Creating Games Using Scratch!

Games are a great way to spark your students interest in the 1st level class (Introduction to Digital Technology) of the Computer Science Pathway. Using Scratch will teach students math and language arts as wells as other content areas!

Georgia Business Education Association Annual Conference
"Crossroads: The Intersection of Innovation"
September 28, 2016 1:10 pm-2:00 pm
Presenter: Edwina Floyd, Computer Science Teacher, Columbia High School, Decatur, GA

Log on to www.edmodo.com and the group code is “fe4wn5”.

Join Scratch for FREE at

www.scratch.mit.edu

Great Introduction Video to show students
https://www.youtube.com/watch?v=jxDw-t3XWd0

IDT GPS Standards

IT-IDT-1 **Demonstrate employability skills required by business and industry.**	**IT-IDT-2** **Explore, research, and present findings on positions and career paths in technology and the impact of technology on chosen career area.**
IT-IDT-3 **Demonstrate effective professional communication skills (oral, written, and digital) and practices that enable positive customer relationships.**	**IT-IDT-4** **Identify, describe, evaluate, select and use appropriate technology.**
IT-IDT-5 **Understand, communicate, and adapt to a digital world.**	**IT-IDT-6** **Explore and explain the basic components of computer networks.**
IT-IDT-7 **Use computational thinking procedures to analyze and solve problems.**	**IT-IDT-8** **Create and organize webpages through the use of a variety of web programming design tools.**
IT-IDT-9 **Design, develop, test and implement programs using visual programming.**	**IT-IDT-10** **Describe, analyze, develop and follow policies for managing ethical and legal issues in the business world and in a technology-based society.**
IT-IDT-11 **Explore how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, entrepreneurship development, and competitive events.**	

Scratch Goals & Standards

Course Overview

Goals

Exploring Computer Science is designed to introduce students to the breadth of the field of computer science through an exploration of engaging and accessible topics. Rather than focusing the entire course on learning particular software tools or programming languages, the course is designed to focus the conceptual ideas of computing and help students understand why certain tools or languages might be utilized to solve particular problems. The goal of *Exploring Computer Science* is to develop in students the computational thinking practices of algorithm development, problem solving and programming within the context of problems that are relevant to the lives of today's students. Students will also be introduced to topics such as interface design, limits of computers and societal and ethical issues.

Standards

The standards used for the *Exploring Computer Science* curriculum are based on the topics and goals outlined in *A Model Curriculum for K-12 Computer Science* (2006) developed by the ACM K-12 task force curriculum committee. Most of the objectives in the course align with the Level III course, *Computer Science as Analysis and Design*, while some objectives are necessarily aligned with the Level II course, *Computer Science in the Modern World*, in order to provide appropriate background knowledge for the more advanced topics.

Concrete Instructional Strategies

- There are several concrete instructional strategies that are included in each unit to implement this culturally relevant, student-centered, and inquiry-based vision.
- Each unit begins with a description of the topic, an explanation of the importance of this topic, possible social applications of this topic, and objectives/standards for the unit.
- Whenever possible, units begin with kinesthetic activity to get students involved in the unit topic. Students are more engaged when they go beyond seatwork to gain familiarity with the scope of a topic. Acting out computing concepts is one way to have students actively engaged in the curriculum.
- Whenever possible, units present the final unit project at the beginning of the unit so students understand what type of project they will engage in at the end of the unit. Daily assignments help scaffold their knowledge towards gaining the knowledge needed to complete a particular project. The final project represents a culmination of their new knowledge and provides an opportunity to expand their understandings to a particular socially-relevant problem.
- Computing terms and definitions are explicit and part of the instruction. The curriculum avoids unnecessary jargon which might distract from learning of the critical content. Students have opportunities to use writing to reinforce the literacy component behind these computing terms and definitions.
- Foundational computing topics are connected to the ‘pop-technology’ students have likely encountered: cellular phones, iPods, MySpace / Facebook, blogs, Internet browsing, etc.
- Whenever possible, real-world problems are presented in the context of socially-relevant issues impacting urban communities (housing, safety, poverty, health care, access to equal rights, educational opportunities, improving social services, translation services, transportation, etc.)

Concrete Instructional Strategies cont.

- Students have opportunities to work on problems that they help define and can individualize—i.e. selecting their own content for Web sites; creating original, not pre-scripted, problem-solving strategies, etc.
- Activities are designed to encourage students to work in a variety of collaborative settings: peer-programming, group research projects, etc. which encourage conversations around computing topics.
- Students will experience a variety of ways to communicate their answers—academic writing, writing a letter to a friend or companion, using presentation software, developing graphics or animation, listing algorithms, drawing illustrations, oral presentations, etc.
- Units incorporate examples of careers in computing as they arise in the curriculum. Students will be given hypothetical opportunities to act as a professional to take on the behavior and skills to solve a given problem.
- Although using technology is a core component of this curriculum, using computers is not necessarily embedded in the curriculum on a daily basis.

ASSESSMENT

With the exception of the final projects, there are no specific assessments listed in the lesson plans. There are also very few specific “homework” assignments. Differences in grading policies, types of assessments required, and student schedules make it difficult to gauge the best combination of assessment tools to use in a particular environment. Teachers are encouraged to determine which class activities might lend themselves to some research outside of class and which might make useful assessments. Additional assessment instruments can be developed by individual teachers or teacher teams. All forms of assessment should meet the criteria outlined in the Nine Principles of Learning.

Scratch Environment

Scratch Tutorial

Questions

Thank You

Please email me for questions at Edwina_v_Floyd@dekalbschoolsga.org