October 9th, 2023

Counting Coins/Identifying and counting like coins; 4th grade EC

Curricular Standard

NC.1.MD.5 Identify quarters, dimes, and nickels and relate their values to pennies.
NC.2.MD.8 Solve word problems involving:
• Quarters, dimes, nickels, and pennies within 99¢, using ¢ symbols appropriately.

Lesson Objectives

- Students will identify quarters, dimes, nickels, pennies, and will develop understanding of their relative values/ I can identify coins and tell how much they are worth.
- Students will add like coins (skip count by 5s when counting nickels, skip count by 10s when counting dimes, skip count to 100 by 25s to count quarters)/ I can add like coins.
- Students will solve problems where they add like coins plus pennies/ I can add like coins and pennies.
- Students will solve word problems adding different coins where they use the ¢ symbol appropriately/ I can solve word problems about counting change. (This objective will probably be one that is fully met in the future but we will practice using the cents symbol)

PUBLISHED Flippity link and Link to Spreadsheet for Editing

Identifying Coins:
Spreadsheet: https://docs.google.com/spreadsheets/d/e/2PACX-1vRyL-xC65flugLLT-HLV6EndpuI5xKfA5bymoj6OKMV0x5Oo3DZbaZEafyMKYk5FJ_bE9UzK3y5IWAz/pubhtml
Flippity: https://www.flippity.net/mg.php?k=1rqA_IWnFRnTfS2p3nPCwShrdD_bPjSiL3JRhCua9Xoc
Counting Like Coins:
Spreadsheet: https://docs.google.com/spreadsheets/d/e/2PACX-1vRi8XfzqWsAt5AHwyxjvcQK1MZmeV1JmlN0NoRVeomGuhH_aticfk1K9bhh7GdyuGTvlFfv4LtrgYKd/pubhtml
Flippity: https://www.flippity.net/ma.php?k=1ACNTuJqHqw3E-MsgfTszbv4hhnTiKFo3gJ3GmwwPrho

Additional Materials

Two Ziplock bags with quarters, dimes, nickels, and pennies
Value Models:
https://docs.google.com/document/d/1bySpNJkF527WjLjn1YKDAdkwNa8NkcrozmsiFYAC33M/edit?usp=sharing
Identifying Coins Sorting Chart:
https://docs.google.com/document/d/13zMOItzqAevg4U0XMvYwD83Rxy62l20avRg8rZZL1VE/edit?usp=sharing
Counting Cents Worksheet:
https://docs.google.com/document/d/1vImQ3plir8_To6W8yV6tY1tPuOywCwSqX6qdkZ6QwAo/edit?usp=sharing
Interactive Bulletin Board Tri-fold and Velcro Activities

Procedures

Introduction/Warm-up:

My introduction/pre-assessment/activation of prior knowledge will be a coin sorting activity. I will bring in Ziplock bags filled with quarters, nickels, dimes, and pennies for both students. I will ask students to sort them but will not give them any guidelines or tell them how to group them. This will show me what they remember about identifying coins. If the students can easily group the coins into quarters, nickels, dimes, and pennies and explain why they grouped them in that way, then I will know they already know how to identify coins. I can then ask the students to tell me everything they know about each coin, and prompt them to see if they know the value of each coin. If students do not group them into each coin type, they might group them by size or color. In this case, I will know that we need to spend more time on identifying each coin.

Script: “Hey *student name 1* and *student name 2*. Have you guys had a good day? … Good! Today, I am going to do your math lesson with you. Today we are going to talk about money. I have brought you both a bag of change. Will you guys please sort the change for me? (if students ask how to sort the change, I will tell them to sort it into groups that make sense to them) … *student name 1*, please explain to me how you sorted your coins. … Why did you make those groups? … *student name 2*, how did you sort your coins? … Oh, you sorted these together because they are pennies. What do you know about pennies? … How much is the value of a penny? This activity should take about **3 to 5 minutes.**

Lesson body/Direct Instruction:

I will then base the activities of the lesson based on what the pre-assessment told me. If the students have totally got identifying coins, we will jump into talking about the value of coins and counting like coins. If they need more support with identifying coins, we will start there.

Identifying Coins:

“You guys noticed a lot of things about the coins! Today we are going to talk about what each coin is called, what they are worth, and how to identify them. This smallest coin is called a penny. Let’s say it together: penny. Pennies are worth 1 cent. It takes 100 cents to make one dollar, so that means that you have to have 100 pennies to make a dollar.” Here I will show the model of one block highlighted in a group of 100 to show the value of a penny.

“This coin is called a nickel. Notice how much bigger this coin is than the penny? It is a different color too! This penny is not worth that much more than the penny but it is bigger. When we are looking at money, the size doesn’t tell us the value. Nickels are worth 5 cents so that means you have to have 5 pennies to equal one nickel. This model shows the value of a nickel. See there are 5 boxes shaded whereas the penny only has one shaded.

Now, this next coin is really confusing. Remember how I said size doesn’t tell us value. This coin is called a dime, and it is smaller than the nickel, right? … But guess what, it is worth more than the nickel! It is worth 10 cents which means that you have to have ten pennies or two nickels to equal the same as one dime. Dimes are almost the same size as pennies which are only worth 1 cent and are smaller than nickels which are only worth 5 cents, but the dime is worth 10 cents!

The last coin is the quarter. It is the biggest coin, and it happens to be worth the most. Quarters are worth 25 cents. That means that you have to have 25 pennies to equal one quarter! This is the model of 25 cents.” Here I will draw the quadrants so that the students can visually see that it is a fourth of 100. “See that these 4 areas look equal? There are 25 boxes in each of these 4 quadrants. That shows us that one dollar, or 100 cents, is 4 quarters. We can check that by adding 25 + 25 + 25 + 25 to make sure it is 100.

So, we have talked about each type of coin. The penny which is the smallest coin that is a brownish, bronze color is worth 1 cent. The nickel which is a silver coin that is bigger than the penny but smaller than the quarter is worth 5 cents. The dime which is about the same size as the penny and is the smallest silver coin is worth 10 cents even though it is smaller than the nickel that is only worth 5 cents. And last is the quarter which is the biggest silver coin that is worth 25 cents.”

Counting Like Coins:

“You guys did a great job sorting the change! Now let’s talk about counting change to find out how much money we have. This is an important skill because we have to count our money anytime, we want to buy something to make sure that we have enough money to buy it. Each type of coin, quarters, dimes, nickels, and pennies, have an assigned value. That means that each coin is worth a different amount. We can think about the coins having different values like our base 10 blocks have different values. One unit block is worth 1 but one tens rod is worth 10. Both the unit block and the ten rod are one block, they have different values. Our coins have different values too, but the size of the coin doesn’t give us any clue about their value.

Some coins that are bigger actually have less value than ones that are smaller. The nickel has a value of 5 and it is larger than the dime, but the dime is worth 10. A penny is almost the same size as a dime, but a penny is only worth one cent, unlike the dime that is worth 10. The quarter is the biggest coin, and it is worth 25 cents. That means that you have to have 25 pennies to equal the same amount as one quarter. It takes 100 cents, or 100 pennies, to make one dollar." Here I will get out my pictures of 100 blocks with 25, 10, 5, and 1 highlighted to show the value of each coin in relation to pennies.

I will show the 1 highlighted orange first. "This is a block with 100 spaces to represent the 100 cents that make one dollar. This one block is highlighted orange to represent 1 penny because a penny is only worth 1 cent. I would need 99 more pennies to make a dollar because each penny is worth 1.

This block also has 100 spaces. This time 5 are highlighted purple. One Nickel is worth 5 cents, which means that you have to have 5 pennies, or 5 blocks shaded to equal one nickel. Since nickels are worth 5 cents each, I can count by 5s to 100 to find out how many nickels are in 1 dollar or 100 cents." I will skip count here and draw lines on the graph through blocks of 5 so that students can see that we would need 20 nickels while they hear me counting.

Next, I will show the blocks with ten blocks shaded in. "This represents the dime because a dime is worth 10 cents. That means we have to have ten pennies or 2 nickels to equal one dime." Students can count the shaded boxes if they do not follow verbally to prove that one dime is equal to 10 pennies or 2 nickels. If needed, we could even cut out the highlighted section so the students can set it on top of the green shaded boxes that signify the value of a dime.

Finally, I will show the blocks that signify a quarter. Students can count the highlighted boxes to see that it is worth 25 if they need to. "A quarter is worth 25 cents. This picture shows 25 out of 100 cents highlighted and represents one quarter." We can draw quadrants on the board so that students can see that 4 equal groups of 25 make 100 so we have to have 4 quarters to equal 100.

After I have explicitly shown and told students the value of each coin, I will model how to count like coins. I will leave the 4 example pages out with the coin they represent laying on top. I will use the same coins they sorted in the introduction to model counting like coins. "I am going to count how much change is in this pile. First, I have to figure out how much this coin is worth. I know that this is a dime. How much were dimes worth again? … Oh right, it is the tricky one that is worth 10 even though it is smaller. It matches the coin with the picture that has ten highlighted spots. Okay, so I know each of these are worth 10 so I can skip count by 10 to find out how much I have here." Then I will model skip counting and will state the total. I will model counting quarters and nickels and then we will move into guided practice. This explicit instruction should take **8 to 10 minutes**.

Guided Practice:

Identifying Coins:

"Okay, let's practice identifying coins." I will give each of the students a paper with 4 columns for the 4 different coins. We will use the same coins from the earlier activity to sort the coins. I will model it first leaving the 100 block models out for the students to reference during the activity. "Okay, so I have to decide whether these coins are quarters, dimes, nickels, or pennies. I will pick up a coin and start listing the characteristics. Oh this coin is silver, so I know it is not a penny because those are brownish, bronze colored. This coin is not as small as a penny so it can't be a dime because those have about the same size. It also isn't the biggest coin. I know that the biggest one is the quarter so this must be the nickel. It is bigger in size than the dime, but it is only worth 5 and the dime is worth 10. Okay let's check if this is a nickel. Look it matches the nickel with the model of the 5 shaded boxes."

I will model one more for the students and then ask them to identify one, list out the characteristics, and then check their answer using the models. If the students do this pretty quickly, I will ask them to sort them in their

charts without using the models as a guide. If they do this easily, we will start talking about counting like coins. If they need more practice identifying coins, we will do a few more together using the models and then they can complete a simple matching flippity of the pictures of the coins to the names of the coins for independent practice.

Counting like coins:

"Let's practice counting like coins together." Hand out counting coins worksheet. "The first step is to identify what the coin is and its value. What are the coins in number one? … Yes, they are pennies. What are pennies worth? … yes, 1 cent (the models will still be out for students to refer back to if needed. Remember the second step is to skip count by what the coin is worth but because pennies are only worth 1, we only need to count by ones. How much change to we have here? … Yes, there are 6 pennies in the first problem so if we count by 1s, 1, 2, 3, 4, 5, 6 … we have 6 cents. We write 6 cents using this symbol that means cents (I will model writing the cents symbol and will make sure students copy it before moving on)."

"Okay let's do the next one together. What is the first step? … Yes, identifying the coin and what it is worth. What coin is this? … Yes, a nickel and how much is it worth? … remember we can look at our models if we don't remember… Yes, nickels are worth 5 cents. What was our second step? … Yes, we need to skip count to find out how much change we have. What number are we skip counting by if nickels are worth 5 cents?... Yes, by 5s. Let's put our fingers on each coin as we skip count. 5, 10, 15. So we have 15 cents. Let's remember to write that with our cents sign. Okay, let's skip to number 5. What coin is that? … yes, a dime. How much is it worth? … 10, good! What do we do to find out how much change we have? … yes, skip count. Let's count together while we touch each coin. 10, 20, 30, 40. Okay, let's write that using our cents sign. Great! Okay now you guys practice doing the ones we did not do numbers 1 through 7." **10 minutes**

Independent Practice:

Identifying coins:

Students will complete the matching flippity for independent practice, if additional practice is needed.

Counting like coins:

Students will complete the rest of the counting cents worksheet independently which I will monitor. If the students struggle, we will go back and work on them together and if they fly through it we will do some of the harder extension problems at the end where there are like coins and pennies. For independent practice and as an assessment, student will complete the flippity manipulatives activity where they match the picture of the coin, the value, and the visual model of the value to the name of the coin. **5 to 10 minutes (we probably won't have time to finish)**

Assessment

Formative/Informal:

- Pre-assessment open sort activity (individual)
- Observation of guided practice work (identifying coins: sorting into quarters, dimes, nickels, and pennies; counting coins: responses to guided questions like what is the first step (identifying the coin and it's value), second step (skip counting), writing the total using the cent sign)

Summative/Formal:

- Identifying coins: flippity coin matching
- Counting coins: independent work on the work sheet and flippity manipulatives activity
- I also will bring an interactive bulletin board activity that is created on a trifold board. I will have problems in Ziplock bags that the students can take home throughout the week to practice and can bring back to get a prize the next week when I come back. It will be completely optional, but at the end of the lesson, I will explain how to complete the activities. There will be pockets on the board with each problem inside. I a

few will be sorting activities where they just sort the coins into the correct categories. It will be a Velcro activity so they will take home the Ziplock with the page and the loose Velcro pieces, they will sort them sticking the Velcro where they go on the page. They will put the finished page back in the Ziplock and put the Ziplock back in the pocket they got it out of. They can also put their name on the pocket so that I know which student did which activity. The other activities will be counting like coins where there is a page with coins on it, like the counting coins worksheet, and the student will just write the total on the page and put it back in the pocket on the trifold board. When I come back the next week, I will review the student work. The students will get to choose one of my prizes if they choose to complete any of the activities regardless of whether they did them correctly or not, but I will review their work and if we have a chance when they are not busy doing instruction, I will follow up with them about any mistakes and how to correct them.

Differentiation Strategies (EL learners, AIG, Struggling Readers, etc.)

This lesson is specifically designed for two fourth grade EC students who receive services for math. These students are on different levels which is why this plan includes a pre-assessment and two possible tracks. If one student needs to work on identifying coins and the other student is ready to do counting like coins, I can multi-task and work with one student on the identifying coins activities while I work with the other on the counting coins. I have also prepared some problems that include like coins and pennies if the students need more challenge. I have also created an activity with mixed coins, if they are good with counting like coins and like coins with pennies. I think that one of the students may be ready for the additional challenge of like coins with pennies, but I am not predicting that we will be ready to go on to the mixed coins challenge, but I have it prepared if necessary. The next step up after that would be word problems so if this lesson goes well and we get to do mixed coins, then the students can continue to work on mixed coins and then move into word problems.

I know these students will need explicit teaching of these concepts so I scripted thoroughly and created visual models that they can associate with the coins as we talk about value, so they are both seeing and hearing that information, which are my strategies for breaking down the content explicitly. I have also designed several activities so that they have ample practice opportunities. I also will be using real coins for many of the activities throughout the lesson as seeing and feeling the real coins will help make the lesson more concrete and meaningful for the students. I even tried to be cognizant about the size of the coin images I put on the worksheet and, while the sizes may not be perfectly true to life, I made sure to make the penny images smaller and quarters bigger to help make the process of identifying the coins and their value explicit.

I also know that decoding can be challenging for these students so I will help them decode quarter and nickel if needed and will be sure to point to the words on their charts or worksheets as I say them so that it is very clear to the students which category is which.

Lesson Outline for Reference while Teaching

- Introduction 3 to 5 minutes
    - Open coin sort pre-assessment
- Modeling 8 to 10 minutes
    - Identifying coins: talk about the visual attributes and values of each coin
    - Counting coins: explain the values of each coin; model how to count like coins (step 1 identify coin and value, step 2 skip count to find total)
- Guided Practice 10 minutes
    - Identifying coins: coin sort- model first, guided practice with value models for reference, independent sorting

    - Counting coins: complete 1, 2, and 5 on the worksheet together
- Independent Practice 5 to 10 minutes
    - Identifying coins: flippity matching practice
    - Counting coins: finishing problems 1-7 we did not do in guided practice; flippity manipulatives activity