

# Tick Tock .....What's a Clock?

## Summary

The students will be able to: understand how a clock is used to measure time and be able to tell time to the hour and half hour.

## Main Core Tie

Mathematics Grade 1

[Strand: MEASUREMENT AND DATA \(1.MD.\) Standard 1.MD.3](#)

## Materials

- Masking tape
- Number cards with the numbers 1 to 12
- Clothesline, yarn or string for the NUMBER LINE
- Pointer
- 12 clothes pins
- Handdrawn analog clock on posterboard
- Long hand and short hand made from black poster board
- Book *How Do You Know What Time It Is?* by Robert E. Wells
- Book *Time To...* by Bruce McMillan
- CTP Time of Day Sequencing Cards (Item # FF884 from Lakeshore)
- Digital clock (optional)
- Markers or chalk for board
- [Ticket Cards for ClicketyClack Game](#) (pdf)
- [Time Bingo Cards](#) (pdf)
- Match the Clock Relay Cards ( [analog](#) and [digital cards](#)) (pdf)

## Books:

- *Time To...*  
, by Bruce McMillan, ISBN: 0590486500
- *Work Time, Play Time*  
, by Curriculum Associates, Inc. ISBN: 0760907633
- *Time*  
, by Henry Pluckrose, ISBN: 0516454595
- *Telling Time*  
, by Jules Older, ISBN: 13: 9780881063974
- *Sarah's Secret Plan*  
, by Linda Johns, ISBN: 0816735123
- *How Do You Know What Time It Is?*  
, by Robert E. Wells, ISBN: 9780807579404
- *Clocks and More Clocks*  
, by Pat Hutchins, ISBN: 9780689717687
- *Big Hand, Little Hand*  
, by Judith Herbst, ISBN: 0764170201
- *It's About Time!*  
, by Stuart J. Murphy, ISBN: 13: 9780060557690
- *The Time Song*  
, by Rozanne Lanczak Williams, ISBN13: 9781574710045

Organizations:

[National Council of Teachers of Mathematics \(NCTM\)](#), 1906 Association Drive, Reston, VA 20191502, 18002357566

### Background for Teachers

Building children's background knowledge about time provides them with the understanding necessary to make connections to the math they are learning helps them gain knowledge of how things work in their world and provides a history of why tools are used for measuring.

Students should have an understanding of certain basic concepts before learning about time. These concepts are:

- Counting by fives to sixty.

- Counting on from a number.

- Understand what "before the number," "after the number," and "right on the number" mean when using a number line.

- After learning to tell time, they should understand these concepts:

  - Time is measuring how long it takes to do something, or how long it takes something to happen.

  - Clocks are a useful tool to measure time.

  - An hour is 60 minutes, and a halfhour is 30 minutes.

  - A clock is a number line to twelve that represents the amount of hours in a day or night.

### Intended Learning Outcomes

1. Demonstrate a positive learning attitude.
5. Understand and use basic concepts and skills.
6. Communicate clearly in oral, artistic, written and nonverbal forms.

### Instructional Procedures

Content Connections:

Everyday living with and using time. Geologyrocks, math, history, and life cycles.

Invitation to Learn:

Time Sort

Ask "How long does it take to...?" Show the sequence picture cards of the daily activities. Put them in order from shortest amount of time to longer amounts of time in a class discussion. As a class, decide how many minutes it might take you to do these activities.

Sequence Activity Cards:

- Taking a shower

- Putting on pajamas

- Washing your hands

- Greeting your teacher

- Feed a pet

- Coloring a picture

- Taking out the trash

- Reading a story

- Writing your first name

- Getting on the bus

Conclude this activity and summarize that different activities take up different amounts of time. The way to measure the different amount of time is with a clock.

Instructional Procedures:

Read the book *How Do You Know What Time Is?* by Robert E. Wells. Read to page 10. In this book the author explains the passing of time and relates the history of measuring time.

## Understanding How a Clock is Made to Measure Time

### Silly Pointing Game

Build a NUMBER LINE to twelve. On index cards or other paper, write the numbers 1 to 12.

Hang these cards on a clothes line (or use string or yarn) with clothes pins or tape to anchor the cards on the clothes line. Place each numbered card on the clothes line, leaving a three to four inch space between numbers.

Place the pointer on a number. Ask the students what the number is. The students respond with the number word. Then place the pointer in front of the number and say to them that the pointer is in front of the number, and that when you point to a number and move it in front of the number it is called "before"; when the pointer points to the number again and moves to the back of the number it is called "after." When the pointer is right on the number, they respond with the number.

Play the "silly pointing game" with the students. This game should be taught until the students understand. Make it fun by running back and forth from number to number. Try to trick them. (If you have taught this well, your children will have less confusion about the hour hand and its place as it points to the numbers.)

Example: Teacher points to the number 7, and children say, "seven." The teacher then points in front of the number 7, the children respond with "before seven." The teacher places the pointer on the number 6, and the students say "six"; the teacher then places the pointer behind the 6, and the students respond by saying "after six."

The position of the pointer in the silly pointing game is preparing the student's eyes to look at the hour hand, and relate that the position can represent two different meanings. This can be very confusing for children.

When the students have shown mastery of the silly pointing game, it is time to move to the number line clock.

### Number Line Clock

Take the clothes line down and arrange the numbers in the position found on an analog clock.

The students should watch you as you build the clock on the chalkboard or white board. When the clock is made, repeat the silly pointing game. Check for misunderstandings as they tell you if the pointer is right on the number, before the number, or after the number. This knowledge is vital to their understanding of what hour it is on an analog clock.

Explain that the clock is a number line that is used to keep track of the number of hours in a day. There are 24 hours in one day. We have 12 hours of day and 12 hours of night. This is why the clock has numbers from one to twelve. Each number represents the hours in a day and in a night. We call the hours from midnight to noon the a.m. hours, and from noon to midnight the p.m. hours.

When the pointer is pointing directly at the number, it is telling the name of the hour. Explain that an hour lasts for 60 minutes. If the pointer is after the hour, it is still the same hour and cannot change to the new hour until the pointer is right on the next number. When the pointer points directly at the next number, a new hour has begun.

Using the pointer, point to a number and move toward the next number very slowly. Ask, "What hour is it?" The children respond. Then move the pointer to the next number. Ask, "What hour is it?" Explain that when the pointer points to the new number, it is called o'clock. This means that a new hour has begun. We say, "It is 5 o'clock" when the pointer is on the number 5.

Example: The teacher points to the number 4 on the number line clock. The students respond "four o'clock." The teacher moves the pointer slowly toward the number 5. When the pointer points right at the number 5, the students are asked "What hour is it?" The students respond with "five o'clock."

Revisit the number line clock using the pointer. Point at different numbers on the clock and have

the students respond. Make sure the students are solid in their understanding before moving to the next instructional procedure.

Replace the number line clock with the handdrawn analog clock. The handy hands will be attached to this clock with a brad.

### Handy Hands

In this part of the lesson, the students will be introduced to the hour and minute hands on an analog clock. An analog clock has two hands that are used to represent the measurement of hours and minutes. The short hand moves very slowly, and the minute hand moves quickly. The minute hand points to the minute marks as it measures the passing of each minute in the hour. Use the cutout hands to replace the pointer.

The short hand is called the HOUR HAND.

Show the short hand. The short hand points to the new hour, and it takes 60 minutes to move to the next number on the clock.

This hand moves slowly. The hand is usually shorter in size than the minute hand. Spend several teaching periods of this concept using the hour hand as the replacement for the pointer in the silly pointing game.

Use the hour hand to point to the different numbers on the clock and review what the hour will be with the hour hand. They may have to visualize the hour hand's pointing on the number, before the number, or after the number.

The long hand is called the MINUTE HAND OR THE "BIG FIVE."

Show the long hand. The long hand's job is to count the minute marks to show the passing of each minute in the hour. When the minute hand reaches the number 12, it means the old hour is completed and another new hour is beginning.

Another name for the minute hand is the "BIG FIVE." As it moves around the clock face, it counts by fives. The minute marks are tiny lines on the clock face. There are 60 minute marks and every fifth mark is usually longer and darker, showing the measurement of five minutes. When the minute hand is touching the minute mark above the number 12, it means that zero minutes have passed. It means that a new hour has begun and another 60 minutes is starting. The minute hand is long and slender. It moves quickly and continues the job of counting the minutes. It stretches to the minute marks and moves to the next minute mark every minute. It never stops counting.

The minute hand starts at zero and counts to 60. Attach the minute hand to the hand drawn clock and move it from one minute mark to the next, demonstrating the direction and the counting. On the white board or chalk board, write a 1 (for 1 minute) right above the minute mark. Continue labeling each minute mark above the handdrawn clock's minute marks, so the children can see how it counts each minute.

After the minute hand has moved to the top of the clock and is at the twelve, explain to the children that another name for the short hand is the "BIG FIVE." This means that the minute hand counts by fives as it moves around the clock. Demonstrate that on every long minute mark, the minute hand counts by fives. Emphasize the counting by fives as you move the minute hand around the clock. You may wish to erase the numbers in the countingbyfives sequence and rewrite them in a different color.

### Handy Hands Tell Time

Point the hour at a number on the clock. Ask the students, "What hour is it?" The students respond. Next, place the minute hand on a minute mark, and ask the students to count how many minutes have gone by. The teacher and students count from the zero minute mark to the place the minute hand is on. The teacher then writes the hour, a colon, and the number of minutes that have passed. (e.g., 6:32, or 2:15.)

Continue to practice this procedure using a variety of hours and times. Demonstrate the minute

hand counting by fives. Use the hour hand first, to establish the hour, then the minute hand, to establish the minutes that are passed.

Example: The time is 6:40. The teacher places the hour hand pointing at the number 6, and demonstrates how the minute hand starts at the zero minute mark and counts by five until the minute hand reaches 40 minutes.

#### Digital Clocks

Read the book "*Time To...*" by Bruce McMillan. Talk about the two kinds of clocks.

Explain that the first number tells the hour and the second number tells how many minutes have gone by. These two numbers are separated with a colon (:).

When the digital clock shows two zeros after the colon, this means a new hour has begun. (e.g., 7:00.)

#### Skill and Drill Activities to Cement Learning

Each child has an analog clock. The teacher calls out the hour first, and the children move the short hand to the number. The teacher calls out how many minutes have passed, and the students count by fives moving the minute hand to the correct minute marks. The teacher can also write the digital time on the white board and have the students fix their analog clocks to the correct time.

Play the "Match That Time Race" game. Students are divided into small groups. Each group is given cards with analog and digital times to match. The groups must match their cards and sit down. The group who matches their cards and reads the time correctly gets five points. The cards are rotated from group to group. The group that reaches 20 points first is the winner.

Play the "ClicketyClack" game (see "Activity Connected to Lesson").

#### Lesson and Activity Time Schedule:

Each lesson is 55 minutes.

Each activity is 30 minutes.

Total lesson and activity time is 90 minutes.

#### Activity Connected to Lesson:

The participants will rotate through the following lab activities:

Making classroom manipulatives for teaching and reinforcing time

Large analog clock with handy hands

ClicketyClack game

Match Race Relay game

I Have...Who Has? game

Participants will make their number cards for the number line clock, and trace their classroom sized analog clocks from the white poster board. The analog clock hands will be made from  $\frac{1}{4}$  sheet of black poster board, with one brad to secure the hands to the clock.

"Clickety Clack" game. Each child is given a train ticket with the time he/she should board the train. The students sit in a circle, and the teacher (conductor) travels around the outside of the circle chanting:

Clicketyclack, clicketyclack,

The big black engine's

Comin' down the track.

Clicketyclack, clicketyclack,

Clicketyclack, clicketyclack,

TOOT! TOOT!

All aboard the \_\_\_\_\_(Teacher says a time)

The teacher stops and allows the passengers (students) on board. Those children whose tickets have that time join the teacher. The students hold to each other's waists and move around the outside of the circle. The conductor takes their tickets. Those on board travel around the circle

chanting:

Clicketyclack, clicketyclack,

The big black engine goes around the track.

Repeat this until the group has traveled around the track one time. The conductor (teacher) says:

TOOT! TOOT! All aboard!

TOOT! TOOT! All aboard!

Students are given another ticket for a new boarding time from the conductor and return to their places in the circle. Begin a new round of the game by repeating the beginning chant, and call out a new time.

"I Have.....Who Has?" This is game is played as a whole class. Each child is given a card with the words "I have" and a picture of time on an analog clock. They must read the time and then ask "Who has...?" and read the digital time. The child who has the analog clock that matches the time stands up and says, "I have \_\_\_\_\_" and asks "Who has...?" The objective of the game is to get the entire class to read their cards without anyone getting mixed up or needing help.

"Match That Time Relay Race"

Use the Time Bingo Game and think of other ways to use the game besides Time Bingo.

Graph the amount of sleep students get or the time they get up.

#### Activity Materials:

Studentheld analog clocks(optional)

6 transparencies of the Analog Clock blackline

6 black Sharpies

6 overhead projectors

Masking tape

Pattern for hour hand and minute hand

1 large white poster board for analog clock

¼ sheet of large black poster cut lengthwise for clock hands

Match the Clock Relay analog/digital cards for matching game

Tickets for Clickety Clack game

Conductor hat (optional)

Time Bingo game cards

Blank Time Bingo blackline

Clocks for hour/halfhour blackline

#### Extensions

Make a class schedule showing times with an analog clock and a digital clock, similar to the Bruce McMillan book.

Students make a book showing the times at which they do specific activities throughout the day (such as wake up, eat breakfast, leave for school, etc.).

"Times We Go to Bed" graph: Students report on the time they go to bed, and the class makes a glass graph from the data.

#### Family Connections:

Invite the child's family to write a daily schedule of family events, listing the times for each of the activities. Each child brings his/her schedule to school to share with the class and draws the clocks to match the time of the activities.

A "Home Connection" page could be sent home with a blank clock on it. The family is asked to tell about a special time of the day when the whole family enjoys being together. The family writes about that time and draws the time on the blank clock home page. The page is returned to school and put in

a class book. The book is read to the students.

### Assessment Plan

Assess the students' understanding as you are teaching the instructional procedures to correct any misunderstanding.

Use the skill and drill activities to assess students' understanding and reinforce concepts.

### Authors

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