

**East Penn School District  
Secondary Curriculum**

**A Planned Course Statement  
for  
Computer Science Foundations**

**Course #321**

**Grade(s) 9-12**

**Department: Computer Science**

**Length of Period (mins.) 42**

**Total Clock Hours 63**

**Periods per Week 5**

**Length of Course (yrs.) .5**

**Type of Offering: \_\_\_\_\_ required 4 elective**

**CREDIT .5**

**Adopted 04/27/09**

**Developed by:  
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## Description of Course #321

### Course Title: Computer Science Foundations

**Description:** This course is designed to introduce students to computer science concepts and simple programming techniques in a hands-on environment. Projects incorporate the use of Microsoft Office including Word, Excel, Access, and Power Point. Students will also use the Alice program to create 3-D animations using elementary programming concepts in a user-friendly environment. Other topics will include computer history, computer hardware and software, computer ethics, computer networking, and careers in computer science. Students who are interested in taking other computer science courses should take this course during their freshman year. Students with a strong math background, especially Honors students, should take Programming Foundations instead.

#### Goals:

- To enable students to use Microsoft Office proficiently for various tasks.
- To further student understanding of computers and their impact on society.
- To introduce students to basic programming ideas through the use of the Alice programming language.

#### Requirements:

Prerequisite: Algebra I

#### Text:

Dann, Wanda, Cooper, Stephen, Pausch, Randy. Learning to Program with Alice, Pearson-Prentice Hall, Upper Saddle River, NJ, 2006.

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#### *Key to Levels of Achievement (listed with each learning objective)*

Awareness (A)	Students are introduced to concepts, forms, and patterns.
Learning (L)	Students are involved in a sequence of steps and practice activities which involve further development and allow for evaluation of process.
Understanding (U)	Students demonstrate ability to apply acquired concepts and skills to individual assignments and projects on an independent level.
Reinforcement (R)	Students maintain and broaden understanding of concepts and skills to accomplish tasks at a greater level of sophistication.

Unit	Num	Objective	Level	Content	Evaluation	Standard
I. Computer Hardware and Software	1	Students will identify the various parts of a computer system's hardware.	L	● Notes	Quizzes Word Processing Assignment	
	2	Students will know the difference between main memory and auxiliary memory in terms of size, nature, and use.	L	● Notes	Quizzes Word Processing Assignment	
	3	Students will define computer system basics such as system and application software, categories of computers, system components and peripheral devices.	L	● Notes	Quizzes Word Processing Assignment	
II. Introduction to Office	4	Students will use Microsoft Word to perform basic word processing tasks including tables and the formatting of, headers/footers, the use of Clip Art, and formatting documents.	U	● Class Activities	Projects	ISTE 6.b ISTE 6.c
	5	Students will use Microsoft Excel to keep track of numeric information such as budgets, grades, and financial applications by using calculations and formulas.	U	● Class Activities	Projects Quizzes	ISTE 6.b ISTE 6.c
	6	Students will use Microsoft Access to work with an existing database to create forms and use queries to generate reports.	U	● Class Activities	Projects Quizzes	ISTE 6.b ISTE 6.c
	7	Students will use Microsoft PowerPoint to create presentations that use advanced features of PowerPoint including action buttons, navigation, animation, and custom animation.	U	● Class Activities	Projects	ISTE 1.a ISTE 1.b ISTE 6.d
III. Computer History	8	Students will create a time line of significant advances in technology starting with early devices and progressing through the computer generations.	L	● Notes	Quizzes	

Unit	Num	Objective	Level	Content	Evaluation	Standard
	9	Students will identify significant inventions and people that contributed to the development of today’s computers.	U	<ul style="list-style-type: none"> <li>● Notes</li> </ul>	Projects Quizzes	ISTE 1.b
IV. Telecommunications	10	Students will understand the nature of the Internet including ISPs, URLs, domains, Search engines, and Web pages.	L	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> </ul>	Quizzes	ISTE 5.a
	11	Students will recognize online dangers and learn ways to protect their identity online.	A	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> </ul>		ISTE 5.a
	12	Students will practice ethical use of computer software by following copyright laws and not plagiarizing.	A	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> </ul>		ISTE 5.a
V. Introduction to Programming using Alice	13	Students will become familiar with the Alice programming environment.	A	<ul style="list-style-type: none"> <li>● Software Tutorial</li> </ul>		
	14	Students will learn what interactivity is in the Alice environment.	L	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> </ul>	Projects Quizzes	
	15	Students will learn how to create animation programs using scenarios and storyboards.	L	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> <li>● Labs</li> </ul>	Projects	ISTE 4.b
	16	Students will begin programming with Alice using instructions, control structures (if/else, nested ifs, relational operators), functions, loops (definite and indefinite), and expressions.	U	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> <li>● Labs</li> </ul>	Projects Quizzes	ISTE 4.b
	17	Students will create their own methods in Alice to perform certain tasks.	U	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> <li>● Labs</li> </ul>	Projects Quizzes	ISTE 4.b
	18	Students will generate random numbers to create random movement in the Alice world.	U	<ul style="list-style-type: none"> <li>● Notes</li> <li>● Class Activities</li> <li>● Labs</li> </ul>	Projects Quizzes	ISTE 4.c

