

Rotation vs. Revolution

Science STEM Ozobot Lesson

Jasmine Saab
4th grade teacher
Charleston, SC

Lesson Objective:

Common Core Next Generation Science Standard:

ESS1.B: Earth and the Solar System

The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)

1. Students will understand what causes the Earth's seasons
2. Students will review the concepts of Earth's rotation and revolution
3. Students will describe the relationship between Earth's rotation and day and night
4. Students will describe the relationship between Earth's revolution and seasons

What you will need:

- 2 Ozobots (Evos), or 1 Bit and 1 Evo
- Paper
- Markers
- STEM Supplies (i.e. paper clips, cardboard, tape, etc.)
- A device to transfer flash code
- Optional supplies:
 - 3D printer & Thingiverse STL download:
<https://www.thingiverse.com/thing:4322527>
<https://bit.ly/OzobotBackpack>
 - Light bulb/ flashlight
 - Printed globe cut out <https://bit.ly/PrintableGlobe>



Instructions:

1. Create an Ozobot backpack using STEM Materials, or 3D print the one that I have created!
2. Using a piece of paper draw an ellipse around the sun using a marker
3. Code one Ozobot using Ozoblockly to rotate on its axis
4. *Optional* Attach a cut out globe to the top of your Ozobot
5. *Optional* use a lightbulb in the center to represent the sun
6. Double click the power button on the top Ozobot to activate the programmed rotation code you flashed into Ozobot Evo
7. Power on the bottom Ozobot and have it follow the ellipse color code that you have created.

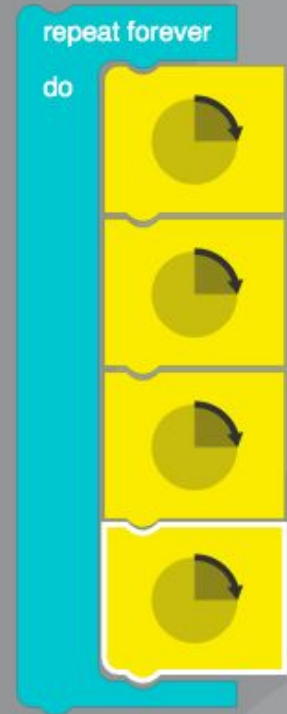
Code:

Start out with a loop

Then program our ozobot to rotate 360 degrees

There are many different ways to code a rotation

Here are some examples:



Ozobot Video Lesson:



The Impact of Rotation & Revolution on Earth:



Exit Questions:

What is the difference between revolution and rotation?

What causes seasons?

Because the Earth rotates, we experience ...

Because the Earth revolves, we experience...

How did you create your block code? Why did you choose to do it this way?

What went well with this lesson?

What are somethings that you would change for next time?

Challenge:

Can you make it work if the globe's axis is tilted approximately 23 degrees?

Can you think of any other ways to use the Ozobot Backpack?

What would be another way to demonstrate rotation vs. revolution?

Can you create a code in Ozoblockly for a revolution, instead of having your ozobot follow the color code? Be sure that it is an ellipse, not a circle!

Can you create an ozobot dance that has rotation and revolution?



Edit profile

Jasmine Saab

@JasmineSaab

4th Grade Teacher Charleston, SC 🧑🏻 | Wonder Workshop Ambassador 🤖❤️ |
CofC Alumnae 🐾 | 3D Tinker 🛠️ | Galaxy Fanatic 🚀 | Cactus Lover 🌵

📍 Charleston, SC 🕒 Born November 16, 1995 📅 Joined December 2018

766 Following 605 Followers

Tweets

Tweets & replies

Media

Likes

📌 Pinned Tweet



Jasmine Saab @JasmineSaab · Mar 6, 2019

Hey Twitter! It's me, Miss Saab. Follow me to check out some of the crazy, cool things I'm doing in the classroom! 🧑🏻



↻ 2

❤ 17



Twitter:
@jasminesaab

Instagram:
@cactuscrew507

Email:
saabj@bcsdschools.net