

# Move Hands

Grade 3

Intervals of Time

5 levels

## Probing Questions

- What does the white hand show?
- How do you know how many hours/minutes have passed?
- How are you counting elapsed time?

## Supporting Struggling Students

In Level 5, students must find both elapsed hours and minutes. Ask students to count hours first and then minutes. Then ask students to try solving by counting the minutes first and then the hours. Evaluate which is the most effective strategy. Does that change depending on the puzzle? Allow students to use a demonstration clock where the hour hand moves with the minute hand.

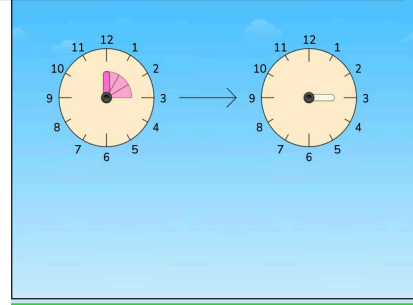
## What Strategies Are Being Used?

Project a puzzle from level 5 and ask students to share how they are finding the elapsed time. The first two puzzles always start from 12:00 which is easier to calculate. Let students apply each other's strategies to additional puzzles. Using two demonstration clocks may help.

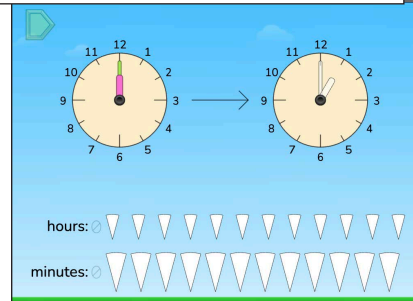


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The white hand shows the number of hours from the pink hand to the white hand.



Level 5 is challenging. Demonstration clocks will be helpful.



Intervals of Time - 1



# Clock Monster Set Time

Grade 3

Intervals of Time

5 levels

## Probing Questions

- How do you know where to put the hands?
- What question is this puzzle asking?
- What do the blue circles and partial circles mean?

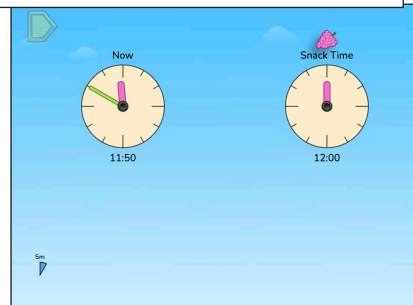
## Classroom Connection

Have students create word problems that match the puzzles. As extensions students might change the context of the problem or sort puzzles into easy, medium, and challenging. Be sure to have students explain what makes problems more challenging.

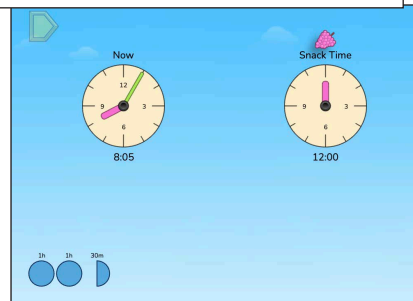
## What Strategies Are Being Used?

Ask students to explain how they are figuring it out. Students may solve it visually, using counting strategies, or addition. Encourage students to try out other students' strategies. A demonstration clock may help students prove their solutions.

Time is shown both digitally and on the analog clocks.



Starting times and elapsed times become more challenging as the levels progress.



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Intervals of Time - 2



# Clock Monster

Grade 3

Intervals of Time

4 levels

## Probing Questions

- How do you figure out how much time has passed?
- What is this puzzle asking?
- What do you count first?

## The Bigger Picture

In the previous game the end time was unknown. In this game, the elapsed time is unknown.

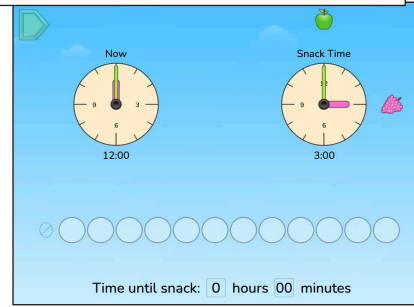
## Classroom Connection

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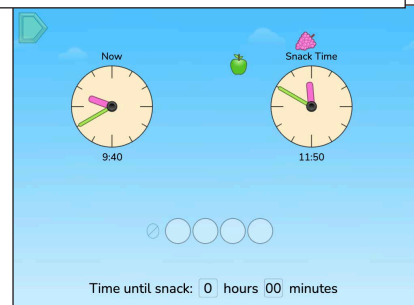
STMath.

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Time is shown both digitally and on the analog clocks.



Starting times and elapsed times become more challenging as the levels progress.



Intervals of Time - 3



# Clock Monster LI

Grade 3

Intervals of Time

2 levels

## Probing Questions

- What do you know?
- How would you represent that on a clock?
- How are you figuring it out?
- How can you use this clock to show me how you counted?

## Stop the Animation Using the Scrub Bar

The animation clearly translates each part of the word problem into the visuals from the previous Clock Monster games. Pause at each step and ask students to explain what the animation is showing. Be sure to have students share their solution strategies.

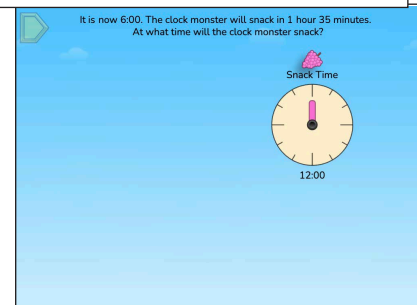
## What's Important Here?

The puzzles in this game are word problems similar to what students may see in a textbook. Watch how the animation illustrates the words using visuals the students are familiar with. Equally important are the strategies that students are using to solve the puzzles.

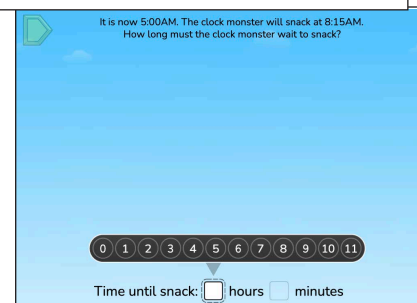
STMath.

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In Level 1, students must find the ending time.



In Level 2, students must find the elapsed time with no reference clock.



Intervals of Time - 4



# Time Unroll

Grade 3

Intervals of Time

3 levels

## Probing Questions

- What do the purple rings represent?
- What do each of the tick marks mean?
- How do you decide how far to open the timeline?
- How are you adding the two clocks together?

## What do the Standards Say?

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

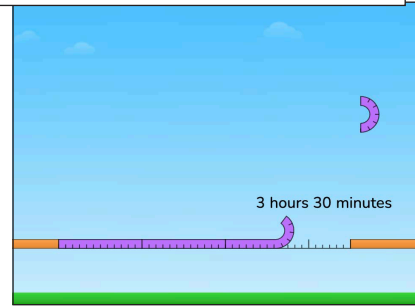
## Supporting Struggling Students

Ask students to describe how they are counting. Students may count tick marks instead of the intervals or struggle combining amounts. Use the scrub bar to slow down the animation and see how the clocks unroll onto the number line.

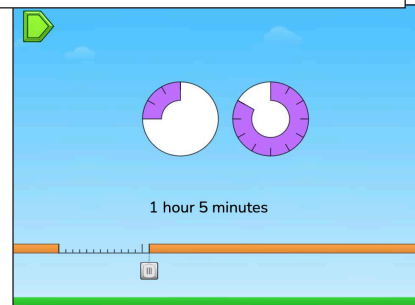
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This game translates elapsed time into a linear representation on a number line.



The degree of precision and intervals to be combined increase in difficulty.



Intervals of Time - 5



# Time Unroll with Clocks

Grade 3

Intervals of Time

5 levels

## Probing Questions

- How do you know which clock to choose?
- How is this similar to the Time Unroll game?
- What do the purple rings represent?
- How do you figure out how much total time has elapsed?

## What's Important Here?

This game helps students develop a method for visualizing elapsed time problems presented numerically. Project a puzzle and ask students to walk through each step shown.

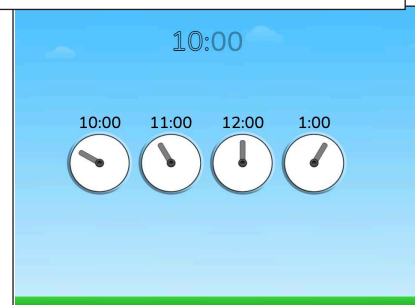
## Classroom Connection

Ask students to create real world problems for puzzles, creating a context and setting. Have students share solution strategies using visual representations.

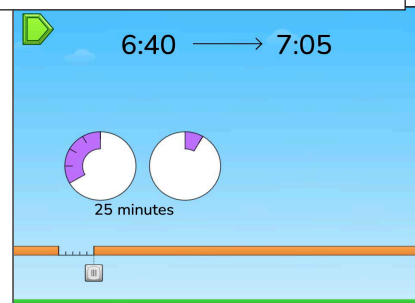
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Level 1 introduces how to show time using the clocks.



These are multi-step puzzles that combine clocks, elapsed time, and the number line.



Intervals of Time - 6



# Clock Monster Timeline

Grade 3

Intervals of Time

4 levels

## Probing Questions

- What do you have to choose here?
- What do the blue clock pieces by the timeline mean?
- How do you know where to place the hour/minute hand?
- How do you find how much time has elapsed?

## Stop the Animation Using the Scrub Bar

The strategy encourages students to first find how many minutes it takes to the top of the hour, then how much additional time has elapsed. Note how the visuals support this strategy as the puzzles increase in complexity.

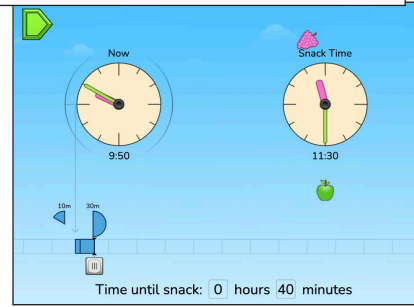
## Supporting Struggling Students

When moving into levels 3 and 4, ask students to connect the analog clock, the blue clocks and timeline, and the elapsed time shown numerically.

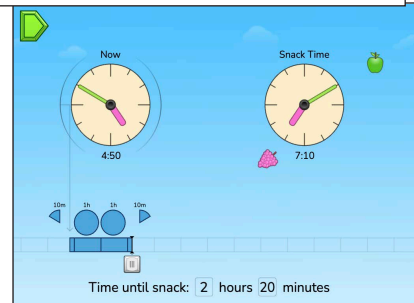


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In Levels 1 and 2 the end time is unknown; in Levels 3 and 4 it is the elapsed time.



In Levels 3 & 4, students move the blue bar rather than the clock hands.



Intervals of Time - 7



# Clock Monster Timeline 2

Grade 3

Intervals of Time

3 levels

## Probing Questions

- How do you know you need to subtract and not add?

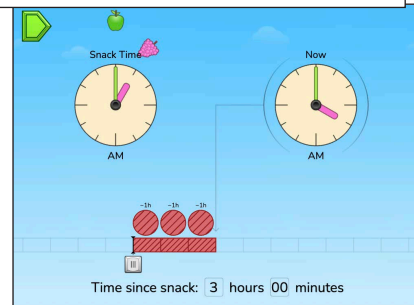
## Helping Struggling Students

Have students try a solution then use the scrub bar to slow the animation. Discuss how the time they selected on the line relates to the clock time.

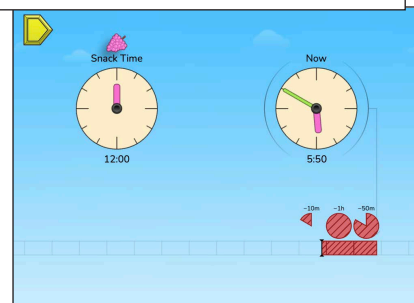
## What Strategies Are Being Used?

Students notice each rectangle at the bottom represents one hour. Minutes partition the rectangle. Discuss how much of the rectangle is filled for 10 minutes.

The time now may be after snack time so time needs to be subtracted.



In level 3 the time now and the elapsed time are given. Select the snack time.



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Intervals of Time - 8