

Innovative Learning Experience:

Counting Coins using Makey Makey

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Learning Objectives	Grade/Subject	Standard
<ul style="list-style-type: none">• Students will be able to select a combination of coins to equal a given value.• Students will be able to use Makey Makey with Scratch to present their answers.	Grade: 2 Subject: Math (Money)	<u>CCSS.MATH.CONTENT.2.MD.C.8</u> Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
Learning Experience	Innovative Technology	Rationale
<p>When given a value (ex: 47 cents), students will select the minimal amount of a combination of coins needed to obtain the given value.</p> <p>Example: Student chooses from a selection of classroom items for sale for the day. Student chooses a comfy chair that costs 84 cents. After setting up their Makey Makey and Scratch, student taps the quarter 3 times, the nickel 1 time, and the penny 4 times. The Scratch screen tallies each coin and shows the total amount of 84 on the cash register. (After the 3 quarters, it would show 75, and so on.)</p>	<p>Students will be using Makey Makey along with Scratch. They will connect each alligator clip to a different coin (penny, nickel, quarter, dime). Students will tap the coin they wish to use. Each tap will signify another coin. The Scratch application has a counting coins program that will show the students how many coins they've used and what their total value is so far.</p>	<p>I chose to use Makey Makey and Scratch with counting coins because so often I see my students make mistakes when counting coins. They know the value of each coin, but it is a hard bridge to make when they are faced with adding it in their heads as they lay out the coins. It is my hope that by using these innovative technologies, I can bridge this gap and aid my students in seeing the value as they count. Eventually, they won't need the technology any longer!</p>

Engagement	Problem Solving	Assessment
<p>While this is more of an individual activity, students will be engaging with the notion of purchasing. This is a real world skill that they will be using nearly every day in their future. To make it more real and engaging, students will be able to use an item they've correctly "purchased" for the remainder of the day.</p>	<p>Students will have the opportunity to explore and play with the Makey Makey, choosing which alligator clips they want to connect to which coins, along with which colors they want to choose. They'll be able to experiment with the Makey Makey in which ways are best to even clip the alligator clip both to the board and the pennies. Their only specific direction will be to not use the space or click features on the board yet, just the four arrows.</p>	<p style="text-align: center;">Secure Student produces correct value with minimal amount of coins.</p> <p style="text-align: center;">Progressing Student produces correct value with more coins than necessary.</p> <p style="text-align: center;">Area of Concern Students does not produce correct value.</p>

Research
<p>I based my Innovation Learning Experience on Dr. Stephen L. Yelon's instructional design principles:</p> <ul style="list-style-type: none"> ● A problem or a need – there must be a problem of practice or an educational need that should be addressed during the lesson. ● A real-world performance – how the learning objectives fit into a real-world activity or need. ● An instructional objective – the objectives are based on the final outcome, activity or test. These objectives will each be different for the four types of knowledge; performing skills, recalling facts, identifying examples of concepts, and applying principles. ● A set of essential content – the basic ideas and skills that will allow the learner to complete the task or understand the content. ● An evaluation consisting of a test or observation – an assessment, observation or product providing evidence that the objectives have been accomplished in the real-world setting. ● A method to help participants learn – the method to deliver the content; a lesson. <p>(Yelon, 2001)</p>

Support/Ideas

Although I've already created this whole lesson plan, I'm wondering if this concept is *too small*. When starting off, I was thinking of my students and how they would need to learn in such small steps to be able to be independent working with the Makey Makey during something like Free Choice/Indoor Recess. I wanted to design a plan that showed them one small aspect of it at a time. By choosing such a narrow topic, am I squashing their creativity or is this okay as a means to introduce the technology with plans to ramp things up down the road?

References:

Yelon, S. L. (2001). Goal-Directed Instructional Design: A Practical Guide to Instructional Planning for Teachers and Trainers. Michigan State University: Self-published.

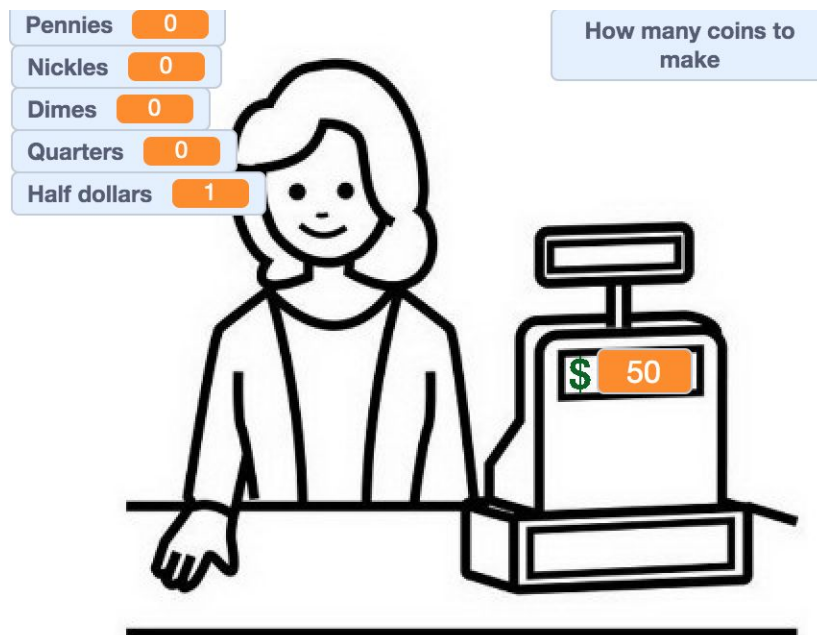


Image of Scratch program.