

EXTENSIONS

- 1. Elapsed Time.** To help children gain a sense for the passing time, elapsed time can be experienced through hands-on activities. For example: How long is math class? How long do you sleep? Ask students to set the clock to the beginning time of math class, then turn the minute hand until the proper end time is reached. Then have students crank out ten hours (a typical sleep period for children) on the clock. Which is longer? How much more?
- 2. Adding Elapsed Time.** Explore elapsed time using the *Big Time™ Learning Clock™*. First, have students set the clock to a time value that you have written on the board. Give students an elapsed period of time, such as three hours, and have them add the time onto the clocks. Start simple, and build to more challenging problems.
- 3. Subtracting Elapsed Time.** Work “backward” with elapsed time. Have students set the clock to the time value you have shown on the board. Tell students that this is an end time, and a certain amount of time has elapsed. For example, show children the time 4:00. Tell them 2 hours have elapsed before this time. What was the starting time? Students turn the clock hands backward to come up with the answers.
- 4. Setting a Schedule.** Have students replicate the daily class schedule on paper, then follow along with the clock. How long does each subject last? How long is the school day? Ask students to write out a typical schedule for their entire day. For each activity, have them calculate the elapsed time using starting and ending clock times. Have students compare the times spent on shared activities.
- 5. The Second Hand.** Explore the second hand using a classroom clock. Ask students, “Each time the second hand goes around once, how far does the minute hand move? How many seconds are there in a minute?”
- 6. AM and PM.** The hour hand of a clock rotates twice each day. To keep the morning hours separate from the evening hours, people use the terms AM and PM; AM is used to describe the morning hours and PM is used to describe the afternoon hours. Ask students how many hours there are in a day.

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BIG TIME™

LEARNING CLOCK®



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INTRODUCTION

The *Big Time™ Learning Clock®* (LER 2094) is designed to make time telling easier through modeling and hands-on activities. The clock's geared hour hand moves in relation to its second hand, closely replicating a real clock's inner working.

Note: Move only the minute hand; the hour hand cannot be moved independently.

The *Big Time™ Learning Clock®* may be used for classroom demonstrations, or by small groups, or individual students. Show how the hands are positioned to tell time. Its easy-to-read face and geared assembly allow children to watch both hands moving at the same time. One revolution of the minute hand causes the hour hand to advance one hour, just as on working clocks. Both the hours and minutes have been placed on the clock face.

GETTING STARTED

Explore the *Big Time® Learning Clock™* with children. Ask them the following questions:

- What is different about the two hands on the clock? (Line them up to compare their lengths.)
- Which of the hands is called the *minute hand*, and which is called the *hour hand*?
- What do they think the numbers mean around the clock's face?
- How is the clock like the clock in the classroom? How is it different?
- Have they seen other types of clocks? What do they look like?

By the end of the exploration time, children should recognize that the clock has two hands, one longer than the other, and that a series of numbers begin at the top and continue around to the right. This is also the direction the hands rotate on a regular clock.

SUGGESTED ACTIVITIES

- 1. A Sense of Time.** Start by telling the children what the current time is and demonstrate it by adjusting the hands on the clock to show the time. It is easiest if you can do this at the beginning of an hour (i.e., 10 o'clock). Have the children continue their activities and when an hour has passed, announce it, then change the time on the demonstration clock. Continue this for a few hours every day, until the children have a "sense" of one hour.

After a week or so of the above activity, announce the time and indicate it on the clock. Ask children to let you know when they think an hour has passed by raising their hands. (You may have to cover your real classroom clock.) Indicate the actual time on the demonstration clock each time a child raises his/her hand.

Repeat the second activity and record each child's name on the board. Indicate the number of actual minutes elapsed next to the child's name at the time he/she raises his/her hand.

- 2. Exact Hours.** Count around the clock face, pointing to each number. Give students a specific time, exact hours only, and ask them to indicate the same time on the demonstration clock. Demonstrate that the minute hand must point straight up (to the 12) for it to be an exact hour.

- 3. Half- and Quarter-Hours.** Show how the clock can be divided into four equal pieces. Introduce the terms "half past," "quarter past," and "quarter to" using the demonstration clock. Turn the minute hand to one of these three points on the clock, or an exact hour, and ask students to tell what time you are indicating.

- 4. Half- and Quarter-Hours and the Hour Hand.** Point out the position of the hour hand at each of the four quarter-hour positions. At an exact hour, the hour hand points directly at that hour. At "half past" the hour hand is midway between two numbers. At "quarter past" the hour hand is closer to the hour just past; at "quarter to" the hand is closer to the next hour.

- 5. Five-Minute Increments.** Show students the minute numbers on the demonstration clock face. Count around the clock by fives, moving the minute hand as you do. Help students reach an understanding that there are 60 minutes in an hour. For students familiar with multiplication, ask them to look at the relationship between the hour marks and the minute marks. (The minute marks are five times the hour marks.)

- 6. One-Minute Increments.** Ask students what they think the marks between the minute numbers mean. How many marks are there between each? Count around the clock by ones, moving the minute hand as you do. Each time the minute hand reaches one of the minute numbers (5, 10, 15, etc.) point to that number with your free hand. Reinforce that there are 60 minutes in an hour.

- 7. Testing Students' Understanding.** Give students a specific time, including minutes, and ask them to indicate the same time on the demonstration clock.

- 8. Working Backward.** Once children have mastered the minute hand moving clockwise, work "backward" from exact hours. What does "10 minutes to 5" look like? Count backward around the clock by fives, moving the minute hand as you do, until you get to the 30 minute mark. (Traditionally, no more than 30 minutes are used to indicate the amount of time until the next hour.)

- 9. Testing Students' Understanding.** Give students a specific time using the "___ minutes to ___" construction, and ask them to indicate the same time on the demonstration clock.

- 10. Working Backward By Ones.** Count backward around the clock by ones, moving the minute hand as you do, until you get to the 30 minute mark. Give students a specific time using the "___ minutes to ___" construction, and ask them to indicate the same time on the demonstration clock.