

3rd

Topic 12: Time

Lessons 1-5

Math Intervention Resources

MDIS:

12-1 D13

12-2 D14

12-3 D15

12-4 D16

12-5 E30

Reinforce

Envision Math Games:

Topic Game: NA

envision Online Games

Time (no clocks just time of day)

Symbaloo

Guided Practice

- Make sure students understand the different parts of an analog clock. These include the hour and minute hand, marks for minutes, and hour numbers. Review and explain the differences between the hour and minute hands of the clock and what their purpose is. Ask students to explain what each mark for minutes on the clock means.
- Some students may confuse the numbers on an analog clock with the number of minutes that have passed. Explain that when the minute hand moves from one minute mark to the next, one minute has passed. You may want to discuss activities that last for one minute compared to activities that last for one hour.

Assessments

3rd

Topic 12: Time

Lesson 12-1

Time to the Half Hour and Quarter Hour

Quick and Easy Lesson Overview



Objective	Essential Understanding	Vocabulary	Materials
Students will tell time to the nearest half hour and quarter hour using analog and digital clocks, and identify times as A.M. or P.M.	Time can be expressed using different units that are related to each other. A.M. and P.M. are used to designate certain time periods.	hour half hour quarter hour minute seconds A.M. P.M.	Clock face (Teaching Tool 25)



Math Background

Research says ... 5-year-olds equate time, speed, and distance with the relative stopping points of moving objects (Richards & Siegler, 1979). Many children master both the speed and distance concepts by age 8 and the majority master both by age 11.

The time concept appears to be mastered sometime between age 11 and adulthood. Students require many types of experiences

with time concepts. In the lessons that follow, students will have an opportunity to tell time and measure time in different units.

Some students may ask what A.M. and P.M. stand for. A.M. is an abbreviation of the Latin term *ante meridiem*, which means "before midday," or "before noon." P.M. is an abbreviation of *post meridiem*, which means "after midday," or "after noon."

2

Guided Practice



Remind students to read a time as quarter past or half past the previous hour, or quarter to the next hour.

Exercise 3

Reason Quantitatively

It can be helpful for some students to visualize a clock face that has been divided into 4 equal parts. Each $\frac{1}{4}$ section equals 15 minutes. It will be easier to see that $\frac{3}{4}$ of an hour is shown with the minute hand on the 9.

Exercise 4

Error Intervention

If students have difficulty giving the time in 3 different ways,

then ask: *How would the same time appear on a digital clock?*

[10:15] *How many minutes past the hour is it?* [It is 15 minutes past

10.] *How many quarter hours past the hour is it?* [One; it is quarter past 10.]

Reteaching For another example and more practice, assign **Reteaching** Set A on p. 316.



Common Core

Domain

Measurement and Data

Cluster

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Standard

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.

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

3rd

Topic 12: Time

Lesson 12-2

Time to the Minute

Quick and Easy Lesson Overview



Objective	Essential Understanding	Vocabulary	Materials
Students will tell time to the nearest minute using analog and digital clocks.	The minute hand takes 5 minutes to move from one number to the next on a typical clock face. The minute hand takes 1 minute to move from one mark to the next on a typical clock face.		Clock face (Teaching Tool 25)



Math Background

Some students may wonder why it is necessary to tell time to the nearest minute. Discuss different situations that require times to be expressed in more precise units. Television schedules usually show times to the nearest half hour. Movie schedules in the paper

usually show times to the nearest quarter hour or 5 minutes. Train, bus, and school class schedules can show times to the nearest minute. Clocks at sporting events can show time to the nearest second, or sometimes even tenth or hundredth of a second.

2

Guided Practice



MATHEMATICAL PRACTICES

Remind students that the longer hand on a clock is the minute hand and the shorter hand is the hour hand.

Exercise 3

Error Intervention

If students have difficulty explaining,

then ask: *How many minutes are in one hour?* [60 minutes] *How many minutes of the 60 minute hour have passed since 12:00?* [42 minutes] *How many minutes are left until 1:00?* [18 minutes]

Reteaching Draw an analog clock showing 1:23. Explain to students how to give the time in digital form and in two other ways. For another example and more practice, assign **Reteaching** Set B on p. 316.



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Mathematical Practices

- Make sense of problems and persevere in solving them.
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Topic 12: Time

Lesson 12-3

Units of Time

Quick and Easy Lesson Overview



Objective	Essential Understanding	Vocabulary	Materials
Students will perform simple conversions for units of time.	There are different units for measuring time. Many times can be expressed in more than one way.		Calendar (Teaching Tool 26)



Math Background

In this lesson students will convert between units of time such as weeks to days, days to hours, and hours to minutes.

Students will learn that larger units of time can be changed to smaller units of time by

multiplying. To correctly convert units, students must know the basic relationships between units of time, such as 1 week = 7 days. To convert 3 weeks to days, multiply 3×7 to get 21 days.

2

Guided Practice



MATHEMATICAL PRACTICES

Point out to students that they are changing from larger units to smaller units, such as changing a given number of weeks to days.

Exercise 3

Error Intervention

If students are unable to change from weeks and days to days,

then show students a calendar and highlight 2 weeks with a marker. *How many days are in 2 weeks?* [14] *What do you need to do to find how many days in 2 weeks and 4 days?* [Change 2 weeks to days, then add the additional 4 days.] Highlight another 4 days on the calendar and have students give the answer. [18 days]

Reteaching Display a calendar and highlight one day. *How many hours are in one day?* [24 hours] Write 24 hours on the highlighted day. Highlight a second day and write 24 hours. *How can you find the number of hours in 6 days?* [Add $24 + 24 + 24 + 24 + 24 + 24$] For another example and more practice, assign **Reteaching** Set C on p. 317.



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Mathematical Practices

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Topic 12: Time

Lesson 12-4

Elapsed Time

Quick and Easy

Lesson Overview



Objective	Essential Understanding	Vocabulary	Materials
Students will find elapsed time in intervals of minutes.	Elapsed time can be found by finding the total amount of time that passes between a starting time and an ending time.	elapsed time	Clock face (Teaching Tool 25)



Math Background

Finding elapsed time is an important everyday skill. Almost everyone needs to find out how much time has passed at some point in their lives. For example, it is useful for determining and meeting schedules, such as how long it will take to get to a movie theater on time to meet your friends. It is also a useful skill to be able to determine how much time has passed during a specific activity.

In this lesson, students are introduced to the study of elapsed time with 1-hour and

5-minute intervals. Most students will have had experience in Grade 2 of finding elapsed time in hourly intervals.

Long ago, finding elapsed time using hourly intervals was almost a necessity. For example, one of the first portable timepieces was the sundial, used around 3500 B.C. Called the gnomon, it consisted of a vertical stick that cast a shadow indicating the time of day.

2 Guided Practice



Remind students that they are finding the amount of time that passes from the start time to the end time.

Exercise 2

Error Intervention

If students are confused finding times that involve both hours and minutes,

then have students use a clock model to help them find the answer. Point out that the hour hand moves from one number on the clock to the next while one hour passes. Encourage them to count by 5s as they move the hands to find the number of minutes.

Reteaching Display a clock that shows 1:00. *How much time passes from 1:00 to 5:00?* Demonstrate by moving the hands on the clock. [4 hours] *How much time passes from 5:00 to 5:30?* Demonstrate by moving the minute hand to show 5:30. [30 minutes] *How much total time has passed?* [4 hours and 30 minutes] For another example and more practice, assign **Reteaching Set D** on p. 317.



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Topic 12: Time

Lesson 12-5

Problem Solving: Work Backward

Quick and Easy

Lesson Overview



Objective	Essential Understanding	Vocabulary	Materials
Students will use the strategy work backward to solve problems.	Some problems with the initial data point unknown can be solved by starting with the end result, reversing the steps and processes, and working backward to find the initial data point.		Clock face (Teaching Tool 25)



Math Background

Sometimes a problem situation gives only ending information and in-between information. Then the problem solver is asked to find the beginning information. Working backward from the given information can help the problem solver find the beginning information.

Allowing students to use manipulatives, such as clocks or money, can help them better understand the process of working backward. They can act out each step of the problem to see what has transpired.

2

Guided Practice



MATHEMATICAL PRACTICES

Remind students to identify and begin working backward from the ending information.

Exercise 3

Error Intervention

If students have difficulty writing a problem that can be solved by working backward,

then ask: *How can writing a problem that requires working forward help you write a problem that requires working backward?*

[You can write a problem that requires working forward and solve it. Then you can remove the beginning information and ask the solver to find it.]

Reteaching Show students how to draw a picture and work backward to solve the following problem: When Jake left the movie, he had \$14 in his pocket. At the movie, Jake paid \$2.50 for a drink, \$3.25 for popcorn, and \$5.25 for his ticket. How much money did Jake have before he went to the movie? [\$25]
For another example and more practice, assign **Reteaching** Set E on p. 317.



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