

Math Methods
Small Group Center Resource
15 October 2018

Standard:

3.MD.1

Tell and write time to the nearest minute and measure time intervals in minutes. Solve elapsed time word problems on the hour and the half hour, using a variety of strategies.

Day 1

Day 1	With Teacher	Independent	iPads	Formative Assessment
Lower	Focus on reading/telling time to the hour	Focus on setting time to the hour	http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm	iPad exit slip
Proficient	Focus on reading/telling time to the hour and half hour	Focus on setting time to the hour and half hour	http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm	iPad exit slip
Upper	Focus on reading/telling time to the half hour and quarter hour	Focus on setting time to the half hour and quarter hour	http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm	iPad exit slip

Rotation Instructions:

Lower

- With Teacher (First):
 - Each student will have a clockface cutout sheet, a little arrow cutout sheet, and a paper fastener.
 - Students will first label the clock with numbers 1-12 in the appropriate boxes. Then they will cutout their clockface and the little (hour) hand and assemble their clocks with the paper fastener.
 - I will set a time on my example clock; they will move their arrow so their clocks match mine, and then they will choose the appropriate time card that matches the time displayed on our clocks. These steps will be repeated until it is time to rotate.

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- Independent (Second):
 - They will each have a clock manipulative and a laminated list of (hour) times at their desk.
 - They will use the clock to set the times on the list one at a time. This time they must be aware of the location of the big (minute) hand since it is part of the clock manipulative (it should not move from the 12).
 - As they move down the list, they may put a check by each time they have set to keep track of their progress.
- iPads (Third):
 - http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm
 - They must select Level 1 and Relaxed Mode; they may choose their speed.

Proficient

- With Teacher (Second):
 - Each student will have a clockface cutout sheet, a little arrow and big arrow cutout sheet, and a paper fastener.
 - Students will first label the clock with numbers 1-12 in the appropriate boxes. Then they will cutout their clockface and both hands and assemble their clocks with the paper fastener. (The little (hour) hand should go on top of the big (minute) hand.)
 - I will set a time on my example clock (half hour or hour); they will move their arrow so their clocks match mine, and then they will choose the appropriate time card that matches the time displayed on our clocks. These steps will be repeated until it is time to rotate.
- Independent (Third):
 - They will each have a clock manipulative and a laminated list of (hour and half hour) times at their desk.
 - They will use the clock to set the times on the list one at a time.
 - As they move down the list, they may put a check by each time they have set to keep track of their progress.
- iPads (First):
 - http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm
 - They must select Level 1 and 2; they may choose either mode and their speed.

Upper

- With Teacher (Third):

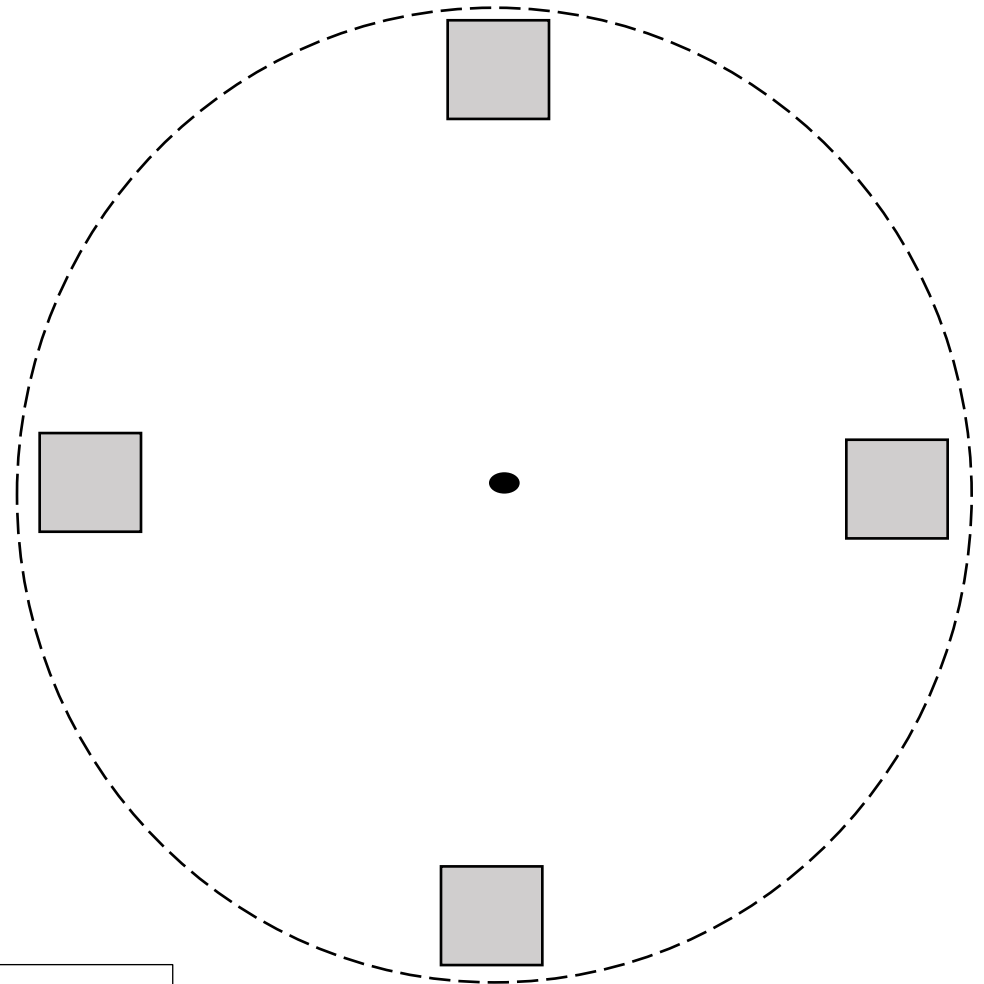
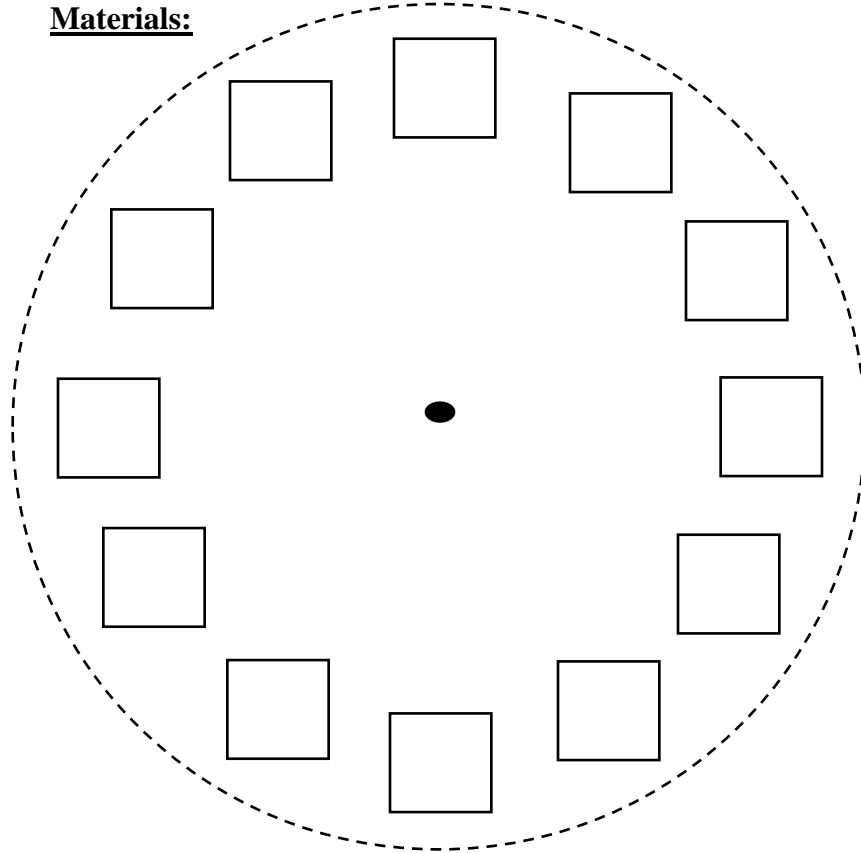
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- Each student will have a clockface cutout sheet, a little arrow and big arrow cutout sheet, a quarter hour circle cutout sheet, and a paper fastener.
- Students will first label the clock with numbers 1-12 in the appropriate boxes. Then they will cutout their clockface, both hands, and the large quarter hour circle. Finally, they will assemble their clocks with the paper fastener. (Order: quarter hour circle on the bottom (making sure the 0 aligns with the 12 on the clock face), clock face, big (minute) hand, and little (hour) hand on top)
- I will set a time on my example clock (half hour or quarter hour); they will move their arrow so their clocks match mine, and then they will choose the appropriate time card that matches the time displayed on our clocks. These steps will be repeated until it is time to rotate.
- Independent (First):
 - They will each have a clock manipulative and a laminated list of (half hour and quarter hour) times at their desk.
 - They will use the clock to set the times on the list one at a time.
 - As they move down the list, they may put a check by each time they have set to keep track of their progress.
- iPads (Second):
 - http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm
 - They must select Level 2 and 3; they may choose either mode and their speed.

Formative Assessment:

- iPad exit slips
- <https://www.visnos.com/demos/clock>

Materials:



Clock Manipulative



Clock cutout pieces

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Lower

Proficient

Upper

<input type="checkbox"/>	2:00	<input type="checkbox"/>	2:00	<input type="checkbox"/>	2:00
<input type="checkbox"/>	7:00	<input type="checkbox"/>	5:30	<input type="checkbox"/>	8:45
<input type="checkbox"/>	9:00	<input type="checkbox"/>	1:00	<input type="checkbox"/>	1:15
<input type="checkbox"/>	3:00	<input type="checkbox"/>	11:30	<input type="checkbox"/>	4:30
<input type="checkbox"/>	12:00	<input type="checkbox"/>	4:00	<input type="checkbox"/>	5:45
<input type="checkbox"/>	10:00	<input type="checkbox"/>	6:30	<input type="checkbox"/>	12:30
<input type="checkbox"/>	5:00	<input type="checkbox"/>	8:00	<input type="checkbox"/>	10:15

Independent Activity Time Charts

With Teacher Time Cards

Lower

1:00	4:00	6:00
8:00	11:00	12:00

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Medium	3:00	7:00	12:00
	5:30	8:30	10:30

Upper	1:00	9:30	2:15
	7:15	4:45	11:45

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Formative Assessment Prompts for each Level

Go to this website: <https://www.visnos.com/demos/clock>
Set the clock to this time: 4:00 (Take a screenshot)
Set the clock to this time: 12:00 (Take a screenshot)
Close the app, then put your iPad away.

Go to this website: <https://www.visnos.com/demos/clock>
Set the clock to this time: 7:00 (Take a screenshot)
Set the clock to this time: 10:30 (Take a screenshot)
Close the app, then put your iPad away.

Go to this website: <https://www.visnos.com/demos/clock>
Set the clock to this time: 2:15 (Take a screenshot)
Set the clock to this time: 11:45 (Take a screenshot)
Close the app, then put your iPad away.

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Day 2

Day 2	With Teacher	Independent	iPads	Formative Assessment
Low	Focus on reading/telling time to the half hour and quarter hour	Focus on setting time to the half hour and quarter hour	https://www.education.com/game/what-time-game/ https://www.education.com/game/floyd-alarm-clock/	Half hour and quarter hour worksheet
Proficient	Focus on reading/telling time to the quarter hour and minute (using estimations)	Focus on setting time to the quarter hour and minute (using estimations)	https://www.education.com/game/floyd-alarm-clock/ https://www.education.com/game/stop-the-clock/	Quarter hour and minute (using estimations) worksheet
Upper	Focus on telling time to the minute	Focus on setting time to the minute	https://www.education.com/game/stop-the-clock/	Minute worksheet

Rotation Instructions:

Lower

- With Teacher (First):
 - Students will start by bringing their assembled clocks to the back table again. They will cut out a big (minute) hand and the quarter hour circle. They will reassemble their clocks in the appropriate order (quarter hour circle on the bottom (making sure the 0 aligns with the 12 on the clock face), clock face, big (minute) hand, and little (hour) hand on top).
 - I will set a time on my example clock (half hour or quarter hour); they will move their arrow so their clocks match mine, and then they will write the hour on their whiteboards. Once I check each one, they will erase, and we will repeat the steps with new times until it is time to rotate.
- Independent (Second):
 - Each student will receive a pack of (simple) cards that align with “Today’s Class Agenda” I have posted on the board.
 - Students will organize the cards in chronological order, referencing the agenda on the board if they get stuck.

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- Once they place a card, they must set the time on their clock manipulative before moving on to the next card.
- iPads (Third):
 - <https://www.education.com/game/what-time-game/>
 - <https://www.education.com/game/floyd-alarm-clock/>
 - Students may divide their time between these two games however they choose, but they must complete at least one round of each game.

Proficient

- With Teacher (Second):
 - Students will bring their assembled clocks back to the table again. They will cutout the quarter hour circle and reassemble their clocks in the appropriate order. Then they will fill in the empty boxes on the quarter hour circle, counting by 5's.
 - I will set a time on my example clock; they will move their arrow so their clocks match mine approximately, and then they will write the hour on their whiteboards. I will explain that some times (i.e. 2:37) don't fall exactly on one of the 5's. When this happens, the big hand should just point somewhere between the two appropriate 5's (i.e. big hand should be somewhere between 6 and 7 on the clockface). Once I check each one, they will erase, and we will repeat the steps with new times until it is time to rotate.
- Independent (Third):
 - Each student will receive a (medium) pack of cards that align with "Today's Class Agenda" I have posted on the board.
 - Students will organize the cards in chronological order, referencing the agenda on the board if they get stuck.
 - Once they place a card, they must set the time on their clock manipulative before moving on to the next card.
- iPads (First):
 - <https://www.education.com/game/floyd-alarm-clock/>
 - <https://www.education.com/game/stop-the-clock/>
 - Students may divide their time between these two games however they choose, but they must complete at least one round of each game.

Upper

- With Teacher (Third):

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- Students will bring their assembled clocks back to the table again. They will begin by filling in the empty boxes on the quarter hour circle, counting by 5's. Once each box is filled in, they will go back and draw four lines/dots between each box to represent each minute.
- I will set a time on my example clock; they will move their arrow so their clocks match mine exactly, and then they will write the hour on their whiteboards. Once I check each one, they will erase, and we will repeat the steps with new times until it is time to rotate.
- Independent (First):
 - Each student will receive a (complex) pack of cards that align with “Today’s Class Agenda” I have posted on the board.
 - Students will organize the cards in chronological order, referencing the agenda on the board if they get stuck.
 - Once they place a card, they must set the time on their clock manipulative before moving on to the next card.
- iPads (Second):
 - <https://www.education.com/game/stop-the-clock/>
 - Students may play multiple rounds and should set goals to improve their score each time.

Materials:

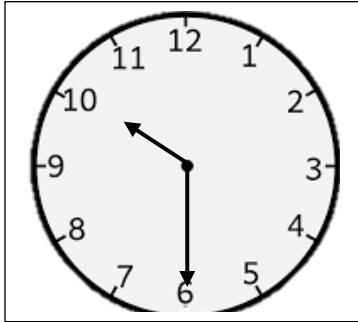
Simple Pack: Green cards; Medium Pack: Green and Yellow cards;
Complex Pack: All cards

Today's Agenda	
<i>Start Time</i>	<i>Activity</i>
8:30	School Starts, Seat Work
8:45	Reading, Writing
9:12	Music
10:15	Spelling, Grammar
11:35	Lunch
11:58	Recess
12:15	Science
1:25	Social Studies
2:04	Math
2:45	Library
3:15	School Ends

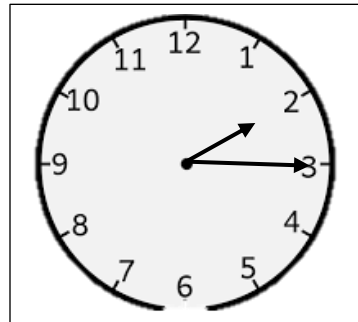
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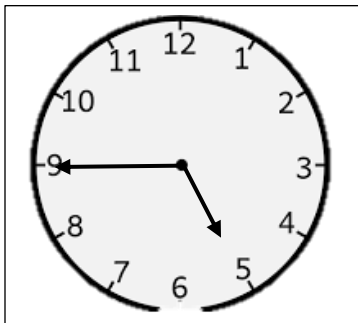
Directions: Label each clock with the correct time.



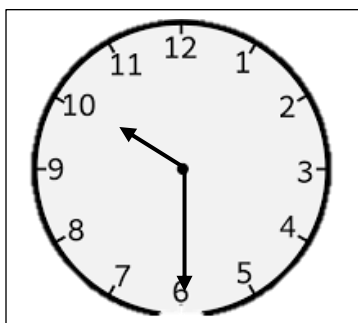
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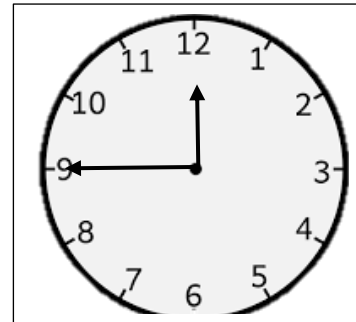
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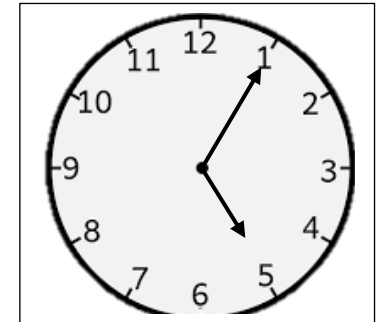
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Name: _____ Number: _____

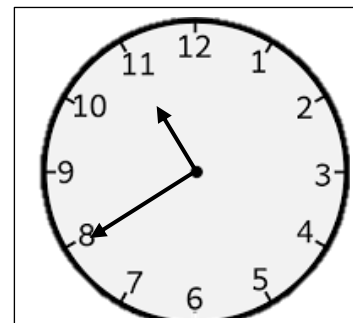
Directions: Label each clock with the correct time.



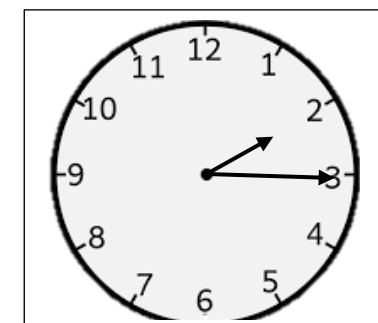
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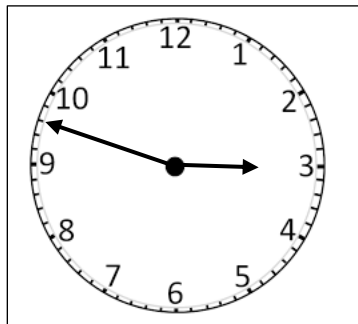
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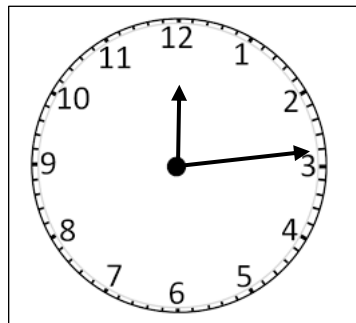
Complex Formative Assessment

Name: _____ Number: _____

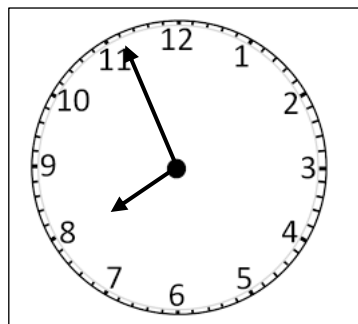
Directions: Label each clock with the correct time.



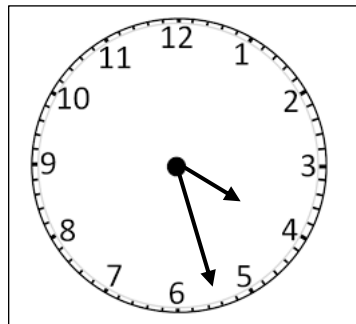
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Day 3

Day 3	With Teacher	Independent	iPads	Formative Assessment
Low	Focus on setting clock hands to show elapsed time by the hour and half hour	Focus on determining the amount of time that has elapsed (hour and half hour) using “Time Travelling” pair cards	Apple’s clock app (alarm section)	Completed “Time Travelling” pair sheet
Proficient	Focus on setting clock hands to show elapsed time by the hour, half hour, and minute (nearest 5)	Focus on determining the amount of time that has elapsed (hour, half hour, and nearest 5 minutes) using “Time Travelling” pair cards	Apple’s clock app (alarm section)	Completed “Time travelling” pair sheet
Upper	Focus on setting clock hands to show elapsed time for any given minute	Focus on determining the amount of time that has elapsed (hour, half hour, and any given minute) using pair cards	Apple’s clock app (alarm section)	Completed “Time Travelling” pair sheet

Rotation Instructions:

Lower

- With Teacher (First):
 - Each student will receive a clock manipulative.
 - I will set an example time on my clock and students will copy the arrow placements on their clocks.
 - One student will draw a card with an amount of time on it (hour or half hour), representing an amount of time that has passed.

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- We will each put our clocks in our laps and move the arrow hands to the correct new locations. I will count down from three and they will all show me their clocks. I will turn my clock around, giving them a chance to check their work and fix any errors.
- These steps will be repeated until every student has a chance to draw a card and it is time to rotate.
- Independent (Second):
 - Each student will receive a pack of “Time Travelling” pair cards.
 - They will glue the event that occurs first on the left side of a piece of construction paper and the event that occurred second on the right side of the paper.
 - In the blank space between the two events, they will write the amount of elapsed time.
- iPads (Third):
 - Students will open the clock app on their iPads and find a list of preset alarms.
 - Each alarm’s name tells the students how far ahead they have to set the next alarm for.
 - Since each student has their number on their iPad, the preset alarms will match their appropriate level.

Proficient

- With Teacher (Second):
 - Each student will receive a clock manipulative.
 - I will set an example time on my clock and students will copy the arrow placements on their clocks.
 - One student will draw a card with an amount of time on it (hour, half hour, or 5 minute), representing an amount of time that has passed.
 - We will each put our clocks in our laps and move the arrow hands to the correct new locations. I will count down from three and they will all show me their clocks. I will turn my clock around, giving them a chance to check their work and fix any errors.
 - These steps will be repeated until every student has a chance to draw a card and it is time to rotate.
- Independent (Third):
 - Each student will receive a pack of “Time Travelling” pair cards.
 - They will glue the event that occurs first on the left side of a piece of construction paper and the event that occurred second on the right side of the paper.
 - In the blank space between the two events, they will write the amount of elapsed time.

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- iPads (First):
 - Students will open the clock app on their iPads and find a list of preset alarms.
 - Each alarm's name tells the students how far ahead they have to set the next alarm for.
 - Since each student has their number on their iPad, the preset alarms will match their appropriate level.

Upper

- With Teacher (Third):
 - Each student will receive a clock manipulative.
 - I will set an example time on my clock and students will copy the arrow placements on their clocks.
 - One student will draw a card with an amount of time on it (hour, half hour, or any minute), representing an amount of time that has passed.
 - We will each put our clocks in our laps and move the arrow hands to the correct new locations. I will count down from three and they will all show me their clocks. I will turn my clock around, giving them a chance to check their work and fix any errors.
 - These steps will be repeated until every student has a chance to draw a card and it is time to rotate.
- Independent (First):
 - Each student will receive a pack of "Time Travelling" pair cards.
 - They will glue the event that occurs first on the left side of a piece of construction paper and the event that occurred second on the right side of the paper.
 - In the blank space between the two events, they will write the amount of elapsed time.
- iPads (Second):
 - Students will open the clock app on their iPads and find a list of preset alarms.
 - Each alarm's name tells the students how far ahead they have to set the next alarm for.
 - Since each student has their number on their iPad, the preset alarms will match their appropriate level.

Materials:

1 Hour	3 ½ Hours	25 Minutes	1 Hour and 5 Minutes	7 Minutes	1 Hour and 1 Minute
7 Hours	5 ½ Hours	40 Minutes	3 Hours and 35 Minutes	23 Minutes	2 Hours and 53 Minutes
9 Hours	8 ½ Hours	55 Minutes	5 Hours and 50 Minutes	46 Minutes	4 Hours and 18 Minutes

Elapsed Time cards for “With Teacher” activity

“Time Travelling” Pair Cards (3 sets per level)

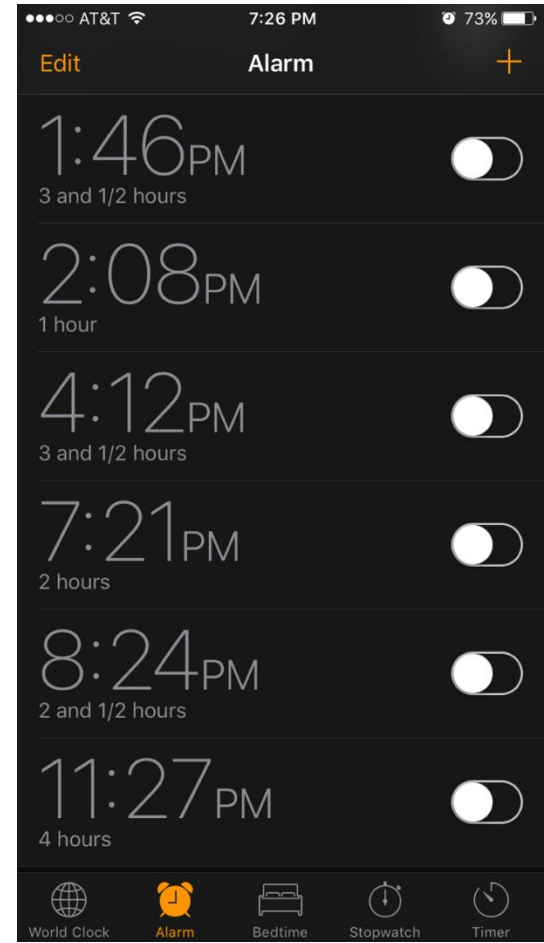
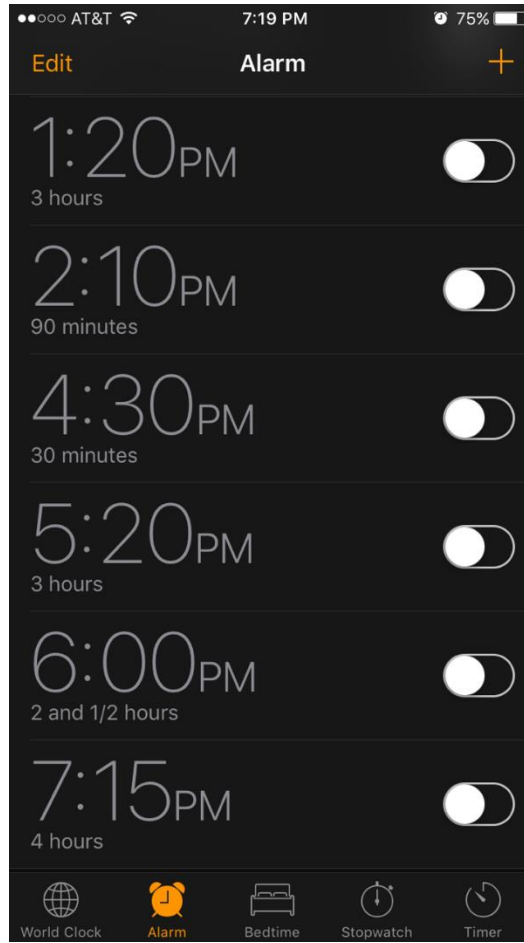
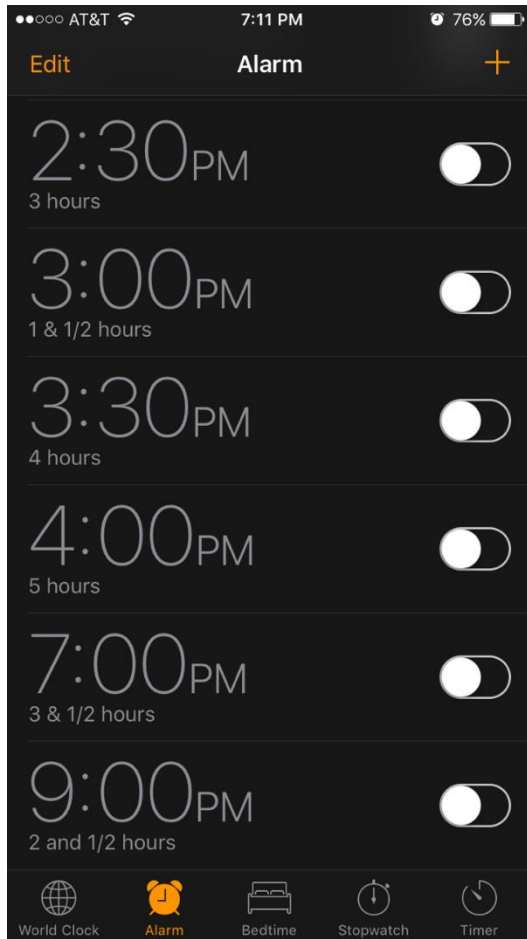
Left Home 7:30	Arrived at School 8:00
Ordered Food 5:30	Food Arrived 6:30
Left Airport 1:00	Airplane Landed 5:30

Left Home 7:35	Arrived at School 8:05
Ordered Food 5:50	Food Arrived 6:50
Left Airport 2:10	Airplane Landed 4:40

Left Home 7:36	Arrived at School 8:06
Ordered Food 6:13	Food Arrived 7:13
Left Airport 5:48	Airplane Landed 8:18

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Formative Assessment: iPad clock app



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Day 4

Day 1	With Teacher	Independent	iPads	Formative Assessment
Low	Focus on breaking apart simple elapsed time word problems	Focus on solving simple elapsed time word problems	http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm	Elapsed time worksheet 1
Proficient	Focus on breaking apart medium elapsed time word problems	Focus on solving medium elapsed time word problems	http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm	Elapsed time worksheet 2
Upper	Focus on breaking apart complex elapsed time word problems	Focus on solving complex elapsed time word problems	http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm	Elapsed time worksheet 3

Rotation Instructions:

Lower

- With Teacher (First):
 - Each student will receive a time number line and some paperclips.
 - I will read a word problem to them twice (level appropriate). The first time, they will just listen. The second time, I will pause after reading a piece of important information and the students will put one of their paperclips on the given time or interval.
 - Once I have finished reading the problem twice, and all the appropriate paperclips have been placed, they will have time to fill in the missing piece of information. Students will write down their answers on a white board, show me, and then erase to get ready for the next problem.
- Independent (Second):
 - Students will first divide their white boards into 3 columns and label them “Start time”, “Elapsed time”, and “End time”.
 - They will read simple (1 step, half hour and hour only) word problems, and then again to go back and highlight the important pieces of information. Students will write this information in the appropriate column.

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- With two of the columns filled, they will solve by finding the answer to write in the empty column. They can erase their information out of each column and move on to the next card.
- iPads (Third):
 - http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm
 - Students must make it past Level 1 and attempt Level 2 and Level 3

Proficient

- With Teacher (Second):
 - Each student will receive a time number line and some paperclips.
 - I will read a word problem to them twice (level appropriate). The first time, they will just listen. The second time, I will pause after reading a piece of important information and the students will put one of their paperclips on the given time or interval.
 - Once I have finished reading the problem twice, and all the appropriate paperclips have been placed, they will have time to fill in the missing piece of information. Students will write down their answers on a white board, show me, and then erase to get ready for the next problem.
- Independent (Third):
 - Students will first divide their white boards into 3 columns and label them “Start time”, “Elapsed time(s)”, and “End time”.
 - They will read medium (2 steps, half hour and hour only) word problems, and then again to go back and highlight the important pieces of information. Students will write this information in the appropriate column.
 - With two of the columns filled, they will solve by finding the answer to write in the empty column. They can erase their information out of each column and move on to the next card.
- iPads (First):
 - http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm
 - Students must pass Levels 1-3, and attempt Level 4 and 5

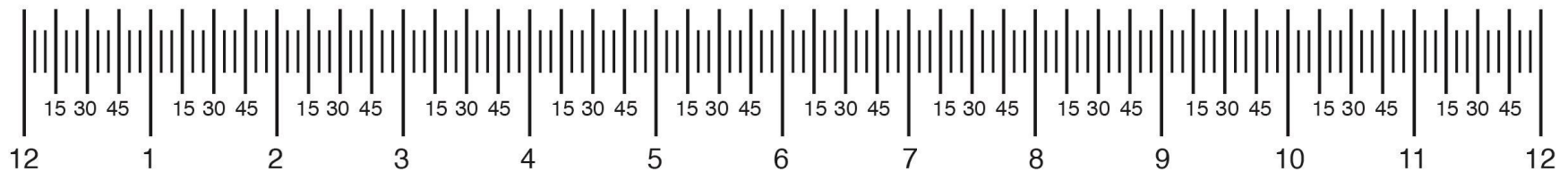
Upper

- With Teacher (Third):
 - Each student will receive a time number line and some paperclips.

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- I will read a word problem to them twice (level appropriate). The first time, they will just listen. The second time, I will pause after reading a piece of important information and the students will put one of their paperclips on the given time or interval.
- Once I have finished reading the problem twice, and all the appropriate paperclips have been placed, they will have time to fill in the missing piece of information. Students will write down their answers on a white board, show me, and then erase to get ready for the next problem.
- Independent (First):
 - Students will first divide their white boards into 3 columns and label them “Start time”, “Elapsed time(s)”, and “End time”.
 - They will read complex (2-3 steps, any given time) word problems, and then again to go back and highlight the important pieces of information. Students will write this information in the appropriate column.
 - With two of the columns filled, they will solve by finding the answer to write in the empty column. They can erase their information out of each column and move on to the next card.
- iPads (Second):
 - http://www.sheppardsoftware.com/mathgames/time/mathman_time_elapsed.htm
 - Students must pass Levels 1-4, and attempt Levels 5+

Materials



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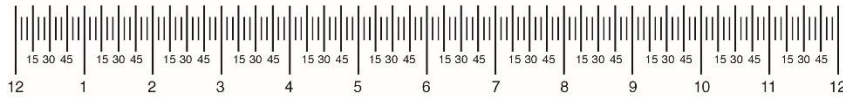
Name: _____ Number: _____

1. Joey left his house at 8:00. He arrived to his destination at 10:00. How much time elapsed?

Start Time

Elapsed Time

End Time



2. Phoebe's flight leaves at 1:30. It is a 2 ½ hour flight. What time will she land?

Start Time

Elapsed Time

End Time



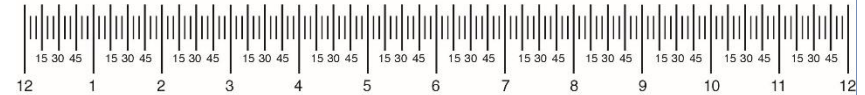
Name: _____ Number: _____

1. Rachel leaves work at 5:00. She goes to the gym for 1 hour and takes ½ hour to drive home. What time does she get home?

Start Time

Elapsed Time(s)

End Time

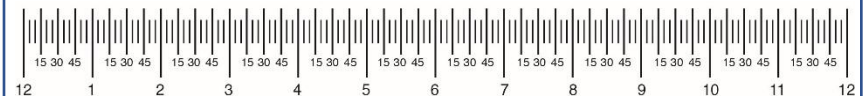


2. Ross goes sailing at 2:00. He stays on the water until 4:00. He gets home at 5:30. How much time has elapsed?

Start Time

Elapsed Time(s)

End Time



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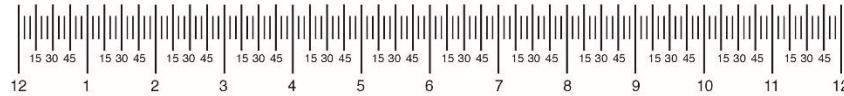
Name: _____ Number: _____

1. Monica left school at 3:30. She rode the bus for $1\frac{1}{2}$ hours. Then she spent 45 minutes at a piano lesson, and it took 15 more minutes to drive home. What time did she get home?

Start Time

Elapsed Time(s)

End Time

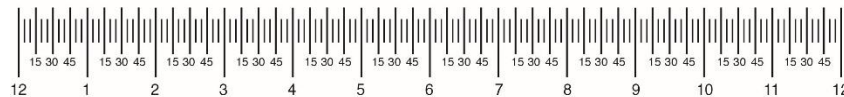


2. Chandler has an appointment at 3:00. It takes him $\frac{1}{2}$ to drive to the gas station and fill his car. It takes another $2\frac{1}{2}$ hours to drive the rest of the way. What time should he leave her house?

Start Time

Elapsed Time(s)

End Time



Day 5

Day 1	With Teacher	Independent	iPads	Summative Assessment
Low	Group votes to repeat one of their "With Teacher" activities from the last 4 days	Choice of one of their "Independent" activities from the last 4 days.	Choice of one of the online games. (Alarm app is not an option)	At the end of the review rotations, all students will take the "Time Summative Assessment".
Proficient				
Upper				

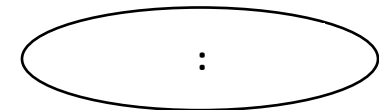
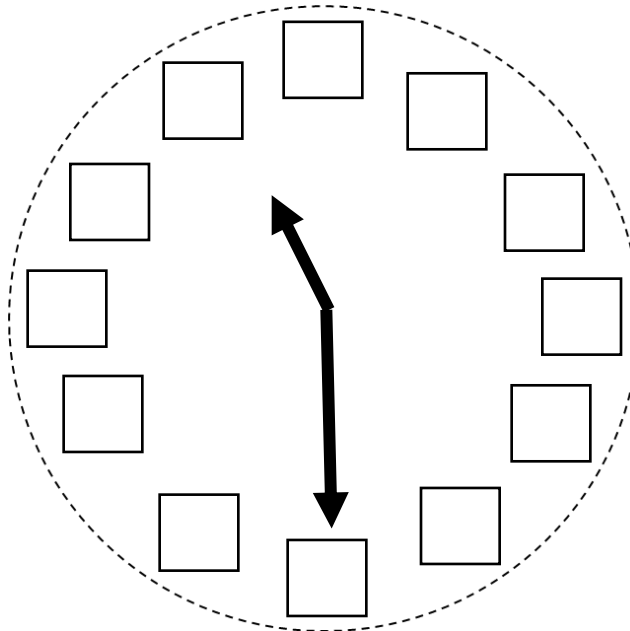
Summative Assessment

Name: _____

Class Number: _____

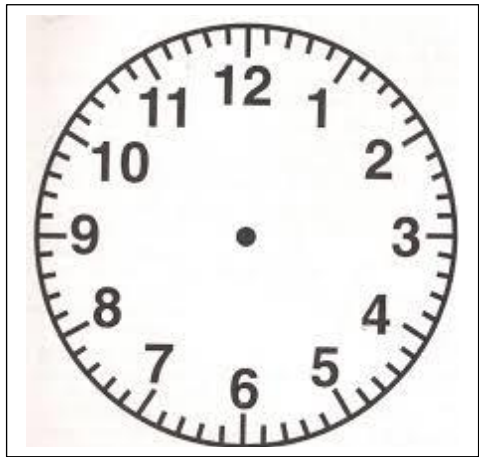
Directions: First, label the clock by filling in all the empty squares. Then, write the time in the oval at the bottom.

1.



2.

Draw hands on the clock to match the given time.

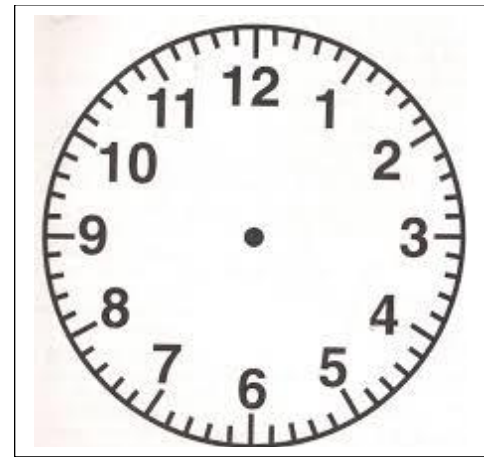


2:45

Elapsed Time

2 1/2
Hours

Draw hands on the clock to show the new time. Write the new time in the box beneath the clock.

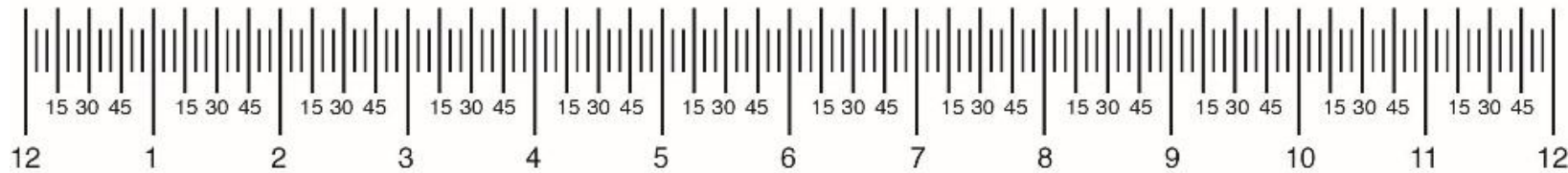


:

Directions: Solve the following word problem using the three columns and the number line. Write your answer in the box.

3. Leslie leaves her house at 8:00. On her way to work, she stops at her friend Ann's house for $\frac{1}{2}$ an hour. Then she spends two more hours at the park. What time does Leslie finally get to work?

Start Time	Elapsed Time(s)	End Time
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Leslie got to work at _____ : _____

Directions: Solve the following word problem using the method that works best for you. Show your work on the back of this page. Write your answer in the box.

4. Ron went to a campground at 1:30. He hiked until 3:30. Then he fished until 5:00 and went home afterwards. How long did Ron spend at the campground?

Ron spent _____ hours at the campground.