

6th Grade Computer  
Principles  
UBD Curriculum  
Egg Harbor Township Middle Schools

CTE



Career and Technical Education

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June 2018

## **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.

## 6th Grade Computer Principles - Power Standards

Standard Number	Standards
<b>One Semester Class</b>	
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.A.4	Graph and calculate data within a spreadsheet and present a summary of the results
8.1.8A.CS2	Select and use applications effectively and productively.
8.1.8D.1	Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security and cyber ethics, including appropriate use of social media.
8.1.8.D.2	Demonstrate the application citations to digital content.
8.2.8.E.CS1	Computational thinking and computer programming as tools used in design and engineering.

**Unit Name: Ongoing Unit Keyboarding**

**Time Frame: One Marking Period**

**Author: Jessica Fairchild**

## **UNIT**

Subject: **Computer Principles Grade 6** Country: **United States of America**

Course/Grade: **6th**

State/Group: **NJ**

School: **Egg Harbor Township Middle School**

## **UNIT SUMMARY**

All students will learn to use the computer keyboard, developing speed and accuracy through the use of online programs while recording data of progress in a spreadsheet.

## **UNIT RESOURCES**

**MS Word/Google Docs and MS Excel/Google Sheets**

**Internet Resource Links:**

<https://www.typing.com/>

<https://powertyping.com/>

## **STAGE ONE**

### **GOALS AND STANDARDS**

**CRP2.1 Act as a responsible and contributing citizen and employee**

**8.1.8.A.CS2 Select and use applications effectively and productively.**

**8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results**

## **ENDURING UNDERSTANDING**

**Students will learn to use the keyboard to develop speed and accuracy as keyboarding skills are an asset for educational and workplace productivity. Students understand and apply calculating and presenting data within a spreadsheet.**

## **ESSENTIAL QUESTIONS**

**Why is it important to key accurately and efficiently?  
How can I display and use data?**

## **KNOWLEDGE AND SKILLS**

**Understand and use keyboarding applications effectively and productively.  
Calculate data within a spreadsheet to present a summary of results.**

## **STAGE TWO**

### **PERFORMANCE TASKS**

**8.1.8.A.CS2 Select and use applications effectively and productively.**

**Students will use online resource to improve keyboarding efficiency and productivity.**

**8.1.8.A.CS2 Select and use applications effectively and productively.**

**8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results**

**Students will showcase results in their individualized learning program--newspaper using MS Excel or Google Sheets.**

## **OTHER EVIDENCE**

**Teacher observation, NJTAPIN rubric**

## **STAGE THREE**

### **LEARNING PLAN**

**8.1.8.A.CS2 Select and use applications effectively and productively.**

**Students will use online resources for proper keyboarding technique and timed typing assessments to obtain a degree of accuracy.**

**8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results**

**Students will maintain a personal learning log in a spreadsheet (Google Sheets or MS Excel) to display improvement using their data and graph in their individualized learning plan--Ms Word or Google Docs Marking Period Newspaper.**



**Unit Name: Digital Citizenship**

**Time Frame: 6 classes**

**Author: Jessica Fairchild/Gavin MacNeill**

## UNIT

Subject: **Computer Principles**      Country: **United States of America**

Course/Grade: **6th**      State/Group: **NJ**

School: **Egg Harbor Township Middle School**

### UNIT SUMMARY

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

### UNIT RESOURCES

#### MS Word/Google Docs

#### Internet Resource Links:

<https://www.commonsense.org/education/digital-compass>

<https://www.youtube.com/watch?v=suMza6Q8J08>

<http://liu.cwp.libguides.com/citmla>

[https://depts.washington.edu/trio/quest/citation/apa\\_mla\\_citation\\_game/](https://depts.washington.edu/trio/quest/citation/apa_mla_citation_game/)

[https://owl.english.purdue.edu/media/pdf/20170627162500\\_747.pdf](https://owl.english.purdue.edu/media/pdf/20170627162500_747.pdf)

## 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 for professionals for usability.

**8.1.8.D.1** -Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.

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

**8.1.8.D.3** - Demonstrate an understanding of fair use and Creative Commons to intellectual property.

**8.1.8.D.4** - Assess the credibility and accuracy of digital content.

**8.1.8.D.5** - Understand appropriate uses for social media and the negative consequences of misuse.

**21<sup>st</sup> Century CRP1** - Act as a responsible and contributing citizen and employee.

**21<sup>st</sup> Century CRP9** - Model integrity, ethical leadership and effective management.

### **ENDURING UNDERSTANDING**

**Technology use can have positive or negative impacts on users and those affected by users.**

**ESSENTIAL QUESTIONS** What is an individual's responsibility for using technology?

### **KNOWLEDGE AND SKILLS**

**Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.**

## **STAGE TWO**

### **PERFORMANCE TASKS**

#### **8.1.8.D.1//21<sup>st</sup> Century CRP1**

Online scenarios and mini-games

#### **8.1.8.D.2**

Online scenarios, mini games and activities

MS Word/Google Doc and online resources

#### **8.1.8.D.3// 21<sup>st</sup> Century CRP9**

Online scenarios, mini-games and view video

#### **8.1.8.D.4//21<sup>st</sup> Century CRP9**

Online resources, scenarios and mini-games.

#### **8.1.8.D.5**

Online scenarios and mini-games

## **OTHER EVIDENCE**

**Teacher observation, NJTAPIN rubric**

## **LEARNING PLAN**

**8.1.8.D.1** -Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

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

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

Review online resources, interactive and mini-game for MLA citations

Set-up MS Word/Google Doc using MLA formatting

**8.1.8.D.3** - Demonstrate an understanding of fair use and Creative Commons to intellectual property.

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

**8.1.8.D.4** - Assess the credibility and accuracy of digital content.

**8.1.8.D.5** - Understand appropriate uses for social media and the negative consequences of misuse.

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

**21<sup>st</sup> Century CRP1** - Act as a responsible and contributing citizen and employee.

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

**21<sup>st</sup> Century CRP9** - Model integrity, ethical leadership and effective management.

Use online resources for choices of scenarios and mini-games of understanding from Common Sense.org/digital compass

**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.

All of this will be documented in their student newspaper portfolio. This portfolio will be a major part of their grade

**Unit Name: Coding and Robotics**

**Time Frame: 4-5 Classes**

**Author: Jessica Fairchild and Gavin MacNeill**

## UNIT

Subject: Technology

Country: **USA**

Course/Grade: **6th Grade Computer Science Principles  
NJ**

State/Group:

School: **Egg Harbor Township**

**UNIT SUMMARY** Students will get an overview of basic coding and robotics concepts through exposure to a variety of activities.

## UNIT RESOURCES

### Internet Resource Links:

<https://www.thinkfun.com/hourofcode/>

<https://csedweek.org/files/CSEDrobotics.pdf>

<https://portal.ozobot.com/lessons>

<https://studio.code.org/courses?view=teacher>

<https://hourofcode.com/us/learn>

[Solar System Coding](#)

## STAGE ONE

### GOALS AND STANDARDS

**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.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** - Computer systems can be used to solve simple tasks. We need to learn how to communicate effectively through computing systems.

### **ESSENTIAL QUESTIONS**

-How might we communicate with computers and robotics equipment to solve problems?

-How might computer systems be used to complete simple tasks?

### **KNOWLEDGE AND SKILLS:**

-Use basic coding commands through unplugged and block coding activities to create or achieve specific tasks.

-Be introduced to and use basic concepts of Boolean logic as it applies to coding and robotics.

## **STAGE TWO**

### **PERFORMANCE TASKS**

<https://code.org/curriculum/course2/1/Teacher>

<https://csedweek.org/files/CSEDrobotics.pdf>

<https://www.thinkfun.com/hourofcode/>

Line Drawing Activity for Ozobots

Optional: [Finchbot](#) coding activity if Ozobots unavailable

**OTHER EVIDENCE:** Course long activity to create a newspaper that records and reports learning.

## **STAGE THREE**

### **LEARNING PLAN**

Students will begin with unplugged coding activities as a means to understand the basics of computer science, coding, and robotics.

From there they will move to creating the solar system through block coding.

They will also use line code to use ozobot robots to complete tasks, and complete the robot debugging course listed above.

All of this will be documented in their student newspaper portfolio. This portfolio will be a major part of their grade.

**Unit Name: Basic Computer Applications**

**Time Frame: 8 Classes**

**Author: Jessica Fairchild and Gavin MacNeill**

## UNIT

Subject: Technology

Country: **USA**

Course/Grade: **6th Grade Computer Science Principles  
NJ**

State/Group:

School: **Egg Harbor Township**

**UNIT SUMMARY** Students will get an overview of basic coding and robotics concepts through exposure to a variety of activities.

## UNIT RESOURCES

### Internet Resource Links:

[Microsoft Office](#)

[G Suite Apps](#)

[NJCAN](#)

[Smart Clothes Design](#)

## 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.A.4 - Graph and calculate data within a spreadsheet and present a summary of the results.

8.1.8.B.1 - Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web).

8.1.8.C.1 - Collaborate to develop and publish work that provides perspectives on a global problem for discussions with learners from other countries.

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.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 - Given a specific task, students will be able to create a document that conveys knowledge and skills.**

### **ESSENTIAL QUESTIONS**

**-How do I choose which software applications to use and when it is appropriate to use them?**

**-How can having the knowledge of basic computer skills make one more employable?**

### **KNOWLEDGE AND SKILLS:**

- Organize electronic documents and files.**
- Classify and use appropriate software applications for tasks.**
- Demonstrate correct use of word processing and spreadsheet terminology.**
- Create the appropriate documents and spreadsheets.**

## **STAGE TWO**

### **PERFORMANCE TASKS**

Word Processing - format an mla 100 word essay

Spreadsheets - Tally Survey (table, pie chart)

NJCAN interest survey

[Advertisement smart clothing](#)

Advertisement smart clothing- put it into the newspaper

**OTHER EVIDENCE: Course long personalized learning activity to create a newspaper that records and reflects learning.**

## **STAGE THREE**

### **LEARNING PLAN**

Students will create a Word or Doc in response to "Where do you see technology in 10 years?" A spreadsheet with charts will be created in response to a survey question. We will have to discuss what a statistical question is compared to other questions. Students will work in small groups to create a article of smart clothing. The students will use Google Drawing to create a design prototype.

All of this will be documented in their student newspaper portfolio. This portfolio will be a major part of their grade.

# **Curriculum Resources - Differentiated Instruction**

## **Special Education Interventions in General Education**

Visual Supports

Use captions tool when available with audio

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

Use captions tool when available with audio

*Resources:*

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](http://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>