

Crab – Lesson Plan #3

***Call attendance and fill out attendance sheet!**

1. Assemble middle leg (10 mins)

- Disassemble middle leg, and file it.
- Hand each student a servo circle and 2 bug screws.
- Screw the bug screws from one side.
- Place a hinge on the other side
- Notice! The hinge's sticking out part should face outward.

2. Assemble the servos (15 mins)

- Hand students the front servos, one at a time.
- Also hand them 2 servo screws and 2 regular locknuts for each servo.
- After students finish with the front servos, hand them the third servo with the correct screws.
- Notice the servos' directions

3. Assemble legs – back part (15 mins)

- Disassemble and file the circles.
- Use 7 circles for each leg.
- Hand each student a 30 screw (the long screw), insert one circle, the leg and then the other 6 circles.
- Insert the screw to the back hole of the crab's body and lock it with a nylock locknut (not too tight).
- Do the same thing with the other pair of legs.
- Then, place the leg's front part to the servo and lock with a small bug screw (NOT a driller screw!!!)
- Assemble the bottom leg as well.

4. Explain mission and battle strategy (10 mins)

- Explain to students that during our programming lesson we will set up an arena and place our crabs inside of it. The crabs will walk toward each other.
- The first crab that will walk out of the arena loses!!
- We will hold a tournament until we get to the students with the most wins. Our winner will receive a prize (instructor – talk to your superior to receive prizes)

5. Collect and check parts (5 mins)

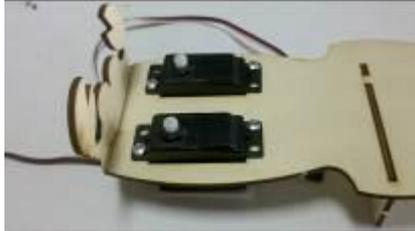
- Call students name alphabetically, and put each student's name on his/her plate.
- Put each student's model back in his/her plastic bag.

Time in minutes	Activity name	Comments
10	Assemble middle leg	
15	Assemble servos	Notice servos' directions
15	Assemble legs – back part	Notice number of circles in each leg as well as the circle on the leg
10	Explain mission and battle strategy	See attached file, robot programming
5	Collect and check parts	Each student's bag must have a name
Total: 60 mins		



Screw locknut to middle leg:

First screw 2 bug screws into the wood
Then place the hinge on the other side
Notice that the sticking out part is facing outward!



Connect servos:

Notice servos directions



Connect servos:

Assemble the bottom servo – notice the direction of assembly



File the circles:

Each leg has 7 circles
Use a 30 screw, insert one circle and insert it all to the empty hole in the back leg (without the round hinge)



Assemble back part – leg

Insert 6 more circles
Insert the screw into the body's back hole
Lock with a nylock locknut (not too tight)



Finish legs assembly:

Assemble 2 back legs
Then assemble the bottom (middle) leg
Strengthen connection with a small bug screw



Finish crab assembly

Place hinges in their place, and strengthen with a bug screw
Notice directions of servos and hinges