

# Shadow Clock Cycle

Graph a day of shadow changes.

**5-ESS1-2** "Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## 1 LABEL THE MODEL \_\_\_\_\_ Word bank below

At a midlatitude Northern Hemisphere location, read the time, shadow length, and shadow direction at each stage. Write one word-bank process in each numbered box to show the daily pattern.

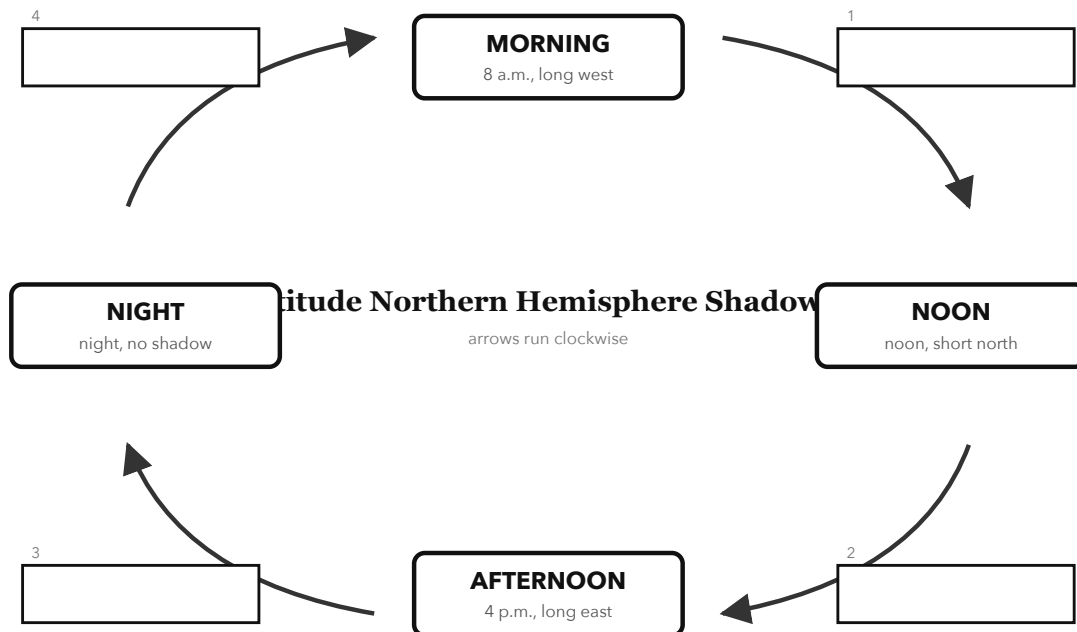
### WORD BANK

Earth turns, Sun rises

Earth turns, Sun seems higher

Earth turns, Sun seems lower

Earth turns, Sun sets



## 2 RUN THE MODEL Use your finished diagram

1 Which numbered arrow shows a short shadow changing into a long shadow that points east?

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2 How does the shadow direction change from MORNING to AFTERNOON?

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3 What stage comes after NIGHT in the repeating daily pattern?

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## 3 CHECK IT Before you turn it in

☐ I used each word-bank process once.

☐ I checked each arrow direction.

☐ I used the shadow data in the stages.

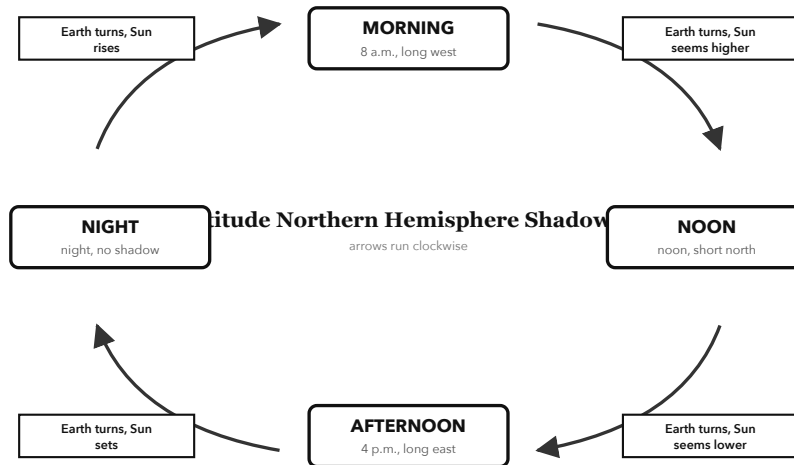
### TEST THE MODEL

What real-world detail about shadows does this model leave out?

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## PART 1 • COMPLETED MODEL



## PART 2 • RUN THE MODEL

1. **Arrow 2, from NOON to AFTERNOON.** (Which numbered arrow shows a short shadow changing into a long shadow that points east?)
2. **It changes from west to east.** (How does the shadow direction change from MORNING to AFTERNOON?)
3. **MORNING, with a long shadow pointing west.** (What stage comes after NIGHT in the repeating daily pattern?)

## TEST THE MODEL (SAMPLE ANSWERS)

- It leaves out how clouds can make a shadow faint or impossible to see.
- It leaves out exact shadow lengths at different places and times of year.

Place the processes in order as listed, starting with arrow 1 after MORNING. This model uses typical midlatitude Northern Hemisphere shadow directions, so local observations may differ by location and time of year.