CONSTRUCTING TASK: DAILY SCHEDULE

APPROXIMATE TIME: 1-2 Days

STANDARDS FOR MATHEMATICAL CONTENT

MCC. 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.

STANDARDS FOR MATHEMATICAL PRACTICE

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.

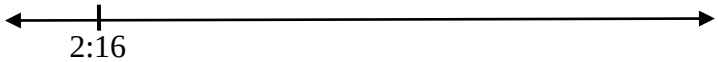
BACKGROUND KNOWLEDGE

In this task, students will record and draw time to the nearest minute and calculate elapsed time in 15, 30, and 60 minute intervals.

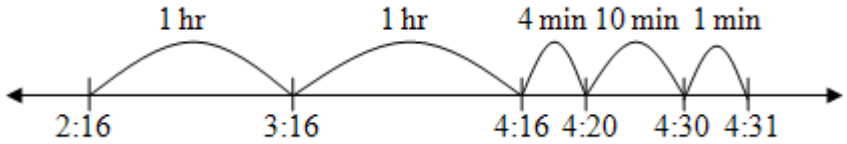
Teachers may want to begin with a discussion of daily activities in students' lives and the amount of time those activities typically take. For example, getting ready for school may begin at 7:06 AM and end at 7:36 AM, a 30 minute duration. Then engage students in a discussion of activities that typically happen during the school day and their estimates of the duration of these activities. One book that explores elapsed time, *The Long Wait* by Annie Cobb, discusses wait-time at an amusement park. As the calculations are made, you want to encourage students to explore a linear model of time as well as a traditional analog clock. The linear model can be created using an open number line. Jumps are made from the beginning time to the ending time much like movement on a number line and increments of time may be recorded above the jumps. An example is shown below:

To find the elapsed time from 2:16 pm to 4:31 pm, start with an open number line:

Add the starting time:



Then count up to the ending time using jumps that make sense to the students:



If telling time is built into daily routines, students should have had classroom experiences with telling time to the nearest minute. Daily routines can be extended to elapsed time by asking students the stopping time if they start work now and work for 15 minutes or 30 minutes. Additionally, students could be asked what time they will return to the classroom if they will be returning in one hour.

ESSENTIAL QUESTIONS

- How can we determine the amount of time that passes between two events?
- What part does elapsed time play in our daily living?
- What does it mean to tell time to the minute?
- What strategies can I use to help me tell and write time to the nearest minute and measure time intervals in minutes?

MATERIALS

- *The Long Wait* by Annie Cobb, or a similar book about elapsed time
- "Daily Schedule" student recording sheet
- Clock (Classroom clock or individual clocks for each student)

GROUPING

Whole Group/Individual Task

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Note: As students record daily events, be sure the elapsed time is in 15, 30, or 60 minute intervals. Alternatively, provide a daily schedule that is already filled in with start and stop times. Then have students calculate the elapsed time, or duration, of each activity and record it on the chart.

Students will follow the directions below from the "Daily Schedule" student recording sheet.

In the Daily Schedule chart below, record six of your class' daily activities. Then calculate the elapsed time, or duration, of each activity and record it on the chart.

Choose three events. List the event and record the start time and end time for each event on the clock faces below.

Choose one of the events above and explain how you found the elapsed time.

FORMATIVE ASSESSMENT QUESTIONS

- How did you determine your start and end times?
- What kinds of activities can you typically complete in a quarter-hour, half-hour and hour?
- How did you determine the elapsed time?
- Is there more than one way to figure out elapsed time?

DIFFERENTIATION

Extension

- Have students use a digital camera to create an interactive slide show, flipchart, or schedule chart for display of the daily school events.
- On a paper divided into fourths, have students list as many things as they can that last approximately 15 minutes/30 minutes/1 hour/more than 1 hour.
- Ask students to complete a similar chart for a typical weekend day.

Intervention

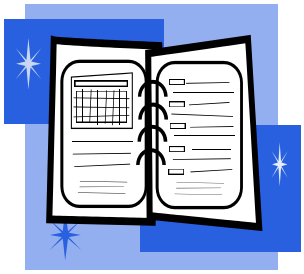
- Provide beginning and ending times for activities that do not cross the hour mark. For example, show a beginning time of 11:15 and an ending time of 11:45 for a given activity. Be sure students understand the elapsed time of 30 minutes before moving to activities of a longer duration that begin and end in different hours.

TECHNOLOGY CONNECTION

- http://nlvm.usu.edu/en/nav/frames_asid_318_g_2_t_4.html Elapsed time problems using two clocks, both analog and digital
- http://www.shodor.org/interactivate/activities/ElapsedTime/?version=disabled&browser=MSIE&vendor=na&flash=10.0.32 Several activities surrounding elapsed time using analog or digital clocks.
- http://donnayoung.org/math/clock.htm Printable blank clock faces.

Name _____ Date _____

Daily Schedule



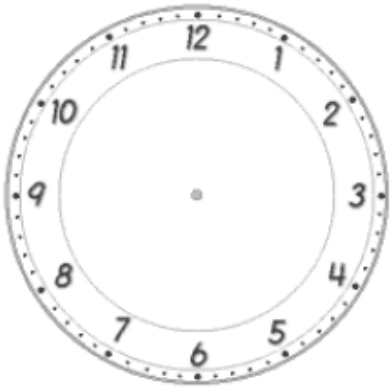
In the Daily Schedule chart below, record six of your daily class activities. Then calculate the elapsed time, or duration, of each activity and record it on the chart.

Daily Schedule			
Event	**Start Time**	**Stop Time**	**Duration of Event**

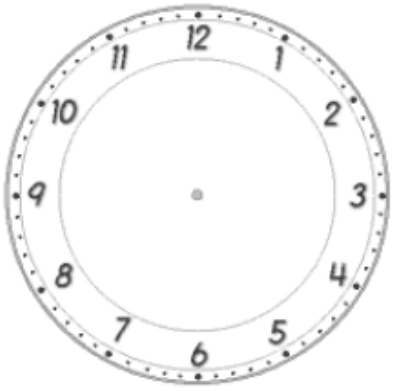
Choose three events. List the event and record the start time and end time for each event on the clock faces below.

1. Event: _____

Start Time

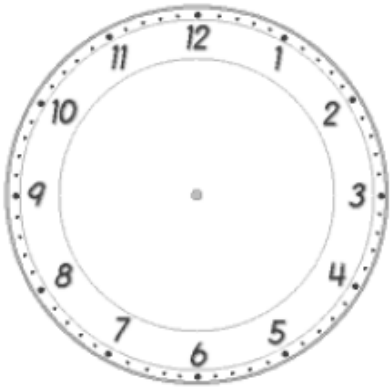


End Time

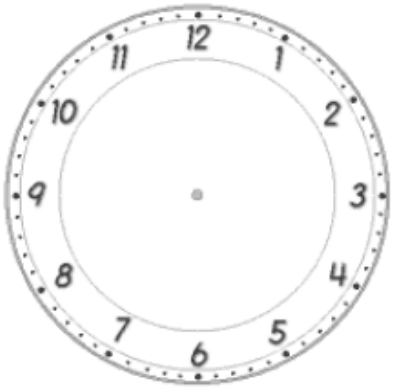


2. Event: _____

Start Time

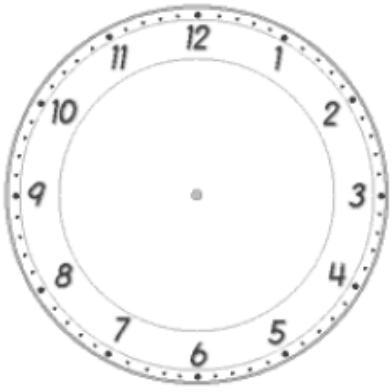


End Time

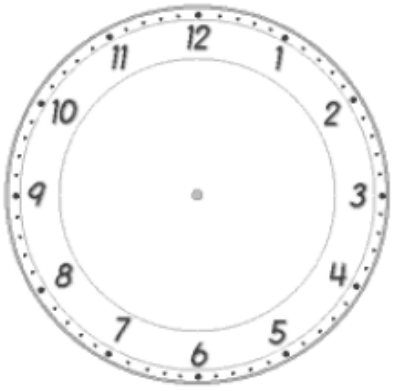


3. Event: _____

Start Time



End Time



4. Choose one of the events above and explain how you found the elapsed time.