Computer Science 20 (Distance Education) Syllabus

GENERAL INFORMATION:

i.   Computer Science 20 is a Distance Ed course designed for the students to work at their own pace.

ii.   Instructor – Lorne Gottselig (William Derby School, Strasbourg)

iii.   Contact information: School Phone (306) 725-3441, School Fax (306) 725-3629
        Email: lorne.gottselig@horizonsd.ca   Email is my preferred means of communication.

COURSE DESCRIPTION:

i.   Computer Science 20 is an introductory course into computational thinking and programming. The two major programming languages will be "Blockly" through Scratch and "Python" using Thonny.

ii.   Prerequisite: None

iii.   Course Code: 6702

STUDENT LEARNING OUTCOMES:

The Computer Science 20 curriculum consists of the following outcomes:

- CS20-CP1 Apply various problem-solving strategies to solve programming problems throughout Computer Science
- CS20-CP2 Use common coding techniques to enhance code elegance and troubleshoot errors throughout Computer Science 20.
- CS20-FP1 Utilize different data types, including integer, floating point, Boolean and string, to solve programming problems.
- CS20-FP2 Investigate how control structures affect program flow.
- CS20-FP3 Construct and utilize functions to create reusable pieces of code. CS20-
- CS20-FP4 Investigate one-dimensional arrays and their applications.
- CS20-CS1 Explore the underlying technology of computing devices and the Internet, and their impacts on society.
- CS20-CS2 Investigate the impacts of information technologies on privacy, including digital security practices.
- CS20-CE1 Explore computer science related career paths in Saskatchewan, Canada and the world.
- CS20-SD1 Develop a coding project and/or conduct research in an area of computer science of the student's choice.

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TEACHING STRATEGIES:

i. The course is located on the Division Moodle Server.

ii. The course is divided into 5 topics. They will include a mixture of text-based learning as well as videos. I will have an overview video for each of the topics. Students are strongly encouraged to keep in touch with the instructor via email and/or Skype.

iii. Much of the course requires the student to learn by reading, writing and debugging code. Problems solving is key to understanding how to code. Student need to adopt a "learn by trying approach".

iv. One of the major components is an independent study. This can be a **coding project** of their own or a **research-based project.**

COURSE MATERIALS

i. The course utilizes two programming languages; "Blockly" – using Scratch   and   "Python" – using Thonny

ii. Students will need access to a computer (not a Chromebook).

iii. The course is designed to use portions of the Computer Science 20 – Online Textbook located at
https://cs20.ca (This book was created by Dan Schellenberg, who was relieved of teaching duties with Saskatoon Public Schools for one period a day during the 2017/2018 school year to create something useful for the impending release of the Saskatchewan Computer Science 20 curriculum. This is hopefully the first of many open textbook projects for Saskatoon Public Schools, which is an initiative spearheaded by Wendy James.)

EVALUATION:
The evaluation plan for Computer Science 20 is:

	60 %	- Assignments
	15 %	- Student Directed Study (Due at the end of the course)
	<u>25 %</u>	- Unit Exams (one on Scratch and one on Python)
	100%	

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