

## MOON JOURNAL

### Performance Standard 12F/11A/13A/13B

Students will apply scientific inquiries to describe the main bodies in the Solar System by observing and documenting the phases of the moon.

- *Knowledge:* Recognize the phases of the moon.
- *Application:* Record different moon phases, observational anecdotes and stories.
- *Communication:* Match scientific research to images and observations.

### **Procedures:**

1. ***In order to understand the concepts that explain the structure and the Earth's place in it (12F) and concepts, principles and processes of scientific inquiry (11A) and apply the accepted practices of science (13A),*** students should experience sufficient learning opportunities to develop the following:

- Recognize each phase of the Moon.
- Identify the Moon's orbit.
- Recognize the Moon's relationship to the Earth and Sun.
- Communicate their results.
- Apply appropriate principles of safety.

Note to teacher: this activity relates to the knowledge associated with standard 12F, while addressing the performance descriptors for stage B within standard 11A or B. Applying scientific habits of mind noted in standard 13 are foundational to these activities. Using various technologies to estimate, measure and record data address some performance descriptors in 13B.

2. Have student's review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Begin guided inquiry by having students ask questions about the moon-how it looks, how it changes, when they see it, why it seems to change, where they find it, what tools and instruments they can use to observe it. Guide students toward answering their questions using applicable scientific vocabulary terms and resources. Initially, as a group, the teacher and students could observe that the moon changes throughout the month. They could start investigation with daytime moon observations. Establish moon observations- over the course of one to three months. Record and compare the findings during and at the conclusion of the observation period.
4. Continue the guided inquiry by comparing observations throughout the observation period and have students predict what they might see, using it as an observational focus. Students should be documenting their observations in a "Moon Journal", using appropriate technological tools and instruments to collect and report their data. Teacher can share fiction and non-fiction books and stories about the phases of the Moon.
5. Evaluate each student's work with the Observational Science Rubric as follows and add the scores to determine the performance levels:
  - *Knowledge:* The student's drawing of the Moon was labeled correctly.
  - *Application:* Observations were compared and documented. Observations were complete and correct.
  - *Communication:* The student described the time, location of observer, location of the moon and phase correctly. The student noted correlated scientific fact about each observation.

## **Examples of Student work not available**

### **Resources**

- Fiction and Non-Fiction reference and trade books
- Moon Phase Images or Photos
- Sample Journal pages from Galileo or other astronomer
- Journals
- Optional: binoculars, telescopes

### **Image Label to include:**

- Name of object: scientific and common.
- Date and time of observation: using correct scientific format.
- Statement of observational focus and the scientific objective for record.
- Equipment and materials used.
- If object is not visible: collect and use other resources to document: compare field research for this same date.

### **Entry Description to include:**

- Artistic Rendering, Photograph, CCD Image, etc.

### **Written Description to include:**

- Sensorial description: I saw...,
- Orientation (location of you and the object),
- Pattern: (phase, altitude, orbit...),
- Features,
- Daily rise/set times,
- Atmospheric conditions (clear, cloudy...), and
- Description of close objects and relation to chosen observation.

### **Background Information and Research**

- Folklore, myths, legends, stories, songs, poems and anecdotes: Ask what do we learn about our object from these stories?

### **Scientific Facts (observational focus): Find related data from:**

- Recent and past observational research of object,
- Develop a guiding question,
- Record findings, and
- Bibliography-cite web and print resources