Time of Your Life
Grades 3-5

The Big Idea
Today you're going to explore time in different increments by lining up in birth month order and by turning yourselves into the hands of an analog clock!

Supplies
In your kit:
- ★ Clock numbers: 2 packets
- ★ Masking tape

You provide:
- ★ Marker
- ★ Paper: 1 sheet per kid, plus 2-4 extra for "Hour Hand" and "Minute Hand" signs
- ★ Pencil: 1 per kid
- ★ Stopwatch or cell phone with a stopwatch function
- ★ Writing surface: whiteboard or large sheet of paper

Key Prep:
- ★ If you have a large club, play on 2 clocks. Otherwise, you can set up only 1 clock. See page 3 for details.
- ★ Make 1 paper sign that reads "Hour Hand" and 1 that reads "Minute Hand." Make a 2nd set if you're playing with 2 clocks.

Room Set-up
- ★ You'll need an open floor space, about 10 x 10 feet, to lay out the clock face. If space allows or if you don't have a volunteer helper, set up the Clock Numbers ahead of time as described below in All Hands on Deck.

What's the Math?
- ★ Measuring elapsed time
- ★ Telling time on an analog clock
- ★ Understanding units of time

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Kickoff

"How do we measure time? What do we call big amounts of time?" **Discuss**. Answers can include a year, decade (10 years), century (100 years), or millennium (1,000 years). "What do we call the tiny amounts?" **Discuss**. Answers can include hours, minutes, seconds. "What tools do we use to keep track of time?" **Discuss**. Answers can include calendars, clocks, etc. "Let's see how well we can guess the time!"

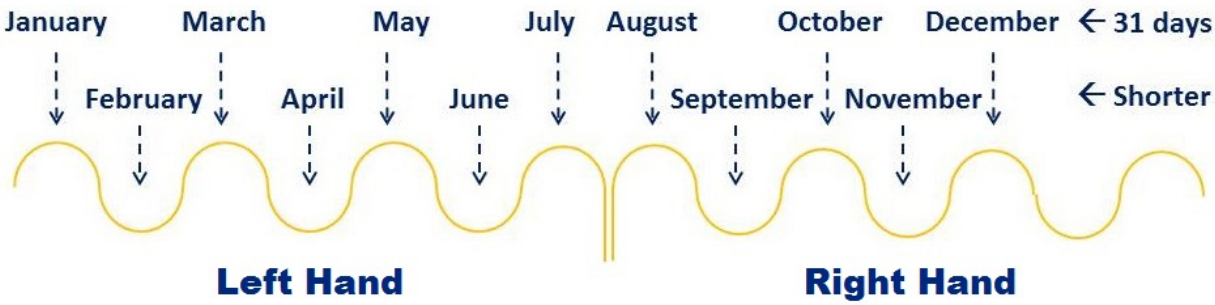
Birthday Bar Chart (10-15 minutes)

"Months are about 4 weeks long and divide the year into 12 parts. What's the order of months in a calendar?" **Discuss**. "If we look at all our birthdays, which month do you think will have the most birthdays?" **Discuss**. Take guesses!

1. Have everyone separate into groups based on their birth month.
2. Tell kids they'll be forming a human bar chart. Each month will get its own line or "bar" of kids, and months with more kids will have longer bars. →

3. Use 12 pieces of masking tape on the floor to indicate the months. Show kids where the month's bars should start.
4. When everyone is lined up, see which bar is longest – that's the most common birth month for your club!
5. See how quickly the kids can line up in date order within each month (with the first of the month at the front).

? "Which 2 kids have the birthdays closest to each other's?" Use this **Party Fun Fact** to help figure out which months have 30 vs. 31 days: The Knuckle Rule! Make 2 fists and put then next to each other with thumbs touching, knuckles facing up. Name the months starting with January on the leftmost knuckle. All knuckle bumps are the 31-day months, and the dips in between have 30 days (or 28 for February)!



All Hands on Deck (15-20 minutes)

"How can we use a clock to tell time?" **Discuss**. Explain to kids that before there were digital clocks, there were analog clocks.

1. Review briefly how the short and long hands of an analog clock work:
   - ★ "The short 'hour' hand takes an hour to advance from one number to the next number - for instance, from 1 to 2."
   - ★ "The long 'minute' hand takes 5 minutes to advance from one number to the next number, and it takes an hour to go around the clock once."
   - ★ "Each number on the clock represents the hour when reading the hour hand, and 5 minutes increments when reading the minute hand, so 1 is 5 minutes, 2 is 10 minutes, 3 is 15 minutes, etc..."
   - ★ "Today you're going to be the hands of a clock and race to show the time. You might find that counting by 5s can help!"
   - ? "Does anyone know how to read the clock when the hour hand is on 3 and the minute hand is on 12?" **Discuss.** Answer: 3:00
   - ? "And how do we read the clock when the hour hand points halfway between 3 and 4, and the minute hand is on 6?" **Discuss.** Answer: 3:30, or "half-past 3"
   - ? "What if both the hour and the minute hand are on the 1? **Discuss.** Answer: 1:05, or "five past 1"

MAKE THE CLOCK

1. Let the kids help you tape the Clock Number printouts to the floor in a 10-foot circle like a giant clock. If you have space, lay out a second identical clock next to it.
2. Mark the center of the clock(s) with a masking tape X.

CLUBS WITH 2 CLOCKS

1. Divide kids into 2 teams. Each team lines up behind a clock.
2. The first 2 players on each team decide who will be the hour hand and the minute hand. Give them the "Hour Hand" or "Minute Hand" labels.
3. Now the race begins! Call out a whole-hour time: "6 o'clock!"
4. The 2 players from each team lie inside their clocks as the "hands," each pointing to the correct number. The minute-hand kids extend their arms to be longer than the hour hands.
5. The first team to position themselves correctly scores a point! Record on a blackboard, white board or sheet of paper.
6. Repeat with the next pair of contestants from each team. Assign their roles right before they go, otherwise they might forget.
7. Call out times ending in 0 or 5 for the contestants to make.
8. Times to avoid for overcrowding: 12:00, 1:05, 2:10, 3:15, 4:20, 5:25, 6:30, 7:35, 8:40, 9:45, 10:50 and 11:55.
9. When everyone has gone at least once, see which team won or which pair was the fastest!

CLUBS WITH 1 CLOCK

Follow steps 1-9 above, except when you call out a time, start your stopwatch and hit stop when the players make the correct time. Record each pair's time on the writing surface. The winning pair has the fastest time!

As Time Goes By (10-15 minutes)

"Now that we've got the basics figured out, let's see what our clock looks like when time elapses and the hands move!"

1. Give each pair of kids a time (e.g. 4:15, 3:55) and tell them to advance 15 minutes by figuring out the new time and rolling the hands to it. Both hands may need to roll!

If you have a coach helper, s/he can keep waiting kids occupied by doing these puzzles:

1. Start by giving each kid a pencil and piece of paper.
   - ? Digits in clock times can make patterns, like counting up by 1s (e.g. 1:23). How many clock times do that trick?
   - ? The digits can count up by something other than 1 – how about by 2s, like 1:35? How many clock times do that?
   - ? How many times with other equal jumps can you find?
   - ? What cool hour-minute pairs can you find?

2. After everyone's had a turn at doing the puzzles, **discuss**:
   - ★ Only 5 clock times count up by single digits: 1:23, 2:34, 3:45, 4:56, and 12:34. Why?
   - ★ Other than 1:35, the only other count-by-2s times are 2:46 and 3:57.
   - ★ Bigger jumps count by 3s (just 1:47 and 2:58), by 4s (just 1:59), then sets that count down by 1s, 2s, 3s, 4s and even 5s (10:50!).
   - ★ Cool pairs include doubling, like 4:08, 5:10 or squaring the hour, like 2:04, 3:09. Try to find the rest of these types and identify your own!

Wrap Up

"Time flies when you're having fun and doing math! And it wasn't too different from story problems in your math book where you add and subtract, or where you group items to make charts! We've been doing more than just lying on the floor – we've been learning to tell time on a clock, and to measure elapsed time, like you do in math class!"