Lesson 1: How to Tell the Time and Date

Teach students the basics of telling time and recording dates in various formats.

by Jenny Parma; curriculum by Diane Petersen and Karen Dvornich

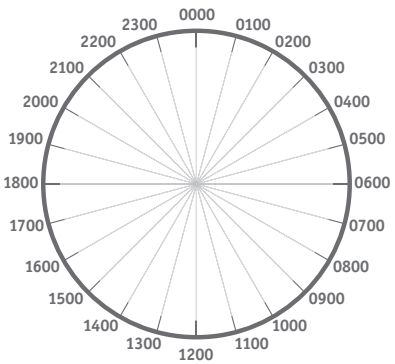
Scientists record times and dates to keep track of events, for organization, and to spot any patterns or relationships in data. Start molding your students into young scientists by teaching them the basics of telling time and formatting dates.

Before starting the lesson, give students some background about the NatureMapping (NM) program. Explain that they'll be studying various animal species, and they'll be completing the NM data-collection form in order to help create a biodiversity database used by scientists and the general population. Also, hand out field journals in the beginning, which students will use to record their observations throughout the project.

Telling Time

Pre-Lesson Preparation: Make copies of a clock that you've separated into twenty-four hour segments on 11- by 14-inch paper. (See the image below.)
In this part of the lesson, you will teach students the difference between analog and digital time and show them how to tell time in standard and military notation.

1. Explain the difference between analog and digital time using different watches or clocks as examples.
2. Explain military time and standard-to-military time conversions.
   - » Military time operates around a twenty-four-hour clock that starts at 12 A.M. (0000) and goes to 11 P.M. (2300). It does not have notations for A.M. and P.M.
   - » Times are presented in four-number increments -- the hour followed by the minute.
   - » To complete the format, add twelve to times from 1 P.M. to 11 P.M., and add zeroes when needed to complete the four-number format. For example, 1 P.M. is 1300 and 6 P.M. is 1800.



3. Ask students to speculate why military time is universal across the globe and to share strategies for converting from military time to standard time, or vice versa.
4. Ask students to use these newly learned strategies to convert–from standard notation to military notation–different times that you say out loud.

Support for coverage of learning beyond the classroom is provided in part by the Charles Stewart Mott Foundation.

LESSON OBJECTIVES AND MATERIALS

OBJECTIVES

- » Understand the difference between digital and analog clocks
- » Learn how to tell time in standard and military notation
- » Understand different date formats, including the NM standard of MM/DD/YYYY

MATERIALS

- » NM data-collection form
- » 11- by 14-inch paper
- » Analog and digital clocks or watches
- » Pens and pencils
- » Calendars
- » Field journals (bound scientific notebooks)
- » Live specimens, such as a caterpillar or gerbil

Telling Time (continued)

5. Distribute copies of the clock. (See image next page.) The clock should include three concentric circles. In each circle, ask students to write the time in military or standard notation and to sketch and express activities they typically perform at that time of day.
6. Distribute copies of the NM data-collection form (if students don't already have it), and show students where to enter time on the form.
7. Use live specimens to help explain the concept of elapsed time. For example, ask students to track the time for a butterfly's chrysalis to develop or for a chicken's eggs to hatch. If live specimens aren't available, visit virtual-pet Web sites.

COMMON TERMS

- **Analog:** Continuous time. An analog clock tells time by moving hands on a clock face from hours 1 to 12.
- **Digital:** Specific time. A digital clock represents finite time (every tenth of a second, for example) via numbers instead of clock hands.
- **Military time:** A method of time keeping through a 24-hour clock, in which the day runs from midnight to midnight and is divided into 24 hours.
- **Standard time:** A method of time keeping through a 12-hour clock, based on the official local time of a region or country.

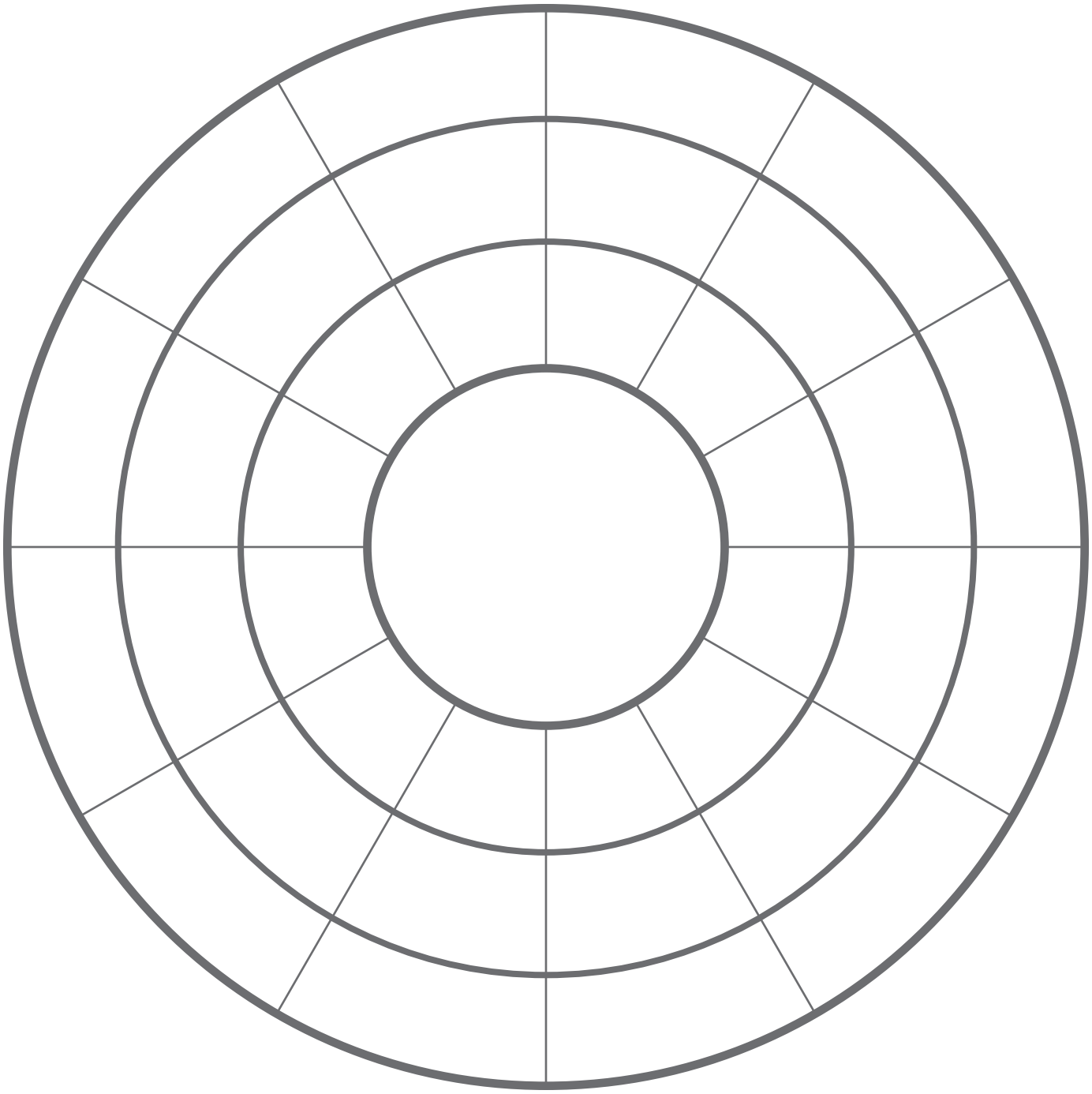
Recording a Date

The International Organization for Standardization (ISO 8601) says that the correct calendar date format is written as YYYY-MM-DD. However, date formats vary by organization and individual preferences. Here, you will teach students the many different ways they can write a date, including the format used by NM.

1. Ask students to write today's date on the chalkboard in all the different ways they can think of. Here's a non-exhaustive list to refer to when adding ideas to the students' list:
   - 8/29/2008
   - August-2008
   - Thursday, August 29, 2008
   - August 29, 2008
   - 8/29
   - 8/29/08 6:00 PM
   - 8/29/08
   - 8/29/08 18:00
   - 08/29/08
   - 29 Aug
   - 29-Aug-08
   - 29-Aug-2008
   - Aug-08
2. Explain the importance of consistency for writing dates, especially to scientists. Show and explain the NM format: MM/DD/YYYY.
3. Post a list of month names and numbers for students to reference or to copy in their field journals. (January is 1, February is 2, and so on.)

Support for coverage of learning beyond the classroom is provided in part by the Charles Stewart Mott Foundation.

Clock Handout



Support for coverage of learning beyond the classroom is provided in part by the Charles Stewart Mott Foundation.

Project Application: Introduction to Orthography

4. Ask students to practice writing dates and memorizing months in the correct format. Here are some ideas to try:
   - » Dictate different dates and have students write them down in the correct format. Use whiteboards to pinpoint common mistakes quickly.
   - » Ask students to circle the correct date from a list.
   - » Have students orate names of the month in the correct order.
   - » Use dates that remain constant in your examples, such as Christmas and Independence Day.
   - » Tie in dates from other subjects, such as history, as practice examples.
   - » Show students how to select and format dates in a software program, such as Microsoft Excel.
   - » Ask students to practice using a calendar daily, inputting dates and times for assignments and events.

CUSTOMIZATION TIP

Is the lesson too advanced for your students? Here are some ways to customize the lesson for younger kids:

- » **Grades K-2:** Ask students to record time by adding clock hands to a figure of a clock face.
- » **Grades 3-5:** Ask students to record digital time on a clock they draw.

Practical and Assessment

Practical

Test your student's ability to record times and dates. Read dates and times out loud and ask students to format them appropriately—in both NM format and in military units.

Student Assessment

How'd your students do? Here are some ways to assess your student's ability, reflective of grade level. Assess students by point scale or qualitatively.

EXCEEDS STANDARD

- » **Student was able to record the time and date accurately when recited ten out of ten times.**

MEETS STANDARD

- » Student was able to record the time and date accurately when recited nine out of ten times.

BELOW STANDARD

- » Student was able to record the time and date accurately when recited eight times or fewer out of ten times; student needs more practice.

Links to Related NatureMapping Activities

If you enjoyed this lesson, check out these links to additional NatureMapping materials.

Everything Is Connected: An activity that demonstrates the interdependence of living creatures to each other and their environment:
depts.washington.edu/natmap/education/protocols/1_connected.html

KEY POINTS

Start generating student interest in biodiversity by providing an example of hour-by-hour and seasonal activities of an animal.

Support for coverage of learning beyond the classroom is provided in part by the Charles Stewart Mott Foundation.