

Moon Phase Loop

Track the Moon's repeating changes.

4.9 "Earth and space. The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to: collect and analyze data to identify sequences and predict patterns of change in seasons such as change..."

NAME _____

DATE _____

1 LABEL THE MODEL _____ Word bank below

Use the four reference pictures to recognize appearances. Complete the cycle word bank, then collect your own four dated observations on the journal page. The pictures are models, not observation data.

WORD BANK

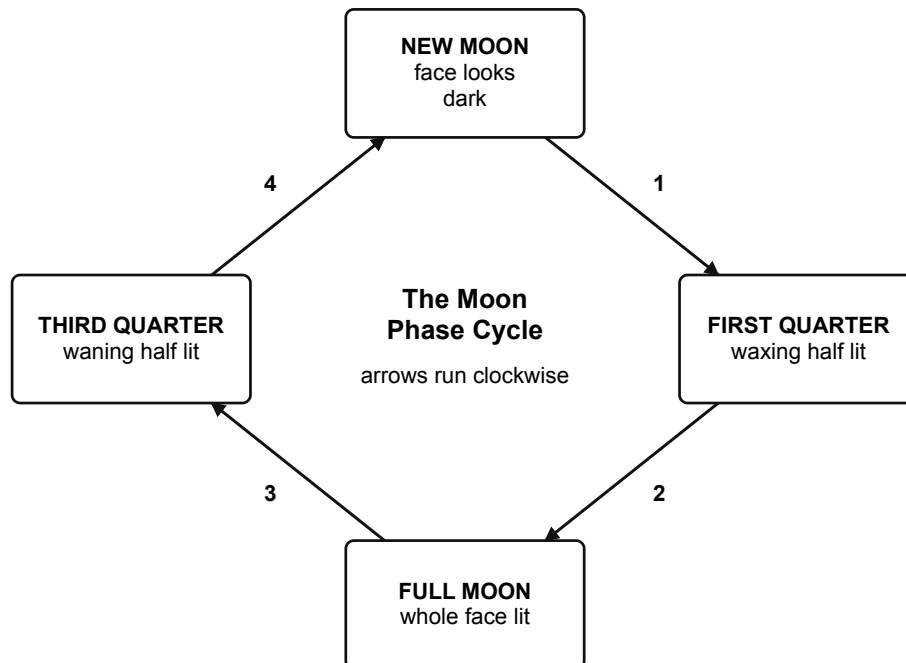
Last orbit quarter to new moon

Moon travels first 1/4 orbit

Moon travels second 1/4 orbit

Moon travels third 1/4 orbit

Arrow numbers match the response boxes on the next student section.



Label the arrows

Use the word bank to write the process for each numbered arrow.

Arrow 1

Arrow 2

Arrow 3

Arrow 4

2 RUN THE MODEL --- Use your finished diagram

- 1 On four dates about a week apart, use the journal page to record the date, time, a Moon sketch, and the closest model stage. If the Moon is not visible, record that instead.

- 2 If you observe a FIRST QUARTER moon, which stage should you predict about a week later?

- 3 Start at FULL MOON and follow two arrows in the completed model. Which stage do you reach?

3 CHECK IT Before you turn it in

☐ I wrote a process in each box.

☐ I followed the arrows in order.

☐ I recorded Moon observations.

TEST THE MODEL

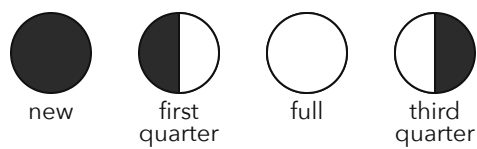
What is one part of the real Moon system that this four-stage model leaves out?

My Moon Observation Journal

NAME _____ DATE _____

Choose a safe viewing place with an adult. Never look directly at the Sun. Record four dates about a week apart.

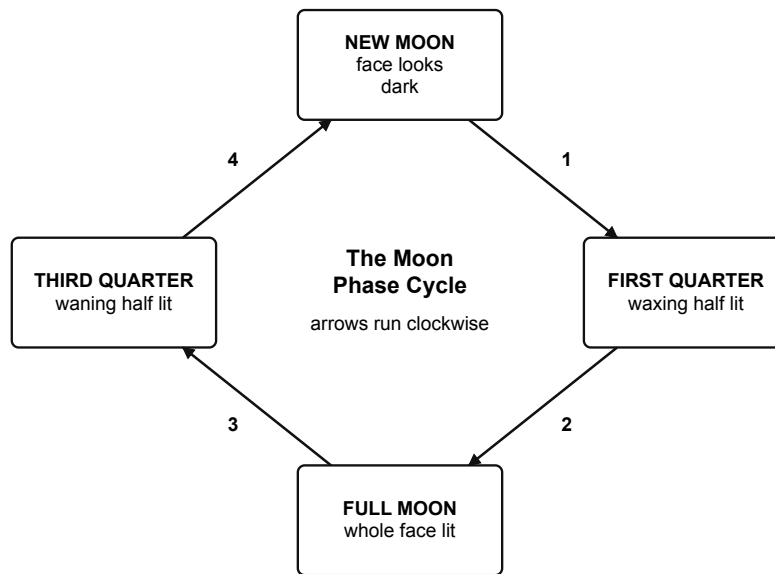
For each date, record the time, draw what you actually see and name the closest reference phase. If not visible, record not visible and any known reason; do not invent a sketch.



Date and time	Actual Moon sketch / not visible	Closest phase / reason

Compare two visible observations. Describe what changed and predict the appearance about a week after your final visible record. Explain using your evidence.

PART 1 • COMPLETED MODEL

**Arrow 1**

Moon travels first 1/4 orbit

Arrow 2

Moon travels second 1/4 orbit

Arrow 3

Moon travels third 1/4 orbit

Arrow 4

Last orbit quarter to new moon

PART 2 • RUN THE MODEL

1. **Answers vary. Each record includes a date, time, and a sketch with closest stage, or a note that the Moon was not visible.** (On four dates about a week apart, use the journal page to record the date, time, a Moon sketch, and the closest model stage. If the Moon is not visible, record that instead.)
2. **FULL MOON** (If you observe a FIRST QUARTER moon, which stage should you predict about a week later?)
3. **NEW MOON** (Start at FULL MOON and follow two arrows in the completed model. Which stage do you reach?)

TEST THE MODEL (SAMPLE ANSWERS)

- It leaves out the smaller phase changes between the four stages.
- It leaves out how clouds can block a view of the Moon.

The model shows four main Moon appearances in repeating order. Accept observation sketches and stage names that reasonably match the student's date and time records. Accept honest not-visible records without a sketch or stage; do not require students to invent observations. Synthetic reference pictures use the Northern Hemisphere upright convention; orientation can vary. Do not replace actual observation records with these pictures. Keep honest not-visible notes. This worksheet addresses Moon patterns, not the seasons portion of the umbrella standard.