CURRICULUM MAPPING

Subject: Computer Coding  Grade: Second-Fifth

I. Unit: Introduction to Computer Programming

A. Content/Essential Questions

What is Computer Science?
What is the Internet and how does it work?
Sequence, Loops, Conditionals, Nesting
Decompose, Patterns, Abstraction, Algorithms
Functions, Variables and Parameters
Debugging

Standards:

International Society for Technology in Education
1. Creativity and innovation
   Students demonstrate creative thinking, construct knowledge, and develop innovative products
   and processes using technology.
   a. Apply existing knowledge to generate new ideas, products, or processes
   b. Create original works as a means of personal or group expression
2. Communication and collaboration
   Students use digital media and environments to communicate and work collaboratively to
   support individual learning and contribute to the learning of others.
   a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital
       environments and media
   b. Communicate information and ideas effectively to multiple audiences using a variety of
       media and formats
   d. Contribute to project teams to produce original works or solve problems
3. Research and information fluency
   Students apply digital tools to gather, evaluate, and use information.
   a. Plan strategies to guide inquiry
   b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety
      of sources and media
   c. Evaluate and select information sources and digital tools based on the appropriateness to
      specific tasks
4. Critical thinking, problem solving, and decision making
   Students use critical thinking skills to plan and conduct research, manage projects, solve
   problems, and make informed decisions using appropriate digital tools and resources.
   a. Identify and define authentic problems and significant questions for investigation
   b. Plan and manage activities to develop a solution or complete a project
5. Digital citizenship
   Students understand human, cultural, and societal issues related to technology and practice
   legal and ethical behavior.
   a. Advocate and practice safe, legal, and responsible use of information and technology
b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

d. Exhibit leadership for digital citizenship

6. Technology operations and concepts
Students demonstrate a sound understanding of technology concepts, systems, and operations.

a. Understand and use technology systems
b. Select and use applications effectively and productively
c. Troubleshoot systems and applications
d. Transfer current knowledge to learning of new technologies

B. Skills

The student will be able to:

- Understand Computer Science basics
- Acknowledge that the Internet is a global network of computers
- Recognize the importance of order and sequence
- Use loops, conditionals, and nesting when appropriate
- Decompose and use abstraction on specific problems to create general solutions
- Understand the logic of algorithms when solving a puzzle
- Create functions with variables and parameters to solve a puzzle
- Debug lines of code to resolve errors
- Explore various coding languages, including HTML, CSS, PHP, JavaScript, Python, Ruby

C. Activities/Procedures

- Large group instruction
- Completion of activities on various Internet sites
- Participation in collaborative coding projects
- Participation in competitive coding projects
- MinecraftEDU server in lab
- Online resources
  - Scratch [http://www.code.org/learn/scratch](http://www.code.org/learn/scratch)
  - [http://scratch.mit.edu/](http://scratch.mit.edu/)
  - [http://appinventor.mit.edu/explore/get-started](http://appinventor.mit.edu/explore/get-started)
  - [http://skillcrush.com/tutorials/what-is-html-anyways/#1](http://skillcrush.com/tutorials/what-is-html-anyways/#1)
  - [https://www.codeschool.com/](https://www.codeschool.com/)
D. Resources:

- Google Chrome
- Firefox
- Safari
- Internet
- Search Engines
- Code.org http://code.org/curriculum/docs/k-5/overview
- Teacher Resources http://code.org/teacher-dashboard/#/plan
- http://www.codeavengers.com/#parents
- http://www.codeavengers.com/#teacher
- http://www.codecademy.com/blog/71-how-kids-can-learn-to-code
- https://www.learnstreet.com/
- http://www.girlwhocode.com/
- http://www.girldevelopit.com/
- http://www.girldevelopit.com/materials
- http://www.blackgirlscode.com/

C. Technology

- Teacher and students will use the Internet
- Teacher will use Activboard to demonstrate/model activities
- Student will use software on the laptops, iPads and Activboard

D. Assessment

- Teacher observation
- Student will navigate through different sites on the Internet
- Student will demonstrate proper navigation of the Internet
- Students will create and modify online games
- Student will earn trophies and work toward Certificates

II. Unit: Blog Post Presentation

A. Content/Essential Questions

Blog Post Creation
Visual and HTML editing views
Entering, editing, and formatting Text
Post Layout
Post Design
Spell Check
Grammar Check
Cut, Copy, and Paste Images and Text
Embedding audio
Linking video

B. **Skills**

The student will be able to:

- Open Blog and create posts to share with classmates and families
- Format and edit post
- Format the layout and design
- Check the spelling and grammar of his/her post
- Cut, copy, and paste text and images
- Upload and insert images and text from other files
- Add sound and video to post

C. **Activities/Procedures**

- Large group instruction
- Individual practice on the iPads and laptops

D. **Resources**

- TBAM’s Class Blog Site [http://blog.tbam.org](http://blog.tbam.org)
- Wordpress

E. **Technology**

- Teacher will use Activboard to demonstrate/model activities
- Student will use software on the Activboard
- Student will use software on his/her individual computer or iPad

F. **Assessment**

- Teacher observation
- Student creates, edits, saves and shares posts
- Student displays completed posts

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