Grade Level	Content Area	Course Title (for 9-12 Samples Only)	Unit Title
1st Grade	Operation		Operations (How to Video)

Length of Unit	Time of Year Taught	Expected Prior Knowledge
1 Week	4th Quarter	The students need to be able to add and subtract numbers using manipulatives and a traditional algorithm. Students also need to have prior knowledge related to searching the web for images and in creating basic digital presentation slides and the use of animation software.

Unit Description

Summary: This unit is part of an interdisciplinary unit of study on Mathematical Computation and Algebraic Thinking reaching Language Arts and Technology standards. Animation is an engaging task for students to explore mathematics because of the use of current technology and it provides the students a real world example of how the knowledge of math and technology can be useful to their lives. Through the use of animation, and digital presentation software students will create a demonstration of a mathematical operation as it relates to a real world question. Students should show progress toward mastery of the following skills:

Mathematics: Operations and Algebraic Thinking
The students should be able to:

Represent and solve problems involving addition and subtraction.
Understand and apply properties of operations and the relationship between addition and subtraction.
Add and subtract within 20.

Bloom's taxonomy target: Creating. Upon reaching analysis and evaluation, the intent is to promote creating: Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Put things together; bring together various parts; write theme, present speech, plan experiment, put information together in a new & creative way.

Standards:	**Represent and Solve Problems** 1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Summative Assessment	After studying the process of addition and subtraction the students will; 1. Generate a question that can be solved using addition and subtraction. 2. Use animation software to demonstrate how to solve the problem with some sort of manipulative. 3. Insert the animation into a digital presentation slide. 4. Insert the created question into the presentation slide. 5. Record themselves reading their question and insert the recording into the digital presentation. 6. Record themselves explaining the process to solve the problem and insert the recording into the digital presentation.

	7. Play the presentation for the class. 8. Watch a peer's presentation and attempt to solve their problem using the explanation on the animation. 9. Give constructive feedback related to the effectiveness of presentation, explanation, and animation to peers in the class.
Scoring for Summative Assessment	Operations Scoring Rubric: A total of 20 points represents unit mastery. 20-24=Expert, 19-16 =Practitioner, 15-10 =Apprentice, 9-below=Novice 20-24 = Expert 19-16 = Practitioner 15-10 = Apprentice 9-below = Novice
Materials/Resources Needed	Computers with access to various digital presentation software. Internet access to various search engines and websites. Animation Software Microphone and recording software. Projector Blank Paper

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Instruction and Timeline	Students will be asked to generate a question that can be solved using addition and subtraction. The instructor will assist students in creating a short animation to show how to solve the question using a manipulative. The instructor will model how to insert the animation created into a presentation slide.	The instructor will briefly model how to Insert the mathematical question into the presentation file. The instructor will model how to format the presentation so that it continues automatically with rehearsed timings.	The students will be asked Record themselves reading their sentence and then insert the recording into the digital presentation. The students will then be asked to revise and edit their presentation.	The instructor will model a well delivered presentation and demonstrate a non-example of effective presentation for the class. Students will be asked to practice their presentation with a single peer in order to both build confidence and allow a chance to fix any final mistakes.	The instructor will review the grading rubric with the students for their presentations. The instructor will have the students provide one celebration and one refinement for each student presenting to ensure engagement during the presentations.
	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Student Activities and Timeline	Students work together to generate a question that can be solved using addition and subtraction. Students create a short animation to show how to solve the question using a manipulative. Students then insert the animation	The students Insert the mathematical question into the presentation file. Students will also format the presentation so that it continues automatically with rehearsed timings.	Students will record their voices using a microphone and insert the audio file into the presentation.	Students will peer revise and edit each others paper and ask refining questions to help guide their peers. Students will draft their final drafts their presentations	Students will present their information to their class or peer group. Students will provide positive feedback and constructive criticism for each presentation.

	created into a presentation slide.				

Summative Assessment

After studying the process of addition and subtraction the students will:

1. Generate a question that can be solved using addition and subtraction within 20 that involves at least one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
2. Use animation software to demonstrate how to solve the problem with some sort of manipulative.
3. Insert the animation into a digital presentation slide.
4. Insert the created question into the presentation slide.
5. Record themselves reading their question and insert the recording into the digital presentation.
6. Record themselves explaining the process to solve the problem and insert the recording into the digital presentation.
7. Play the presentation for the class.
8. Watch a peer's presentation and attempt to solve their problem using the explanation on the animation.
9. **Give constructive feedback related to the effectiveness of presentation, explanation, and animation to peers in the class.**

Operations Scoring Rubric

Criteria	Expert (4)	Practitioner (3)	Apprentice (2)	Novice (1)	Score
Animation and Presentation	Without support, inserts the animation of the generated question into digital presentation slide and accurately uses animation software during presentation.	With minimal support, inserts the animation of the generated question into digital presentation slide accurately uses animation software during presentation.	With support inserts the animation of the generated question into digital presentation slide and attempts to use animation software during presentation.	With a great deal of support inserts the animation of the generated question into digital presentation slide and somewhat uses animation software.	
Mathematical Question	Generates a question (word problem) that can be solved accurately using addition and subtraction within 20 that involves at least one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. The question clearly uses an object, drawing, or equation with a symbol for the unknown number to represent the problem.	Generates a question (word problem) that can be solved accurately using addition and subtraction within 20 that involves at least one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. The question clearly uses an object, drawing, or equation with a symbol for the unknown number to represent the problem.	With support generates a question (word problem) that can be solved accurately using addition and subtraction within 20 that involves at least one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. The question uses an object, drawing, or equation with a symbol for the unknown number to represent the problem.	With a great deal of support generates a question (word problem) that can be solved accurately using addition and subtraction within 20 that involves at least one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. The question uses an object, drawing, or equation with a symbol for the unknown number to represent the problem.	
Mathematical Solution	Clearly and with accuracy demonstrates how to solve the problem with manipulative (s).	Clearly demonstrates how to solve the problem with a manipulative.	With support demonstrates how to solve the problem with some sort of manipulative.	With a great deal of support demonstrates how to solve the problem.	

Solution Recorded Reading	Shows a thorough understanding of their generated question by clearly recording themselves reading their question and inserts the clear recording into the digital presentation using at least 4 complete sentences. Clearly explains the process to solve the problem by demonstrating one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	Shows a clear understanding of their generated question by clearly recording themselves reading their question and inserts the clear recording into the digital presentation using at least 3 complete sentences. Explains the process to solve the problem by demonstrating one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	Shows clear understanding of their generated question by recording themselves reading their question and inserts the recording into the digital presentation using at least 2 complete sentences. Explains the process to solve the problem by demonstrating one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	Shows some understanding of their generated question by recording themselves reading their question and inserts the recording into the digital presentation using at least 1 complete sentence. Explains the process to solve the problem by demonstrating one of the following situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	
Digital Presentation and Solving Peer Problem	Views a peer's presentation and accurately solves their problem using the explanation on the animation.	Views a peer's presentation and accurately solves their problem using the explanation on the animation with minimal support from teacher.	Views a peer's presentation and to solve their problem using the explanation on the animation with some support from teacher.	Views a peer's presentation and attempts to solve their problem using the explanation on the animation.	
Constructive Feedback	Gives constructive feedback related to the effectiveness of presentation, explanation, and animation to peers in the class.	Gives constructive feedback related to the effectiveness of 2 of the following; presentation, explanation, and animation to peers in the class.	Gives constructive feedback related to the effectiveness of 1 of the following; presentation, explanation, and animation to peers in the class.	Attempts to give some feedback related to the effectiveness of presentation to peers in the class.	
Name:	**Total Score:**				