

<b>Game Title</b>	Rocket Math
<b>Game Type</b>	_____ Web-Based Game                      ___x___ App-Based Game

When choosing a game to be used in the classroom, many things need to be considered in order for the game to be an effective classroom tool. The game play, navigation, interface tools, educational content, Bloom's Taxonomy, Thoughtful Education strategies, differentiation of instruction, teacher guidance, and resources must all be considered. The following rubric can be used to evaluate games and simulations for use in the elementary classroom.

#### **Explanation of Points**

**19-27:** Game has value on multiple levels and can be used in the classroom for student learning enhancement. The game uses teacher resources, Bloom's taxonomy, current and proven research-based education practices. It also has teacher resources and supplements to help integrate the game into the classroom. This game also scaffolds and differentiates play for all learners including ELL students, Exceptional Education learners, below grade level, on level, and above level learners including Gifted Students. It also requires the student to use a variety of strategies and skills in order to complete the goals and objectives. It is also user friendly, tracks student progress, and engages students on multiple levels.

**10-18:** Game meets at least 5 categories of criteria. It can be used in the classroom as a supplement but not as the main lesson. It uses some research-based education practices and provides some material to be used in lesson plans and game play. The teacher may still need to bring in additional material to integrate the game in the classroom. It engages students' on a few levels and is mostly user friendly. Tracks some student progress but does not gather data. Game may differentiate for some students, but not all students. Students may use 1-2 strategies in order to complete game play but not a variety of skills.

**0-9:** This game should not be used in the classroom or for learning purposes.

## Evaluation Rubric for Educational Game

Criteria	1 Needs Improvement	2 Satisfactory	3 Exemplary	Score
<b>Game Play</b>	Game is not age appropriate. There is questionable language or action. The story is not simple and easily understood. Goals and objectives for the student are unclear or not displayed. The game demographic is not the student's age level. There are too many choices and the student does not have control over their path. Dialog is not simple or understood between the students and the characters in the game. Instructions are hard to follow or not easily understood. Graphics and sounds are not aligned with the game or the story of the game. There is not an easy way for a student to recall information needed for game play. There is no tutorial mode or instructions given for game play.	Game is age appropriate for majority of target demographic. There is no questionable language or actions to be taken by students. The story is somewhat simple and easy to understand. Goals and objectives for each level are clear and attainable for the student to achieve. Game attempts to integrate different levels of learning and student ability levels. Graphics and sound mostly go with game play but may have a few "empty" screens and sounds. Sounds do not always match up with screens or may be slow in loading. Some game screens may have "extra" items but does not interfere in game play. There is a place for students to collect and store items and can easily recall information needed for game play throughout. There is a short tutorial mode that explains most of the navigation and game play.	Game is age appropriate. There is no questionable language or action. The story is simple and easy to understand. Goals and objectives for each level are explicit to the student's learning abilities. Storyline and character interaction is easily understood. There are limited choices and at least two-three different outcome paths. Students have control over which direction and path their character can take. Dialog between students and characters or instructions are simple for student to understand. Graphics and sound work with the game and there are no "extras" unless needed in the levels of game play or the simulation. There are places for students to store tools and items collected or a place to drop items no longer needed. Students have the option to go through a tutorial mode to understand game play and navigation.	1
<b>Summary of Game Play</b>	Rocket math is age appropriate, as it is a math fluency game for the math skills of addition, subtraction, multiplication, and division. Students at all levels of math could potentially play the game successfully. However, there is not a tutorial for students to learn how to play the game. In fact, it took several attempts to learn what the game was really asking me to do. The graphics are very basic and do not have much that would keep the students attention for long. There are no sound effects on this app, which I found to be quite boring. While I do believe this game is age appropriate, I did not see very many great qualities.			
<b>Navigation</b>	The student struggles with navigation which does not allow for easier game play. Tools and buttons are not within easy reach and so students cannot	Navigation is somewhat intuitive for the student or age group. Tools and buttons are simple but may not be easily reached by all students. There is	Navigation is intuitive to the age group. Tools and buttons are within easy reach of students. Minimum thought required by students to use	2

	navigate easily. There is no audio option available to read students dialog or other game information if needed. Students are given a generic avatar to play game. Too much thought is required to navigate game pathways causing interruption in game play for the student.	some thought required by students to navigate but it does not interfere in game play. Students have more than once choice if the Avatar is a generic one. They can customize the Avatar somewhat. Audio is available only in some parts of the game. Tools and buttons are somewhat intuitive and do not interfere in game play.	tools to navigate their Avatar through game screens and interact with game characters. Audio available for lower level learners and ELL students. Tools and buttons are intuitive to the student playing so as not to interfere in game play or thought process.	
<b>Summary of Navigation</b>	Navigation to play Rocket Math was difficult for me to understand exactly what the program was looking for. The navigation for student to select their answer is simple; students just tap on the correct answer on their device. There is no audio or tools that are helpful to game play. Additionally, there is not an Avatar for students to utilize.			
<b>Interface Tools</b>	Keyboard and other navigational tools are complicated or hard to use through the screens and levels. Uses keyboard letters or keys that are too spread out interfering in game play and natural flow of the game. There are no hints or ways to indicate to students' important information.	Medium difficulty in keyboard and mouse controls. Allows some point and click action to move through screens but may need the keys such as W, S, A, D in order to move forward, backward and left and right. May require the student to practice more with the controls in order to navigate the game. There is a hint box available in some parts of the game such as new levels or new quests. Tutorial can be repeated but may interfere in game play.	Easy keyboard or mouse controls to move through screens and levels. Uses point and click and indicator arrows for important information and has a "hint" box students can use to prevent frustration and allow students to stay engaged in game. Hint box needs specific types of items collected to use which are indicated in the game tutorial. Hint box must "reload" in order to use.	2
<b>Summary of Interface Tools</b>	The interface tools of Rocket Math are simple. Due to this game being an app, students just tap on the screen the answer choice they would like to choose. There is no hint box or tutorial available for students to utilize. A tutorial would be beneficial for learners to learn what the program is actually wanting from the practice.			
<b>Educational Content</b>	Game has no educational content or concepts that integrate into teachers' planned curriculum. Game is not aligned with Educational Standards.	Game has some educational value and can be identified as a useful tool in some content areas. Game may be somewhat aligned with educational standards. Teacher may need to pull supplemental material in order to integrate game into lesson plans and classroom activities.	Game is clearly aligned with educational standards. Teacher can easily integrate game into lesson plans and classroom activities.	2
<b>Summary of Educational</b>	This game is directly aligned with educational standards. Rocket Math would be beneficial fact practice, for students to gain accuracy and time efficiency with fact practice. Teachers may need to pull supplemental material to teach the skills before assigning			

<b>Content</b>	this game. Additionally, teachers may want to screen record a tutorial explaining the how to's of the game.			
<b>Bloom's Taxonomy</b>	Only the lower levels of Bloom's taxonomy are used. These include remembering, understanding, and applying.	Some higher-level Bloom's taxonomy is addressed but game is mostly middle to lower level Bloom's. These include applying, remembering, understanding, and some evaluation and analyzing of game situations in order to solve problems and combine multiple pieces of information in order to complete game. Does not allow students to create items or completely customize their Avatar.	The higher order thinking skills of Bloom's taxonomy are required for students to play the game. These include evaluating, synthesizing, and analyzing multiple pieces of information and multiple parts of the game in order to solve problems. Allows students to create items including their Avatar to engage students.	1
<b>Summary of Bloom's Taxonomy</b>	Rocket Math is all about fact fluency. For this reason, on Bloom's taxonomy mostly applying, remembering, and understanding are used mostly. Students do not create items or customize any avatars. However, every game has a purpose.			
<b>Thoughtful Educational Strategies</b>	There are no thoughtful education strategies integrated into game play and other research-based strategies are not used	Some thoughtful education strategies are used and integrated into the game play. May introduce students to new concepts such as word relationships but does not allow comparison between relationships.	Thoughtful Education strategies and other researched based criteria are subtly integrated into game play such as being introduced to new concepts and ideas using comprehension strategies in relation to Bloom's taxonomy. These may include new vocabulary concepts, word and situation relationships and comparing a new situation to a previous situation.	2
<b>Summary of Thoughtful Educational Strategies</b>	While playing Rocket Math, students will need to apply their foundations of learning their addition, subtraction, multiplication, and division facts to be successful. This game is meant to be a practice game, instead of a way to introduce new concepts. There are games that allow for this, but this game wouldn't be used for that purpose.			
<b>Differentiation of Instruction</b>	Game play only has one level of play and does not allow for multiple or diverse groups of students the ability to play. The levels may be defined as Easy, Medium, and Difficult but does not allow students to move between them based on performance.	Game play has two or three levels of play and allows for some multiple or diverse groups of students the ability to play. Levels may be defined as Easy, Medium, or Difficult but there is very little scaffolding or difference in all three levels. Does not allow for	Game play allows for students to work on multiple levels and platforms to solve problems and resolve situations in the game. There levels may be defined as Easy (below grade level and simple directions); Medium (on grade level); and Difficult (above grade level	1

		movement between levels based on performance.	and challenging) in order to engage students on multiple levels of performance. Scaffolding allows students to flow between difficulty levels based on their performance.	
<b>Summary of Differentiation of Instruction</b>	On the home screen, students have the option to choose a level for game play. The levels are easy, medium, or hard. The program defaults to medium game play, but is easily changed to easy or hard for all learners. The levels do not increase based on performance, instead students must be aware and change the level based on their needs. Rocket Math is an individual game play app.			
<b>Teacher Interface</b>	No teacher interface allowing teacher to track student progress or get statistical information on students' comprehension of game concepts. No mini-lessons or the teacher interface interrupts game play and disengages student in game.	Interface allows teacher to look at progress of students but does not provide strategies or mini-lessons in order to help students through a difficult part of the game. Does not allow students to practice problem solving. The teacher needs to pull in additional information and create own lessons based on student trouble-spots in the game. Teacher may have to watch student play game in order to identify trouble-spots.	Interface allows cloud navigation to track student progress through game play and present teaching strategies to help a student through a difficult task or situation in the game play while still allowing the student opportunities to practice problem-solving. Shows teacher the specific mini-lesson that can be used to help a student at a particular level.	1
<b>Summary of Teacher Interface</b>	Rocket Math does not have a teacher interface for teachers to have access to student data. This would only be a practice game.			
<b>Game Resources</b>	Game has no teacher resources to be used with students in the classroom to help integrate game into lesson plans.	Some graphic organizers for student usage during gameplay. Instructions or Teacher Resource book included. May not include lesson plan activities for integration into classroom and teacher may have to pull in and create own resources.	Includes thoughtful education graphic organizers students can use during game play and mini-lessons that teachers can use to help students through a particular difficult concept. Supplements include videos and activities that can be used to integrate game into classroom lessons.	1
<b>Summary of Game Resources</b>	Rocket Math does not provide any teacher resources to be used with students inside the classroom.			

**Total Score**

13 Points

Game meets at least 5 categories of criteria. It can be used in the classroom as a supplement but not as the main lesson. It uses some research-based education practices and provides some material to be used in lesson plans and game play. The teacher may still need to bring in additional material to integrate the game in the classroom. It engages students' on a few levels and is mostly user friendly. Tracks some student progress but does not gather data. Game may differentiate for some students, but not all students. Students may use 1-2 strategies in order to complete game play but not a variety of skills.

**Points: Summary of Evaluation****Strengths:**

Rocket Math is applicable to students of a variety of ages. The app has fact fluency practice for addition, subtraction, multiplication, and division. Due to this, a variety of ages could find this app to be beneficial. Additionally, the students have the ability to choose a level of difficulty (easy, medium, hard). This allows students to change the level based on their skill set and confidence level.

**Weaknesses:**

Rocket Math has a few points that make me worry...

- There is no tutorial for students to review before game play. Due to this it took several tries for me to be successful at game play, even on the easy level.
- There is no audio in the app. This made the app easy for me to close out of and move on to something different. Audio effects often engage learners and can sometimes keep them hooked on learning and advancing to the next level.

**Improvements:**

As for improvements for Rocket Math, I would look to the weaknesses that were identified within the app. The two biggest concerns for me were the frustration I experienced when trying to learn what the app wanted me to do. This could easily be fixed with a brief tutorial before game play. Additionally, I found myself more likely to close out of the app than other fact fluency games due to the lack of audio. For correct answers, the sound of a rocket ship blasting off would help keep me engaged. For wrong answers, perhaps a sound of a crash may be applicable. Sound effects have a way of keeping the learner on their toes and eager to answer more. This small improvement would help improve the quality and drive to implement this game for me.

Overall, Rocket Math is not an app that I would assign for my students to play in 3<sup>rd</sup> grade. The instructions were not clear and this could lead to 23 students becoming frustrated and confused. Division is a hard skill for this age, so the games difficulty level would only add to that. However, I could see the game being utilized for older grades, if the teacher created a tutorial for students to be successful. While this game scored 13 points, I do not think it should be used in a third grade classroom for learning purposes.