

LESSON 2

Objective

Find elapsed time.

Common Core State Standards

- **3.MD.1** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Measurement and Data

Elapsed Time

In grade 3, students begin to deepen their understanding of time. They start to move from simply telling time to calculating elapsed time. Since the school day is driven by a schedule, real-life opportunities arise during the day for students to calculate elapsed time.

Try It! Perform the Try It! activity on the next page.

Talk About It

Discuss the Try It! activity.

- Tell students that the time between a start time and an end time is called *elapsed time*. **Ask:** *Why do we need to be able to figure out elapsed time?* Discuss with students the importance of knowing how long activities last.
- **Ask:** *When you have a start time and an end time, how can you figure out elapsed time?*
- **Ask:** *When you have a start time, and you know how long something lasts, how can you find the end time?*
- **Ask:** *If we know the time something ends and how long it lasts, how can we figure out what time it starts?* Guide students to use a Write-On/Wipe-Off Student Clock to model.

Solve It

With students, reread the problem. Have students write a paragraph telling how they found the elapsed time of the three movies and which movie the students decided to see at the museum.

More Ideas

For other ways to teach about elapsed time—

- Have students make a schedule of their evening activities for a specific day of the week and use Write-On/Wipe-Off Clocks to find the amount of time spent doing each activity. Students should identify start time, end time, and elapsed time and use the clocks to model each.
- Have students keep track of a whole day at school and use Write-On/Wipe-Off Clocks to figure out the amount of time spent doing each activity.
- Have students work in pairs. One partner uses a Write-On/Wipe-Off Clock to show a start time. The other partner models an end time on a second clock. Partners look at both clocks to find the elapsed time.

Formative Assessment

Have students try the following problem.

The baseball game started at 4:30 P.M. It lasted for 1 hour and 15 minutes. What time did the game end?

- A. 3:15 P.M. B. 4:45 P.M. C. 5:30 P.M. D. 5:45 P.M.

Try It! 30 minutes | Pairs

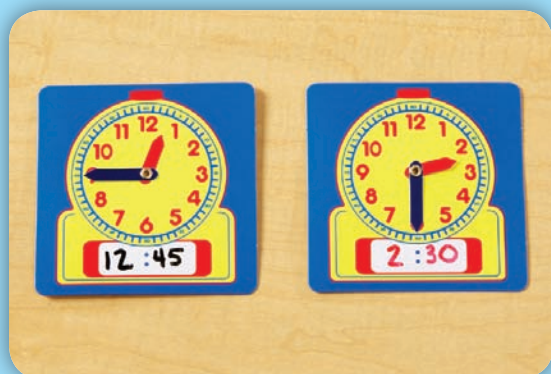
Here is a problem about finding elapsed time.

Miss Gabowski took her class to a science museum on a field trip. The students were allowed to spend 1 hour and 15 minutes watching a movie at the museum. They looked at a movie schedule. Weather Mysteries was playing from 12:45 to 2:30. The Moon was playing from 1:30 to 2:30. Trees, Trees, Trees was playing from 2:15 to 3:30. The students decided to see the movie that was exactly 1 hour and 15 minutes long. Which movie did they see?

Introduce the problem. Then have students do the activity to solve the problem. Distribute Write-On/Wipe-Off Clocks to students. Model for students how to use the clocks.

Materials

- Write-On/Wipe-Off Student Clock (1 per student)
- Time Interval Rods ($\frac{1}{2}$ set per pair)
- Time Work Mats (1 per student)
- dry erase markers (1 set per group)



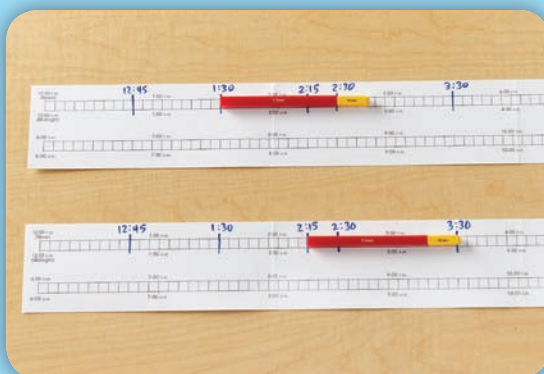
1. Have one partner set their clock to the 12:45 start time and the other to the 2:30 end time of the *Weather Mysteries* movie. Guide students to compare the two clocks and rotate both hands of the start time clock to match the end time, counting by fives to track the elapsed time.



2. Ask: *How long is the movie The Moon? Use your clocks to find out.* Students should use the clocks to find the elapsed time from 1:30 to 2:30. Then have students find the length of *Trees, Trees, Trees* (2:15 to 3:30).



3. Ask: *What if Trees, Trees, Trees started at 2:15 and lasted 2 hours? What time would the movie end?* Have students use the clocks to count ahead 2 hours to find the end time (4:15).

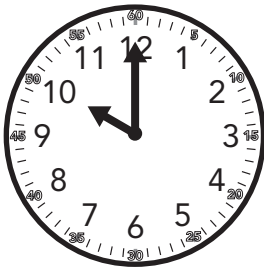


4. Have students mark and label all the start and end times on their Time Work Mats. Then have students make a rod train that measures 1 hour and 15 minutes and use it to test the duration of each movie. Ask students what they find.

Use a Write-On/Wipe-Off Clock to model the times shown on each clock. Write the starting time and ending time. Find the elapsed time.

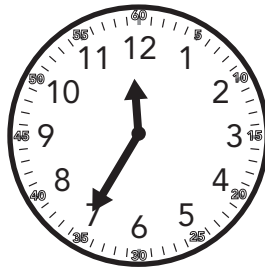
(Check students' work.)

1.



Start

10:00



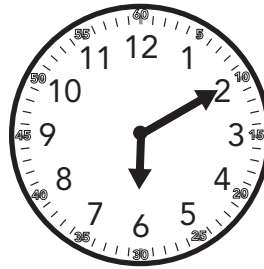
End

11:35

Elapsed time: _____

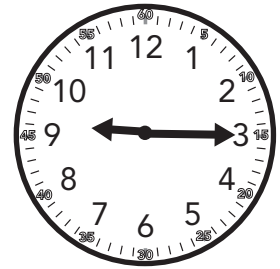
1:35

2.



Start

6:10



End

9:15

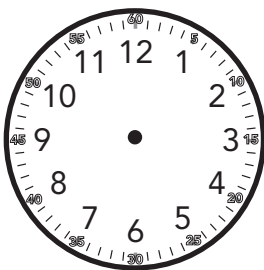
Elapsed time: _____

3:05

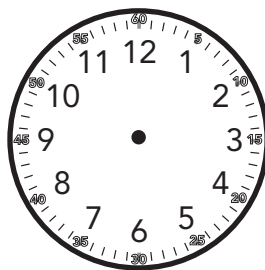
Using a Write-On/Wipe-Off Clock, model the starting and ending times given. Sketch the minute and hour hands on the clocks below. Find the elapsed time.

(Check students' models.)

3.



Start: 8:20

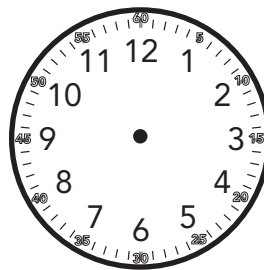


End: 10:00

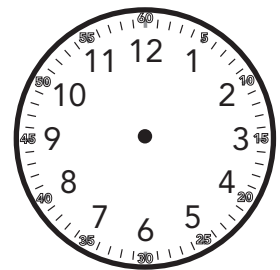
Elapsed time: _____

1:40

4.



Start: 4:45



End: 9:00

Elapsed time: _____

4:15

Find each elapsed time.

5. 11:15 A.M. to 2:15 P.M.

3:00

6. 5:15 P.M. to 7:00 P.M.

1:45

7. 1:45 A.M. to 4:30 A.M.

2:45

8. 8:30 A.M. to 10:45 A.M.

2:15

9. 3:50 P.M. to 6:00 P.M.

2:10

10. 12:00 P.M. to 4:30 P.M.

4:30

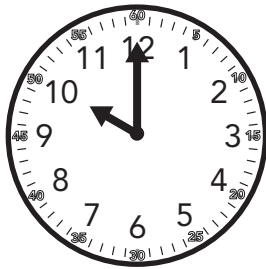
Answer Key

Challenge! Explain why Problem 5 was easier to answer than Problem 6. Explain why Problem 10 was easier to answer than Problem 9.

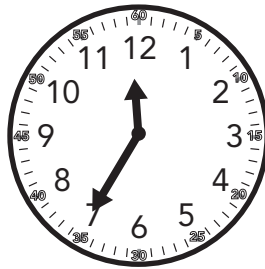
Challenge: (Sample) In Problem 5, the minutes are the same, so you only have to find the difference in the hours. In Problem 6, the minutes are not the same. In Problem 10, the starting time is at the hour with 0 minutes. So, the minutes of the elapsed time are the minutes in the ending time. In Problem 9, the starting time is not on the hour.

Use a Write-On/Wipe-Off Clock to model the times shown on each clock. Write the starting time and ending time. Find the elapsed time.

1.



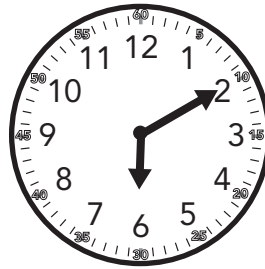
Start



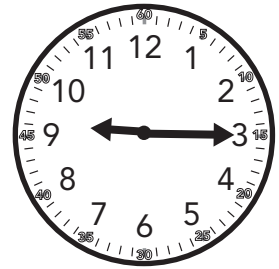
End

Elapsed time: _____

2.



Start

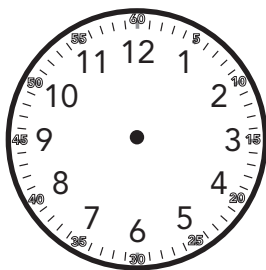


End

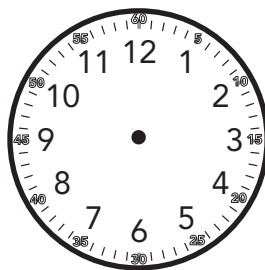
Elapsed time: _____

Using a Write-On/Wipe-Off Clock, model the starting and ending times given. Sketch the minute and hour hands on the clocks below. Find the elapsed time.

3.



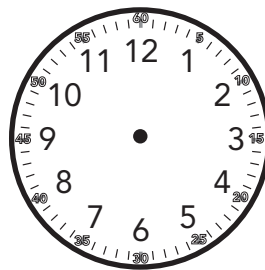
Start: 8:20



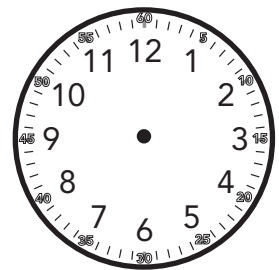
End: 10:00

Elapsed time: _____

4.



Start: 4:45



End: 9:00

Elapsed time: _____

Find each elapsed time.

5. 11:15 A.M. to 2:15 P.M. 6. 5:15 P.M. to 7:00 P.M. 7. 1:45 A.M. to 4:30 A.M.

8. 8:30 A.M. to 10:45 A.M. 9. 3:50 P.M. to 6:00 P.M. 10. 12:00 P.M. to 4:30 P.M.

Name _____

Challenge! Explain why Problem 5 was easier to answer than Problem 6. Explain why Problem 10 was easier to answer than Problem 9.

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