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Visualizing Sun-Earth-Moon Relationships through Hands-On Modeling

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"Tell me and I forget, teach me and I may remember, involve me and I learn." -Benjamin Franklin

Understanding the spatial relationships between the sun, Earth and Moon is fundamental to any basic earth science education. Since both of the following concepts involve shadows on three-dimensional spheres, seeing them on paper is not often conducive to understanding. In the first activity, students use five Styrofoam balls painted to look like the sun and the four positions of the earth in each season. Students position the Earth-balls in their correct order around the sun and translate what they are seeing onto paper. In the second activity, students hold up a Styrofoam ball painted half white, half black. A picture of the sun is projected at the front of the classroom. They move the ball around their heads as if they were the Earth, keeping the lit side of the moon always facing the sun. They then draw the phases of the moon as they see them.