

Title: The Hands of Time

Brief Overview:

Students will explore the different ways to measure time. They will develop their understanding of how to tell time to the hour, half and quarter hours, and then five-minute intervals. They will identify time on analog and digital clocks and be able to read a clock at the hour or half hour. Throughout the lessons, they will participate in timed events and keep time as record keepers. Finally, they will expand their own understanding of the measurement of time as a process similar to the other standard forms of measurement they utilize during the year.

NCTM Content Standard

Measurement- Time
Data Analysis and Probability
Numbers and Operations

Grade/ Level: 2-3

Duration/Length:

3-4 days for 45 minutes each day, 1 day used for assessment.

Student Outcomes:

Students will:

- Tell time to the hour or half hour. Use a clock, watch, or stopwatch to time events.
- Match time in words and numbers to the appropriate clock.
- Understand the function of an hour hand and a minute hand.
- Develop an understanding of the duration of seconds, minutes, and hours.

Materials and Resources:

Lesson 1

- Six 3 x 5 index cards
- Box of brads
- Overhead clock or model clock
- Hour cards (Teacher Resource #1)
- Math journal
- Book: *What Time Is It? A Book of Math Riddles* by Sheila Keenan
- Student Resource Sheet # 1 The Hands of Time (Word Search Puzzle using vocabulary)
- Word Search Answer Sheet (Teacher Resource Sheet #2)
- Large tag board arrow like a clock hand

Lesson 2

- Student Resource Sheet # 2 (Timing Activity)
- Paper plates
- Brads
- Markers
- Tag board
- Overhead clock or teacher model clock
- Classroom monthly calendar
- Clock number line
- Math journal
- Classroom analog clock

Lesson 3

- Daily classroom schedule posted with times
- Student clocks (made during lesson #2)
- Student Resource Sheet # 3 (Analog Clock Worksheet)
- Digital clock

Lesson 4

- Student Resource Sheet #4 (My Time Book)

Development/Procedures:

Lesson 1

Pre-Assessment –

- Discuss with students the different objects in the school that can be used to tell time. (Clocks, bells, computers....). Allow 3-5 minutes for discussion on all the ways the school measures time.

Launch –

- Teacher reads *What Time Is It?* to the class. Students estimate how many clocks are in their house. Students record their answer on a post-it note. Students will make a vertical bar graph on the wall using the post-it note responses. Ask students to predict if they have more analog or digital clocks in their houses. For homework, students will count and record the number of clocks in their homes.

Teacher Facilitation –

- Make a clock number line and display it on the board. Do this by cutting six index cards in half horizontally. Punch a hole in the right hand side of each

index card. Write 1-12 individually on the left hand side of each index card. Attach the cards as a number line using the brads. The cards will display 1-12 in number line order. Taking the large tag board arrow, place it under the 2 and ask the class, "Where is the arrow pointing?" Do this several times moving the arrow under different numbers. Then the teacher will move the arrow close to 3 but not on the 3. Ask if the arrow is on the 3. After additional practice where the arrow is near a number, move the arrow half way between two numbers and students will identify where the arrow is in relation to the numbers on the number line.

- Take down the clock line and join the two ends together into a circle and students will see how the clock line becomes a clock. Moving the arrow around the clock the students will see different hour times. Demonstrate the different ways to write the hour. Ex.: 2:00, 2 o'clock, 2 P.M., 2 A.M. Explain the purpose of the colon in writing time in numbers. The hours appear on the left side of the colon and the minutes are on the right.
- Using an overhead clock or a model clock, demonstrate how to tell time on the hour. Explain how the hour hand and minute hand both work.

Student Application –

- Distribute the Teacher Resource Sheet #1 A-D, time cards (should be laminated) to twelve students. Students hold up their time card and a volunteer will read it. Then another student comes up to the model clock and sets the hands to show the appropriate time. Allow for enough practice.

Embedded Assessment –

- While students are coming up and setting the model hands to the correct time listed on the card (Teacher Resource Sheet #1), teacher can observe those who understand how to read a clock to the hour.
- In math journals, students will write three things that would be very different in our world if we had no way of telling time. Allow about five minutes at the end of the lesson for students to share their written responses.

Reteaching/Extension –

- Review strategies for telling time to the hour. Ask students who had difficulty to try moving hands to show one o'clock, two o'clock etc.
- Complete Student Resource Sheet #1 The Hands of Time worksheet. Answers can be found on Teacher Resource Sheet 2.
- Complete homework where students count the number of clocks in their home.

Lesson 2

Preassessment –

- Discuss number of clocks located in each house from the previous homework assignment. Ask if students found any clocks they didn't know were in their house. Also, ask if students were surprised with the number of clocks in their house?

Launch –

- Ask students how many minutes are in an hour? Then students will estimate how long they think a minute is. Students take off any watches, put them away, and turn away from the classroom clock. Then they should cover their eyes with one hand. Say, "Go," and time for one minute. Students should raise their hand when they think a minute is up. Count the number of students who estimated the time. Discuss strategies students used to figure out the unit of time for one minute.

Teacher Facilitation –

- Model how to make a paper plate clock. Punch a hole in the middle of each student's paper plate. Give directions. "Cut out individual clock hands on tag board. Take your ruler and mark the paper plate clock in half. Then divide clock into quarters. Starting at the top of the clock you mark 12, then 3 on a quarter, six on a half, and 9 on the other quarter. Then fill in the other numbers sequentially. Using a brad, fasten the clock hands through the hole."
- Show the clock number line again. Demonstrate the number line flat against the board and then roll it into a clock so students can see the placement of the numbers on the face of the clock.
- Practice telling time to the hour, half hour, 15 minutes after the hour (or quarter after), and 15 minutes before the hour on the paper plate clock with students observing. Then demonstrate how to tell time to the minute using only 5-minute intervals.
- Set teacher clock to different times and ask students to state the time.
- List times on the board for students to practice during application.

Student Application –

- Students make their model paper clock following teacher demonstration.
- Practice different times on their clocks from the list on the board.
- Students divide into partners and complete Student Resource Sheet # 2. First, they estimate how long a task will take to complete and then their partner measures the time it took them to actually complete the task. Then students switch roles.
- Instruct students to write in their math journals how a clock is like a classroom calendar.

Embedded Assessment –

- While students are modeling different times on their paper plate clocks from the times listed on the board, observe accuracy on student made clocks.

(Observe the position of the hour hand and the minute hand on the students' clocks.)

Reteaching/Extension –

- Play “Simon Says” with paper plate clocks. Simon (student volunteer) demonstrates certain times on his clock and class attempts to duplicate if Simon says.
- If finished Student Resource Sheet # 2 early, students may visit the web site: www.teachingtime.co.uk/clock2/clockwordsres.html.

Lesson 3

Pre-Assessment –

- Show a digital clock. Have students read the time. Set the clock to several different times. Have students state the time. Discuss which clock is easier to read (digital or analog) and explain why.

Launch –

- Preview the daily schedule listed on the board. Also, have times posted next to each subject. Ask what time it is now. Have a student post his paper plate clock with the correct time on the face next to the scheduled time. Ask questions going through the schedule such as, “What time do we have reading? What time will it be 45 minutes after lunch? Math will be over in 10 minutes. What time would that be?” Students post a paper plate clock with the correct time on the face next to each subject.

Teacher Facilitation –

- Allow half the class to give a time and post these times on the board. Allow the other half of the class to come up and show the posted time on the classroom model clock. This will serve as a quick review before students complete Student Resource Sheet # 3. Show several different times on the model clock for the entire class.

Student Application –

- Have students complete Student Resource Sheet # 3 where they look at analog clocks and write the time. They also draw the hands on the clock when given a time. Also, on this sheet is a written response section on their favorite time of the day. Allow time for students to share their favorite time of the day.

Embedded Assessment –

- Student Resource Sheet #3 will serve as an assessment.

Reteaching/Extension –

- Make a classroom schedule of what they do during a 12-hour period. Start at 8:00A.M. and list on the board what most students do throughout the day at hour intervals. This will serve as a model for the final assessment on day four.

Lesson 4

Pre-Assessment –

List on the board all of the words students can now think of that have to do with time.

Launch –

- Discuss how a teacher, principal, parent, and child could all have different schedules. What are some things each of the above might do on their daily schedule?

Teacher Facilitation –

- Review all directions for completing My Time Book. Check for questions and clarifications. This will be used as a summative assessment.

Student Application –

- Students will complete their time book showing their schedule for a twelve-hour period. All analog clocks should be labeled correctly.

Embedded Assessment –

- This activity serves as a summative assessment.

Reteaching/Extension –

- Pull a small group of students that had trouble with moving the hands on the clock to the appropriate time and review with them using the model clock. Ask entire class how a clock works to measure time.

Summative Assessment:

- Lesson 4 provides the summative assessment when the students complete the final book (My Time Book).

Authors:

Mary Jo Giulioni
Torah Institute of Baltimore
Baltimore County, MD

Joyce Hill
LaSalle Elementary
Washington, DC

1:00

2:00

3:00

4:00

Time Cards

5:00

6:00

7:00

8:00

9:00

10:00

11:00

12:00

One

O'clock

Two

O'clock

Five

O'clock

Twelve

O'clock

Find the 15 time vocabulary words hidden below.

The Hands of Time

D H W T G O V Q M D T Q B H A
E U F N K F U U I K B R C N S
S D N O C E S A N N E T A D G
E M I T A X C R U N A L N Y V
M G O B F Y H T T W O A S N P
P I Z O F E K E E G H M C K Q
Y P D L C I N R V P E L T G H
B C B N A L J R C D O A H F H
B F X H I T O B X C A O I R L
K S L R A G I C K L U Y W Y F
U F W A S U H G K R Y V V V W
N O O N H C E T I J V Y S W I
S V K G M X E C U D Z L B O Q
R Y O I Y P S S L I A M O C L
D Y C I J W M S M X S I Y U P

ANALOG
DIGITAL
HOUR
NOON
SECONDS

CLOCK
HALF
MIDNIGHT
OCLOCK
TIME

DAY
HANDS
MINUTE
QUARTER
WATCH

Time After Time
Solution to the Student Resource Sheet #1

+ + + + + + + Q M + + + + H A
+ + + + + + + U I + + + C N S
S D N O C E S A N + + T A D +
E M I T + + + R U + A L N + +
M + + + + + + T T W O A + + +
+ I + O + + + E E G H + C + +
+ + D L C + + R + + + L + + +
+ + + N A L + + + D O + H + +
+ F + + I T O + + C A O + + +
+ + L + + G I C K + U Y + + +
+ + + A + + H G K R + + + + +
N O O N H + + T I + + + + + +
+ + + + + + + + + D + + + + +
+ + + + + + + + + + + + + + +
+ + + + + + + + + + + + + + +

(Over,Down,Direction)

ANALOG(15,1,SW)
CLOCK(13,6,SW)
DAY(10,8,SE)
DIGITAL(10,13,NW)
HALF(5,12,NW)
HANDS(11,6,NE)
HOUR(13,8,SW)
MIDNIGHT(1,5,SE)
MINUTE(9,1,S)
NOON(4,12,W)
OCLOCK(4,6,SE)
QUARTER(8,1,S)
SECONDS(7,3,W)
TIME(4,4,W)
WATCH(10,5,NE)

Name: _____ Date: _____

Timing Activity

Timing activity will be completed with a partner. First, estimate how long it will take you to complete each task. Then complete the task while your partner measures your time. Finally, you time your partner.

| Tasks | Estimated Time | Measured Time |
|---------------------------------------|----------------|---------------|
| Write your full name backwards. | | |
| Recite the alphabet 3 times. | | |
| Do 10 jumping jacks beside your desk. | | |
| Name the 7 days of the week. | | |
| Draw 20 happy faces on your paper. | | |
| Count to 100. | | |

Which task took the shortest amount of time?

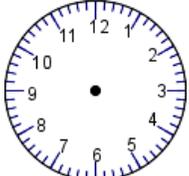
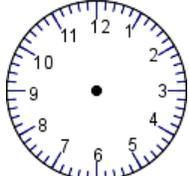
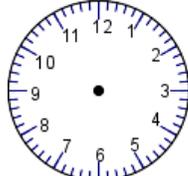
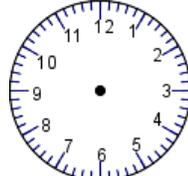
Which task took the longest amount of time?

Name: _____

Date: _____

Analog Clock Worksheet

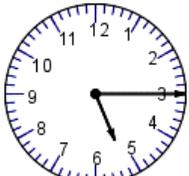
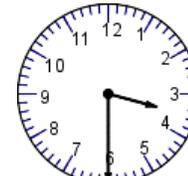
Draw the two hands on the clock to show the time.

| | | | | | | | |
|----|---|----|---|----|--|----|---|
| 1. |  | 2. |  | 3. |  | 4. |  |
| | 12:00 | | 2:30 | | 4:30 | | 5:00 |

Write the time.

| | | | | | | | |
|----|---|----|---|----|--|----|---|
| 5. |  | 6. |  | 7. |  | 8. |  |
| | __ : __ | | __ : __ | | __ : __ | | __ : __ |

Write the time.

| | | | | | | | |
|----|---|-----|---|-----|--|-----|---|
| 9. |  | 10. |  | 11. |  | 12. |  |
| | __ : __ | | __ : __ | | __ : __ | | __ : __ |

Draw an analog clock that shows your favorite time of the day. Write a complete sentence telling why you like that time the best.

What Do You Do On a Day Off?



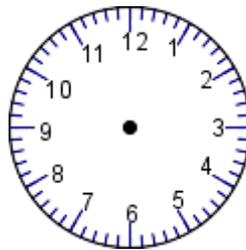
Name: _____

My Time Book

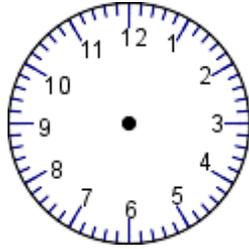
Page 1 My Time Book

Directions:

What do you do on your day off from school? Show what you do by filling in the analog clock for at least 12 hours on that day. You will start from the time you get up until the time you go to bed. Show your day by drawing pictures and coloring them. Then write one complete sentence about the things you do. Each page should have a different activity and a different time.

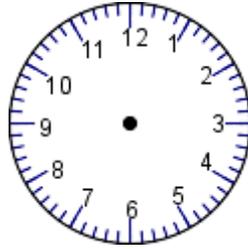


_____ : _____

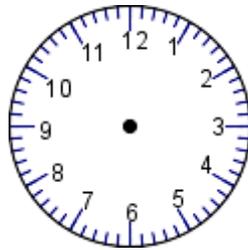


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Page 3 My Time Book

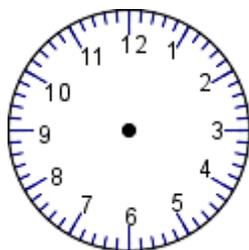


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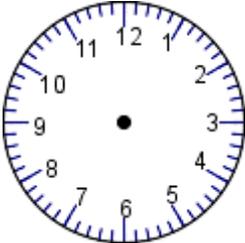
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Page 5 My Time Book



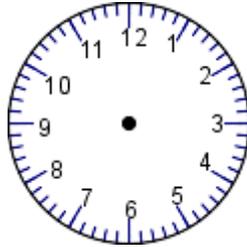
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Page 6 My Time Book

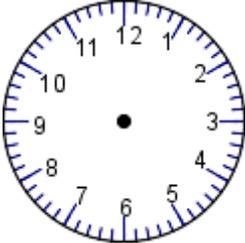


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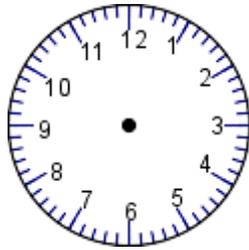
Page 7 My Time Book



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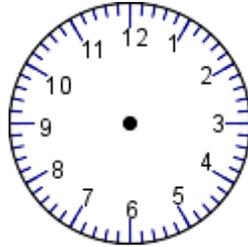


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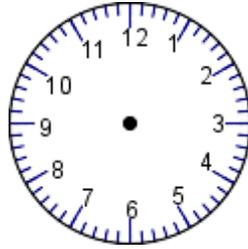
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Page 10 My Time Book



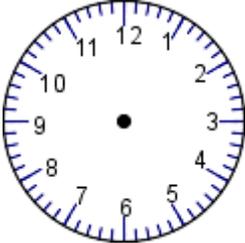
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Page 11 My Time Book



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Page 12 My Time Book



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