Workshop 7: Design, Construction, and Technology

This workshop will focus on technology as an aid for learning. Mitchel Resnick will discuss the effect of technology on learning when students design and construct tools to support their own inquiries. You will see examples of teachers using technology in their classrooms and get a sneak peek at Resnick's newest learning tool—the cricket.

MITCHEL RESNICK

Professor in the Epistemology and Learning Group at the Media Laboratory at Massachusetts Institute of Technology, Mitchel Resnick studies the role of technological tools in thinking and learning and develops new computational tools that help people (especially children) learn new things in new ways. He is the author of *Turtles, Termites and Traffic Jams,* and is the cofounder of the Computer Clubhouse Project, a network of afterschool learning centers.

Workshop 7 timeline

GETTING READY

30 minutes

30 minutes—Card Sort

You were asked to bring with you a deck of cards. Shuffle the cards. Remove one card from the deck and set it aside without looking at it. Spread out the remaining cards, face up, so that all 51 faces are visible. Without touching the cards, determine which one is missing. Check your answer by looking at the card you set aside. (Each participant should do this activity individually.)

As a group, discuss the methods used to discover the missing card. How many different methods were there? Were some better than others? What constitutes a "better" method?

If time allows:

Repeat the exercise given above, but this time you may touch cards.

Repeat the exercise with a partner—both of you may touch the cards.

WATCH THE WORKSHOP VIDEO

60 minutes

GOING FURTHER

30 minutes

30 minutes—Design a Sheet/Blanket Folder

Folding sheets and blankets neatly is easy when someone is around to help you, but hard for one person to do alone because of the size of the object to be folded. Design a device that would help someone fold sheets and blankets.

Discuss your design process. How did you decide what problems needed to be addressed? How did you go about addressing them? Did you learn anything from the process?

What can you take from this experience that you could apply to learning in your classroom? How might you incorporate a design activity into an upcoming lesson or unit that you have planned?

For next time

HOMEWORK ASSIGNMENT

Look for a newspaper, magazine or Web article about an education issue in a country other than the United States. Bring the article with you to Workshop 8.

! Please remember to bring the concept map that you made in Workshop 3 with you to Workshop 8.

READING ASSIGNMENT

In preparation for Workshop 8, please read the summary of "Facing Consequences" by William Schmidt. (All readings are included in the Appendix.)

MOON JOURNAL

You might want to think about the following:

In what direction (north, south, east, west) does the Moon rise?

In what direction does the Moon set?

When does the Moon rise and set? Does it set earlier, later, or at the same time from one night to the next?

Suggested activity

Moon Phase Guide

If you know the directions in which the Moon rises and sets, a Moon Phase Guide is a useful tool for determining the time at which the Moon rises and sets.

BUILDING A MOON PHASE GUIDE

MATERIALS:

Moon Phase Guide template (p. 49)
Corrugated cardboard (15 cm x 15 cm)
Pushpin or thumbtack
Almanac, newspaper, or calendar
Scissors
Glue or paste

INSTRUCTIONS

1. Cut out both pieces of the Moon Phase Guide.
2. Glue or paste the larger piece to the center of the cardboard.
3. Orient the smaller piece on top of the larger such that the center points are aligned.
4. At the center point, push a pushpin or thumbtack through both template pieces and the cardboard.

USING A MOON PHASE GUIDE

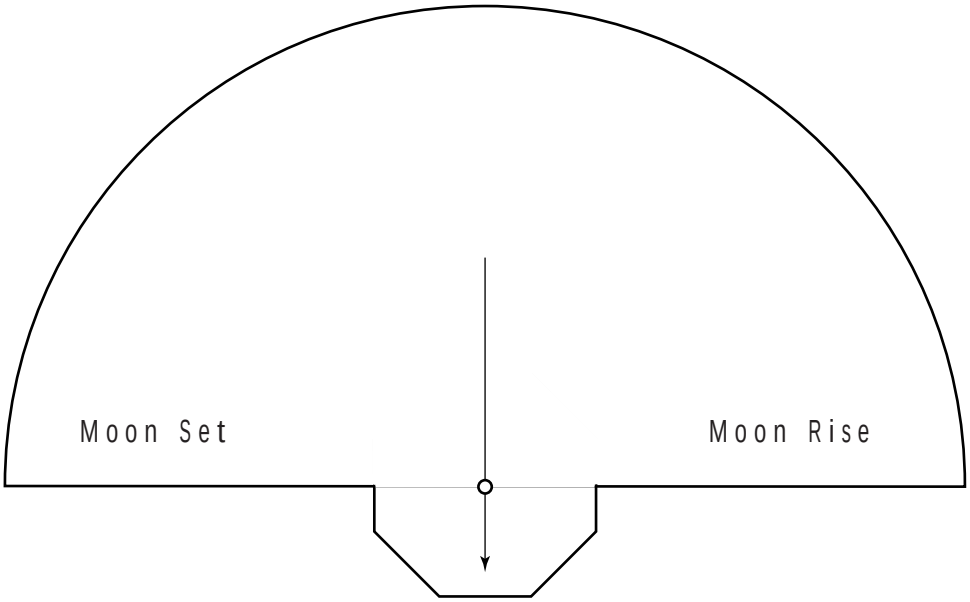
1. Determine the current Moon Phase (consult an almanac, newspaper or calendar).
2. Position the Moon Phase Guide so that the text is face-up and parallel to the ground.
3. Holding the half-circle in place, rotate the cardboard until the current Moon phase is directly under the Moon Rise portion of the half-circle.
4. Note the time the arrow on the half-circle is pointing to. This is about the time the current Moon phase rises.
5. Next, rotate the cardboard until the phase of the current Moon phase is directly under the Moon Set portion of the half-circle.
6. Note the time the arrow on the half-circle is pointing to. This is about the time the current Moon phase sets.

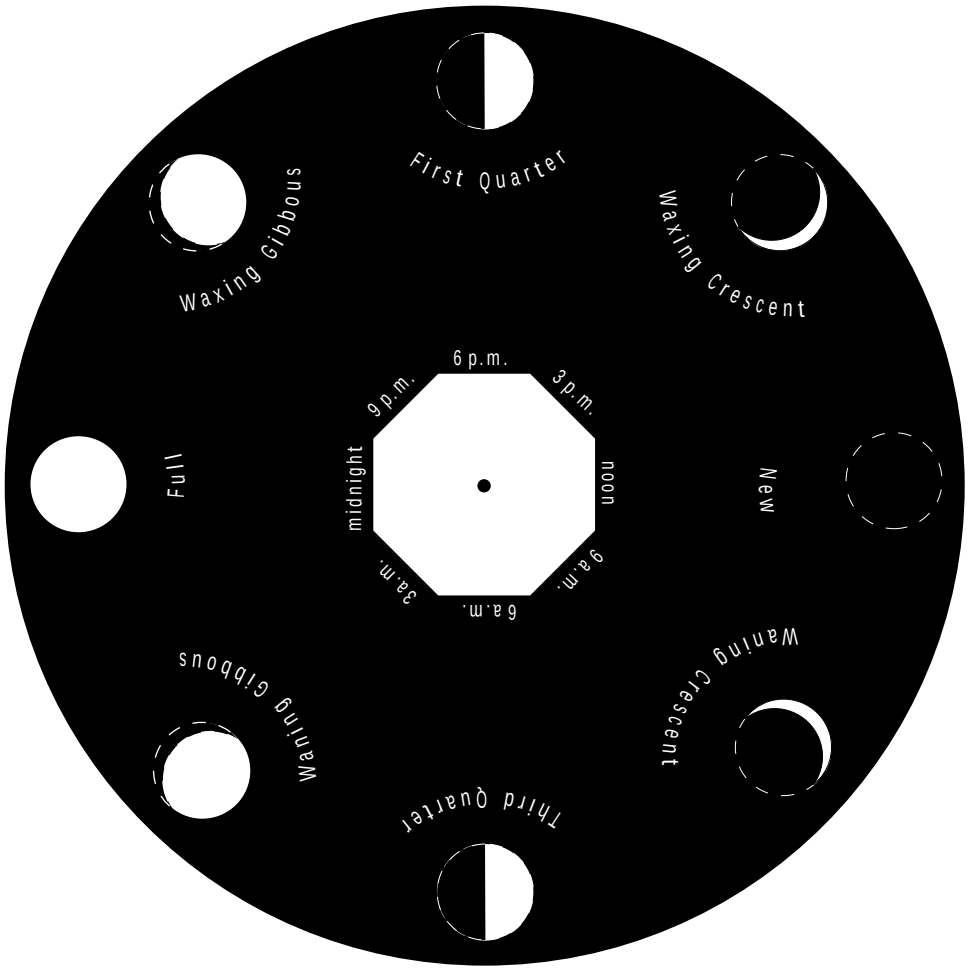
QUESTIONS

1. The Moon Phase Guide indicates that the Moon is visible for 12 hours each day. Is this accurate?
2. Why is there a predictable pattern to the changing appearance of the Moon?
3. How does the Moon Phase Guide work? What assumptions does it make about the Sun-Moon-Earth relationships in its design? What assumptions does it make about the directions of Moon rise and set.

Adapted from:

Becker, K. (1994). Moon phase dial. In N.B. Ball, H.P. Coyle, I.I. Shapiro (Eds.) *Project SPICA.* Kendall/Hunt Publishing Co.: Dubuque, Iowa


Moon Set
Moon Rise


First Quarter
Waxing Gibbous
Waxing Crescent
Full
New
Waning Gibbous
Waning Crescent
Third Quarter
6 p.m.
3p.m.
noon
9a.m.
6a.m.
3a.m.
midnight
9p.m.