

2: Sunny Symbols

Based on the New Mexico quarter reverse



OBJECTIVE

Students will understand the meaning of the Zia Sun symbol on the quarter. Students will investigate and understand the relationships among the Earth, Moon, and Sun, with particular emphasis on the Sun. Students will understand the motions of the Sun; the effects of the Sun on the Earth and the Moon; the relative size, position, age, and makeup of the Sun; and historical contributions in understanding the Sun and our Solar System.



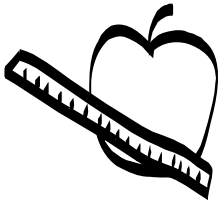
MATERIALS

- 1 overhead projector (optional)
- 1 overhead transparency (or photocopy) of each of the following:
 - “New Mexico Quarter Reverse” page
 - “Sun Symbols Rubric”
- “Sunny Facts” worksheet
- “Sun Symbols Rubric”
- 1 class map of the United States
- 1 copy of a text that gives information about symbols. For example:
 - *Signs and Symbols of the Sun* by Elizabeth Helfman
 - *The Bald Eagle (Symbols of America)* by Terry Allan Hicks
 - *Red, White, Blue, and Uncle Who? The Stories Behind Some of America’s Patriotic Symbols* by Teresa Bateman
- 1 copy of a text that gives information about the Sun, such as:
 - *Our Solar System* by Seymour Simon
 - *The Sun* by Robin Kerrod
 - *The Sun: Our Nearest Star* by Franklyn Branley
- Computers with Internet access
- Poster boards
- Markers



PREPARATIONS

- Make an overhead transparency (or photocopy) of each of the following:
 - “New Mexico Quarter Reverse” page
 - “Sun Symbols Rubric”



Sunny Symbols

- Make copies of each of the following:
 - “Sunny Facts” worksheet (1 per student)
 - “Sun Symbols Rubric” (1 per student)
- Locate a text that gives information about symbols (see examples under “Materials”).
- Locate a text that gives information about the Sun (see examples under “Materials”). Locate pages in the text that give information about the Sun as a star and the center of the Solar System.
- Arrange to use the school computer lab for one session.
- Bookmark Internet sites that contain information about the Sun.



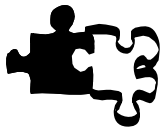
GROUPINGS

- Whole group
- Small groups
- Pairs
- Individual work



CLASS TIME

Four 45- to 60-minute sessions



CONNECTIONS

- Science
- Social Studies
- Art



TERMS AND CONCEPTS

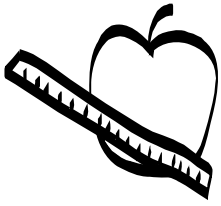
- Obverse (front)
- Reverse (back)
- Zia Sun symbol



BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

- Rotation
- Revolution
- Symbol
- Solar System
- American Indians



Sunny Symbols



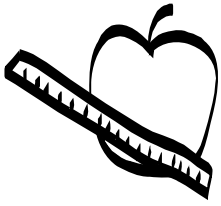
STEPS

Session 1

1. Describe the 50 State Quarters® Program for background information, if necessary, using the example of your own state, if available. Then display the transparency or photocopy of the “New Mexico Quarter Reverse” page. Tell the students that the back of a coin is called the reverse, and “obverse” is another name for the front of a coin. Locate New Mexico on a classroom map. Note its position in relation to your school’s location.
2. With the students, examine the New Mexico quarter design. Have the students identify the design’s images and writing. Focus specifically on the symbol over the map. Identify this symbol as the ancient Sun symbol of the Zia, an American Indian group. Tell the students that there are four groups of rays with four rays in each group because the Zia believed that good things were given in groups of four. For example, there are four directions (north, south, east, and west), four seasons (spring, summer, fall, and winter), four parts of the day (morning, noon, evening, and night), and four phases of life (childhood, youth, adulthood, and old age).
3. Discuss the use of symbols, particularly the use of the Sun as a symbol.
4. Introduce the text on symbols. Read the text. On a sheet of chart paper, have the students list some symbols they see or use every day or some examples from the text.
5. Have the students design and draw a symbol to represent themselves, write a paragraph explaining why they chose that symbol, and share it with the class.

Session 2 and 3

1. Review the use of symbols and the Zia Sun symbol on the coin from the previous session.
2. Read the section of the selected text that introduces the Sun as a star and the center of our Solar System. Have the students work in pairs to come up with two symbols to represent these two concepts. Have the students draw the symbols on a sheet of paper. Have the students share their symbols with the rest of the class.
3. Distribute a “Sunny Facts” worksheet to each student. Tell the students they will be working in groups of four and completing some research to find four important facts about the Sun. They need to include one fact from each of the following areas:
 - The Sun’s makeup or characteristics
 - Historical understandings/exploration of the Sun
 - The relationship of the Sun to the Earth
 - One interesting or little-known fact
4. Display the transparency of the “Sun Symbols Rubric.” Review it with the students.



Sunny Symbols

5. Assign the students to groups of four. Take the students to the computer lab and allow them time to research. Tell the students to find at least 3 facts for each area, even though they will only be using one of the facts.
6. After the students complete the research, have each group divide up the four areas so that each student has one area and each group covers all four areas. Then have each student create a symbol for one of the researched facts and draw a draft of the symbol on the “Sunny Facts” worksheet.
7. Have each group divide its poster board into four parts. Have one student draw his or her symbol on a section of the poster board.

Session 4

1. Review the use of symbols from the first session. Distribute the “Sun Symbols Rubric.”
2. Have the students share their poster board symbols and facts with the class. Each student should share their own symbol and the fact it represents.
3. Have the students complete the “Sun Symbols Rubric.” Collect the rubrics.



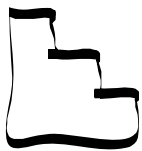
ASSESSMENT

Use the “Sun Symbols Rubric” to evaluate whether the students have met the lesson objectives.



ENRICHMENTS/EXTENSIONS

- Have students design the symbol using a paint program on the computer.
- Have students create a brochure for the Sun using the facts they researched.



DIFFERENTIATED LEARNING OPTIONS

- Allow students to work independently or in pairs.
- Have symbols already prepared and have students match the fact with the symbol.



CONNECTION TO WWW.USMINT.GOV/KIDS

- Have students learn more about phototropism using the Kansas quarter lesson plan at <http://www.usmint.gov/kids/teachers/lessonPlans/50sq/2005/0406-4.pdf>
- Have students learn more about the Sun’s renewable energy with the lesson plan at <http://www.usmint.gov/kids/teachers/lessonPlans/viewLP.cfm?lessonPlanId=135>



Name _____

Sunny Facts

Directions: Find at least 3 facts for each area. Choose one fact for each area and create a symbol for that fact.



FACTS	SYMBOL
Sun's makeup or characteristics 1. 2. 3.	Fact # ____
Historical understandings and explorations of the Sun 1. 2. 3.	Fact# ____
Relationship of the Sun to the Earth 1. 2. 3.	Fact# ____
Interesting or little-known fact 1. 2. 3.	Fact# ____



Name _____

Sun Symbols Rubric

POSTER	4	3	2	1	SELF	TEACHER
Graphics Clarity	Symbols are very large and clear.	Most symbols are large and clear.	Some symbols are large and clear.	Few symbols are large or clear.		
Use of Class Time	Always used class time well. Focused on the project. Never distracted others.	Used class time well. Usually focused on the project without distracting others.	Used some of the class time well. Usually focused on the project but occasionally distracted others.	Seldom used class time to focus on the project, or often distracted others.		
Graphics Relevance	All symbols relate to the facts and clarify them.	Symbols mostly relate to the facts and clarify them.	Symbols somewhat relate to the facts.	Most or all symbols do not relate clearly to the facts.		
Required Elements	All required elements are included.	All required elements but one are included.	All required elements but two are included.	Three or more required elements are missing		
Content Accuracy	All four facts are accurate.	Three facts are accurate.	Two facts are accurate.	One fact or none is accurate.		
ORAL REPORT	4	3	2	1	SELF	TEACHER
Preparedness	Student was well-prepared and well-rehearsed.	Student was pretty well-prepared.	Student was somewhat unprepared.	Student did not seem at all prepared or well-rehearsed.		
Clarity of Speech	Spoke clearly and distinctly, without mispronouncing any words.	Spoke clearly and distinctly, but mispronounced one word.	Sometimes spoke indistinctly or mispronounced words.	Often mumbled or mispronounced words.		
Focus	Stayed on topic all the time.	Stayed on topic almost all of the time.	Stayed on topic most of the time.	Often strayed from the topic.		
Clarity of Content	Showed a full understanding of the fact.	Showed a good understanding of the fact.	Showed a fair understanding of the fact.	Did not seem to understand the fact very well.		
TOTALS	36	27	18	9		

TEACHER COMMENTS



New Mexico Quarter Reverse

