

# Unit 13 Research



In a kindergarten classroom, many activities revolve around time. How long do we have before gym? When is snack? What day do we have music? Time is a difficult concept for young children to grasp. Introducing the concepts of clocks, seconds, minutes, and hours will help prepare them for future lessons of telling time. By participating in meaningful calendar activities, young children begin to understand that time is sequential. The sequences include yesterday, today, and tomorrow; morning, afternoon, and evening; the seasons; Sunday, Monday, Tuesday, and so on. Children also need to be able to conceptualize before and after, and think about future and past events, such as planning for the hundredth day of school or writing a class story about yesterday's field trip.<sup>(1)</sup> It is useful to occasionally time events such as "5 minutes until clean-up time," "Let's see if anyone can finish up before the 10 minute timer rings." Much of clock knowledge comes from everyday activities through informal experiences. Teachers can support these experiences by posting visual models of important times during the day that children can match to the real clock. Books can be read that include time concepts and time sequence.<sup>(2)</sup> In the Starfall Math Curriculum, children are provided blank calendars each month that they can fill with important dates (holidays, birthdays, etc.).

Linear representations help children begin to understand and conceptualize that a day is a unit of time and to talk about it with increasing clarity. For example, to count the number of days they have been in kindergarten, children can add a link to a paper chain each day, or number a pattern of colored Post-it notes and place them on the classroom number line, or add a connect cube to a stack of cubes. The teacher can emphasize time-linked vocabulary, such as before, after, later, earlier, as the children add the new link. Picture schedules illustrating the schedule of class activities are often used, or a poster with photos of the day's activities in sequence can be helpful to young children. Displaying documentation of shared class events, such as field trips or class science projects of planting beans or measuring the growth of a sweet potato vine, can lead to meaningful discussions

that involve time-linked vocabulary (first day, third day, last week, etc.).<sup>(3)</sup>

Kindergarten children should also be introduced to standard units of measure to compare temperatures and to learn how to use a thermometer to measure temperature.<sup>(4)</sup> They need to have experiences with hot, warm and cold things and hot, comfortable and cold weather. Children can examine thermometers and discuss their experiences with them (going to the doctor for a check-up, measuring outdoor and indoor air temperatures, controlling the thermostat on their furnaces and air conditioners, etc.). They can experiment with measuring the temperatures of the water after adding ice cubes and/or warm water to the water table or science center. Children can also record results as they continue to add ice or warm water. Teachers can place outdoor thermometers outside the classroom and have children record the temperature each day in the morning, noon, and end of the day.

(1) NCTM (National Council of Teachers of Mathematics). (2000). Principles and standards for school mathematics. Reston, VA

(2) McMillen, S., and Hernandez, B. (2008). Taking time to Understand Telling Time. *Teaching Children Mathematics*, 15 (4), 248 -255

(3) NAEYC & NCTM (National Council of Teachers of Mathematics). (2002). Early childhood mathematics: Promoting good beginnings. A joint position statement of NAEYC and NCTM. [www.naeyc.org/about/positions/mathematics.asp](http://www.naeyc.org/about/positions/mathematics.asp)

(4) Charlesworth, R. and Lind, K. (2013) *Math and Science for Young Children*. 7th ed, Wadsworth Publishing Company: Belmont, CA

# Unit 13 Frequently Asked Questions

## ***Why does the Starfall Math Program introduce time and temperature, since these are not included in the Common Core standards?***

The Common Core standards are just that, a core of standards, or a baseline. Every state and district is encouraged to add standards to the Common Core list in order to ensure a well-rounded curriculum. Since the concepts of time and temperature appear in many state standards, Starfall has chosen to include them in its effort to produce the best possible kindergarten math curriculum.