

Sun Shadow Cycle

Track one place through a day.

5.9 "Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes..."

NAME _____

DATE _____

1 LABEL THE MODEL _____ Word bank below

Use the word bank. Write one process in each numbered blank box to show how one stage changes into the next.

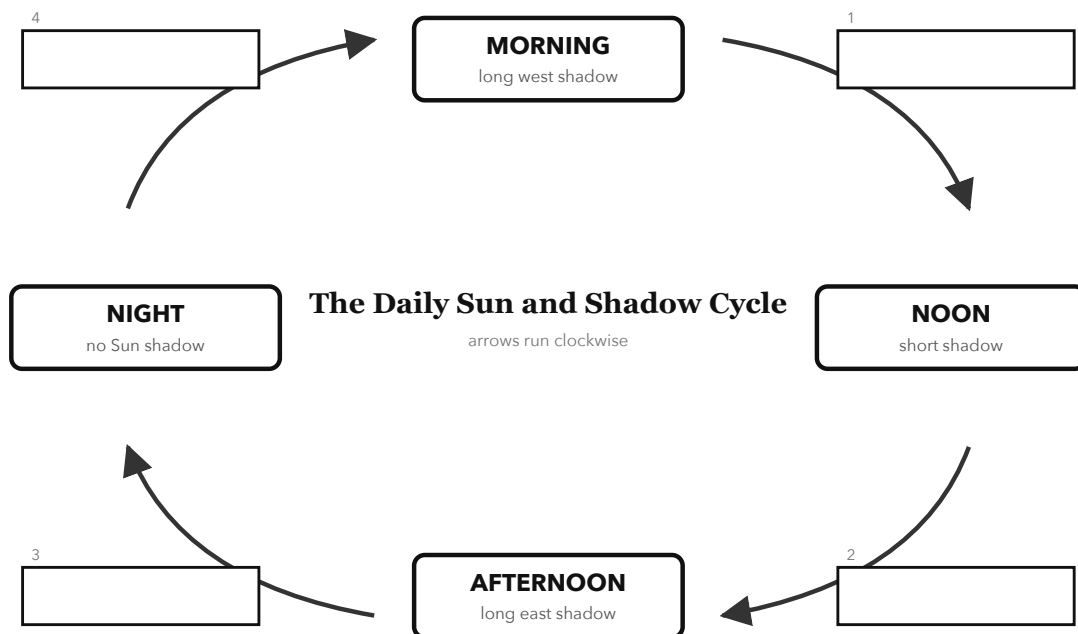
WORD BANK

Earth turns, shadow lengthens

Earth turns, shadow shortens

Earth turns, Sun rises

Earth turns, Sun sets



2 RUN THE MODEL _____ Use your finished diagram

1 About how long does one full trip around this model represent?

2 What happens to the shadow from MORNING to NOON?

3 Why does the NIGHT stage have no Sun shadow?

3 CHECK IT _____ Before you turn it in

☐ I can trace the cycle in order.

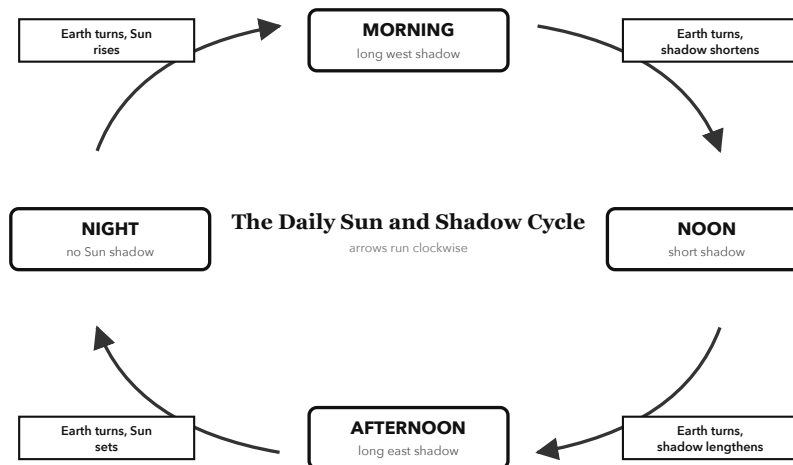
☐ I can explain that Earth turns on its axis.

☐ I can describe how shadows change during the day.

TEST THE MODEL

What is one real-world factor that could change the shadows but is not shown in this model?

PART 1 • COMPLETED MODEL



PART 2 • RUN THE MODEL

1. **About 24 hours, or one Earth rotation.** (About how long does one full trip around this model represent?)
2. **It becomes shorter.** (What happens to the shadow from MORNING to NOON?)
3. **Earth's rotation turns the location away from the Sun, so sunlight cannot make a shadow.** (Why does the NIGHT stage have no Sun shadow?)

TEST THE MODEL (SAMPLE ANSWERS)

- It leaves out how the season and location change shadow length.
- It does not show clouds that can block sunlight.

This model follows observations at one location during one daily Earth rotation. Accept "rotates" for "turns" and equivalent descriptions of the Sun's apparent movement.