New York State Next Generation Mathematics Learning Standards Unpacking Document (DRAFT)

GRADE: 1	DOMAIN: Measurement and Data

CLUSTER: Tell and write time and money.

Students apply their knowledge of partitioning the whole into halves to tell time to the hour and half-hour. Students begin to understand the hour hand, then the minute hand, and then both together. Students read both digital and analog clocks to tell time. Students learn to recognize and identify coins (penny, nickel, dime, and quarter) by name and their value. Students use their knowledge of coin values and place value (tens and ones) to count mixed collections of dimes and pennies to find the total value. Students write money amounts using the cent symbol (¢) correctly. Important terms that students should use correctly with this cluster include o'clock, half hour, half-past, hour, minute, hour hand, minute hand, analog clock, digital clock, penny, nickel, dime, quarter, cents, and value.

Grade Level Standard:

NY-1.MD.3a Tell and write time in hours and half-hours using analog and digital clocks. Develop an understanding of common terms, such as, but not limited to, o'clock and half past.
NY-1.MD.3b Recognize and identify coins (penny, nickel, dime, and quarter) and their value and use the cent symbol (¢) appropriately.
NY-1.MD.3c Count a mixed collection of dimes and pennies and determine the cent value (total not to exceed 100 cents).

PERFORMANCE/KNOWLEDGE TARGETS
(measurable and observable)

- Identify the hands on an analog clock (minute and hour) by their name.
- State the time on an analog clock, using common time terminology.
- Write the time shown on an analog clock, using common time terminology.
- State the time on a digital clock, using common time terminology.
- Write the time on a digital clock, using common time terminology.
- Identify coins (penny, nickel, dime, and quarter) by their name and their value.
- Count collections of dimes and pennies up to one hundred cents and find their cent value.
- Write money amounts using the cent symbol (¢) correctly, placed at the end of the value (i.e., 68¢).

ASPECTS OF RIGOR

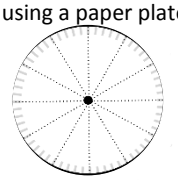
Procedural Conceptual Application

MATHEMATICAL PRACTICES	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
FOUNDATIONAL UNDERSTANDING	**NY-K.MD.4** Explore coins (pennies, nickels, dimes, and quarters) and begin identifying pennies and dimes. **NY-K.NBT.1** Compose and decompose the numbers from 11 to 19 into ten ones and one, two three, four, five, six, seven, eight, or nine ones. **NY-1.OA.3** Apply properties of operations as strategies to add and subtract. **NY-1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones. **NY-1.NBT.2a** Understand 10 can be thought of as a bundle of ten ones, called a 'ten". **NY-1.NBT.2c** Understand that the numbers 10, 20, 30, 40, 50, 60 ,70,80, 90 refer to one, two, three, four, five, six, seven, eight or nine tens (and 0 ones). **NY-1. G.3** Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

The following pages contain EXAMPLES to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

Example 1: Tell and write time to the hour using analog and digital clocks

Have students make a paper clock using a paper plate, a large circle, or Template 1 from EngageNY Grade 1 Module 5 Topic D Lesson 10 .



(If you use Template 1, you may want to cut off the clock hands at the bottom section of the template and hand them out when needed.)

If you are using a paper plate or a large circle, you may want to have lines or boxes where the numbers should be on the clock. This will help students know where the numbers go and where to write them. You may want to refer to EngageNY Grade 1 Module 5 Topic D Lesson 10 .

Model how to start at the top of the circle going right (clockwise), stop at each line or box, and write in numbers starting with 1. When done, have students look at the clock face and discuss what they notice. You may want to use this time to introduce that when you go around the clock in number order, it is called "clockwise".

Next, have students look at the clock in the room to see what else their clock needs. Discuss that a clock has two hands. The "minute hand" is the longer hand. If the word minute is not on their paper minute hand, have students write the word minute on it. You may want to have students color the minute hand blue. The "hour hand" is the shorter hand. If the word hour is not on their paper hour hand, have students write the word hour on it. You may want to have students color the hour hand red. Coloring the hands different colors helps students distinguish each hand. You may also want students to count how many letters are in the word minute and how many letters are in the word hour and compare them. Minute has six letters and hour has four letters. The longer hand is the minute hand because it is the longer word; the hour hand is the shorter hand because it is the shorter word.
If you have students color the hands, as suggested above, have students go over each number on their clock with a red colored pencil or crayon. This reinforces that these are the numbers used with the hour hand. You may also want to have students write :00 above the 12 in blue colored pencil or crayon. This reinforces that :00 is used with the minute hand. Explain that :00 means "o'clock". Help students put the minute and hour hands on their clocks using a brad fastener.

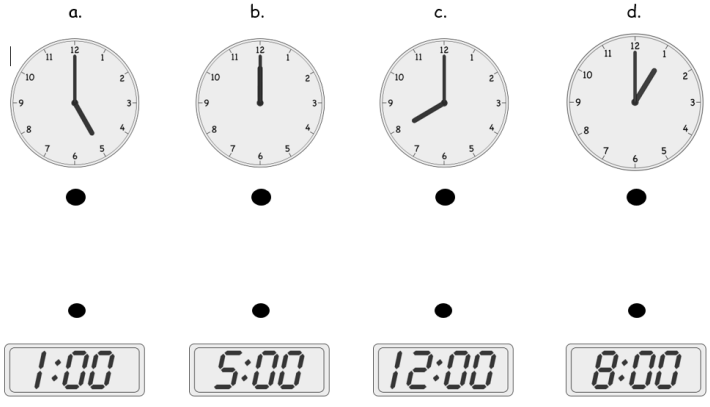
You may want to use this time to introduce the term "analog clock".

Model a time to the hour on your clock and "think aloud" – "I look at the hour hand first. It is pointing to the 3, so I say 3 first. Next, I look at the minute hand. It is pointing to the 12 and above the 12 in blue is :00 (o'clock). So, the time is 3 o'clock (3:00)." Ask the students to move the hour hand on their clock to ___ and the minute hand to 12. Talk them through reading the clock.

Model how to write the time to the hour. __:00

You may want to use this time to introduce the term "digital clock".

1. Match the clocks that show the same time.



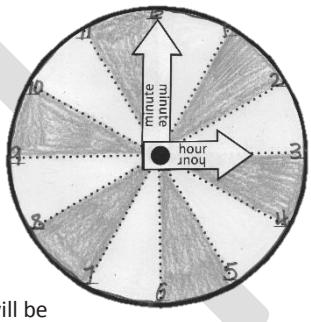
Reinforce mathematical language by asking students to state what time it is: " _____ o'clock".

The following pages contain EXAMPLES to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

Example 2: Tell and write time to the half-hour using analog and digital clocks
The following is taken from EngageNY Grade 1 Module 5, lessons 11-13.

Materials: (T) Paper clock created during Lesson 10, document camera, personal white board, dry erase marker, large instructional clock with gears (if available)
(S) Paper clock created in Lesson 10 or commercial student clocks, personal white board

Distribute materials to students seated at their tables or desks.



T: In the previous lesson, we read the time when we had whole hours with no extra minutes past the hour.
Let's start at 12 o'clock. Where is the minute hand?

S: At the 12.

T: Where is the hour hand?

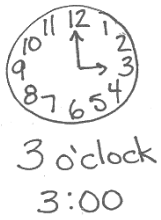
S: At the 12.

T: (Position the minute hand on the paper clock accordingly.) When the minute hand moves all the way around the clock, it has been 60 **minutes**, or 1 **hour**. When 1 hour passes, we will be at…?

S: 1 o'clock!

T: Which clock hand do we move to show 1 o'clock?

S: The hour hand. It's the short one.



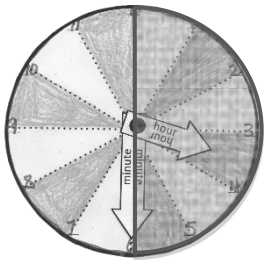
T: (Have students count chorally with the teacher, who moves from 1 o'clock, to 2 o'clock, and then 3 o'clock. Move the minute hand all the way around the clock for each hour to show that by moving the minute hand, the hour hand moves to the next hour when the minute hand makes it around the clock once.)

T: (Draw 3 o'clock, as shown to the right.) How would this look on a digital clock? (Have a student volunteer add the digital time, 3:00, as shown.)

T: If we were halfway through the next hour, the hour hand would need to be halfway between 3 and…?

S: 4.

T: (Position the hour hand halfway between 3 and 4.)



T: Now, let's think about the minute hand. It would go halfway around the circle. Think about our half circles. Where would we need to stop the minute hand so that it would have traveled across the shape of a half of the circle? Talk with a partner. (Provide students time to discuss.)

T: (Insert the clock into the personal white board. Starting at the 12, begin to color over each partition of the clock.) Tell me when I have colored half of the clock. Think about the shape of a half circle.

S: (When the 6 is reached…) STOP!

T: Which number is halfway around the clock?

S: The 6.

T: (Move the minute hand so that it points to the 6.) Yes, if the minute hand were halfway between one hour and another hour, it would be pointing to the 6. We call this time half past 3 because it is half an hour past 3 o'clock.

T: Let's see how many minutes are in this half of the hour. We can count each minute, using the little marks on the side of the clock, but it'll be faster to count by groups of 5 minutes, like we do when we whisper count. There are 5 minutes from one number to the next number. (Point to the number 12 on the clock, and then sweep a finger to the number 1 on the clock.)

The following pages contain EXAMPLES to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

T: Think about the whisper counting we practiced during Fluency Practice. Count with me, and use your pencil to write the number of minutes next to each dot as we go. (Move a finger along the edge of the clock while counting.) 5…10…15…20…25…30. When the minute hand gets to halfway around and lands on the 6, it has been…?

S: 30 minutes

T: Another way to say half past 3 is 3:30 because it's 3 hours and 30 minutes since 12 o'clock, when we either started a new day or when we started the afternoon. On a digital clock, half past 3 would look like this. (Write 3:30 on paper. Write half past 3 next to it.)

T: What time is this? (Point to 3:30.)

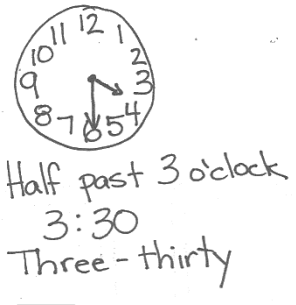
S: 3:30.

T: What's another way we can say that it's 3:30?

S: Half past 3.

T: Look at our two clocks. One clock shows 3 o'clock. The other clock shows half past 3, or 3:30. Compare them. What do you notice?

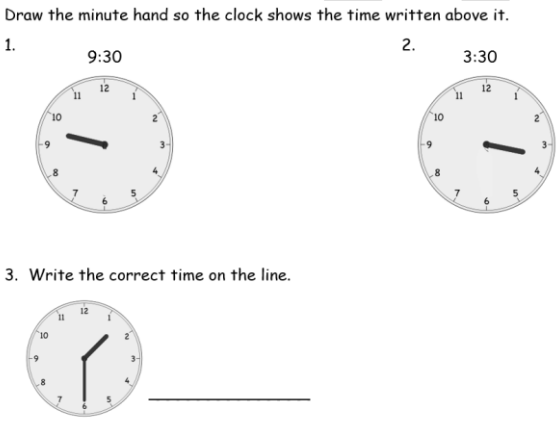
S: The clock on 3 o'clock has its minute hand on 12, and the clock at 3:30 has its minute hand at 6. → The hour hand is pointing directly to 3 on the clock that shows 3 o'clock. The hour hand is pointing between 3 and 4 on the clock that shows 3:30.

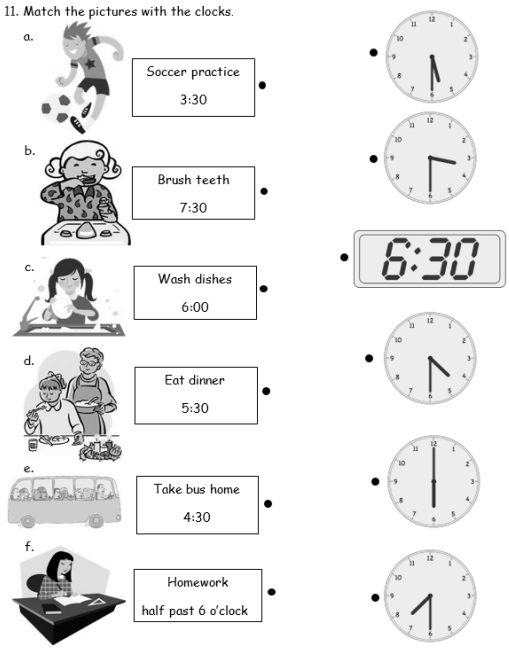


Repeat the process of naming a time and having students create the time on their student clocks and then writing the digital time on their personal white boards. Use the following suggested sequence:

- Half past 4
- 10:30
- Half past 11
- Half past 12
- 6:30

MP.7





Mathematical Language:
Half past 1 o'clock
One-thirty
1:30
What would the digital clock show if it was stating the same time?

Students can make their own posters (draw/magazine cut-outs) that match their own personal/cultural activities to the times on an analog or digital clock. I _____ at _____ every day.
I **practice piano** at **half past four** every day.

The following pages contain EXAMPLES to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

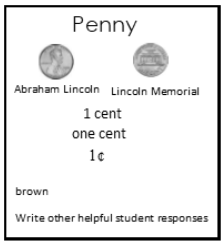
Example 3: Identify coins (penny, nickel, dime, and quarter) by their name and their value

Begin with the penny and dime**.** You can refer to EngageNY Grade 1 Module 6, Lesson 20.

Concrete

Give each student one real penny and tell them the name of the coin. Give students time to look at it. Discuss what they noticed. You may want to write some of the helpful student responses on a chart for student reference later with one real penny showing the front (heads) and another real penny showing the back (tails). Tell students the value of a penny and write the value.

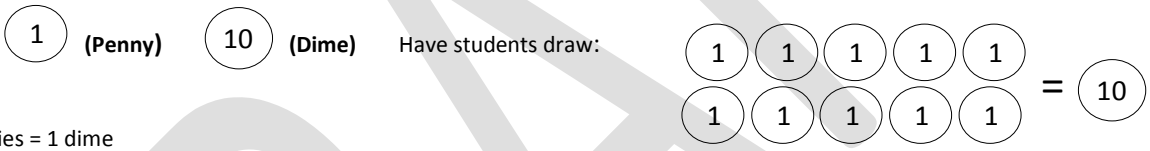
Example of chart:



Next, give each student one real dime and tell them the name of the coin. Use the same procedure used to introduce the penny. (You may want students to look at the real penny and dime to compare them. Discuss what they noticed.)

Then, discuss how many pennies equal the value of a dime. Give students more pennies and have them show how many pennies equals 10 cents.

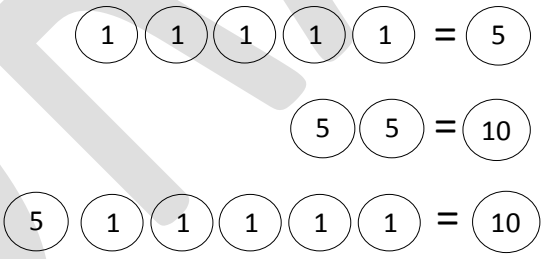
Pictorial:



Abstract: 10 pennies = 1 dime

Introduce the nickel using the same procedures as above.

Pictorial: Have students draw:



Abstract: 5 pennies = 1 nickel
2 nickels = 1 dime
1 nickel and 5 pennies = 1 dime

Introduce the quarter using the same procedures as above. Refer to EngageNY Grade 1 Module 6, Lesson 21 for additional tasks and exercises.

The following pages contain EXAMPLES to support current instruction of the content standard and may be used at the discretion of the teacher and adapted to best serve the needs of the learners in the classroom.

Example 4: Count a mixed collection of dimes and pennies and determine the cent value (total not to exceed 100 cents).

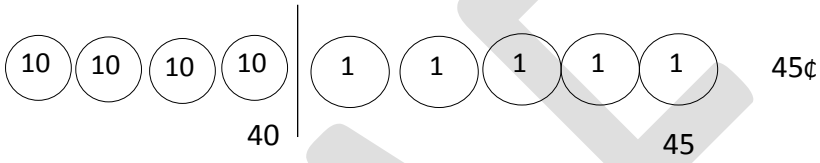
You may want to begin with a collection of dimes and pennies not to exceed 50¢.

Concrete**:** Use real pennies and dimes.

Have students sort their coins starting with dimes. You may want to have students place their coins on a personal white board or a piece of paper. This allows them to write the number they say while counting underneath if needed, as well as their total.

You may want to have students draw a line after the last dime and write the value.

Pictorial:



Abstract**:** 4 dimes and 5 pennies = 45¢

Use the above procedure with a collection of dimes and pennies not to exceed 100¢. Within grade-level connections include work done with grade-level standards NY-1.NBT.2a *Understand 10 can be thought of as a bundle of ten ones, called a 'ten"* and NY-1.NBT.4 *Add within 100, including a two-digit number and a one-digit number, as well as a two-digit number and a multiple of 10*.

The following questions could be used to guide discussion:

What if we add six more pennies? How many cents will we have?
What if we add two more dimes? How many cents will we have?

Allow students to generate their own coin collections by presenting them with situations like the following: In my pocket, I have a collection of dimes and pennies that is worth 37¢. How many coins might I have? Let students compare and share their collections of coins. Ask, who has the least amount of coins? Why? Who has the greatest amount of coins? Why?