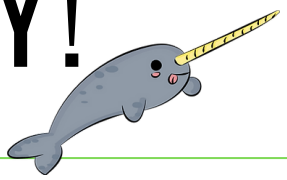
CODE YOUR DECOY!



Grades 4-8

LEARN HOW TO CODE YOUR DECOY!

Students will learn how to code their robot, then begin making a decoy housing for their robot

GUTEN TAG!

10 min

STORY & SNACK

20 min

SPORTS/GAMES

30 min

Materials:

- Water Balls
- Water source to refill water balls
- Cones

Guten Tag is German for hello!

Greet your students. Be friendly. Use their name, ask a question, give a high five, or thumbs-up! Take roll. Mark down which students took a snack and tally how many snacks were given out.

Read the story:

Today's story is called Are You a Fish? Read the story to your students outside as they sit in a circle.

Back-to-Back Water Relay

Pairs will race to make it to the finish line without dropping their water balls.

Instructions- Set cones out to mark the start and finish line. Pair every player with a partner. To play the game, have each pair line up at the starting line. Give each pair a water ball. They will then face back-to-back and hold the water ball in between their backs by linking their arms together. When the instructor says “Go!” the players will race to the finish line! Whoever can make it to the finish line without dropping their water ball will make it to the next round. Players will continue to race until only one pair remains. This pair will be the winners!

STEM TIME

50 min

Materials:

- Cardstock paper
- Scissors
- Glue
- Tape

Learn How to Code Your Robot!

Say- "Today you will learn how to code your robot, and teach it to follow commands commands. Then we will start making a housing for our robots! This housing will act as a protection to your robot from the ice and snow, and it will act as a decoy. In the Arctic researchers use decoy robots to get closer to the animals and environment they are studying. This allows them to do their research in a way that will not disturb the wildlife. This also allows them to continue gathering information when they cannot be there in person."

Explain:

Have students code their robots, then have the students create a housing for their robots using cardstock paper. They are welcome to be as creative as possible when creating their housing.

Before beginning the activity share these videos with your students:

https://www.youtube.com/watch?v=-CoApUAZFf8&t=65s

https://www.youtube.com/watch?v=2_xZEWu2puE

Instructions for Housing:

1. Provide students with the materials to make their robot housing
2. Encourage them to be creative!

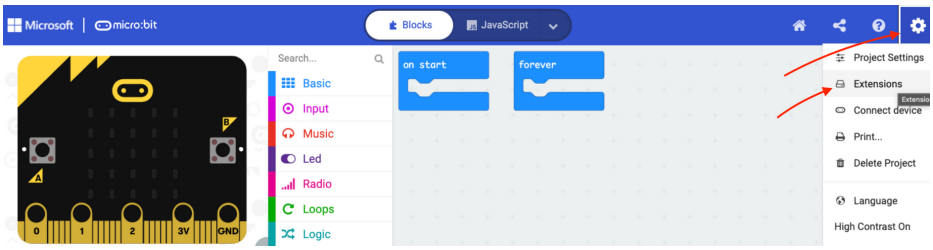
Instructions for Programming:

1. Go to https://www.stemtaught.com
2. Click on Students then on the drop box click on STEMTaught programming.
3. Enter Password: yay
4. Scroll down and click on New Project under My Pet micro:bit
5. Then you'll hit New Project again.
6. Give your Robot a name!
7. On the next page you'll click the gear icon in the upper right hand corner then scroll down and click the word extensions.
8. Type in the search bar https://github.com/YahboomTechnology/Tiny-bitLib. A box should show up underneath it saying Tiny bit Extensions for Yahboom Tiny:bit V2.0.2 , click on this.
9. Now they are ready to be creative and program their Go Bot!

STEM TIME

continued...

Go Bot



Let's Code

1. Remember you can keep the micro:bit plugged inside your Go Bot the whole time!
2. Helpful hint: Its best to start out easy! Try to do only one command first. When they are able to get their robot to follow that one command then challenge the students to see how many other commands they can get their robot to follow. One of challenges we can encourage them to do is to get their robot to move forward! Let's see who can do this first!
3. When they think they have their first command ready have them plug in the USB cord to their micro:bit and click the download button on the bottom left side of the screen.
4. When the download is complete you'll take the folder that you just created and drag it down to the word Micro;bit which is on he bottom left side of the screen.
5. They should see a red or yellow light flash on the micro:bit showing them that their program is transferring. When the red or yellow light stops flashing they can unplug their micro:bit and try out the program.
6. If the program does not work that is okay. Just plug the micro:bit back in and go back to make:code and keep trying new things.
7. If the Students are stumped and frustrated let them know its okay! Its good for them to have a challenge and to reach out to other fellow engineers who might be further along for help! We encourage them to work together as a team to figure things out!

Ask:

"What kind of housing are you making for your robot?" "Have you been able to code your robot?"

NATURE JOURNALING

15 min

Say - "Today we got to code your robots! Write a journal entry about your experience."

CLEAN UP/ FREE PLAY

Clean up/Free play/Dismissal

Allow your students some free time. Some students may wish to finish working on their STEM project. Others may want to journal or scrapbook about their day. Other students may want to go outside to play. Clean up, pack up.