	Standard	Alice World/Concept	Description
Level 1 (K-6)			
Level 2 (6-9)			
Level 3A (9-10)			
Level 3B (10-11)			
Level 3C (11-12/AP)			
Level 2			
	CT.1	A lot of our Alice tutorials have problems to solve at the end such as the recursion and nonvisual array tutorial, which shows the user how to build an Alice world that calculates Fibonacci's sequence and asks them to use the same algorithm that creates a world that calculates factorials. We will also have different challenges created for students, where a problem will be given to them and they must come up with the algorithm to solve it in Alice. Trigonometry Prom is an example where the prince needs to find out how far he needs to go to meet the princess under the disco ball.	This standard requires that the students be able to figure out the basic steps in algorithmic problem solving.
	CT.2	In Alice, users are allowed to use the commands "Do Together" and "For all Together" with lists to run multiple instructions at the same time.	Process of parallelization to solve problems
	CT.3		- Define an algorithm as a sequence of instructions.
	CT.4	Alice allows problems to be solved in different ways. For example, you are able to use lists or arrays to hold a collection of information to use in the program.	In this standard, students should be able to evaluate ways that different algorithms can be used to solve the same problem.
	CT.5	In addition to acting out the searching and sorting algorithms, students could watch Alice animations of different algorithms to sort a group of people by heights or find a specific character in a list, while pausing it and asking questions about what will happen next to help them learn the algorithms. Actually programming these is more for level 3.	Act out searching and sorting algorithms
	CT.6	The tutorials provide detailed instructions on how to complete Alice worlds so students should be able to follow them and create a final project based on the tutorial that they complete.	Describe and analyze a sequence of instructions being followed.
	CT.7	Alice is great for this because data can be represented in graph form (Bike Plot, MoveinXYZ, etc.), as text (Challenges, eventual word problem world), numbers (Fractions, Rounding Game, most math worlds), pictures (billboards), and many other objects (for example, bunnies in Fibonacci sequence and balls in probability world, pearls in Using Pearls to Understand Variables, etc.) Students can generate the data when the world runs, and then store it in lists or arrays to analyze it. Examples of this are the Boat Averages worlds where the world itself collects the times it takes the boat to go through each hoop and the distance or time per hoop, and uses it to calculate the average speed of the boat.	This standard requires that students be able to represent data in various ways (text, sounds, pictures, numbers,...).
	CT.8	These Alice worlds take data or functions input by students and displays them in graphical form- MoveinXYZ, Bike Plot, Mike's graph world, a modified Bar Chart object. Bike plot world physically presents the speed of a bicycle based on when the user clicks and plots the data.	Students must use visual representations to display problem states, structures, and data with this standard.
	CT.9	Most of our Alice project and educational tutorials deal with having students interact with content-specific models. For example, in the Science category, students can interact with a model of the lac operon, a helium molecule, a model of the solar system and planets, and many more.	Students have to interact with content specific models in this standard.

	CT.10	Alice can be used to simulate problems that need to be modeled or simulated. We will be adding Alice worlds dealing with word problems for students to practice solving and it will help them visualize and model the problem in their mind to help them solve it.	Evaluate what kinds of problems can be solved with modeling and simulation.
	CT.11		- Analyze the degree to which a computer model represents the real world.
	CT.12	In the Challenges section, there is a problem that the student must solve by filling in smaller functions and methods to achieve the desired results. More advanced challenges will have more sections of code for the student to fill in and find the subproblems to solve.	Decompose a problem into several subproblems
	CT.13	Alice allows for computer science concepts such as hierarchy and abstraction in the use of parameters, local/global variables, inheritance, object methods, etc.	Understand the notion of hierarchy and abstraction.
	CT.14	The Alice materials we have made in Mathematics show connections between math and programming and how they overlap. Alice also has many built-in math based functions such as <, >, =, arithmetic, sin, cos, etc that can be implemented into your programs. Alice can be used to help students practice math concepts such as in Basketball Math, or it can be used to make their own math projects and explore a math subject in Alice such as probability world.	Examine connections between mathematics and computer science
	CT.15	The teacher lesson plans page on the Duke Adventures in Alice site provides many examples of how programming in Alice can relate to other disciplines. Examples of this include using Alice for a book report, a history project, math quizzes, or foreign language quizzes.	Interdisciplinary examples of computational thinking.
	CL.1	Alice itself is a productive multimedia tool that supports learning through a new medium. Students can use Alice for projects, presentations, quizzes, games, etc.	Apply productivity/multimedia tools to support learning through curriculum.
	CL.2	The tutorials on our page have instructions on how to build the worlds that we have. It is possible to have students collaborate on a project to make an Alice world in a group setting by following the instructions given in the tutorials.	Students must collaboratively design, develop, publish, and present products using technology.
	CL.3		- Collaborate with peers, experts, and others using collaborative practices such as peer programming, team projects, and group active learning.
	CL.4		- Exhibit dispositions necessary for collaboration.
	CPP.1		- Select appropriate tools and technology resources to solve problems
	CPP.2	Alice is an example of a multimedia tool that can be used in the classroom to help students engage in their learning. It is also a beginning programming tool that can help students move on to other programming and multimedia tools.	Use a variety of multimedia tools.
	CPP.3	Students can use Alice to design and present products and it is a technology resource. The teacher can have the students be creative and create a story or game using Alice, then present their ideas and final product to the class.	Design, develop, publish, and present products using technology resources.
	CPP.4		Students will have to demonstrate an understanding of algorithms and their practical application.
	CPP.5	Our Alice tutorials page has many examples of tutorials on how to use these program solutions such as loops, conditional statements, variables, logic, etc. in an Alice world to solve a problem.	Implement problem solutions using a programming language (loops, conditional statements, logic, expressions, variables, and functions)

	CPP.6	There is an annual competition that students can enter where they must create Alice worlds that teach about computer and internet safety in it's animation. Students can build worlds for that and at the same time learn about good practices in information security.	Demonstrate good practices in personal information security
	CPP.7	Several teachers have come up with Alice worlds to help students learn about different jobs and occupations such as "Career Day", "Business Careers", and "Career Decisions". This type of idea can also be applied to animate how specific jobs use computing and technology.	Identify interdisciplinary careers that are enhanced by computer science
	CPP.8		- Demonstrate dispositions amenable to open-ended problem solving and programming
	CPP.9	Alice worlds can take data created by the user and implement it into the world for them to analyze. Examples of this are Boat World Averages and Bike Plot, where the user takes data that he creates in the world to calculate the average boat speeds or plot the speed of the bicycle.	In this standard, students should collect and analyze data that is collected from multiple runs of a computer program.
	CD.1		- Recognize that computers are devices that execute programs
	CD.2		- Identify electronic devices that contain computational processors
	CD.3		- Demonstrate an understanding of the relationship between hardware and software
	CD.4		- Use accurate, appropriate terminology when communicating about technology.
	CD.5		- Apply strategies for identifying and solving routine hardware problems that occur during everyday computer use.
	CD.6		- Describe major functions and components of computer systems and networks.
	CD.7		- Describe what distinguishes humans from machines.
	CD.8		- Describe ways in which computers use models of intelligent behavior.
	CI.1		- Exhibit legal and ethical behaviors when using information and technology and discuss consequences of misuse.
	CI.2		- Demonstrate knowledge of changes in information technologies over time and the effects of those changes
	CI.3		- Analyze the positive and negative impacts of computing on human culture
	CI.4		- Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and bias of electronic information sources in real world problems.
	CI.5		- Describe ethical issues that relate to computers and networks
	CI.6		- Discuss how the unequal distribution of computing resources in global economy raises issues of equity, access and power.