Preschool JR. CADET

Topic: Rainbows (Sun)

MISSION: REACH FOR THE RAINBOWS!

MISSION GOALS AND OBJECTIVES:
FUNdamental Goal: Children will make rainbows.
Primary Goal: Children will learn about Energy by inquiring about sunlight's role in creating rainbows.
Primary Objective: Children will create rainbows using the necessary ingredients: light and water.

NAEYC CURRICULUM CRITERIA:
• Earth and sky • Structure and Property

MISSION VOCABULARY:
Sun, Light, Shadow, Chase, Trace

MISSION TIME: This mission can be divided into several shorter periods of discussion, reading, viewing, and experimentation. Be flexible – children's inquiry of the Sun can extend and deepen over time!

MISSION EQUIPMENT AND PREPARATION CHECKLIST:
- ☐ Sunny day
- ☐ Prism
- ☐ Tub/trays of water
- ☐ Mirrors
- ☐ White cardboard
- ☐ Book about the Sun
- ☐ Sun and Sun Dial photos/images, which are available in the online photo library at zula.com
- ☐ DVD Player and Television (optional)

Recommended Reading

Find additional titles at zula.com.

Moonbear's Skyfire by Frank Asch
Sun Up, and Sun Down by Gale Gibbons
Light (First Discovery Books) by Jean-Pierre Verdet and Gilbert Houbre
The Sun is My Favorite Star by Frank Asch
Sunshine by Alice K. Flanagan
The Sun, the Moon, and the Stars: Poems by Nancy Elizabeth Wallace
Sun Bread by Elisa Kleven

NEVER look directly at the Sun without the proper scientific protection. You could seriously damage your eyes/vision.

Look to the Rainbow – The Zula Patrol arrives in the beautiful Canyon of the Rainbow and prevents the dastardly Professor Spectrum from stealing a natural treasure.

MISSION IGNITION!

Teachers: ***Introduce the Primary Goal by piquing curiosity and stimulating thinking.***

Students: ***Engage in open-ended dialogue related to the* MISSION GOALS AND OBJECTIVES.**

• If possible, hang a prism in a sunny window without mentioning it to the children. Try to position it so the rainbows can be easily seen by the children. Wait until children notice the rainbows it creates (gently spin the prism at a time it is making rainbows to make the rainbows more noticeable. Through **open-ended dialogue**, talk about the theme of rainbows: (if a prism has been hung) What do you see? What's that on the floor, ceiling, wall, Jasmine's desk? Have you ever seen a rainbow before? Where? What did it look like? What is a rainbow? How is this prism making a rainbow?

• The end result of the discussion should be a need on the part of the students to explore or solve questions. Encourage children to come up with their own questions.

CREW BRIEFING:

Teachers: ***View, read about, and discuss this "mission" with your children.***

Students: ***Explore, ask questions, gather information, research (books, video clips, pictures), and hypothesize.***

• **Read** and discuss a book about the Sun (see Recommended Reading).

• **Show** children the *Look to the Rainbow* clip on your outreach DVD**.** Discuss the theme of rainbows:

Q: What happened in this story? What was it about?

Q: Where did *The Zula Patrol* go in the video? (to the Canyon of the Rainbows)

Q: When do the rainbows happen there? (during rainy season)

Q: What is necessary for a rainbow? (sunlight and water – The water separates the light into its different colors.) If applicable, say "Our prism did the same thing as the water. It separated the light into colors."

Q: What color is sunlight? (It may look white or yellow, but it's made up of many different colors.)

Q: What are *some* of the colors in a rainbow? (red, orange, yellow, green, blue, indigo, and violet*)

Explain to children that there are many more colors than those represented by ROYGBIV, that indigo is a shade of dark blue, and that violet is a shade of purple!

• Connect responses to children's MISSION IGNITION observation and discussion.

• Ask students if they would like to make real rainbows!

MISSION BLASTOFF!

Teachers: ***Support and facilitate student experimentation; introduce* MISSION VOCABULARY after *children describe concepts in their own words.***

Students: Experience *the concepts, discover, observe, and experiment.*

1) Set up tubs of water outside or on a sunny window sill.

2) Place cardboard between the tub and the window.

3) Place mirrors inside of the tubs so that sunlight travels into the water and reflects onto the cardboard.

4) The water in the tub will separate the sunlight into a rainbow of colors!

5) What happened? Why? How are the room rainbows similar to the rainbows we've seen elsewhere? How are they different?

MISSION SPIN-OFFS AND CONNECTIONS:

Teachers: ***Enrich and extend content by supporting children's understanding of the Primary Goal, its connection to other concepts, and application to "real world" situations.***

Students: ***Review results, analyze, record and infer, use deductive reasoning, elaborate on findings, and extend activities to the home.***

• Mission Spin-offs

1) ROYGBIV Mission: Provide children with red, blue, and yellow paint. Invite them to paint. Point out when children have mixed pairs of colors resulting in different colors.

2) Home Mission: On a sunny day, go outside and turn on the hose (use a "mister" setting). Move the hose around until the children can see the rainbows in the water.

• Mission Connections

Support additional learning about the Sun with the *Freeze the Frozen Bears* and *Chase and Trace Shadows* activities.

MISSION ACCOMPLISHED:

Teachers: ***Empower students to express their conclusions and determine the next mission.***

Students: ***Draw conclusions, assess learning, evaluate what they've discovered, and envision their next mission.***

1) After completing this mission, ask students to assess what they've discovered and how. What conclusions can they draw about the Sun's light and rainbows? Use their comments to reinforce the Primary Goal. Ask what else the children would like to know about the Sun and rainbows. For additional *Zula Patrol* activities and information, log onto zula.com.

2) Mission Accomplished Badge: Celebrate a mission accomplished by downloading this free badge at zula.com. Distribute them for children to color and wear or glue into their science journals.

Congratulations on a mission well done – keep exploring!

FICTION VS. FACT!

Fiction: Many people think that a rainbow is made up of only seven colors.

Fact: Rainbows actually have an infinite number of colors.