

Driving around with Ozobot

Description:

Use Ozobot color codes to navigate a town map.

Objective(s):

1. Students will practice coding with the ozobot color codes.
2. Students will utilize the Engineering Design Process to plan out the best route for ozobot and decide on the codes to have ozobot follow the route.

ISTE/NGSS Standards:

1c: Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

3b: Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

4c: Students develop, test and refine prototypes as part of a cyclical design process.

MS-ETS-1.1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS-1.2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS-1.3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Teq Lesson Plan Activity

Essential Question(s):

What makes some routes better than others when navigating around town?

Materials:

- Ozobots
- Ozobot markers
- Large paper with town maps drawn (one for each group)
- Practice paper for codes
- Engineering Design Challenge Graphic Organizer

<https://docs.google.com/document/d/1UYqqzT3aMgdNVb6-zog02Q4mY686WuM-2iHSEfsyLps/edit>

Do Now:

How do you get to school in the morning?

Lesson:

1. Class will work individually or in small groups (2-3 students).
2. Teacher will assign a start and end point on the map for students to go to and give guidelines for what they must include in their codes.
3. For example: Paths must include at least two tornado/spins, must not use more than 3 turbo boost codes.
4. Students will practice writing their codes and make a plan that they think will work using the practice paper.
5. Students will draw out their code and groups will compete for the best solution (Teacher can decide what that means - shortest distance traveled, fastest time to arrive, most creative use of code, etc).

Closure:

1. Students will complete reflection section of graphic organizer.
2. Students will clean up maps & put Ozobots and markers away.

Extension:

Students can add stops along their route or try and further improve their route in some way.