

Moon Light Through the Month

Summary

Students will work in small groups to arrange moon phase cards into the correct sequence.

Group Size

Small Groups

Materials

- [Consecutive Numbers #1 handout - blue](#) (pdf)
- [Consecutive Numbers #2 handout - pink](#) (pdf)
- [Consecutive Numbers #3 handout - yellow](#) (pdf)

For each group:

- [Moon Phase Phrase Cards](#) (pdf)
Large chart paper or poster
- [Moon Phase Picture Cards](#) (pdf)
- [Moon Phase Cluster Word Cards](#) (pdf)
- [Cluster Word Answers](#) (pdf)

Colored markers

Tape

Instructional Text

Additional Resources

Books

- *More Universe at Your Fingertips*
(Project Astro), edited by Andrew Franknoi; ISBN 1-886733-98-8
- *Scholastic Encyclopedia of Space*
, by Jacqueline Mitton and Simeon Mitton; ISBN 0-590-59228-9
- *Science Dictionary of Space*
, by James Richardson (Troll Associates); ISBN 0-8167-2443-1
- *The Usborne Complete Book of Astronomy & Space*
, by Lisa Miles; ISBN 0746031041
- *Science Encyclopedia*
, (DK Publishing, Inc.); ISBN 0-7894-2190-9
- *Project Earth Science: Astronomy*
, by P. Sean Smith (National Science Teacher Association); ISBN 0-87355-108-7
- *The Moon Phases*
, by Gail Gibbons; ISBN 0-590-14905-9

Background for Teachers

Even though it has no light of its own, the moon is the brightest object in the evening sky because it reflects sunlight. As the moon revolves around Earth, the shape of the moon appears to change. This is caused because of the relative position of Earth, sun, and moon. The moon appears to change because different amounts of light illuminate the surface of the moon that faces us. This light we see changes from day to day as the moon orbits Earth, letting us see more or less of the moon's surface. Half of the moon's surface is always in the sunlight. We see the moon going through phases because of the varying positions of the sunlit side of the moon as it revolves around Earth. This sunlit face we see can range from a thin crescent to a full face. When the side of the moon facing us has no sunlight

on it, we cannot see it at all. We call this a *new moon*. The *lunar month*, which lasts 29.5 days, is measured from one new moon to the next.

Intended Learning Outcomes

1. Use Science Process and Thinking Skills
2. Manifest Scientific Attitudes and Interests
4. Communicate Effectively Using Science Language and Reasoning

Instructional Procedures

Invitation to Learn

Students work in cooperative groups in this activity.

The goal is to circle as many CONSECUTIVE numbers as possible in two minutes.

Rule: Students keep the paper turned over until you say "Go."

Each *Consecutive Numbers* handout has the numbers arranged in a different order, so it isn't a question of memorizing, it's a question of communication.

Test one

Each person is to complete his/her own sheet without talking.

Distribute *Consecutive Numbers #1* handout to each person.

Have each student write his/her name on the back.

Have students turn the paper over and begin circling the numbers in order.

After two minutes, say "Stop." Students write the last number they circled in the upper right hand corner.

Test two

Have students pair up. This time they may point to the numbers and work together, but they cannot talk.

Distribute *Consecutive Numbers #2* handout to each pair of students.

Have students put both names on the back.

Have students turn the paper over and begin circling the numbers in order.

After two minutes, say "Stop." Students write the last number they circled in the upper right hand corner.

Test three

Have students work with the same partners. This time they can talk.

Distribute *Consecutive Numbers #3* handout to each pair of students.

Have students put both names on the back.

Have students turn the paper over and begin circling the numbers in order.

After two minutes, say "Stop." Students write the last number they circled in the upper right hand corner.

Hold pair and table discussions:

Ask which test had the best results. Why?

Ask what observations they made and what conclusions they came to.

Reinforce that better results come with teamwork and group cooperation.

For the next several lessons we will be working in groups. It is important for us to learn to work together so that we get better results. Scientists use cooperation all the time.

Instructional Procedures

Distribute materials to each table or group of four to six students.

Have students arrange *Moon Phase Phrase Cards* in sequential order on chart paper.

Go around to each group and observe, taking notes on how they have arranged them.

Monitor the progress of each group until all groups have finished and they are satisfied with their charts.

Next, distribute *Moon Phase Picture Cards*. Have students match pictures with *Moon Phase Phrase Cards*.

Note: You may want to print each set of *Moon Phase Picture Cards* on a different color of cardstock (one color for each table or group) for ease in collecting them.

Hand out *Moon Phase Cluster Word Cards* and have students match them to the *Moon Phase Phrase Cards* and *Moon Phase Picture Cards*.

Use any instructional text covering phases of the moon. Instruct each group to read and reread a selected passage to see if it checks with their sequence graphic. They may opt to change any text or picture of their choice after reading.

Have each group check and make any changes to their poster so it looks like they want. Next, have a person from each group come up and explain their chart.

Note: Be sure to ask them if they made any changes in their original clustered poster after they read the informational page.

Keep these posters up for the entire unit for reference.

Extensions

Moon Phase Extension Cards

Distribute materials to each group.

Materials

For each group:

- *Moon Phase Picture Cards*
- *Moon Phase Cluster Word Cards*
- Eight plain 3" x 5" index cards
- Two different colored markers
- 20 inches masking or clear tape
- Thesaurus

Each group will choose (or you can assign) a pair of words from below.

- New/Full
- Waxing/Waning
- First/Last
- Crescent/Gibbous
- Solar (Sun)/Lunar (Moon)
- Seasons/Yearly
- Tilt/Straight
- Orbits/Stationary
- Revolution (Revolves)/Stationary
- Reflection/Light
- High Tide/Low Tide

Note: Crescent/gibbous and solar/lunar may be found in science dictionaries or on a writing program thesaurus.

Have each group write their two words on the index cards in the same color or marker.

Each group then looks up their words in the thesaurus. They need to find four synonyms for each word. Then write one synonym on each of the cards in the other color of marker.

As a group, discuss the four synonyms for each word and arrange them from one extreme to the other (e.g., pretty = charming, handsome, lovely, beautiful, fair, elegant). These words might then be arranged from pretty=handsome, fair, elegant, beautiful. After the words are arranged, tape them together in a vertical line.

Each group shares and discusses their words with the class. Display the work in the classroom

for reference throughout the unit.

As a review, have students predict or match the *Moon Phase Picture Cards* to the *Moon Phase Cluster Word Cards*. Walk around to each table and monitor the progress. Students may use materials from the lesson.

After each of the student groups have arranged the cards, use an enlarged set of the same set of cards and show the matching pairs.

Family Connections

Research careers in space exploration.

Read and collect newspaper articles on moon phases.

Write to NASA requesting information about the moon.

Assessment Plan

Have students complete the [Drawing Moon Phases worksheet](#) .

Have students complete the [Matching Moon Phases worksheet](#).

Note: Waxing Crescent and Waning Crescent and Waxing Gibbous and Waning Gibbous are not required in the sixth grade Core Curriculum. These are presented to you as optional material and possible extensions.

Authors

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