Revised UBD Curriculum
Egg Harbor Township Middle School
Robotics

CTE

Career and Technical Education

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DISTRICT MISSION STATEMENT

Our mission in the Egg Harbor Township School District is to partner with the student, family, school, and community to provide a safe learning environment that addresses rigorous and relevant 21st Century standards and best practices which will develop academic scholarship, integrity, leadership, citizenship, and the unique learning style of students, while encouraging them to develop a strong work ethic and to act responsibly in their school community and everyday society.

CAREER AND TECHNICAL EDUCATION

Mission:

New Jersey's Office of Career and Technical Education seeks to prepare students for career opportunities of the 21st century, succeed as global citizens and support healthy economic growth for New Jersey. Career and Technical Education prepares students to succeed as global citizens for career opportunities for the 21st Century and to support healthy economic growth within the state.

INTRODUCTION

The most precious resource teachers have is time. Regardless of how much time a course is scheduled for, it is never enough to accomplish all that one would like. Therefore, it is imperative that teachers utilize the time they have wisely in order to maximize the potential for all students to achieve the desired learning.

High quality educational programs are characterized by clearly stated goals for student learning, teachers who are well-informed and skilled in enabling students to reach those goals, program designs that allow for continuous growth over the span of years of instruction, and ways of measuring whether students are achieving program goals.

EGG HARBOR TOWNSHIP SCHOOL DISTRICT CURRICULUM TEMPLATE

The Egg Harbor Township School District has embraced the backward-design model as the foundation for all curriculum development for the educational program. When reviewing curriculum documents and the Egg Harbor Township curriculum template, aspects of the backward-design model will be found in the stated enduring *understandings/essential questions, unit assessments,* and *instructional activities*. Familiarization with backward-design is critical to working effectively with Egg Harbor Township's curriculum guides.

GUIDING PRINCIPLES: WHAT IS BACKWARD DESIGN? WHAT IS UNDERSTANDING BY DESIGN?

"Backward design" is an increasingly common approach to planning curriculum and instruction. As its name implies, "backward design" is based on defining clear goals, providing acceptable evidence of having achieved those goals, and then working 'backward' to identify what actions need to be taken that will ensure that the gap between the current status and the desired status is closed.

Building on the concept of backward design, Grant Wiggins and Jay McTighe (2005) have developed a structured approach to planning programs, curriculum, and instructional units. Their model asks educators to state goals; identify deep understandings, pose essential questions, and specify clear evidence that goals, understandings, and core learning have been achieved.

Program based on backward design use desired results to drive decisions. With this design, there are questions to consider, such as: What should students understand, know, and be able to do? What does it look like to meet those goals? What kind of program will result in the outcomes stated? How will we know students have achieved that result? What other kinds of evidence will tell us that we have a quality program? These questions apply regardless of whether they are goals in program planning or classroom instruction.

The backward design process involves three interrelated stages for developing an entire curriculum or a single unit of instruction. The relationship from planning to curriculum design, development, and implementation hinges upon the integration of the following three stages.

Stage I: Identifying Desired Results: Enduring understandings, essential questions, knowledge and skills need to be woven into curriculum publications, documents, standards, and scope and sequence materials. Enduring understandings identify the "big ideas" that students will grapple with during the course of the unit. Essential questions provide a unifying focus for the unit and students should be able to answer more deeply and fully these questions as they proceed through the unit. Knowledge and skills are the *"stuff"* upon which the understandings are built.

Stage II: Determining Acceptable Evidence: Varied types of evidence are specified to ensure that students demonstrate attainment of desired results. While discrete knowledge assessments (e.g.: multiple choice, fill-in-the-blank, short answer, etc…) will be utilized during an instructional unit, the overall unit assessment is performance-based and asks students to demonstrate that they have mastered the desired understandings. These culminating (summative) assessments are authentic tasks that students would likely encounter in the real-world after they leave school. They allow students to demonstrate all that they have learned and can do. To demonstrate their understandings students can explain, interpret, apply, provide critical and insightful points of view, show empathy and/or evidence self-knowledge. Models of student performance and clearly defined criteria (i.e.: rubrics) are provided to all students in advance of starting work on the unit task.

Stage III: Designing Learning Activities: Instructional tasks, activities, and experiences are aligned with stages one and two so that the desired results are obtained based on the identified evidence or assessment tasks. Instructional activities and strategies are considered only once stages one and two have been clearly explicated. Therefore, congruence among all three stages can be ensured and teachers can make wise instructional choices.

At the curricular level, these three stages are best realized as a fusion of research, best practices, shared and sustained inquiry, consensus building, and initiative that involves all stakeholders. In this design, administrators are instructional leaders who enable the alignment between the curriculum and other key initiatives in their district or schools. These leaders demonstrate a clear purpose and direction for the curriculum within their school or district by providing support for implementation, opportunities for revision through sustained and consistent professional development, initiating action research activities, and collecting and evaluating materials to ensure alignment with the desired results. Intrinsic to the success of curriculum is to show how it aligns with the overarching goals of the district, how the document relates to district, state, or national standards, what a high quality educational program looks like, and what excellent teaching and learning looks like. Within education, success of the educational program is realized through this blend of commitment and organizational direction.

INTENT OF THE GUIDE

This guide is intended to provide teachers with course objective and possible activities, as well as assist the teacher in planning and delivering instruction in accordance with the New Jersey Core Curriculum Content Standards. The guide is not intended to restrict or limit the teacher's resources or individual instruction techniques. It is expected that the teacher will reflectively adjust and modify instruction and units during the course of normal lessons depending on the varying needs of the class, provided such modified instruction attends to the objectives and essential questions outlined below.

Robotics - Power Standards

Standard Number	**Standard**
Semester Course	
8.2.8.C.1	Explain how different teams/groups can contribute to the overall design of a product.
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.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.E.1	Identify ways computers are used that have had an impact across the range of human activity and within different careers where they are used.
8.2.8.E.3	Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.

Unit Name: Components of Robotics **Time Frame: 12-15 Classes**

Author: Brian Costello & Gavin MacNeill

UNIT

Subject: **Technology** Country: **USA**

Course/Grade: **Robotics 7/8** State/Group: **NJ**

School: **Fernwood/Alder**

UNIT SUMMARY Overview of the basic components that go into making a robot. Students will work through a series of robotics component stations/challenges that engage them in using simple machines, basic programing, and simple circuitry to lay a foundation for building robots.

UNIT RESOURCES

Internet Resource Links:

http://microbit.org/

https://class42.com/robotrattle.html

https://www.tinkercad.com/

https://drive.google.com/file/d/1mOKiGeT3Xh1ZtH1Has1PPGYZ7sRZr4Od/view?usp=sharing

https://www.flipgrid.com

STAGE ONE

GOALS AND STANDARDS:

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.

8.2.8.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.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.E.2 - Demonstrate an understanding of the relationship between hardware and software.

8.2.8.E.3 - Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.

8.2.8.E.4 - Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).

ENDURING UNDERSTANDING: Through robotics and design thinking, students will learn to problem-solve everyday tasks and scenarios.

ESSENTIAL QUESTIONS

1. **How might we use simple machines be used to improve our ability to solve problems?**
2. **How might programming language be used to solve problems? How might we correct programming languages?**
3. **How might circuits connect to conduct electrical current?**

KNOWLEDGE AND SKILLS:

1. **Create and manipulate simple machines for specific tasks**
2. **Use, correct, or create programming to solve a problem**
3. **Interact with and create simple circuitry to demonstrate how circuits work**

STAGE TWO

PERFORMANCE TASKS:

Programming:

1. Hour of Code: CoSpaces Robot Roundup

2. Microbit- Block

3. Microbit - Python/Javascript

4. Rowan Lesson Project 1: Program the EV3 Brick for display and sound

5. Rowan Lesson Project 2: Program EV3 Brick for movement

Simple Machines:

1. **Popsicle Stick Catapult (lever)**
2. **Pulley Challenge**
3. **Ramps and Inclined Planes**
4. **Wheels and Axles**
5. **Playground? Fishing Rod?**

Circuits

1. **Tinkercad Circuit Lessons - Basics (Start Simulating, Editing Components, Wiring Components, and Adding Components)**
2. **Tinkercad Circuit Lessons Part 2 - Circuit Design (Breadboard, Ohm's Law, and Series and Parallel Circuits)**
3. **Snap Circuits**
4. **Microbit Energy Reading Project**
5. **Create a circuit using copper strips/aluminum foil**

OTHER EVIDENCE: **Flipgrid/SeeSaw reflections for each class.**

STAGE THREE

LEARNING PLAN:

Series of 4-5 lessons for each of the following: Simple Machines, Programming, and Circuits. Students work in stations over the course of 12-15 class periods.

Small Groups will cycle through lessons on a 5 day rotation. Students will be given the freedom to work at their own pace. Students will have to complete 4 out of the 5 projects that are listed during the unit. Instructional videos and teacher support will be given throughout the process. Students will demonstrate learning through FlipGrid and/or SeeSaw. Students will explain their builds, goals, obstacles, and gains through video, images, and writing.

**See rubrics and syllabus for grading/objectives met

Unit Name: Robotics in Society and Careers **Time Frame: 4 to 5 class periods**

Author: Brian Costello and Gavin MacNeill

UNIT

Subject: **Technology**

Country: **USA**

Course/Grade: **Robotics 7/8**

State/Group: **NJ**

School:**Fernwood/Alder**

UNIT SUMMARY During this unit, students will research the impact of robotics on our society. Students will also research the career opportunities available in the field of robotics/engineering. Students will create presentations based on their research that will be presented to the class/teacher.

UNIT RESOURCES

Internet Resource Links:

https://newsela.com/

http://www.discoveryeducation.com/

https://www.tweentribune.com/

https://info.flipgrid.com/

https://drive.google.com/

STAGE ONE

GOALS AND STANDARDS

8.1.8.A.2 - Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.

8.1.8.D.2 - Demonstrate the application of appropriate citations to digital content.

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.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.E.1 - Identify ways computers are used that have had an impact across the range of human activity and within different careers where they are used.

ENDURING UNDERSTANDING: Through robotics and design thinking, students will learn to problem-solve everyday tasks and scenarios.

ESSENTIAL QUESTIONS

What is the impact robots/robotics have had on our society?
What are the careers and training needed in the field of robotics engineering?

KNOWLEDGE AND SKILLS

1. Explain where robots are used in our society.
2. Research how robots have improved the manufacturing industry.
3. Identify the careers and training needed for jobs in the field of robotics.
4. Create a presentation for conveying research to peers using Slides/PowerPoint or Doc/Word.

STAGE TWO

PERFORMANCE TASKS

Day 1: Research

Day 2: Begin creating presentation using Google Slides

Day 3: Finalize presentations in Slides

Day 4&5: Presentations

OTHER EVIDENCE - FlipGrid/SeeSaw video journaling

STAGE THREE

LEARNING PLAN

Students will research the impact of robotics on society and the fields in which robots are incorporated. Through presentations and documenting steps throughout the project, students will demonstrate an understanding of the value of robotics in society. Students will demonstrate learning through FlipGrid and/or SeeSaw. Students will explain their builds, goals, obstacles, and gains through video, images, and writing.

**See rubrics and syllabus for grading/objectives met

Unit Name: Design and Problem Solving: Robotics **Time Frame: 4-6 Classes**

Author: Brian Costello & Gavin MacNeill

UNIT

Subject: **Technology** Country: **USA**

Course/Grade: **Robotics 7/8** State/Group: **NJ**

School: **Fernwood/Alder**

UNIT SUMMARY: Students will learn the purposes of the sensors on the EV3 robots and begin to design, collaborate, and develop solutions to the robotics challenge project.

UNIT RESOURCES

Internet Resource Links:

https://designsprintkit.withgoogle.com/

https://www.ideo.com/post/design-thinking-for-educators

https://www.ignitemyfutureinschool.org/resources/k12-computational-thinking-resources

https://drive.google.com/drive/folders/1cewfRsLBoG_LHCEZdoFAQKUMSNbEV6JC?usp=sharing

STAGE ONE

GOALS AND STANDARDS

8.2.8.C.1 - Explain how different teams/groups can contribute to the overall design of a product.

8.2.8.C.2 - Explain the need for optimization in a design process.

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.

ENDURING UNDERSTANDING: Through robotics and design thinking, students will learn to problem-solve everyday tasks and scenarios.

ESSENTIAL QUESTIONS

What is the design process?

How can we use the design process to approach problems as a team?

KNOWLEDGE AND SKILLS

1. Explain the design process.
2. Collaborate in a group/team using the design process.
3. Develop a prototype using the design process that meets certain parameters.
4. Build/code a prototype.
5. Identify key components to the Lego EV3

STAGE TWO

PERFORMANCE TASKS

1. Lego EV3 - Sensors (Class 1)
2. Define Problem (Class 2)
3. Crazy 8s (Create as many solutions as possible) (Class 2)
4. Gallery Walk (Likes and Dislikes, gather information on solutions) (Class 3)

5. Prototyping Solution to problem (Class 3-5)

OTHER EVIDENCE: Flipgrid/SeeSaw reflections for each class.

STAGE THREE

LEARNING PLAN

Students will be introduced to the sensors on the EV3. Students will be presented with a problem and apply design thinking process to create a prototype to solve the problem. During the design process, students will walk through the phases/method of solving the problem in their teams/groups. Students will demonstrate learning through FlipGrid and/or SeeSaw. Students will explain their builds, goals, obstacles, and gains through video, images, and writing.

**See rubrics and syllabus for grading/objectives met

Unit Name: Build/Program/Test **Time Frame: 15 to 20 classes**

Author: Brian Costello and Gavin MacNeill

UNIT

Subject: Technology Country: USA

Course/Grade: Robotics 7/8 State/Group: **NJ**

School: **Fernwood/Alder**

UNIT SUMMARY Students will go through different tasks and build a robot to solve the problem/task. Students will have to collaborate in groups to develop a build that will meet criteria.

UNIT RESOURCES

Internet Resource Links:

https://www.flipgrid.com

https://www.cmu.edu/roboticsacademy/roboticscurriculum/Lego%20Curriculum/

https://education.lego.com/en-us/middle-school/lesson%20plans?Course=EV3%20Coding%20Activities&Course=Renewable%20Energy&Course=Simple%20%26%20Powered%20Machines&pagesize=9

STAGE ONE

GOALS AND STANDARDS

8.2.8.A.2 - Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.

8.2.8.C.1 - Explain how different teams/groups can contribute to the overall design of a product.

8.2.8.C.2 - Explain the need for optimization in a design process.

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.

8.2.8.E.3 - Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.

ENDURING UNDERSTANDING: Through robotics and design thinking, students will learn to problem-solve everyday tasks and scenarios.

ESSENTIAL QUESTIONS:

- How might we use the design process and solve a problem using robotics as the solution?
- How might we use coding, circuits, and simple machines combine to create a robotic solution to a problem?

KNOWLEDGE AND SKILLS:

- Coding EV3 Lego Robotics Bricks
- Building, wiring, and modifying Lego Mindstorm EV3 Kits to solve specific tasks
- Using simple machines to enhance effectiveness of potential solutions

STAGE TWO

PERFORMANCE TASKS:

Students will complete a robotics challenge task that carries over from the design unit.

1. Create an EV3 Robot that follows a line track through obstacles.
2. Create an EV3 Robot that will be able to “park” itself.
3. The robot EV3 Brick design must be removable.
4. At the end of the track use additional materials to complete a specific task (knock over/flip cups, hit balls into an opening, ect…)
5. Learn to test the prototype and modify to improve performance.

OTHER EVIDENCE: Flipgrid/SeeSaw reflections for each class.

STAGE THREE

LEARNING PLAN

Students will work in groups to design prototypes based on a given problem. In groups, students will develop their prototypes using the design thinking process presented in the previous unit. Troubleshooting and revising the prototypes will be a main portion to this unit. Students will demonstrate learning through FlipGrid and/or SeeSaw. Students will explain their builds, goals, obstacles, and gains through video, images, and writing.

**See rubrics and syllabus for grading/objectives met

Unit Name: Robotics/Design Challenge **Time Frame: 2-3 Class Periods**

Author: Brian Costello and Gavin MacNeill

UNIT

Subject: Technology Country: **USA**

Course/Grade: Robotics 7/8 State/Group: **NJ**

School: **Fernwood/Alder**

UNIT SUMMARY: Students will use all the tools learned throughout the course to complete a full design process in creating a robotic solution to a presented problem.

UNIT RESOURCES: Lego EV3 Kits, K'Nex, Microbits

Internet Resource Links:

https://www.flipgrid.com

https://education.lego.com/en-us/middle-school/lesson%20plans?Course=EV3%20Coding%20Activities&Course=Renewable%20Energy&Course=Simple%20%26%20Powered%20Machines&pagesize=9

http://microbit.org/code/

https://drive.google.com/file/d/1EsR9OXiZpksj9WjySPhioXLK6yxaN2Zy/view?usp=sharing

STAGE ONE

GOALS AND STANDARDS

8.2.8.A.2 - Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.

8.2.8.C.1 - Explain how different teams/groups can contribute to the overall design of a product.

8.2.8.C.2 - Explain the need for optimization in a design process.

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.

8.2.8.E.3 - Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.

ENDURING UNDERSTANDING - Through robotics and design thinking, students will learn to problem-solve everyday tasks and scenarios.

ESSENTIAL QUESTIONS:

- How might we use the design process combined with the tools used in robotics to create a solution to a defined problem?
- How can we use robotic components to complete everyday or repetitive tasks?

KNOWLEDGE AND SKILLS

1. Apply the Design Thinking Process to a given problem.
2. Collaborate as a team to brainstorm and create a working prototype.
3. Design and code a prototype that meet criteria.

STAGE TWO

PERFORMANCE TASKS

1. Define the problem (Music Maker or Security System: Lego “Maker” Projects)
2. Identify potential solutions and designs
3. Design a prototype and test it

OTHER EVIDENCE: Flipgrid/SeeSaw reflections for each class.

STAGE THREE

LEARNING PLAN

In groups, students will be given a design challenge. Students will take the resources given throughout the course to create a prototype that meets the challenge criteria. Micro:bit and EV3 resources will be available as well as components students may bring in from home. Students will demonstrate learning through FlipGrid and/or SeeSaw. Students will explain their builds, goals, obstacles, and gains through video, images, and writing.

**See rubrics and syllabus for grading/objectives met

Curriculum Resources - Differentiated Instruction

Special Education Interventions in General Education

Visual Supports - video directions when applicable
Extended time to complete tests and assignments
Graphic Organizers
Mnemonic tricks to improve memory
Study guides
Use agenda book for assignments
Provide a posted daily schedule
Use of classroom behavior management system
Use prompts and model directions
Use task analysis to break down activities and lessons into each individual step needed to complete the task
Use concrete examples to teach concepts
Have student repeat/rephrase written directions
Heterogeneous grouping
Screen reader for visually impaired

Resources:

FlipGrid
https://flipgrid.com/

SeeSaw
https://app.seesaw.me/#/login

Do to Learn:
http://www.do2learn.com/

Sen Teacher:
http://www.senteacher.org/

Intervention Central:
http://www.interventioncentral.org/

Learning Ally:
https://www.learningally.org/

English Language Learners Interventions in Regular Education
Resources:

FABRIC - Learning Paradigm for ELLs (NJDOE)
www.nj.gov/education/bilingual/pd/**fabric**/**fabric**.pdf

Guide to Teaching ELL Students
http://www.colorincolorado.org/new-teaching-ells

Edutopia - Supporting English Language Learners
https://www.edutopia.org/blog/strategies-and-resources-supporting-ell-todd-finley

Reading Rockets
http://www.readingrockets.org/reading-topics/english-language-learners

Gifted and Talented Interventions in Regular Education
Resources:

Who are Gifted and Talented Students
http://www.npr.org/sections/ed/2015/09/28/443193523/who-are-the-gifted-and-talented-and-what-do-they-need

Hoagies Gifted Education Page
http://www.hoagiesgifted.org/programs.htm

21st Century Learning
Resources:

Partnership for 21st Century Learning
http://www.p21.org/

Career Ready Practices (NJDOE)
http://www.nj.gov/education/cte/hl/CRP.pdf