As the World Turns

Summary

Students will use their bodies to act out the motions of Earth by exploring orbits, rotations, and the turning of the earth as it revolves around the sun. Doing research to find correct answers to their questions will help them act out the movements correctly.

Main Core Tie

Science - 3rd Grade

Standard 1 Objective 2

Time Frame

2 class periods of 45 minutes each

Life Skills

Thinking & Reasoning, Communication

Materials

For the teacher:

- Digital or video camera
- Tape or CD player
- Outer space music
- Reference materials about the day/night cycle.

For each pair of students

- Two name tags or signs, "Earth" and "Sun"

Background for Teachers

For many many years, people believed that the sun circled around the earth. Those who tried to prove that this was not correct often suffered great persecution for their observations. We are lucky today that they didn't give up and instead helped prove that the opposite is true.

Today we know that not only does the earth rotate on its axis but it also revolves around the sun. The idea is often confusing for many children. This activity will help them describe the motions of Earth through dramatization.

Students will try to answer the question of how the Earth revolves or orbits by acting out the motions. They will ask questions about it and then do research on the subject. After discovering information, they will re-enact their new information and compare their findings to the original beliefs.

This experience will be very successful if you are able to video tape or take digital pictures of students' movements both before and after their research on this topic. If this technology is not available, have students draw their movement.

It will also be helpful if this activity is done in a large indoor area with an electrical outlet for music.

Intended Learning Outcomes

Pose questions about objects, events and processes.

Voluntarily read or look at books and materials about science.

Explain science concepts and principles using their own words and explanations.

Use available reference sources to obtain information.

Instructional Procedures

Step 1. Children should sit in a circle around the teacher in a large area. As you walk around the circle, review with students the shape of Earth and the moon as spherical. Accept any other information that they might share about space.
Step 2. Show students the name tags you have that either say "sun" or "earth." Tell them that you will divide them into groups of two. Each pair will be working together to decide how best to show Earth and Sun's movement in the sky. They will spread out in the room and practice their dramatizations. After 5-10 minutes, everyone will regroup and share their movements.
Step 3. Have pairs move to various locations and work together. Observe what each group is doing, so you will have an idea of how knowledgeable they are regarding this concept. When you have all students back together, tell them that you will put some music on, and each group will have 30 seconds to perform their actions. Number each group so that they know when it is their turn. Video or take digital pictures if possible, and show to the students.
Step 4. After each group has an opportunity to share, discuss some of the questions below.

Did groups show different ways that the Earth and Sun move?
Why do you think that groups had different ideas?
What do we call the movement of a planet?
Why do we have the day/night cycle of Earth?

Step 5. Tell student that each pair will be responsible for doing research to find out the **TWO WAYS THAT THE EARTH MOVES THROUGH THE SKY**. (You may need to give them a hint that one way is the way it moves in relationship to the sun and the other way is the cause of the day/night cycle of the Earth.) They will be able to use materials in the classroom or on the computer. They might also want to ask their parents. They will then need to practice these movements to demonstrate for the class what they have learned.
Step 6. Return to the large area after everyone has had an opportunity to do research, watch videos, and read books on this subject. Have each group take 30-45 seconds to perform their demonstration. Video their performances again. Next, turn out the lights, put on the music, and let everyone act out their examples of the earth rotating around the sun.
Step 7. Group students together to discuss this activity. Share the video or pictures with students and discuss the performances.

Did all groups show the same idea? (If not, you will need to stress the correct model and have someone act it out again.)
Did some groups change from their original ideas? What was different about the movements?
Did anyone discover what it is called when the earth revolves around the sun? (Orbit)

Step 8: Explain to them that the Earth revolves around the sun. This is called an orbit. The Earth also spins on its axis. This is called a rotation. The Earth's rotation is why we have night and day. (You may want to explain and/or use student models to demonstrate the night/day cycle or you may want to save this concept for another lesson.)
Step 9. Have groups stand again. Put a chair or something stationary in the middle of the room. Tell students that they will all become the earth this time. Have them orbit the sun while spinning on their "axis". As they orbit the sun, they can chant together. "Orbit is a revolution; spinning is a rotation" again and again. Practice together to a steady drum or clapping beat.
Step 10. Have students begin this activity and orbit the sun in a large circle, chanting their sentence. Repeat for about a minute. Put music back on and have them continue to orbit the sun and chanting to their space music.
Step 11. As a wind-up for this activity, read **Me and My Place in Space**, by Joan Sweeney.

Extensions

Some students may wish to wear costumes for their demonstrations. Elaborating on the initial concept encourages student creativity, as well as motivation.

Assessment Plan

Observation of each pair's demonstration will give teacher feedback on the understanding of this concept. Also, if technology was used to record performances, there will be either a video or digital picture of student understanding.
Students return to the classroom and draw a picture to show what they learned. The picture will have the Sun and Earth, and show Earth's revolution, or orbit, around the Sun and that the Earth spins on its axis.

Authors

Jennifer Edwards