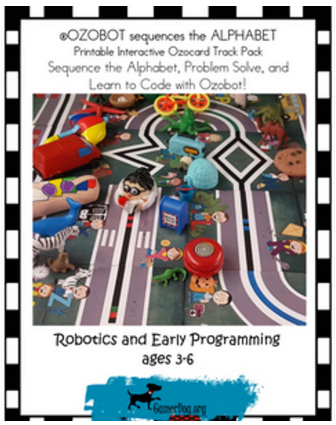
Ozobot Sequences the Alphabet

Author: **Rene Perry**



Grades: **PK—1**

Subjects: **Math, Computer Science**

Coding Methods: **Color Codes**

Robots: **Bit**

Brief Summary

Introduce early readers to robotics, problem solving and programming using Bit!

Pre-Reader/ESL: **No**

Required Materials

- 1 Evo or Bit Ozobot per group
- 1 Print: Ozobot's Alphabet Track Cards per group
- 1 Have Nearby: Scissors, glue/tape per group
- 1 Optional supply: Alphabet Early Reader Book online per group
- 1 Optional supply: 3D objects to match per group

Lesson Objectives

- Calibrate an Ozobot.
- Sequence an Algorithm.
- Observe Ozobot's reactions to pre-printed codes.
- Sequence the Alphabet.

Preparation

Background Knowledge

(None)

Lesson Tips

- Optional: If more than 2 students, have a set of Ozobot Alphabet Track Cards printed, laminated, and cut (little hands with paper can be tricky). This way they can negotiate the track easier before you glue/tape down.

- Optional: Have 3D objects available to re-enforce phonemes and early language skills.
- Optional: Once your Alphabet Track is sequenced, you could enhance early math skills by encouraging the children to measure the width and length of their new track. How many squares is it across? Down? How many total? And so on.

Direct Instruction (Teacher Facing Instructions):

1 STEP 1:Print the Ozobot Alphabet Track Cards and have them ready.

If your students are smaller, you can cut the squares ahead of time. If you think they can cut them have scissors ready. If their cutting isn't perfect, who cares. When you glue them down, have the children "de-bug" the line program by using a black marker to fill in any gaps where the scissors got the best of them. It's better at this age that they feel they own it and it works, not what it looks like!

You should have the 12 Ozobot Alphabet Track Cards, the 14 Interactive Ozobot Task Cards, and possibly scissors.

2 STEP 2: Large White Paper

You will need a large white sheet of paper. Once the students have problem solved the alphabet sequence, you will need to glue the edges together where the Bot moves over the track line. Easy. Instructions and Video are linked. Now you need: White Paper and one Glue Stick.

3 STEP 3: Print (laminate) the 14 Ozobot Interactive Task Cards

Once your Alphabet Track is designed place Ozobot on it and watch the little robot zoom through the alphabet. Maybe your kids know the A-B-C song?

Once the students have observed Ozobot's reactions to the pre-printed codes, choose a Task Card. the 14 STEM Cards are an easy way for you to interact with your Alphabet Board. These cards have language, math, Ozobot facts, and search and finds!

4 STEP 4: All Done! Clean Up!

When the activity is done, simply roll your map up for another time.
Hang on the wall to share with your parents.
Or, throw it out (when they aren't looking) and simply re-print the 6 pages another day!

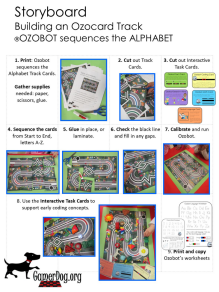
Lesson Closure (Optional)

(None)

Student Practice (Student Facing Instructions):

1 STEP 1: The Alphabet Line Program

We need to organize these 12 cards in a way that both a) sequences the alphabet, and b) forms a complete line for Ozobot to move along.
Cut the Alphabet Cards out.
Arrange them face up on the white paper.
Move them around until you find the correct algorithm line that both sequences the alphabet and forms one continuous line for Ozobot to follow.
Goals: Student Goal: Sequence the Alphabet and Ozobot Track to make a complete program for Ozobot to run from A to Z.
Attachments: https://twitter.com/Gamerd0g/status/1202008620348526593, Ozobot Sequences Alphabet.pdf



2 STEP 2: Calibrate your Bot

Before you run your robot, make to calibrate your Bit on the black circle. Green light go!
Goals: Student Goal: Calibrate your Ozobot

3 STEP 3: De-Bugging

Once we have figured out how the 12 Alphabet cards fit together, we can start testing Ozobot on the track line.

Does the little robot move successfully from A to Z? Do we need to correct the line somewhere?
Goals: Student Goal: Persevere through until Ozobot successfully Sequences your Alphabet program!
Attachments: https://twitter.com/Gamerd0g/status/1202010444333891586

4 STEP 4: Interactive Task STEM Cards

Once your Alphabet Track is complete and Ozobot can run your program, try using one of the Ozobot Task Cards! Put your math and language skills to the test!

5 STEP 5: Video the Action!

Sing while Ozobot sequences the Alphabet! Video your amazing programmers and play it back for kids and parents at pick-up!

Supplements

Additional Attachments

- Ozobot Sequences Alphabet.pdf

Academic Standards

- CCSS.MATH.CONTENT.1.MD.A.1

®OZOBOT sequences the ALPHABET

Printable Interactive Ozocard Track Pack

Sequence the Alphabet, Problem Solve, and Learn to Code with Ozobot!

Robotics and Early Programming
ages 3-6

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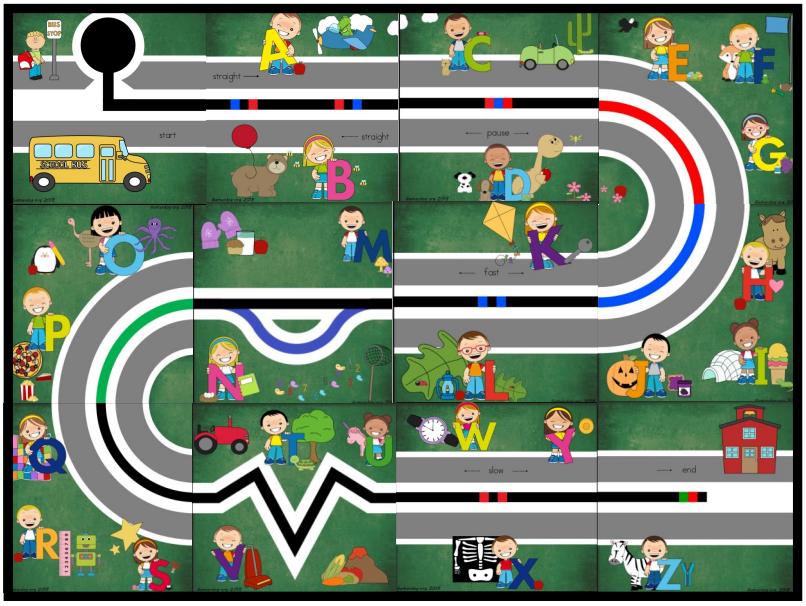

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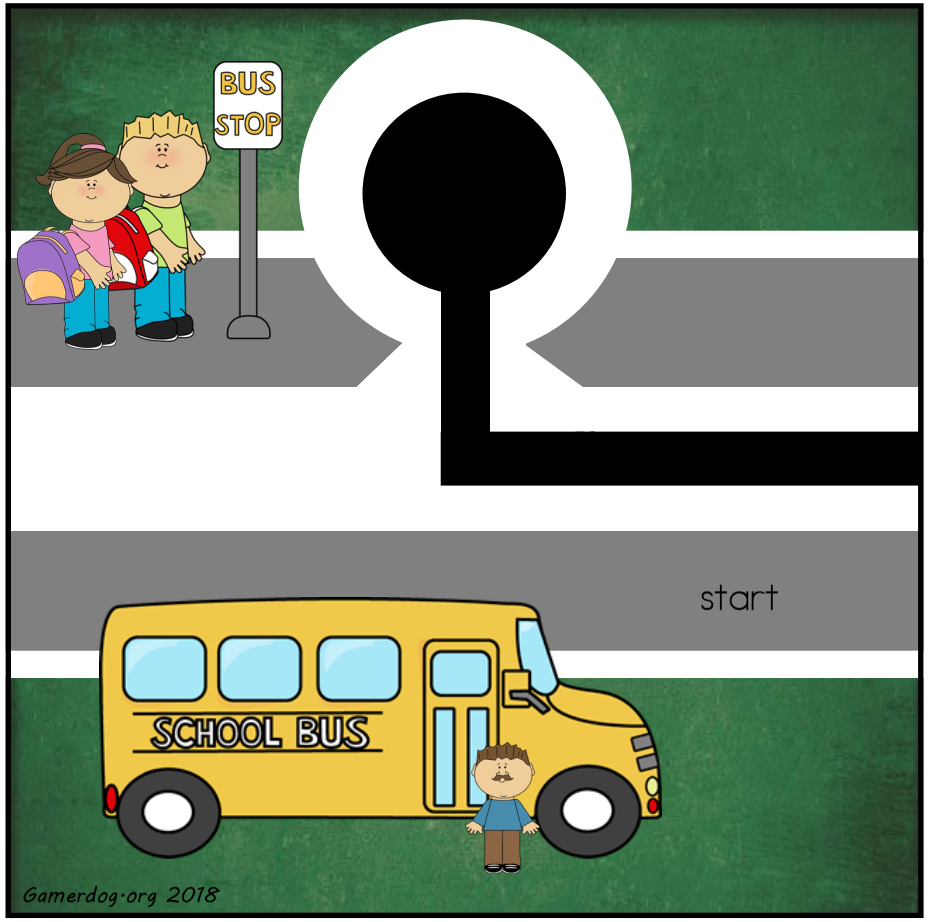
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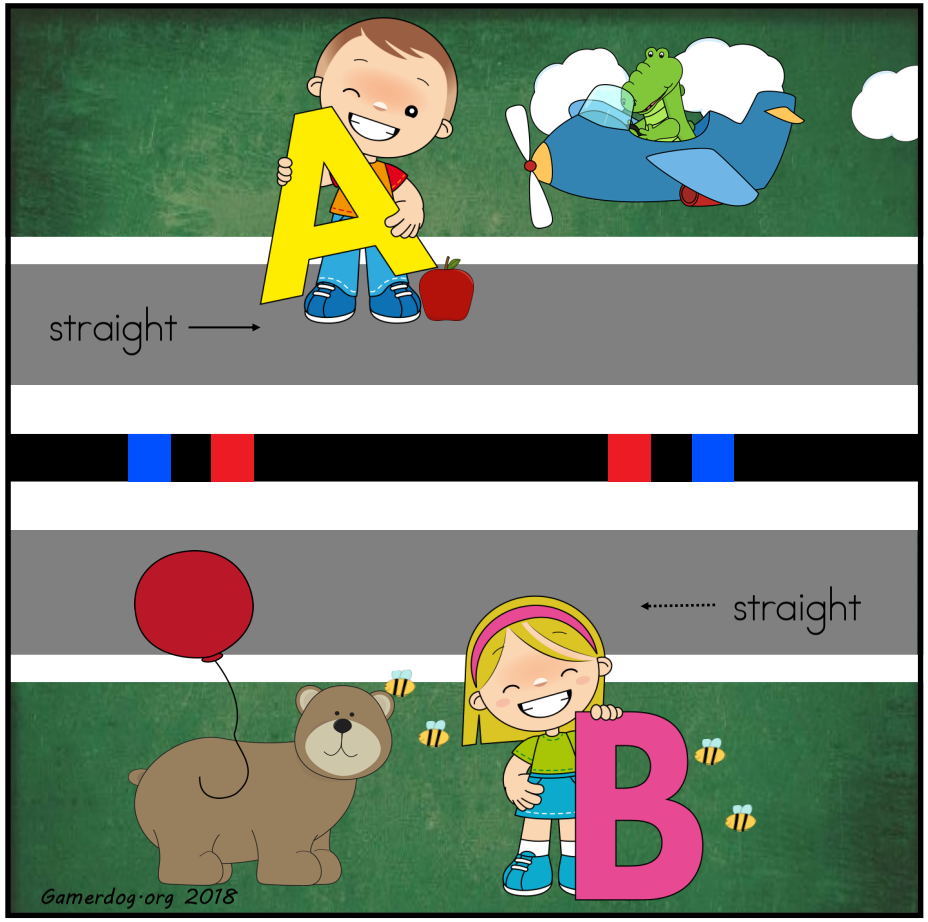
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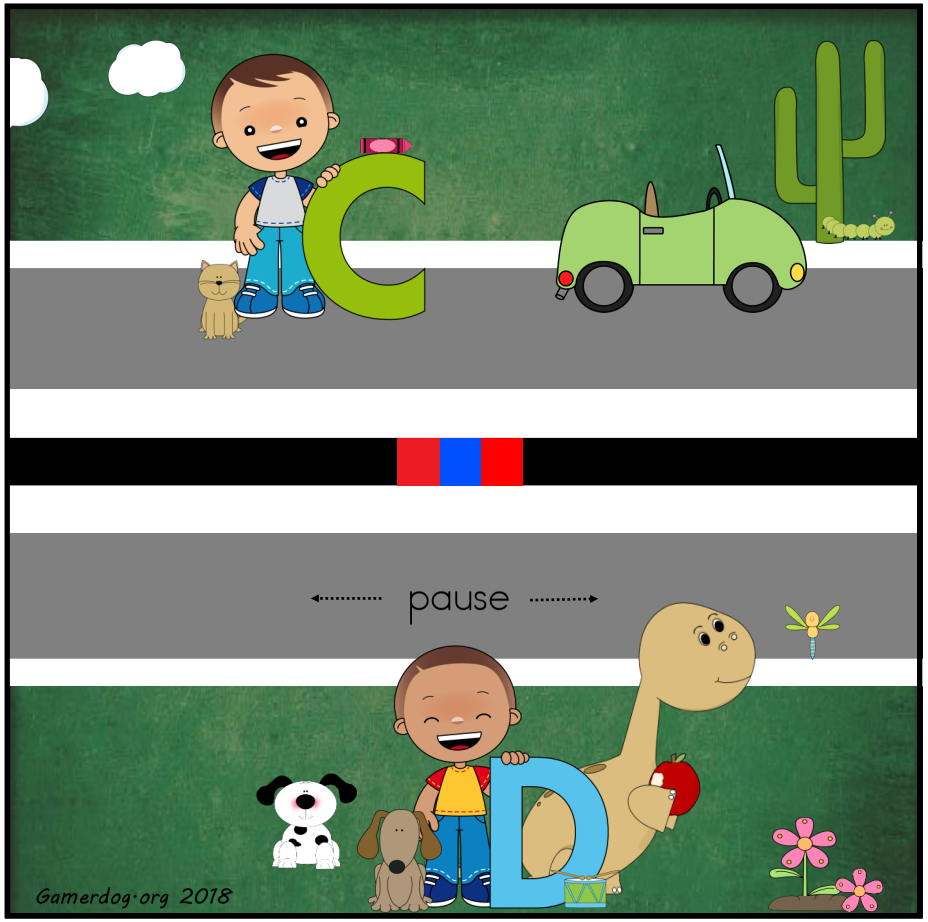
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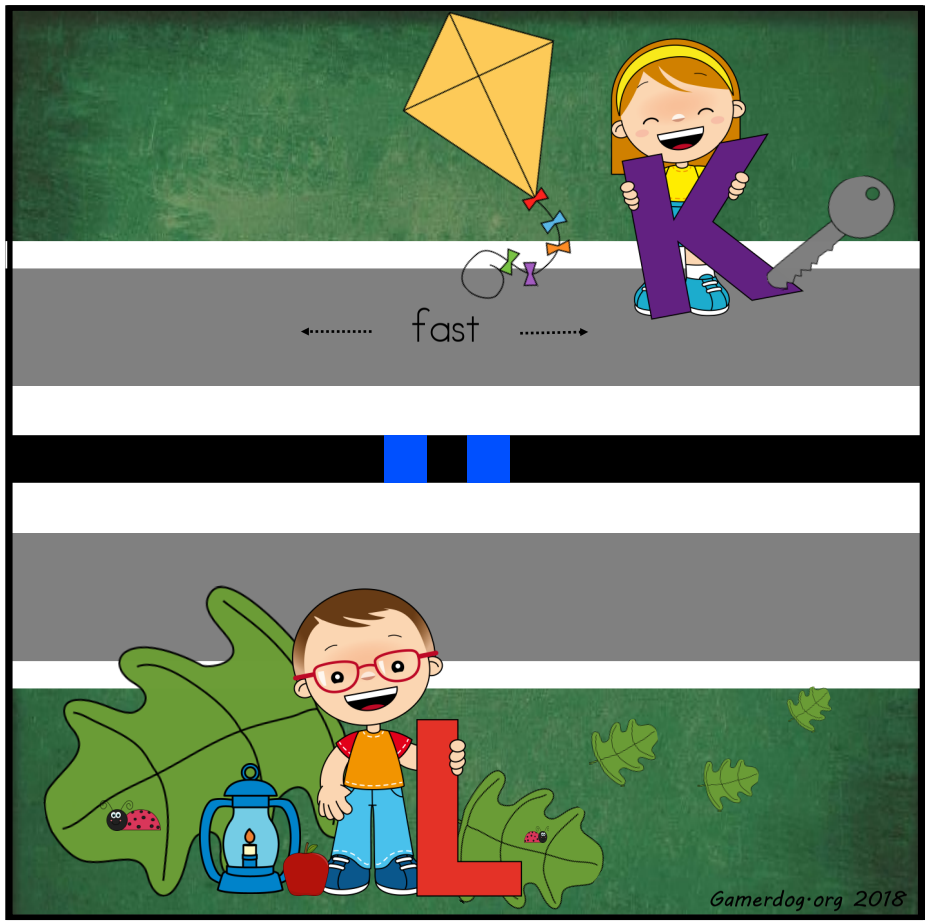
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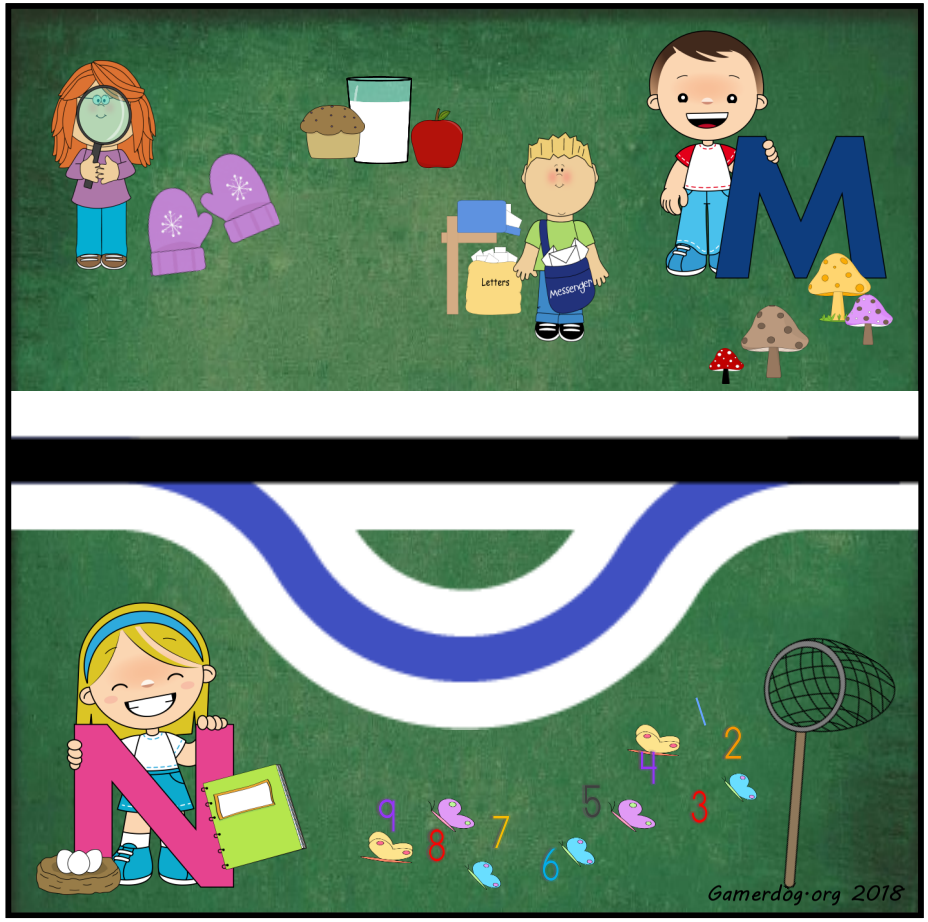
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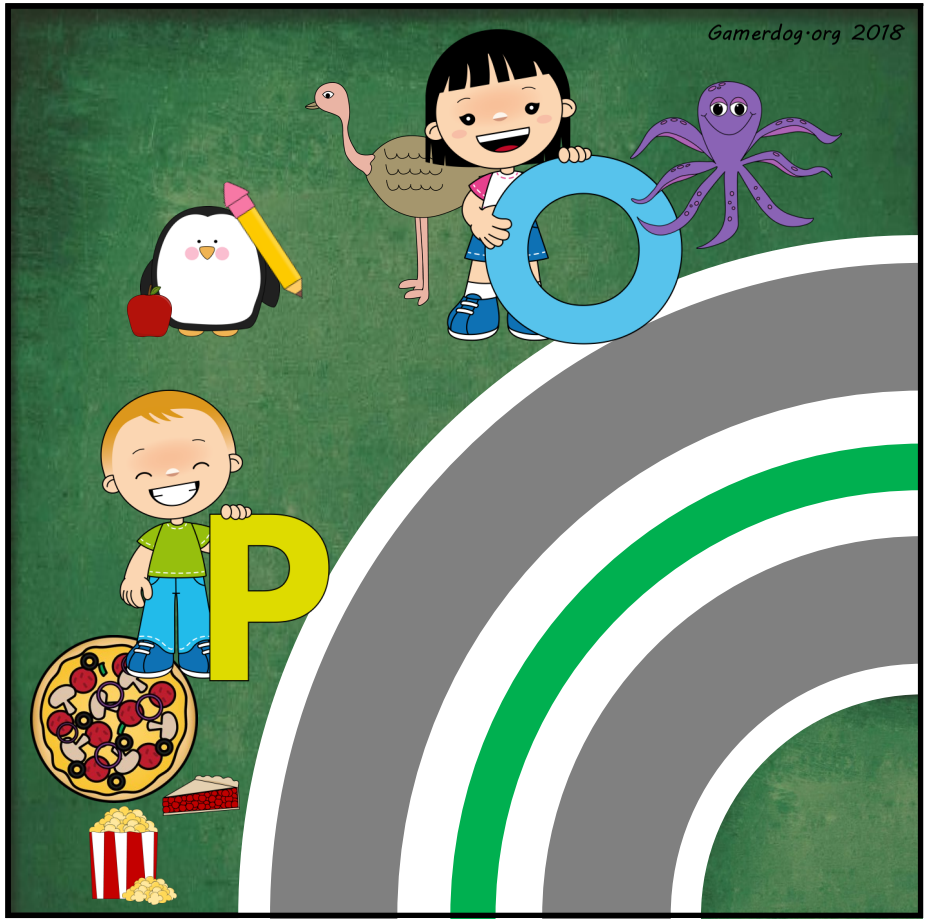
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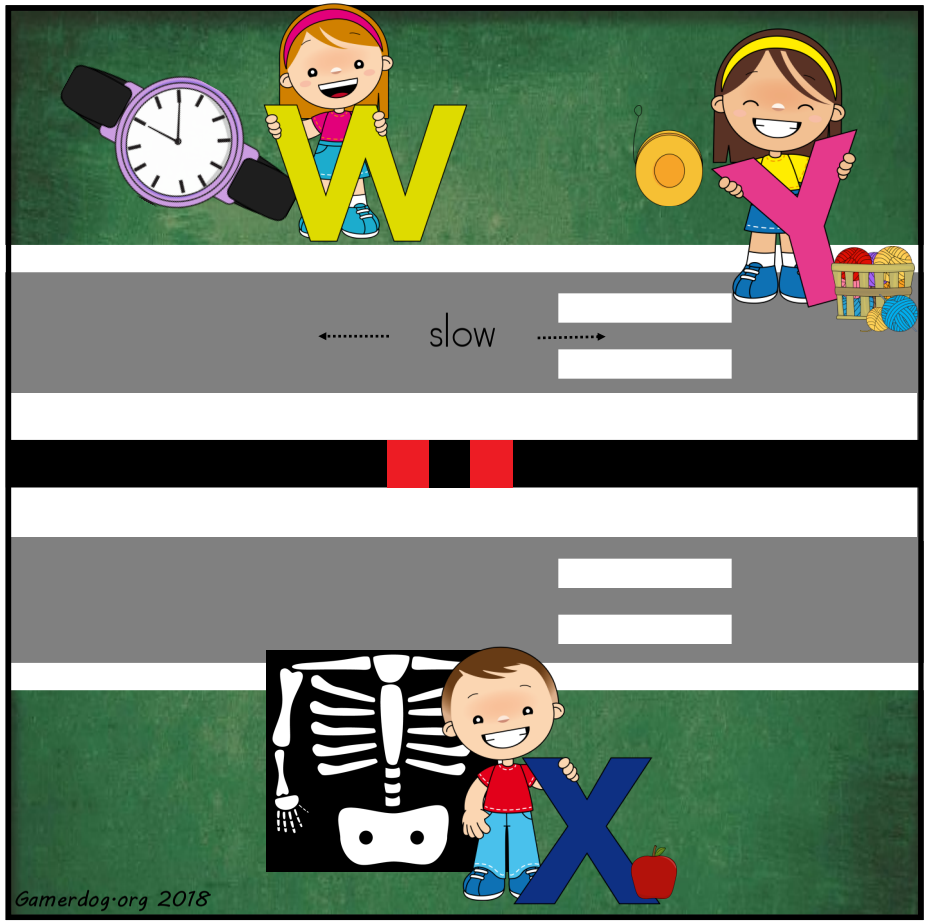
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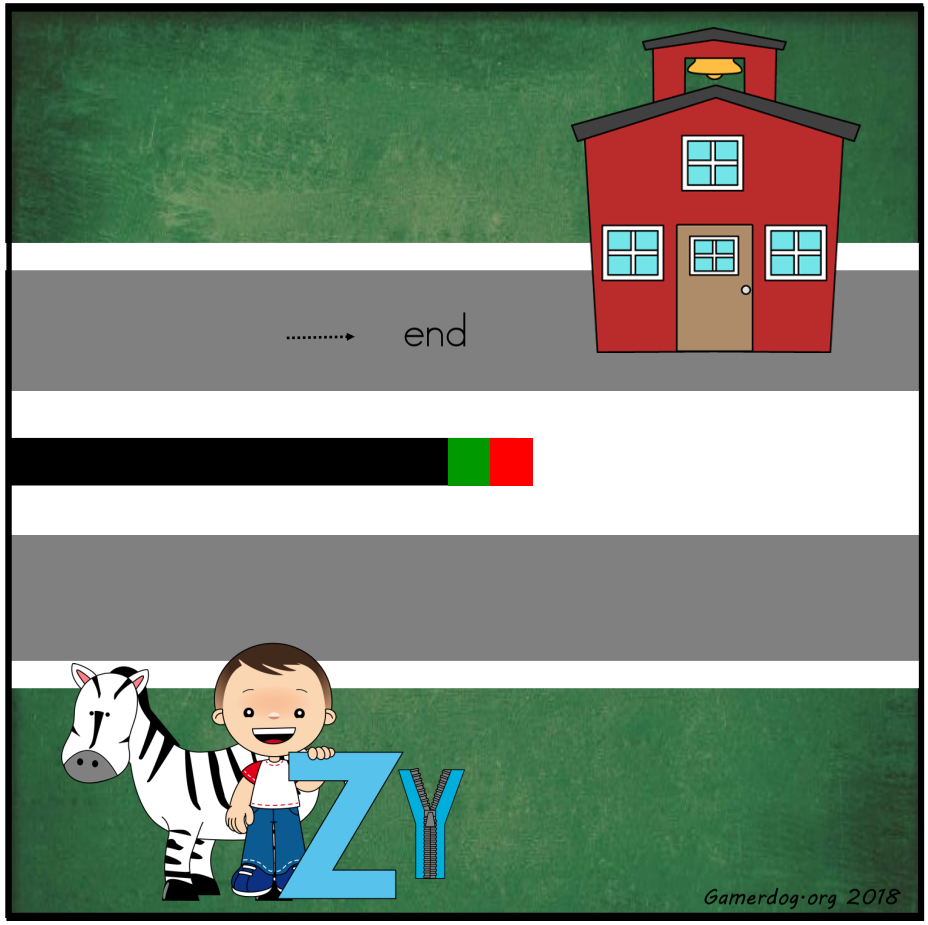
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Storyboard

Building an Ozocard Track

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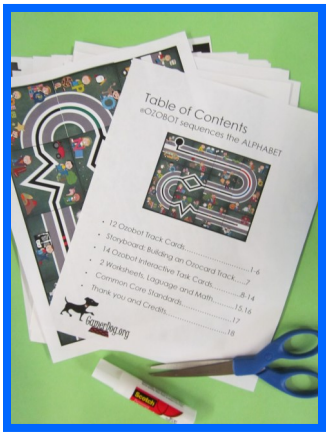
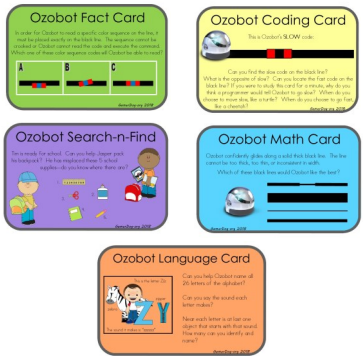
1. **Print**: Ozobot sequences the Alphabet Track Cards.

Gather supplies needed: paper, scissors, glue.



2. **Cut** out Track Cards.

3. **Cut** out Interactive Task Cards.



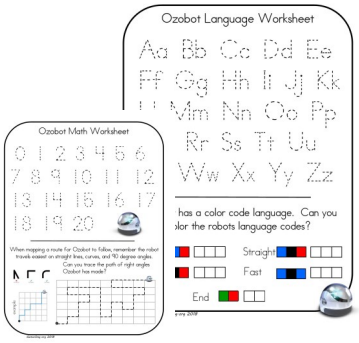
4. **Sequence the cards** from Start to End, letters A–Z.

5. **Glue** in place, or laminate.

6. **Check** the black line and fill in any gaps.

7. **Calibrate** and run Ozobot.

8. Use the **Interactive Task Cards** to support early coding concepts.



9. **Print and copy** Ozobot's worksheets

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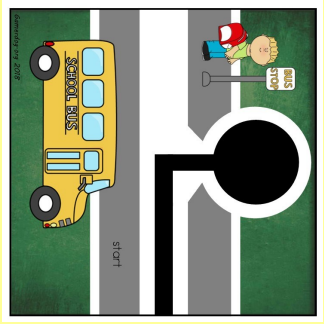
Ozobot Coding Card



This is Ozobot's **START** Card.

For consistent behavior, you should always **calibrate** your little robot. To do so:

- Hold down the power button on Ozobot for 2 seconds.
- Release button and place Ozobot in the middle of the black dot.
- Ozobot will move forward and should flash green. If red flashes, start again.

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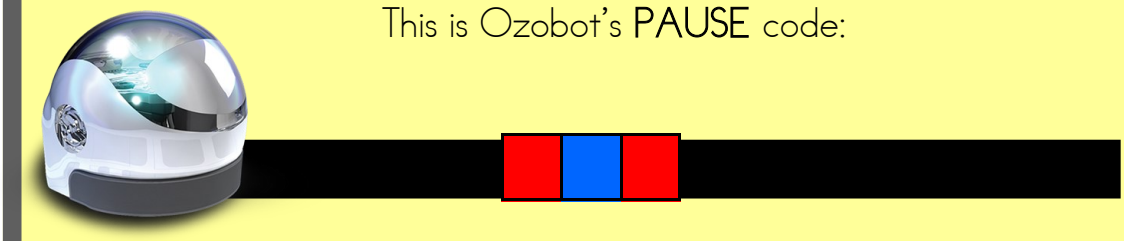
Ozobot Coding Card

This is Ozobot's **PAUSE** code:



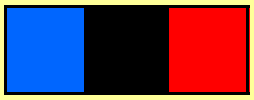
Can you find the pause code on the black line?

A. How many seconds does the robot stop and wait?
B. What letters are located on the pause code card?

A. 3 seconds B. C and D C. Cat, crayon, dog, dinosaur *GamerDog·org 2018*

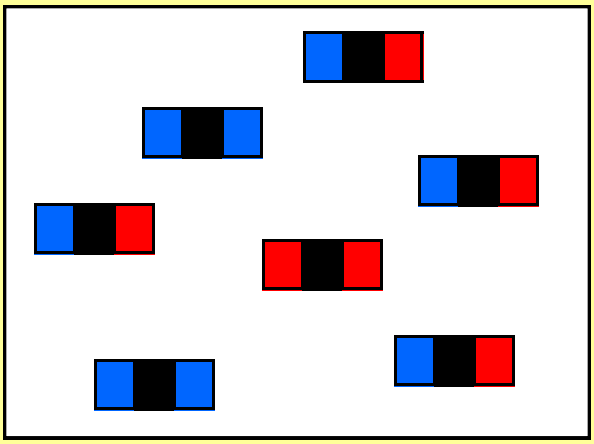
Ozobot Coding Card

This is Ozobot's **STRAIGHT** code:

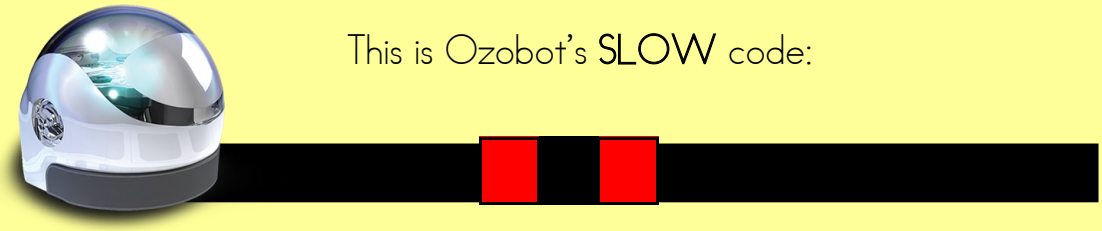


Can you find the straight code on the Alphabet Line Program?

Can you find the 4 straight codes below?



Ozobot Coding Card



This is Ozobot's **SLOW** code:

Can you find the slow code on the black line?

What is the opposite of slow? Can you locate the fast code on the black line? If you were to study this card for a minute, why do you think a programmer would tell Ozobot to go slow? When do you choose to move slow, like a turtle? When do you choose to go fast, like a cheetah?

Ozobot Coding Card

This is Ozobot's **FAST** code:

Can you find the fast code on the black line?

A. Can you list the six speed codes that can be used to program, or tell Ozobot, what to do?
B. What letters in the alphabet does the little robot speed through? How fast can you sing the entire alphabet?

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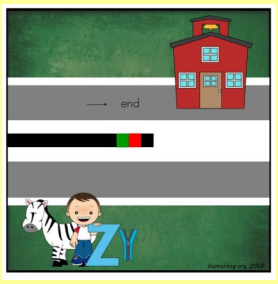
A. Snail, Slow, Cruise, Fast, Turbo, Nitro B. L, M, N, O, P...

Ozobot Coding Card

This is Ozobot's **END** code:



Ozobot's journey began at the start card with the school bus. The robot traveled through the alphabet, from beginning to end. As Ozobot moved from A to Z, how many children did the robot pass along the route?

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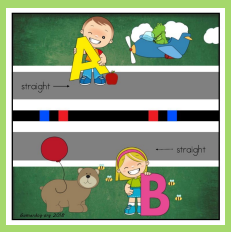
Ozobot Fact Card

This little robot is highly programmable and customizable. **Ozobot can be programmed** to run a specific course using its color language.

Unless instructed by a specific color code,



Ozobot will randomly choose a pathway.

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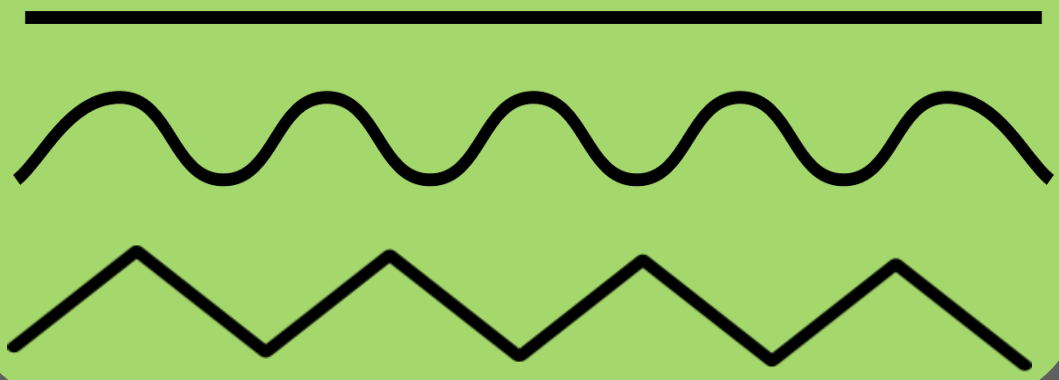
Ozobot Fact Card

Ozobot uses light sensors to follow a solid thick black line drawn on white paper. Use your finger to follow the black lines below:



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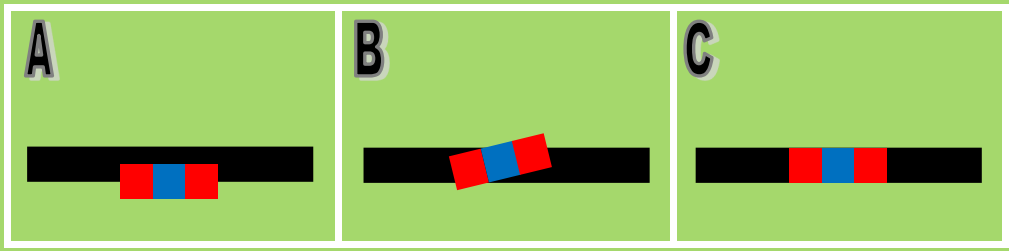
Ozobot Fact Card

In order for Ozobot to read a specific color sequence on the line, it must be placed exactly on the black line. The sequence cannot be crooked, or Ozobot cannot read the code and execute the command.
Which one of these color sequence codes will Ozobot be able to read?



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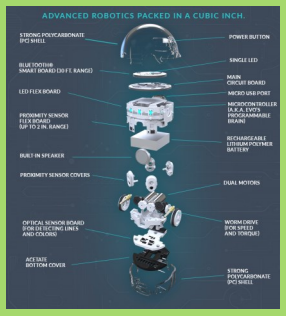
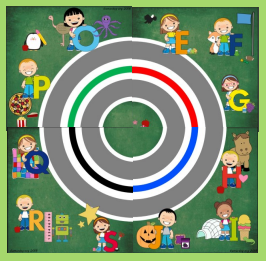
Ozobot Fact Card





Underneath, Ozobot has 5 light sensors. These 'eyes' helps the mini robot to see where the white and where the colored parts are, allowing it to know where the line is. The middle sensor is larger and detects the colors red, blue, and green.

How many letters on the Alphabet track are…?

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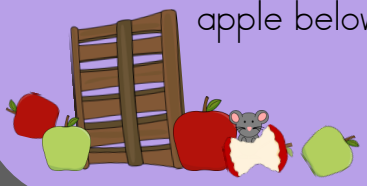
Ozobot Search-n-Find

Help! The teacher's basket with all of their apples tipped over! Can you help the teachers **find 10 apples** on the Alphabet track before mouse finishes his apple below?



Ozobot Search-n-Find

Tim is ready for school. Jasper needs help getting ready. He has misplaced these 5 school supplies. Can you help Jasper find them?

1. 

2. 

3. 

4. 

5. 

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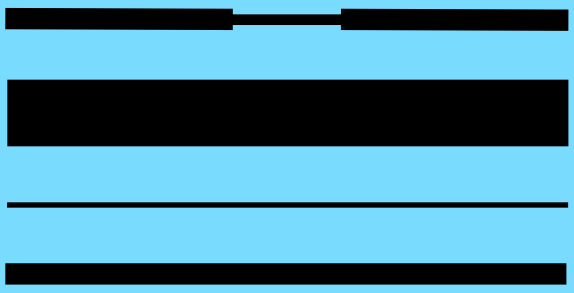
Ozobot Math Card

Ozobot confidently glides along a solid thick black line. The line cannot be too thick, too thin, or inconsistent in width.

Which of these black lines would Ozobot like the best?



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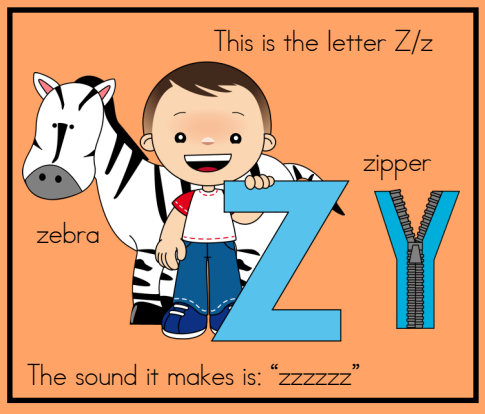
Ozobot Language Card



Can you help Ozobot name all 26 letters of the alphabet?

Can you mimic the sound each letter makes?

Each letter has at least one object nearby which starts with that sound. How many can you identify and name?

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Ozobot Language Worksheet

Aa Bb Cc Dd Ee

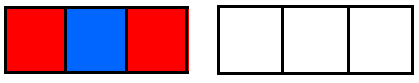
Ff Gg Hh Ii Jj Kk

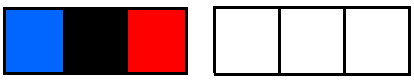
Ll Mm Nn Oo Pp

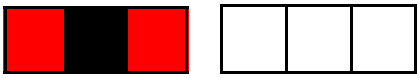
Qq Rr Ss Tt Uu

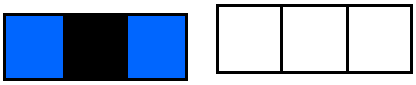
Vv Ww Xx Yy Zz

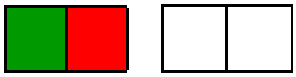
Ozobot has a color code language. Can you color the robot's language codes?

Pause 

Straight 

Slow 

Fast 

End 

Ozobot Math Worksheet

0 1 2 3 4 5 6

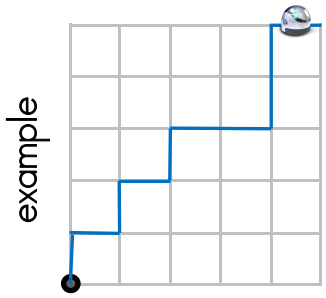
7 8 9 10 11 12

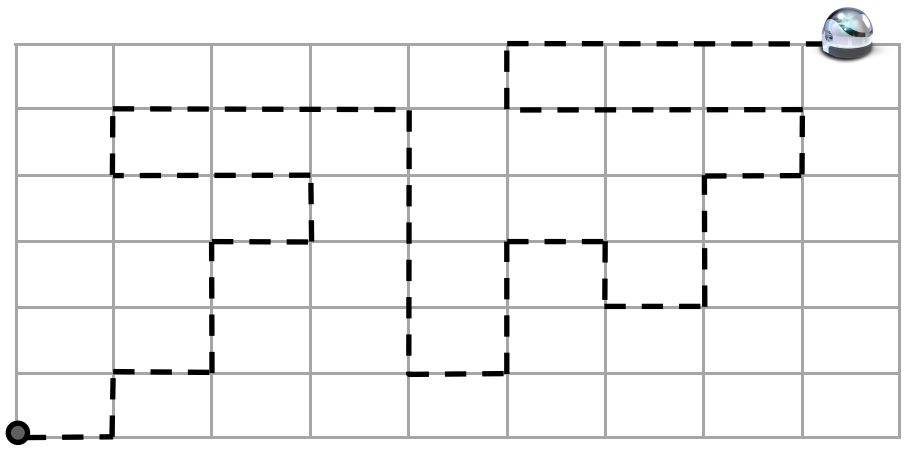
13 14 15 16 17

18 19 20

When mapping a route for Ozobot to follow, remember the robot travels easiest on straight lines, curves, and 90 degree angles.

Can you trace the path of right angles Ozobot has made?





Common Core Standards

Computer Science:

- 1A-A-5-2: Pair programming—construct a program to accomplish a task both individually and collaboratively.
- 1A-A-5-5: Decompose (break down) a larger problem into smaller sub-problems individually or with guidance.
- 1A-A-3-8: Analyze and de-bug (fix) an algorithm without a computing device.
- 1A-C-7-10: Use appropriate terminology in naming and describing common computing devices and components.
- 1A-D-4-14: Create a model of an object or process in order to identify patterns and essential elements.

Math Standards:

- KCCA1: Know number names and the count sequence.
- KCCB4: Count to tell the number of objects.
- KMDA1: Describe and compare measureable attributes.
- KMDB3: Classify objects and count the number of objects in each category.
- CCSS.MP1: Make sense of problems and persevere in solving them.
- CCSS.MP5: Use appropriate tools strategically.
- CCSS.MP7: Look for and make use of structure.

Language Standards:

- RFK1: Recognize and name all uppercase letters of the alphabet.
- RFK3: Demonstrate basic knowledge of one-to-one letter sound correspondence by producing the primary sound for each letter.
- SLK6: Presentation of knowledge and ideas.
- Comprehension and collaboration—participate in conversations with diverse partners.

Thank You and Credits

A huge thank you to every teacher who strives to make the world a better place for each of us to live in. Classrooms can do without a lot of things, but not a teacher. Thank you for showing up each day and giving your best to those around you! It is noticed and appreciated.

It is my hope that ®***Ozobot sequences the ALPHABET*** will help prepare little learners for their future STEM challenges, opening the doors of computer science, robotics, and coding. Our goal is to create activities that will support early exploration of coding and computer concepts, provide practice to help build new skills, deepen understanding, and strengthen confidence as delightful explorers and excellent programmers!

A big thank you to Ozobot for their commitment to creativity and coding!

These activities and games would not be possible without the graphics, used with permission from Ozobot, MyCuteGraphics, DeviantArt, and Chapulines Collection. Thank you to Nathaniel A. for assisting with tech questions and design. Ozobot's amazing teacher costume was designed by Marcela Ferioli. Thank you for joining our chain of loyal customers. If you have any questions regarding this product, feel free to contact me.

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