchUp. Use these techniques to create a model of your own choosing. Once created you can modify or add to your model to make it better. Use Tinkercad to design and produce prototypes of your original concepts or scale models of existing objects. With a 3-D printer, print your design. UNIT 2: Decisions, Loops, and Switches: Explore advanced programming techniques using loop and switch commands. Then apply your new knowledge and test your robot on the challenge board! Engineering for Complex Tasks: Learn about Switch-Loop and Line Follower robots. Then expand your EV3 skills by building and programming switch-loop and line follower robots of your own! Snap Circuits Building Logic Gate Circuits: Logic gates are the building blocks of modern digital technology. Use your Snap Circuits kit to build working logic gate circuits and discover how computers really work! Series and Parallel Circuits: How loads and power sources are arranged in a circuit can make a huge difference in how your circuit performs! Learn the differences between series or parallel circuits as you build, test and compare a variety of circuits. Discover how to use a digital multimeter to measure

	current and voltage in the circuits you build. MaKey MaKey gives you creative ways to control the keys and mouse of your computer. With MaKey MaKey, you can turn almost any object into a keyboard or mouse. Turn bananas into piano keys, make a computer game on the floor of your classroom. The possibilities are endless!

Assessment/Evaluation Evidence
Portfolio including: ● Completed journal ● Project ePortfolio highlighting process and product ● Self-Assessment using rubric ● Student Created- Individualized Formative: ● Quick Checks ● Project Specific Rubrics ● Exit Slips ● Student Self-Assessment ● Peer review ● Peer to peer- Peer critiques ● Outside Feedback ● Class Discussion ● Teacher Observation ● Class Participation ● Pre-Assessments

Suggested Learning Plan

Students will be working on a project of their choice within the project topic.

The structure of the daily lesson will be in the format of a 44 minute period.

- 5-10 minutes – Do/Now summary debrief and/or whole group instruction
- 30-35 minutes – Independent work with teacher monitoring and guidance
- 4 minutes – Wrap up/review in journal and group reflection

These phases are designed to be carried out over the course of one marking period. Students will then implement those within their chosen engagement. They will work at their own pace and teacher will set goals on individual or group basis. Students will self monitor by keeping a daily journal of their findings, new skills and understandings, and the development of theories.

Instructional/Learning Resources

Doodle for Google
Google Art Project
Illustrator
Photoshop
Photoshop Elements
Picasa
Punch Home Design Suite
SketchUp
Tinkercad
Creative Learning Systems
Make: The Magazine for Makers
Tinkering by Curt Gabrielson
Invent to Learn by Martinez and Stager

See Creative Learning Systems website.
ll.creativelearningsystems.com/

Pacing Guide

4-5 Guide

4-5
Phase 1: Units of Inquiry (Computer Graphics, Digital Communication, Robotics and

Control Technology,

1. Computer Graphics & Digital Communication
   - Doodle 4 Google
   - Google Art Project
   - Illustrator
   - Photoshop
   - Photoshop Elements
   - Punch Home Design Suite
   - SketchUp - 3D Modeling
   - Tinkercad
   - CrazyTalk Animation
2. Robotics & Control Technology with Circuitry
   - Lego Mindstorms EV3 Robotics
   - Snap Circuits
   - MaKey MaKey

Phase 2: Expression (10 weeks)

1. Units (open ended question to explore student direction and self)
   - Who are you?
   - What is your story?
   - What is your life's purpose?
2. Skills
   - Produce and Publish Writing, utilizing multimedia applications
   - Present Information, findings, and supporting evidence
   - Develop and organize documentation of learning

Phase 3: Oration and Exposition: Solutionary Showcase (10 weeks)

Presentations

- Share and express process of learning highlighting the inquiry arc and the engineering design process
- Develop and showcase their learning.

Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

NJSLS Connections

ELA/Literacy –

WHST.6-8.4. Produce clear and coherent writing in which the development, organization, voice, and style are appropriate to task, purpose, and audience.

WHST.6-8.10. Write routinely over extended time frames (time for research, reflection, metacognition/self correlation, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking

measurements, or performing technical tasks.
RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
NJSLSA.SL3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Mathematics -
MP.2 Reason abstractly and quantitatively.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
8.G.A.1. Verify experimentally the properties of rotations, reflections, and translations:
8.G.A.2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.A.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.A.4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.B.2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.B.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.B.4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.C.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Science Connections

3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3-5-ETS1-2. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
MS-ETS1- 1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2. Evaluate competing design solution using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4. Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.

Integration of Technology

8.2.5.A.2 Investigate and present factors that influence the development and function of a product and a system.
8.2.5.A.3 Investigate and present factors that influence the development and function of products and systems, e.g., resources, criteria and constraints.
8.2.5.A.4 Compare and contrast how technologies have changed over time due to human needs and economic, political and/or cultural influences.
8.2.5.B.6 Compare and discuss how technologies have influenced history in the past century.
8.2.5.C.4 Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.
8.2.5.C.5 Explain the functions of a system and subsystems.
8.2.5.C.6 Examine a malfunctioning tool and identify the process to troubleshoot and present options to repair the tool.
8.2.5.D.3 Follow step by step directions to assemble a product or solve a problem.

21st CENTURY LIFE AND CAREERS

Personal Financial Literacy

9.1.4.F.2 Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.

Career Awareness, Exploration and Preparation

9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.

9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices

CRP1, CRP2, CRP3, CRP4, CRP5, CRP6, CRP7, CRP8, CRP9, CRP10, CRP11, CRP12

Career Ready Practices

Accommodations and Modifications

Gifted and Talented

- Provide appropriate challenge for wide ranging skills and development areas.
- Participate in inquiry and project-based learning units of study.

English Language Learners

- Pair visual prompts with verbal presentations
- Provide students with visual models, sentence stems, concrete objects, and hands on materials.

Students with IEPs/504

- Review student individual educational plan and/or 504 plan
- Establish procedures for accommodations and modifications for assessments as per IEP/504
- Modify classroom environment to support academic and physical needs of the students as per IEP/504

At Risk Learners

- Differentiated instruction
- Basic Skills

Annual Pacing Guide

Grade Level: 4-5

Subject: Gifted and Talented

Grades 4-5

September/October:

1. Review and introduce new students for/to the program
2. Passion Investigation-
    a. Individual exploration of areas of interest
    b. Review and introduce cycle of inquiry
    c. Community building
    d. Goal Setting

4-5

Phase 1: Units of Inquiry (Computer Graphics, Digital Communication, Robotics and Control Technology) (Oct-Dec)

1. Computer Graphics
    Doodle 4 Google
    Google Art Project
    Illustrator
    Photoshop
    Photoshop Elements
    Punch Home Design Suite
    SketchUp - 3D Modeling
    Tinkercad

Phase 2: Expression & Oration (Jan-Mar)

1. Units (open ended question to explore student direction and self)
    Who are you?
    What is your story?
    What is your life's purpose?

2. Skills
    Produce and Publish Writing, utilizing multimedia applications
    Present Information, findings, and supporting evidence
    Develop and organize documentation of learning

Phase 3: Exposition- Solutionary Showcase (Apr- June)

1. Presentations

Share and express process of learning highlighting the inquiry arc and the engineering design process
Develop and showcase their learning.

Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

These can both occur after school and take place in the STEaM Lab, Learning Commons, and in the Outdoor Classroom.

Resources:
Creative Learning Systems Curriculum
http://sustainableschoolsproject.org/education
http://www.antiochne.edu/coseed/
Childhood and Nature: Design Principles for Educators, David Sobel, ©2008
Nature Literacy Series: 1-3;
Beyond Ecophobia: Reclaiming the Heart in Nature Education , David Sobel, ©1996.
*Into the Field: A Guide to Locally Focussed Teaching, Claire Walker Leslie, ©2005.
*Place Based Education, David Sobel, ©2004.
(*needs to be purchased)
Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, Richard Louv ©2005, 2008.

http://kidscanmakeadifference.org/
http://www.thegoodproject.org/toolkits-curricula/
http://humaneeducation.org/9781590565193-2/
https://orionmagazine.org/connect/educators/nature-literacy-series/

Deal School Curriculum
Navigators - Gifted and Talented Curriculum 6-8
Alternative and Renewable Energy Topics

Desired Outcomes

National Association for Gifted Children Standards: Standard 1.1-1.8

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.

1.2. 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.

1.3. 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.

1.4. Awareness of Needs. Students with gifts and talents access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts.

1.5. Awareness of Needs. Students' families and communities understand similarities and differences with respect to the development and characteristics of advanced and typical learners and support students with gifts and talents' needs.

1.6. Cognitive and Affective Growth. Students with gifts and talents benefit from meaningful and challenging learning activities addressing their unique characteristics and needs.

1.7. Cognitive and Affective Growth. Students with gifts and talents recognize their preferred approaches to learning and expand their repertoire.

1.8. Cognitive and Affective Growth. Students with gifts and talents identify future career
goals that match their talents and abilities and resources needed to meet those goals
(e.g., higher education opportunities, mentors, financial support).

Enduring Understandings	**Essential Questions**

What does it mean to be creative? What can our imagination be used for? How can our imagination be used to solve a problem? What does it mean to be innovative? How can we come up with new ideas to solve a problem? **Asking Questions and Defining Problems** Asking questions and defining problems in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships between variables, and clarifying arguments and models. ▪ Define a design problem that can be solved through the development of an object, tool, process or system and includes multiple criteria and constraints, including scientific knowledge that may limit possible solutions. (MS-ETS1-1) **Developing and Using Models** Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems. ▪ Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs. (MS-ETS1-4) **Analyzing and Interpreting Data** Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis. ▪ Analyze and interpret data to determine similarities and differences in findings. (MS-ETS1-3) **Engaging in Argument from**	What does it mean to be a problem-solver? What can we learn from our mistakes? What must you know about a problem before you can develop a solution? How can making mistakes be an important part of learning? Why is it important to know the resources you have to solve a problem? What are some advantages to planning before starting a project?

Evidence Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world.	
Learners will know…	**Learners will be able to….**
Learners will challenge themselves and push the boundaries when it comes to interests, strengths, identities, and needs. Learners will access resources from the community to support cognitive and affective needs, including social interactions with others having similar interests and abilities or experiences, including same-age peers and mentors or experts. Learners recognize their preferred approaches to learning and expand their repertoire. Learners will identify future career goals that match their talents and abilities and resources needed to meet those goals. Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. Students apply existing knowledge to generate new ideas, products, or processes. Students create original works as a means of personal or group expression.	**based on self understanding, awareness and needs, and cognitive and affective growth, students will be able to choose a project in domains they are passionate about.** Commercially produced electric cars were on the road in California over 10 years ago. What happened to them? Watch this fascinating documentary movie to learn about the many factors that affect emerging technologies. Then create a presentation of your choice to express your opinion on the subject. Alternative energy is all about electricity! Explore the fundamentals of electricity with Snap Circuits. Find out how it applies to the design and use of alternative energy systems. Learn how to measure the voltage and amperage output of energy sources like solar PV panels, wind turbines, and hydrogen fuel cells. How are homes being designed to be more energy efficient? Find out ways to make your home green! Are you ready to apply all that you've learned about alternative energy to create an informative and engaging

Students use digital media and environments to communicate and work collaboratively, including at a distance, t support individual learning and contribute to the learning of others. Students interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media. Students communicate information and ideas effectively to multiple audiences using a variety of media and formats. Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Students identify and define authentic problems and significant questions for investigation.	communications project? Pick a topic that you found interesting during your exploration into solar power, hydrogen fuel cells, wind power and other alternative energy topics. Then build a model information kiosk, create a website, produce a video, or choose another communication method to educate others about your topic. The Earth's orbit has a big impact on solar energy around the globe. Find out how it affects the amount of solar energy where you live! Find out how homes are designed to use radiant solar energy to provide heat in the winter while keeping homes cool in the summer. Learn how solar box cookers cook food and how they are designed. Then design and build one of your own and test its performance. Design, build and test a solar race car powered by solar photovoltaic panels. How fast can you go? What flooring materials are the best choices for passive solar rooms? Conduct experiments using different flooring materials and scientific probeware and find out! What kinds of solar cookers are in use today? Explore the engineering principles of each major type. Then design your own from scratch and see what you can cook up! Capstone Project: Are you ready to apply all that you've

	learned about alternative energy to create an informative and engaging communications project? Pick a topic that you found interesting during your exploration into solar power, hydrogen fuel cells, wind power and other alternative energy topics. Then build a model information kiosk, create a website, produce a video, or choose another communication method to educate others about your topic. UNIT 2: Sustainability and Scientific Data Creating an Original GIS Map: Learn how to use advanced map building features with ArcGIS Online. Investigate a GIS question that interests you and create an original map project to learn more about your chosen topic. Earth's Energy Budget: What is the relationship between solar energy and monster storms? How does the atmosphere affect global temperature? Explore these concepts with science experiments you can do right in the SmartLab! Natural Hazard Evaluation with GIS: Landscape Ecology the Welikia Project: The Mannahatta Project is an ambitious research project to recreate New York City before the arrival of European settlers. Travel back in time 400 years to explore this pristine wilderness! Mobile APPs and Google Earth: Learn how to collect information with a smartphone or GPS device and analyze it using Google Earth. Venier Environmental Study with Vernier: Conduct a survey using Vernier sensors

	and software to collect and analyze data. What will your research tell you about an area near your home or school?Welikia Sustainability Capstone: Are you ready to apply all that you've learned about sustainability to create an informative and engaging communications project? Pick a topic that you found interesting during your exploration into environmental action, conservation, raising trout in the classroom, place-based learning, community initiatives, designing rain gardens, recycling, composting, repurposing, and other sustainability topics. Then build a model information kiosk, create a website, produce a video, or choose another communication method to educate others about your topic.

Assessment/Evaluation Evidence

Portfolio including:

- Completed journal
- Project ePortfolio highlighting process and product
- Self-Assessment using rubric
- Student Created- Individualized

Formative:

- Quick Checks
- Project Specific Rubrics
- Exit Slips
- Student Self-Assessment
- Peer review
- Peer to peer- Peer critiques
- Outside Feedback
- Class Discussion
- Teacher Observation
- Class Participation
- Pre-Assessments

Suggested Learning Plan

Students will be working on a project of their choice within the project topic.

The structure of the daily lesson will be in the format of a 44 minute period.

- 5-10 minutes – Do/Now summary debrief and/or whole group instruction
- 30-35 minutes – Independent work with teacher monitoring and guidance
- 4 minutes – Wrap up/review in journal and group reflection

These phases are designed to be carried out over the course of one marking period. Students will then implement those within their chosen engagement. They will work at their own pace and teacher will set goals on individual or group basis. Students will self monitor by keeping a daily journal of their findings, new skills and understandings, and the development of theories.

Instructional/Learning Resources

Creative Learning Systems
Make: The Magazine for Makers
Tinkering by Curt Gabrielson
Invent to Learn by Martinez and Stager

See Creative Learning Systems website.
ll.creativelearningsystems.com/

Pacing Guide

6-8 Guide

6-8
Phase 1: Units of Inquiry (Alt. Energy and other topics, Technology, Social Issues)
- Introduction to Alternative Energy and Other Topics
  - Electric Car
  - Fundamentals of Electricity
  - High Performance Home Design
  - Capstone Alternative Energy Project
- Solar Energy
  - Solar Cars
  - Solar Ovens
  - Passive Solar Homes
- Sustainability
  - Environmental Action
  - Conservation
  - Trout in the classroom program
- Place Based Education:
  - Community Project
  - Establishing a food garden
  - Designing a rain garden (runoff) and or mindfulness space)

Recycling standard approach, composting, repurposing, issue support

Phase 2: Expression (10 weeks)

Units (open ended question to explore student direction and self)

What does sustainability mean for our future?

What could you innovate or invent to solve a problem?

What potential impact can we create for our future?

Skills

Produce and Publish Writing, utilizing multimedia applications

Present Information, findings, and supporting evidence

Develop and organize documentation of learning

Phase 3: Oration and Exposition- Solutionary Showcase (10 weeks)

Presentations

Share and express process of learning highlighting the inquiry arc and the engineering design process

Develop and showcase their learning.

NJSLS Connections

ELA/Literacy –

WHST.6-8.1. Write arguments focused on discipline-specific content. A. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. B. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. C. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. D. Establish and maintain a formal/academic style, approach, and form. E. Provide a concluding statement or section that follows from and supports the argument presented.

WHST.6-8.2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. A. Introduce a topic and organize ideas, concepts, and information using text structures (e.g. definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g. headings, graphics, and multimedia) when useful to aiding comprehension. B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. D. Use precise language and domain-specific vocabulary to inform about or explain the topic. E. Establish and maintain a formal/academic style, approach, and form. F. Provide a concluding statement or section that follows from and supports the information or explanation presented.

WHST.6-8.4. Produce clear and coherent writing in which the development, organization, voice, and style are appropriate to task, purpose, and audience.

WHST.6-8.10. Write routinely over extended time frames (time for research, reflection, metacognition/self correlation, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and

audiences.
RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking
measurements, or performing technical tasks.
RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Mathematics -
MP.2 Reason abstractly and quantitatively.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
7.G.A.1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
7.G.A.2. Draw (with technology, with ruler and protractor, as well as freehand) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
7.G.B.6. Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Science Connections

SCI.6-8.MS-ETS1- 1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
MS-ETS1-2. Evaluate competing design solution using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4. Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.
for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Integration of Technology

8.2.8.A.4 Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.
8.2.8.A.5 Describe how resources such as material, energy, information, time, tools, people, and capital contribute to a technological product or system.
8.2.12.A.1 Propose an innovation to meet future demands supported by an analysis of the potential full costs, benefits, trade-offs and risks, related to the use of the innovation.
8.2.12.A.2 Analyze a current technology and the resources used, to identify the trade-offs in terms of availability, cost, desirability and waste.
8.2.12.A.3 Research and present information on an existing technological

product that has been repurposed for a different function.
8.2.8.B.1 Evaluate the history and impact of sustainability on the development of a designed product or system over time and present results to peers.

8.2.8.B.2 Identify the desired and undesired consequences from the use of a product or system.
8.2.8.B.3 Research and analyze the ethical issues of a product or system on the environment and report findings for review by peers and /or experts.

8.2.8.B.4 Research examples of how humans can devise technologies to reduce the negative consequences of other technologies and present your findings.
8.2.8.B.5 Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries and societies.
8.2.8.B.6 Compare and contrast the different types of intellectual property including copyrights, patents and trademarks.
8.2.8.B.7 Analyze the historical impact of waste and demonstrate how a product is upcycled, reused or remanufactured into a new product.
8.2.8.C.3 Evaluate the function, value, and aesthetics of a technological product or system, from the perspective of the user and the producer.
8.2.8.C.4 Identify the steps in the design process that would be used to solve a designated problem.
8.2.8.C.5 Explain the interdependence of a subsystem that operates as part of a system.
8.2.8.C.5.a Create a technical sketch of a product with materials and measurements labeled.
8.2.8.C.6 Collaborate to examine a malfunctioning system and identify the step-by-step process used to troubleshoot, evaluate and test options to repair the product, presenting the better solution.
8.2.8.C.7 Collaborate with peers and experts in the field to research and develop a product using the design process, data analysis and trends, and maintain a design log with annotated sketches to record the developmental cycle.
8.2.8.C.8 Develop a proposal for a chosen solution that include models (physical, graphical or mathematical) to communicate the solution to peers.
8.2.8.D.1 Design and create a product that addresses a real world problem using a design process under specific constraints.

8.2.8.D.2 Identify the design constraints and trade-offs involved in designing a prototype (e.g., how the prototype might fail and how it might be improved) by completing a design problem and reporting results in a multimedia presentation, design portfolio or engineering notebook.
8.2.8.D.3 Build a prototype that meets a STEM-based design challenge using science, engineering, and math principles that validate a solution.
8.2.8.D.4 Research and publish the steps for using and maintaining a product or system and incorporate diagrams or images throughout to enhance user comprehension.

8.2.8.D.5 Explain the impact of resource selection and the production process in the development of a common or technological product or system.

8.2.8.D.6 Identify and explain how the resources and processes used in the

production of a current technological product can be modified to have a more positive impact on the environment.

21st CENTURY LIFE AND CAREERS

Personal Financial Literacy

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.A.3 Differentiate among ways that workers can improve earning power through the acquisition of new knowledge and skills.

9.1.8.F.1 Explain how the economic system of production and consumption may be a means to achieve significant societal goals.

Career Awareness, Exploration and Preparation

9.2.8.B.4 Evaluate how traditional and nontraditional careers have evolved regionally, nationally, and globally.

Career Ready Practices

CRP1, CRP2, CRP3, CRP4, CRP5, CRP6, CRP7, CRP8, CRP9, CRP10, CRP11, CRP12

Career Ready Practices

Accommodations and Modifications

Gifted and Talented

- Provide appropriate challenge for wide ranging skills and development areas.
- Participate in inquiry and project-based learning units of study.

English Language Learners

- Pair visual prompts with verbal presentations
- Provide students with visual models, sentence stems, concrete objects, and hands on materials.

Students with IEPs/504

- Review student individual educational plan and/or 504 plan
- Establish procedures for accommodations and modifications for assessments as per IEP/504
- Modify classroom environment to support academic and physical needs of the students as per IEP/504

At Risk Learners

- Differentiated instruction
- Basic Skills

Deal School Curriculum	
Navigators - Gifted and Talented Curriculum	
Desired Outcomes	
Enduring Understandings	**Essential Questions**
Learners will know…	**Learners will be able to….**

Assessment Evidence

Portfolio

Suggested Learning Plan

Students will be working on a project of their choice.

Suggested Learning Resources

Scope and Sequence

21st Century Themes and Skills

Annual Pacing Guide

Grade Level: 6-8

Subject: Gifted and Talented

Grades 6-8

September/October:

1. Review and introduce new students for/to the program
2. Passion Investigation-
    a. Individual exploration of areas of interest
    b. Review and introduce cycle of inquiry
    c. Community building
    d. Goal Setting

6-8

Phase 1: Units of Inquiry (Alt. Energy and other topics, Technology, Social Issues) (Oct-Dec)

Introduction to Alternative Energy and Other Topics

- Electric Car
- Fundamentals of Electricity
- High Performance Home Design
- Capstone Alternative Energy Project

Solar Energy

- Solar Cars
- Solar Ovens
- Passive Solar Homes

Sustainability

- Environmental Action
- Conservation
- Trout in the classroom program

Place Based Education:

- Community Project
- Establishing a food garden
- Designing a rain garden (runoff) and or mindfulness space)
- Recycling standard approach, composting, repurposing, issue support

Phase 2: Expression & Oration (Jan-Mar)

Units (open ended question to explore student direction and self)

- What does sustainability mean for our future?
- What could you innovate or invent to solve a problem?
- What potential impact can we create for our future?

Skills

Produce and Publish Writing, utilizing multimedia applications
Present Information, findings, and supporting evidence
Develop and organize documentation of learning

Phase 3: Exposition- Solutionary Showcase (Apr- June)

Presentations

Share and express process of learning highlighting the inquiry arc and the engineering design process
Develop and showcase their learning.

These can both occur after school and take place in the STEaM Lab, Learning Commons, and in the Outdoor Classroom.

Resources:
Creative Learning Systems Curriculum
http://sustainableschoolsproject.org/education
http://www.antiochne.edu/coseed/
Childhood and Nature: Design Principles for Educators, David Sobel, ©2008
Nature Literacy Series: 1-3;
Beyond Ecophobia: Reclaiming the Heart in Nature Education , David Sobel, ©1996.
*Into the Field: A Guide to Locally Focussed Teaching, Claire Walker Leslie, ©2005.
*Place Based Education, David Sobel, ©2004.
(*needs to be purchased)
Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder, Richard Louv ©2005, 2008.

http://kidscanmakeadifference.org/
http://www.thegoodproject.org/toolkits-curricula/
http://humaneeducation.org/9781590565193-2/
https://orionmagazine.org/connect/educators/nature-literacy-series/

Annual Pacing Guide

Grade Level: K-1

Subject: Gifted and Talented

Grades K-1

Progress through the three phases of the cycle of inquiry.

K-1 Units of Inquiry (5-6 week cycles)

Phase 1: Exploration- What…?

What do you wonder about?

Identify passions.

Support curiosity and awe through discussion and observation of the world around us.

Create quality questions.

Gather data through all senses.

Work with me.

Develop collaboration and communication between students through sharing of ideas, thoughts, and questions.

Develop flexible thinking.

Build the skill for listening to others with understanding and empathy.

Phase 2: Expression - What if…?

What's your Problem?

Gain a global perspective on problem-solving.

Think and communicate clearly.

Think independently.

Develop ability to reason.

What's next?

Use creative and critical thinking.

Create, imagine and innovate an original idea.

Full STEAM Ahead!

Integrate the arts into the inquiry process.

Take responsible risks.

Persist.

Think about thinking and reflect.

Implement the EDP to develop an idea into a prototype that can be tested and improved.

Phase 3: Exposition & Oration- How…?

Share.

Annual Pacing Guide

Grade Level: K-1

Subject: Gifted and Talented

1. Skills

Produce and Publish Writing, utilizing multimedia applications

Present Information, findings, and supporting evidence

Develop and organize documentation of learning

2. Presentations:

Share and express process of learning highlighting the inquiry arc and the engineering design process

Develop and showcase their learning via Seesaw.

Use a variety of mediums, resources, and materials to apply their learning, through implementation of new strategies and skills to share with others, present solutions to design challenges, and solve meaningful problems.

These can both occur after school and take place in the STEaM Lab, Learning Commons, and in the Outdoor Classroom.

Resources:

Creative Learning Systems Curriculum

http://sustainableschoolsproject.org/education

http://www.antiochne.edu/coseed/

Childhood and Nature: Design Principles for Educators, David Sobel, ©2008

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