

DAY 1

NEW ZOO EXHIBIT



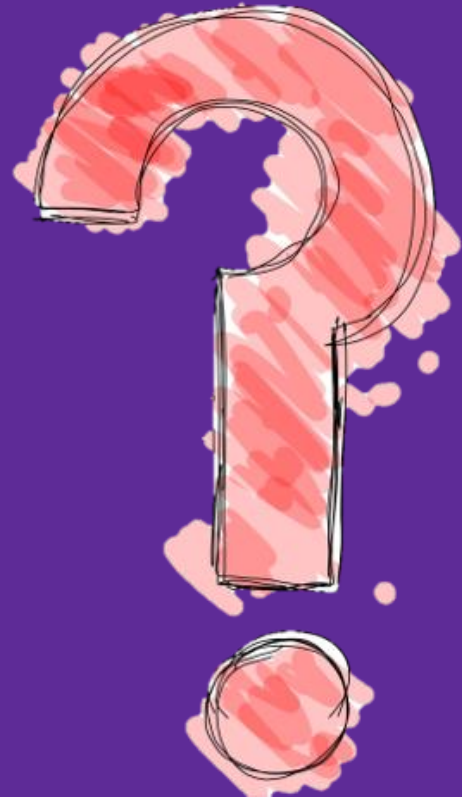
COMING SOON:
Ladybug Habitat

ASK

What is the problem?

How have others approached it?

What are your constraints?





Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?



What do
you need
to know?

DAY 1

Movement to describe prey interactions



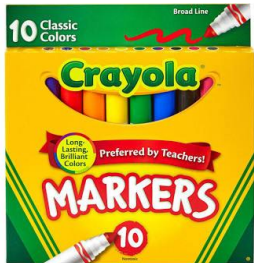
Movement to describe predator interaction



Materials



Ozobots



Ozobot Markers



Ozobot Code Sheet

3-dimensional building supplies



Constraints

Must include:

____ A path for the Ozobot to travel

____ Interaction with ladybug prey

Code used:

____ Interaction with a ladybug predator

Code used:

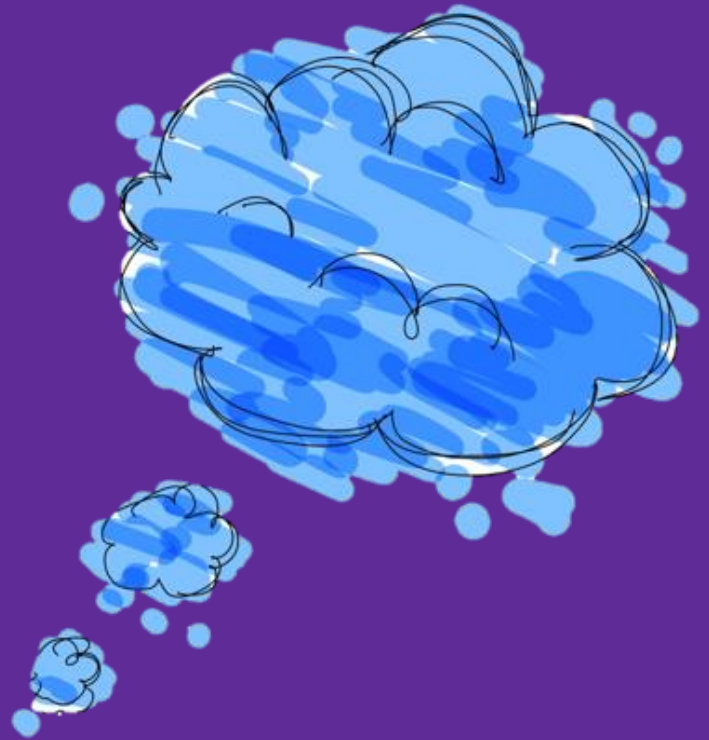
____ Shelter or protection

____ Finish that it gets to every time

____ Use of 3-D shapes to create the Ozobot's habitat

IMAGINE

What are some solutions?
Brainstorm ideas.
Choose the best one.



What do I see my Ozo-bug habitat looking like?



Must include:

1. A path for the Ozo-bug to travel
2. Interaction with ladybug prey
3. Interaction with a ladybug predator
4. Shelter or protection
5. Finish that it gets to every time
6. Use of objects to create the Ozo"bug"s habitat

Name: _____

Ozo-bug Habitat

Driving Question: How can you, as a bird, build the best nest for your babies?

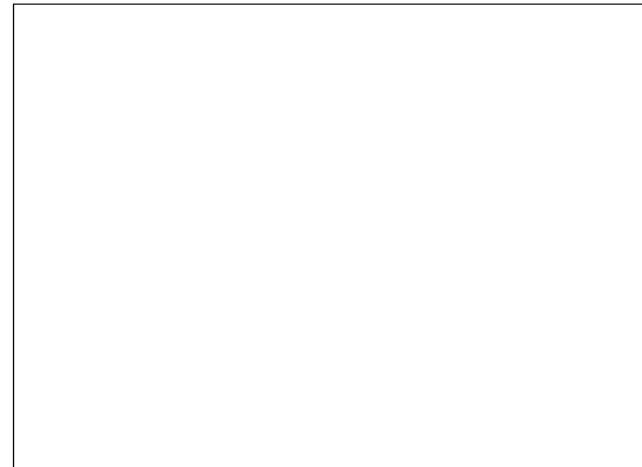
Constraints:

Must include the following:

1. A path for the Ozobot to travel
2. Interaction with ladybug prey
3. Interaction with ladybug predator
4. Shelter
5. A finish that the ozobot arrives at every time

IMAGINE

Directions: Draw a basic sketch of your ozo-bot habitat in the space below. Be sure to think about all of the above constraints as you imagine your solution.



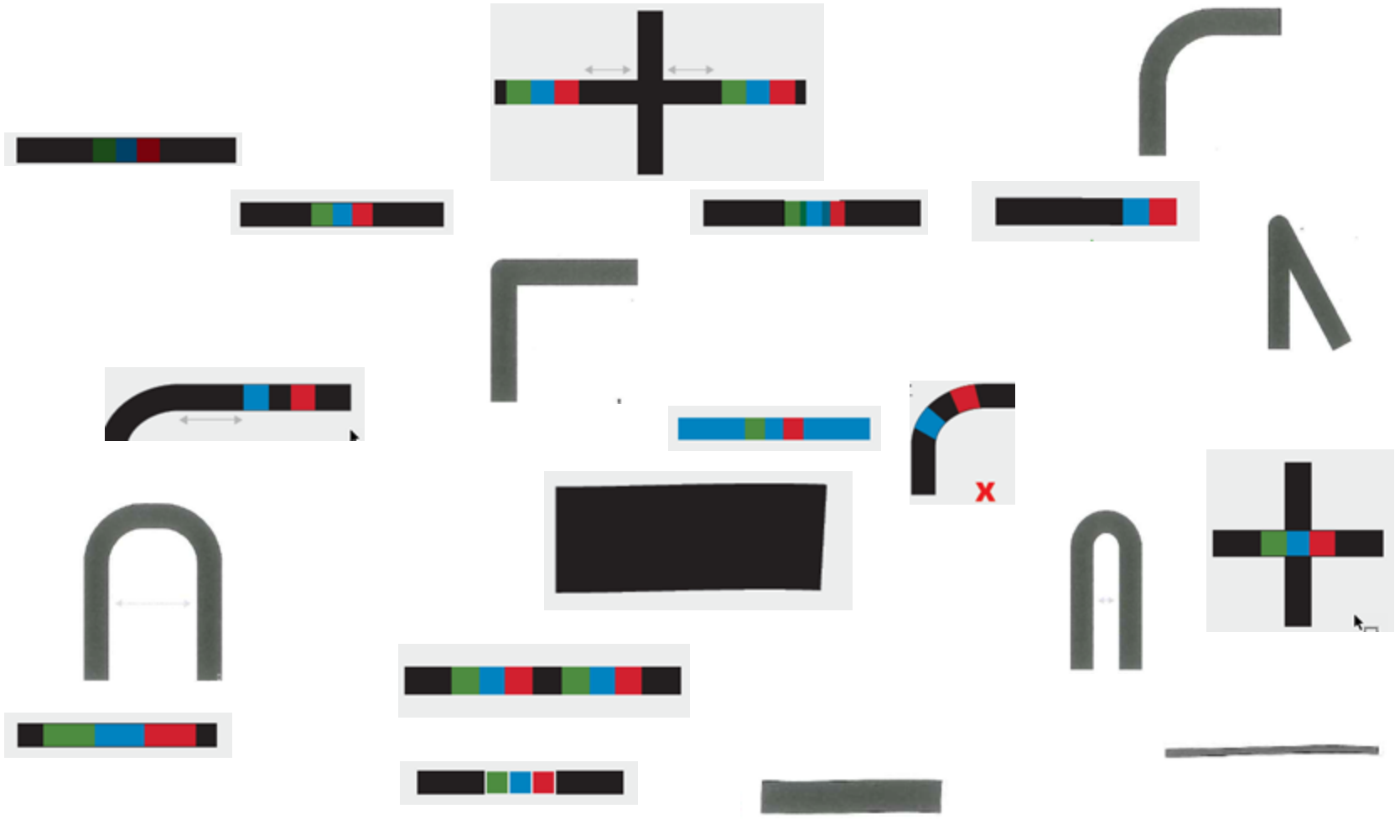


Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?

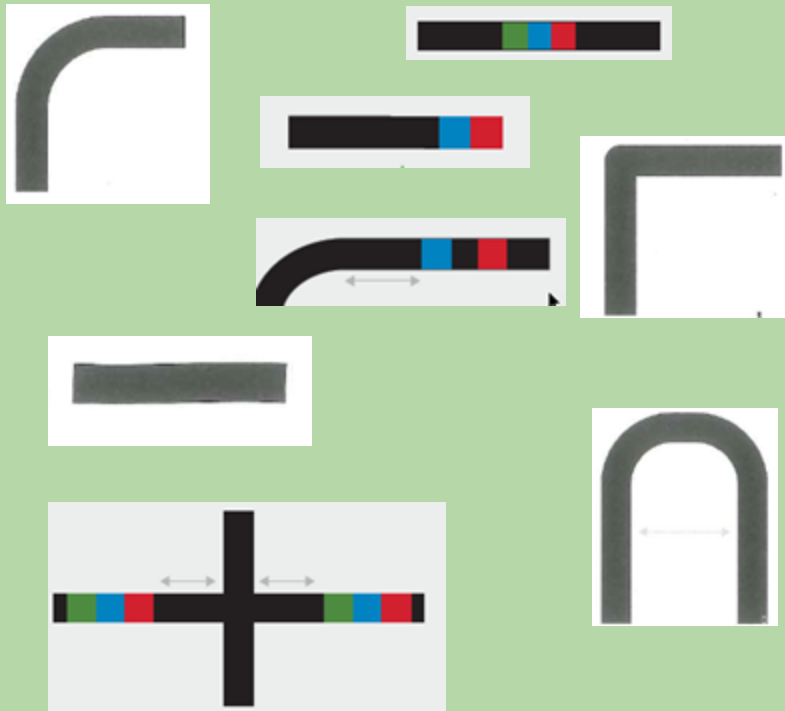
Coding so an Ozobot can Read...

Directions: Cut out the lines and codes below. Then work with your group to sort them into two groups: Will work and will not work.

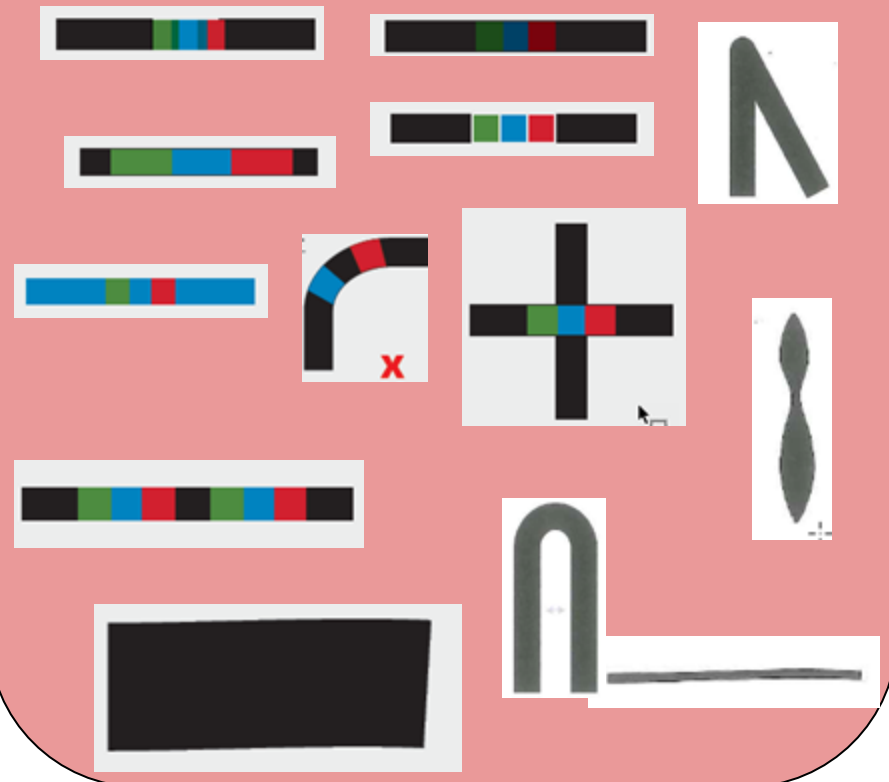


Answer Key: Ozobot Coding

Will Work



Will Not Work





Color code reference charts
Ozobots



SPEED

SNAIL PACE	SLOW	CRUISE
FAST	TURBO	NITRO BOOST

DIRECTION

GO LEFT	GO STRAIGHT	GO RIGHT
LINE JUMP LEFT	LINE JUMP STRAIGHT	LINE JUMP RIGHT
U TURN	U TURN (LINE END)	

TIMERS

TIMER ON (30 SEC. TO STOP)	TIMER OFF	PAUSE (3 SEC.)

COOL MOVES

TORNADO	ZIGZAG	SPIN	BACKWALK

WIN/EXITS

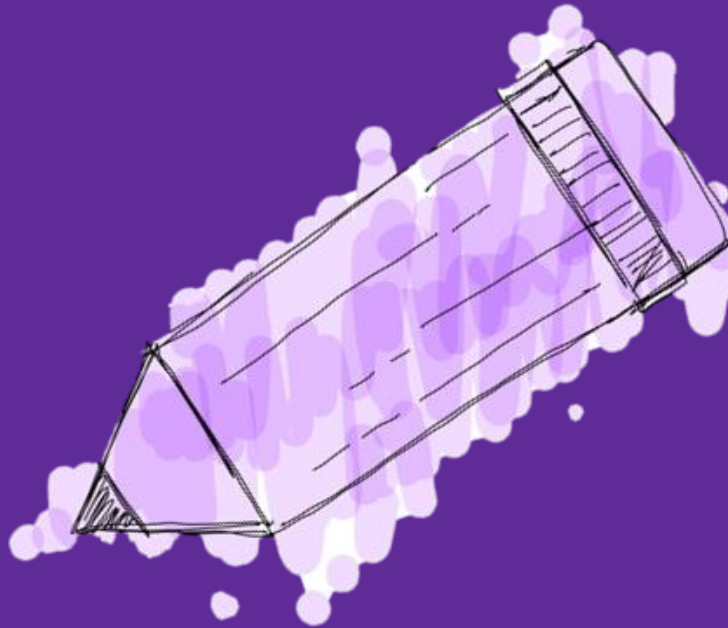
	WIN/EXIT PLAY AGAIN
	WIN/EXIT GAME OVER

COUNTERS
FIVE DOWN TO STOP

	ENABLE X-ING COUNTER
	ENABLE TURN COUNTER
	ENABLE PATH COLOR COUNTER
	ENABLE POINT COUNTER
	POINT +1
	POINT -1

PLAN

Draw a diagram.
Make a list of materials
you will need.



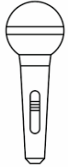
Sharing your ideas.

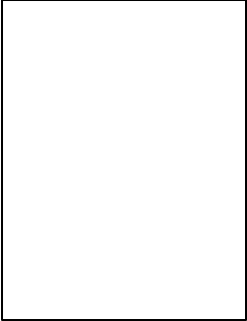
A shares.

B listens.

B shares.

A listens.





Name: _____

Ozo-bug Habitat

Driving Question: How can you, as a bird, build the best nest for your babies?

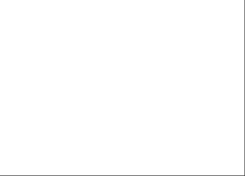
Constraints:

Must include the following:

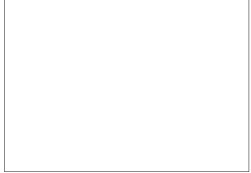
1. A path for the Ozo-bug to travel
2. Interaction with building prey
3. Interaction with building predator
4. Shelter
5. A place that the ozo-bug arrives at every time

IMAGINE

Directions: Draw a basic sketch of your ozo-bug habitat in the space below. Be sure to think about all of the above constraints as you imagine your solution.







Name: _____

Ozo-bug Habitat

Driving Question: How can you, as a bird, build the best nest for your babies?

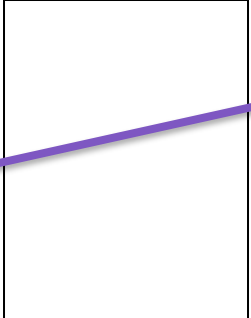
Constraints:

Must include the following:

1. A path for the Ozo-bug to travel
2. Interaction with building prey
3. Interaction with building predator
4. Shelter
5. A place that the ozo-bug arrives at every time

IMAGINE

Directions: Draw a basic sketch of your ozo-bug habitat in the space below. Be sure to think about all of the above constraints as you imagine your solution.



How to Pick an IDEA

Pick <u>one</u> idea.  	Take a <u>part</u> from each. 	Decide on a <u>new</u> idea. 
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Still stuck?



ROCK PAPER SCISSORS

Group Members _____

PLAN

1. Take turns sharing your habitat ideas.
2. As a group **decide** on a final plan.
3. Use the space below as to create a draft. Label constraints and code locations along the ozo-bug path.



4. Take the above plan to your teacher for approval.

Teacher Approval: _____

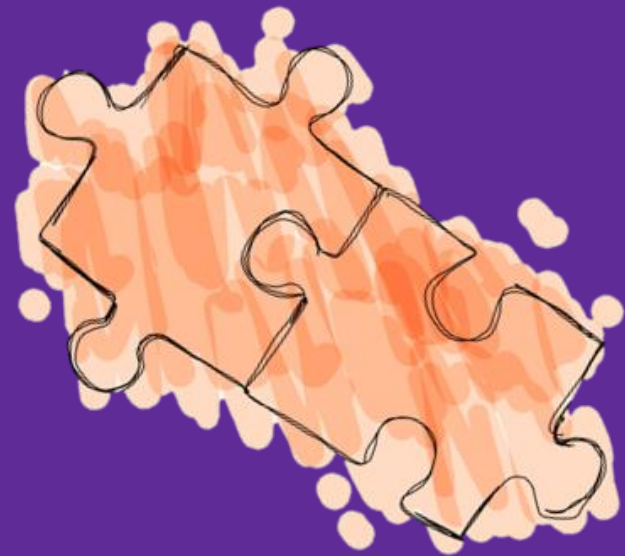


Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?

CREATE & TEST

Create and build a prototype.
Test and evaluate.



Measure it out...

Where in your design are you going to need to use **MEASUREMENT**?



Measure it out... practice

- 1. Find 4 items in the classroom.
- 2. Write the name of your object
- 3. Draw a sketch.
- 4. Measure its length to the nearest 1/2 inch.
- 5. Record your measurement.



Name: _____

Measurement Ticket

Find 4 objects around the classroom.
Using the space below: Draw a sketch, write the name of the object and then measure that object to the nearest 1/2 inch and record the measurement.

Object Measurement	Object Sketch
Object Name: _____ Measurement: _____ inches	
Object Name: _____ Measurement: _____ inches	
Object Name: _____ Measurement: _____ inches	
Object Name: _____ Measurement: _____ inches	



CREATING A PATH



1. Gather your final Ozo-bug habitat paper and rulers.
 2. With a pencil transfer your above plan to paper. Use a ruler to measure important features of your design. Be sure to make your plan take up the larger space of the paper.
 3. Label locations of all codes as well as the following features:
 - Interaction with prey.
 - Interaction with predator.
 - Shelter.
 - Start and finish of ozo-bug path.
 4. Add ozobot codes to path using an Ozobot Code Sheet.
 5. Fill in your 5mm black lines.
 6. Test with an Ozobot and rewrite code where needed.
 7. Get approval from teacher.
- Teacher Approval.
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Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?

CREATING an Ozo-bug Skin



What adaptations can you make the the Ozobot to make it resemble an Ozo-bug?

Create a 1 inch wrap around the outside of the Ozobot.

Attach your ozo-bug adaptations to that strip.

Be sure to keep the wheels clear.

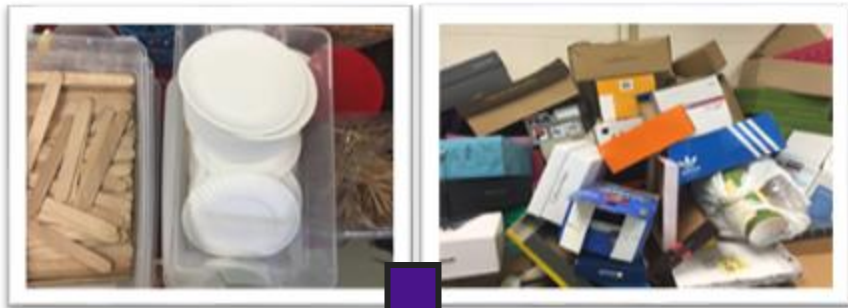
Head	Thorax
Wing	Wing case
Legs	Antenna
Abdomen	



Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?

BRINGING your habitat to LIFE



What materials can you use to create 3-dimensional models of components of a lady bug's habitat?

- shelter
- prey
- predators
- plant life
- other living creatures

Material ideas:

- boxes
- cardboard
- clay
- legos



Driving Question

Can you as a zoologist,
design a ladybug habitat for
a new exhibit?

Testing your Habitat

Must include:

___ A path for the Ozobot to travel

___ Interaction with ladybug prey

Code used:

___ Interaction with a ladybug predator

Code used:

___ Shelter or protection

___ Finish that it gets to every time

___ Use of 3-D shapes to create the Ozo-bug's
habitat

Each group will run their Ozo-bug through their habitat.

Other groups: : Leave feedback for groups on a sticky note. Make sure feedback is information to help them grow:

I like how...

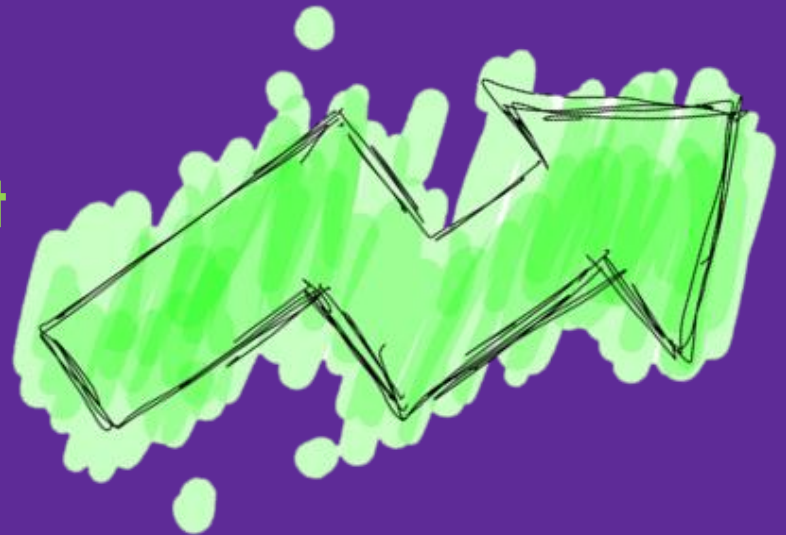
It was interesting that you...

One suggestion I have would be...

IMPROVE

What works? What doesn't?
Modify your design to make it better.

Repeat this step.



TEST and IMPROVE

Did your ozobug go from start to finish? Yes No

Did you include a shelter for your ozo-bog? Yes No

Did your ozobot interact with both predators and prey using two separate codes? Yes No

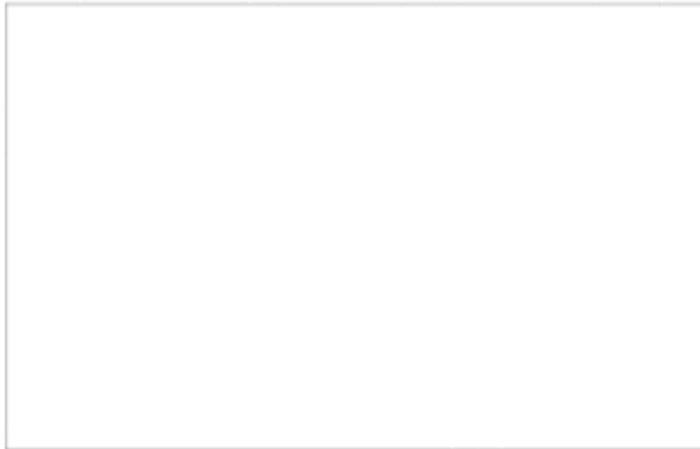
Did you add 3-dimensional features to bring your habitat to life? ?

Yes No

One thing that went well during our test is _____

A change we will make is _____

Draw a sketch of your improved design.




Reflect on your habitat.... room to grow!