Tufts University | School of Engineering
Center for Engineering Education and Outreach

LEGO education

Ball Launcher

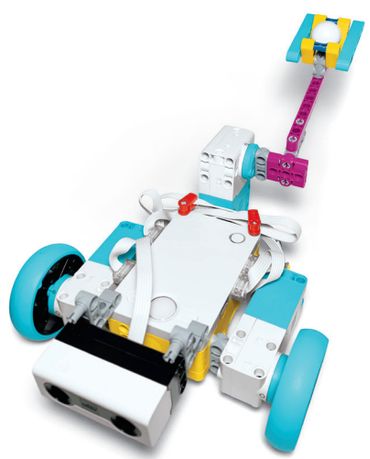
Design a machine to throw a small plastic ball as accurately as possible.

Think Like an Engineer:
How can you tweak your original design to get the ball in the same spot each time?

Think Like an Athlete:
How can you mimic a human arm throwing a ball by using arc and leverage?

Example Ideas

How will your robot know when to launch? Will it be activated by a button, the distance to an object or a color?



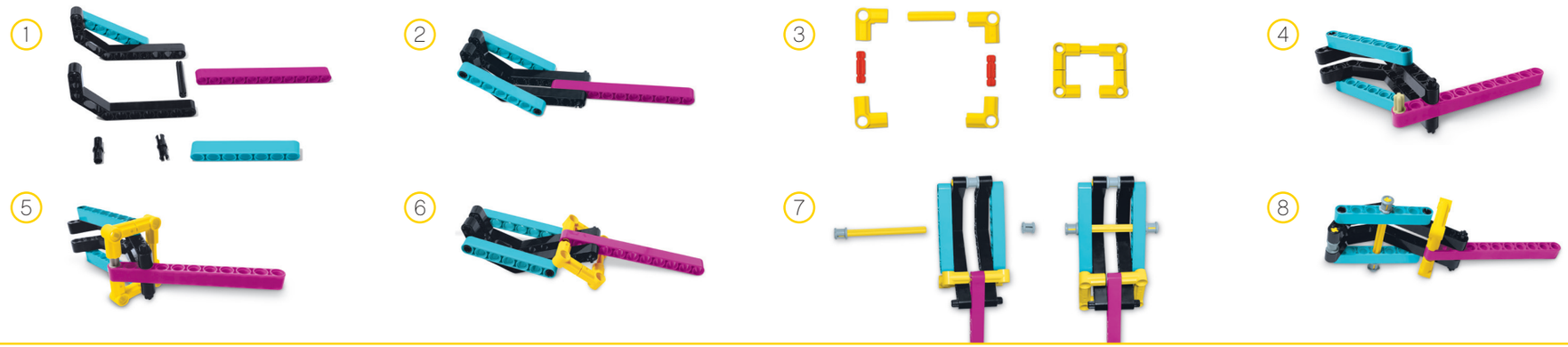
●● Intermediate Building Focused Innovative Creations

Flip over for more details!

Made in collaboration with Tufts Center for Engineering Education and Outreach http://ceeo.tufts.edu

Build It!

Here is an example of a build that simulates the wrist of the human arm with a joint that is constrained to move close to 90 degrees.



Code It!

```
#Tell the user what to do
hub.light_matrix.write('Press Button')

#Launch the catapult
if start_button_is_pressed():
    hub.light_matrix.show_image('Target')
    motor.run_for_rotations(1)
```

Think About It:
It's always important that your user interface work just as well as your robot. How can you make your robot user-friendly?

Challenge Yourself!
Can you make a robot that adjusts to three different accuracy tests by pressing different buttons?