

**Objective 4:** The student will demonstrate an understanding of the concepts and uses of measurement.

### Knowledge and Skills Statement

**(4.12) Measurement:** The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).

### Student Expectation

**(B)** The student is expected to use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time.

## ACTIVITY

### Tug-of-War Time

### Materials

For each pair of students:

- Tug-of-War Time* game board
- Tug-of-War Time* elapsed time cards
- Tug-of-War Time* time conversion cards
- Tug-of-War Time* conversion chart
- Tokens (buttons, coins, etc.)—2

### Procedure

Before play, students review time conversions on the *Tug-of-War Time* conversion chart. Ensure students are familiar with all the conversions on the chart. If necessary, introduce techniques for remembering the conversions, such as drawings, songs, or mnemonics.

Divide the class into pairs, and distribute materials. Players shuffle the *Tug-of-War Time* elapsed time cards and place them faceup in a stack. They place the *Tug-of-War Time* game board between themselves and place their tokens on the appropriate spaces of the game board.

Player A draws the top elapsed time card and reads it aloud. Using scratch paper if necessary, Player A calculates the answer to the question and says the answer aloud. Player B then checks Player A's answer against the answer on the back of the card. If Player A has answered the question correctly, (s)he moves his or her token one space away from the center line (i.e., to the left) and Player B moves his or her token one space toward the center line (i.e., to the left). If Player A has answered incorrectly, (s)he moves his or her token one space closer to the center line (i.e., to the right) and Player B moves his or her token one space further from the center line (i.e., to the right). In either case, the card is set aside in a discard



pile. It is then Player B's turn to draw an elapsed time card and answer the question on it. If Player B answers correctly, (s)he moves his or her token one space away from the center line, and Player A moves his or her token one space closer to it. If (s)he answers incorrectly, (s)he moves it one space closer to the center line, and Player A moves his or her token one space away from it.

Play continues in this manner with players taking turns answering cards and attempting to "pull" their opponent over the center line. When a player reaches the end of his or her part of the rope and pulls his or her opponent across the center line, the player wins. If all cards have been used and no one has crossed the center line, the game is declared a tie.

Repeat the activity using the *Tug-of-War Time* time conversion cards instead of the elapsed time cards.

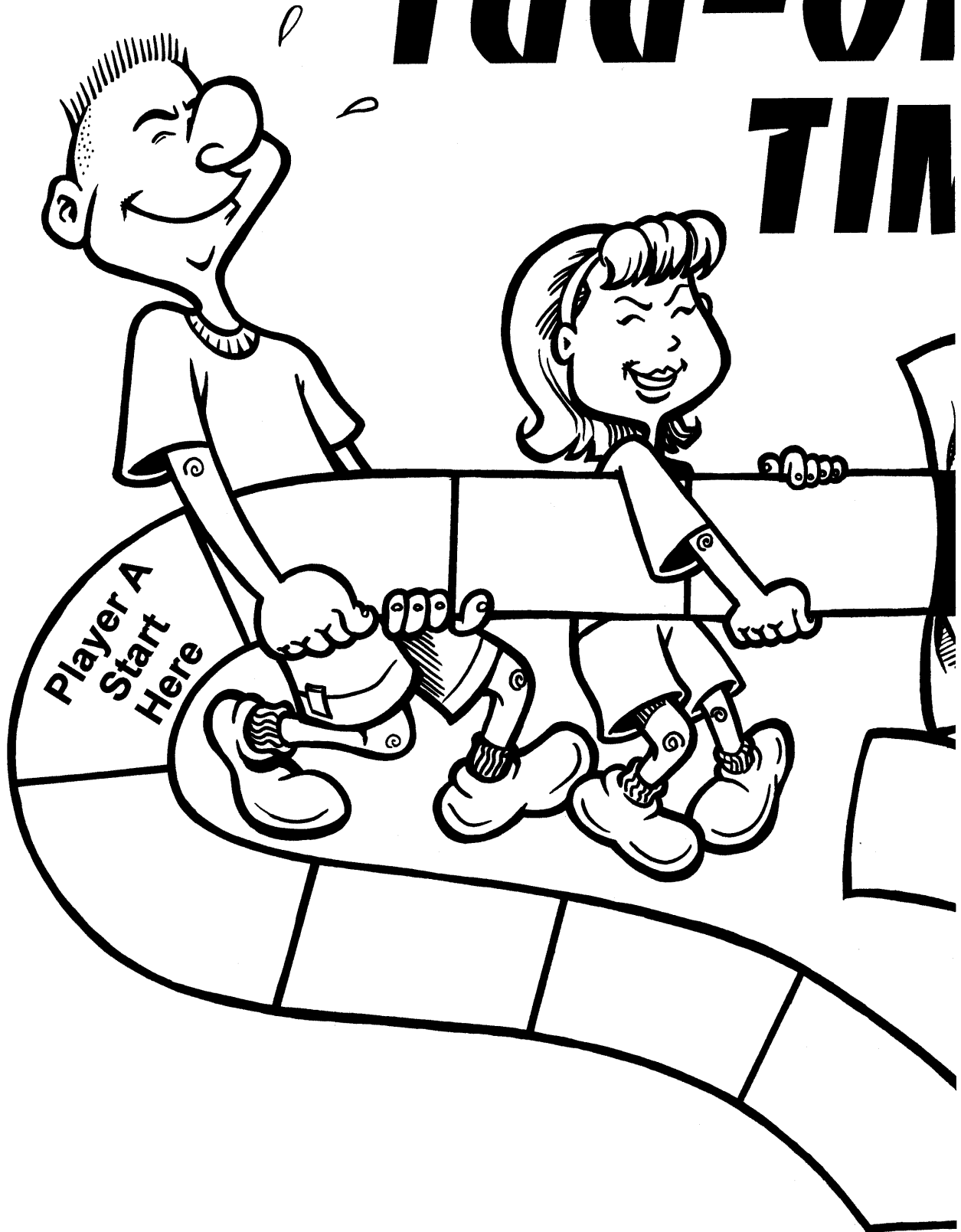
### **Enrichment**

For three consecutive days, students record the elapsed time during one of their routine activities. Students should record the elapsed time in two units. For example, students record the time it takes to brush their teeth in minutes and seconds or the time it takes to complete their homework in hours and minutes.

After the third day, students bring their data to class. Students calculate the total elapsed time they spent in these activities over the past three days. Students then exchange their data with a partner. Each student calculates the elapsed time his or her partner spent on his or her activity. As a class, discuss each student's data and total elapsed time.



# TUG-OF-WAR TIM



# F-WAR WE



**Tug-of-War Time**  
(elapsed time cards - 1st 6 of 50 cards)

**ELAPSED TIME CARD**

Eddie expects to finish his homework by 5:00 p.m. He starts at 3:30 p.m. and works on his math homework for 45 minutes. His only other homework is science, and he finishes that in 25 minutes. What time does Eddie finish his homework?



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**ELAPSED TIME CARD**

Sally, Jesse, and Rafael watched 3 Marx Brothers movies back to back in 2 hours 40 minutes. The first movie was 55 minutes long, and the second movie was 58 minutes long. How long was the third movie?



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**ELAPSED TIME CARD**

Tina and Francesca each ran 2 laps around the track. Tina ran her first lap in 1 minute 8 seconds. She ran her second lap in 1 minute 15 seconds. Francesca ran her first lap in 1 minute 17 seconds. She ran her second lap in 1 minute 14 seconds. How much longer did it take Francesca to run both laps than it took Tina to run both laps?



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**ELAPSED TIME CARD**

Mrs. Lopat told her daughter Rae that she had to limit her time talking on the telephone to 1 hour each day. So far today Rae has talked to Fay for 22 minutes and to Renee for 17 minutes. She still wants to talk to Kay. How many minutes does she have left to talk on the phone today?



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**ELAPSED TIME CARD**

Sid has a recordable DVD onto which he can record up to 6 hours of video. He has already recorded 2 movies. The first movie is 1 hour 57 minutes long, and the second movie is 2 hours 3 minutes long. How much more recording time does Sid have on his DVD?



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**ELAPSED TIME CARD**

Felipe spends 1 hour 20 minutes playing games at the Gamemaster Arcade. He plays 3 different games. Felipe plays Maze Daze for 27 minutes and Dogzilla for 45 minutes. How much time does he spend playing the third game, Tinkertown?



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## Developmental Series Sample

2008 Edition

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(Questions 1-2 of 6)

1 Wendy's dad told her she had 1 hour 10 minutes to choose 5 books from the library. Wendy spent 25 minutes choosing the first 2 books. She spent 37 minutes choosing the next 2 books. How much time does Wendy have to choose her last book?

- A 18 minutes
- B 33 minutes
- C 8 minutes
- D 45 minutes

2 Lyle started doing yard work at 3:48 p.m. It took him 28 minutes to rake the leaves. It took him 45 minutes to mow the lawn. It took him 12 minutes to sweep the sidewalk. After this, he was done with his yard work. What time did Lyle finish?

- A 5:13 p.m.
- B 5:01 p.m.
- C 4:45 p.m.
- D 5:23 p.m.

